Students' self-regulated listening during a transition period in an English-medium university in China

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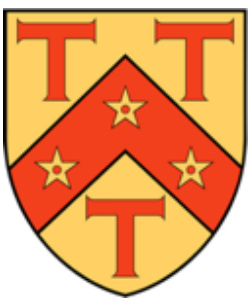

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Abstract

English-medium-instruction (EMI) has become an established phenomenon worldwide against the backdrop of the internationalisation of higher education (HE). However, given the combination of new academic subject knowledge and an unfamiliar instructional language, listening in the context of EMI HE classes is especially challenging for students who come from secondary schools with subjects instructed in their mother tongue. As such, students might need to become strong independent learners to strategically regulate their listening to survive and thrive amid the challenges. This doctoral research therefore focuses on this critical period of transition when students first enter an English-medium university. The study explores the longitudinal development of the listening difficulties perceived by first-year students, and their strategic self-regulatory listening during the first semester at an EMI transnational university in mainland China.

The aim of the study is three-fold: *first*, to examine listening difficulties perceived by students in the context of EMI at the beginning, and during the semester; *second*, to explore students' self-regulated listening both in and out of EMI classes; *third*, to investigate the role of key learner-related variables (i.e., Baseline English listening proficiency (BELP), self-efficacy in listening to EMI classes, and motivation in learning EMI courses) within listening difficulties and the strategic self-regulatory processes of listening.

This study adopts a fully longitudinal mixed methods design, collecting data via a questionnaire battery survey and semi-structured interviews at the beginning (Week 2 and 3), midterm (Week 8 and 9), and the end (Week 13 and 14) of the first semester to capture the trajectory of students' listening experience over time. A total of 316 first-year undergraduate students majoring in Business, Humanities and Social sciences completed the survey at all three time points. A sub-cohort of 35 students were sampled from the survey participants for the interviews, balancing across three BELP levels (high, medium, low), all of whom (except for one drop-out) were interviewed at all three time points during the semester.

Regarding the *first research aim*, the findings identify a variety of listening difficulties that students encountered in EMI classes upon arrival, corresponding to the cognitive processes outlined in listening models. Students' perceptions of the difficulties changed over time, and discrepancies existed among BELP groups regarding the changes. For the *second research aim*, results suggest that students engaged in strategic and self-regulated learning (SRL) both for listening in EMI classes and for listening practice out of class at the term start. These processes seemed to be interrelated and cyclical, cohering to Zimmerman and Moylan's (2009) social cognitive SRL model. Longitudinally during the term, it was found that the students developed a top-down listening approach with increasing focus on content learning, and improved their strategic competence in listening. Students also became more selective in multiple SRL processes after the midterm 'watershed' moment. Finally, for the *third research aim*, BELP was associated with listening difficulties, whereas motivation (i.e., intrinsic goal orientation and task value) seemed important for self-regulated listening. Self-efficacy significantly predicted and reciprocally interacted with both constructs.

The study offers various pedagogical implications for EMI practice. Its contribution to research is three-fold: to bring in a longitudinal lens to EMI challenge-related research, to diversify self-regulation research with a social cognitive SRL model, and to factor in learner variables for precise investigation of learning experience during EMI transition.

Table of Contents

Acknowledgements ..... **i**

Abstract ..... **ii**

List of abbreviations ..... **vii**

List of Tables ..... **viii**

List of Figures ..... **x**

List of Appendices ..... **xi**

Chapter 1 Introduction **1**

1.1 Background to the study 1

1.2 Aims of the study 4

1.3 Outline of the thesis 6

Chapter 2 Literature Review **11**

2.1 Chapter introduction 11

2.2 Listening in EMI HE classrooms 11

2.2.1 Listening difficulties in EMI HE classes 11

2.2.2 Listening during the EMI transition period 17

2.3 Re-examining L2 listening problems in language learning contexts 22

2.3.1 Theoretical models of listening 23

2.3.2 Research on L2 listening difficulties 28

2.4 Self-regulation in EMI and educational psychology 30

2.4.1 Autonomous and strategic learning in EMI HE 30

2.4.2 Self-regulation in educational psychology 34

2.5 Self-regulation in L2 research 41

2.5.1 The synergy of learner strategy and self-regulation research 41

2.5.2 Self-regulation in L2 research 45

2.5.3 Self-regulation research focusing on L2 listening 48

2.5.4 Listening strategy research related to self-regulation 51

2.6 Chapter summary 59

2.7 Conceptual framework of the study 61

Chapter 3 Methodology **63**

3.1 Chapter introduction 63

3.2 Research aim and questions 63

3.3 Philosophical underpinnings 64

3.4 A mixed methods longitudinal research design 66
3.5 Data collection 69
3.5.1 Settings 69
3.5.2 Participants 71
3.5.3 Instrumentation 79
3.5.4 Procedures of data collection 96
3.6 Data analysis 99
3.6.1 Analysis of quantitative data 99
3.6.2 Analysis of qualitative data 102
3.7 Methodological limitations 107
3.8 Ethical considerations 110
3.9 Chapter summary 111
Chapter 4 Results: Perceived listening difficulties in EMI classes at the start of the first semester 113
4.1 Chapter introduction 113
4.2 Describing the perceived listening difficulties 114
4.2.1 Descriptive statistics of perceived listening difficulties 114
4.2.2 Findings from semi-structured interviews 117
4.2.3 Summary of qualitative findings of the perceived listening difficulties at the start of the first semester 131
4.3 The role of baseline English listening proficiency, self-efficacy and motivation in relation to perceived listening difficulties upon arrival 133
4.3.1 Results of hierarchical multiple regression 133
4.3.2 Findings from semi-structured interviews 137
4.3.3 Summary of qualitative findings on the role of baseline English listening proficiency and self-efficacy in perceived listening difficulties at the start of the semester 145
4.4 Chapter summary 146
Chapter 5 Results: Longitudinal development of perceived listening difficulties in EMI classes during the first semester 148
5.1 Chapter introduction 148
5.2 Longitudinal development of perceived listening difficulties 149
5.2.1 General longitudinal trend of perceived listening difficulties 150
5.2.2 Longitudinal development of perceived listening difficulties with regard to baseline English listening proficiency 155
5.3 The role of self-efficacy and motivation in perceived listening difficulties over time 174
5.3.1 Longitudinal development of self-efficacy and motivation 174
5.3.2 The role of self-efficacy and motivation in perceived listening difficulties at different time points during the first semester 178

5.4 Chapter summary 186

Chapter 6 Results: Self-regulated listening at the start of the first semester 189

6.1 Chapter introduction 189

6.2 Listening strategies in EMI classes 190

6.3 SRL in relation to listening in EMI classes 191

6.3.1 Forethought phase 193

6.3.2 Performance phase 195

6.3.3 Self-reflection phase 202

6.3.4 Summary of qualitative findings on SRL in relation to listening in EMI classes at the start of the first semester 205

6.4 SRL for out-of-class listening practice 206

6.4.1 Forethought phase 207

6.4.2 Performance phase 209

6.4.3 Self-reflection phase 214

6.4.4 Summary of qualitative findings on SRL for out-of-class listening practice at the start of the first semester 216

6.5 The role of baseline English listening proficiency, self-efficacy and motivation in SRL in relation to listening in EMI classes 217

6.5.1 Results of simultaneous multiple regression 217

6.5.2 Findings from semi-structure interviews 221

6.5.3 Summary of qualitative findings on the role of baseline English listening proficiency, self-efficacy, and motivation in SRL in relation to listening in EMI classes at the start of the semester 230

6.6 Chapter summary 231

Chapter 7 Results: Longitudinal development of self-regulated listening during the first semester 234

7.1 Chapter introduction 234

7.2 Longitudinal development of listening strategies in EMI classes 235

7.3 Longitudinal development of SRL in relation to listening in EMI classes 240

7.3.1 Forethought phase 243

7.3.2 Performance phase 245

7.3.3 Self-reflection phase 252

7.3.4 Summary of qualitative findings of the longitudinal development of SRL in relation to listening in EMI classes during the first semester 257

7.4 Longitudinal development of SRL for out-of-class listening practice 258

7.4.1 Forethought phase 261

7.4.2 Performance phase 263

7.4.3 Self-reflection phase 269

7.4.4 Summary of qualitative findings of the longitudinal development of SRL for out-of-class listening practice during the first semester 273
7.5 Chapter summary 274
Chapter 8 Discussion 277
8.1 Chapter introduction 277
8.2 Transitional listening challenges in EMI HE contexts 277
8.2.1 Examining EMI listening: Towards a process-oriented approach 277
8.2.2 The preparedness of prior education for HE EMI listening 281
8.2.3 A longitudinal dynamic perspective of EMI listening challenges 283
8.3 Transition period as a 'cradle' for strategic and self-regulated listening 288
8.3.1 Towards a holistic model of self-regulated listening 288
8.3.2 Towards becoming more strategic and sustainable listeners 291
8.4 Learner-related variables in EMI listening during transition 298
8.4.1 Baseline English listening proficiency 298
8.4.2 Self-efficacy in listening to EMI classes 300
8.4.3 Goal orientation and task value in learning EMI courses 302
8.5 Chapter summary 304
Chapter 9 Conclusion 306
9.1 Summary of the study 306
9.1.1 Review of research aims and methodology 306
9.1.2 Summary of major findings 308
9.2 Theoretical contributions of the study 311
9.3 Practical and pedagogical implications 314
9.4 Limitations of the study and recommendations for future research 316
References 321
Appendix A Appendices for Chapter 3 340
Appendix B Appendices for Chapter 4 364
Appendix C Appendices for Chapter 5 366
Appendix D Appendices for Chapter 6 374
Appendix E Appendices for Chapter 7 381

List of abbreviations

EMI: English medium instruction

HE: Higher education

L2: Second language

L1: First language

MOI: Medium of instruction

TNHE: Transnational higher education

CMI: Chinese medium instruction

BELP: Baseline English listening proficiency

T1: Time point 1

T2: Time point 2

T3: Time point 3

EFL: English as a foreign language

EAP: English for academic purposes

ESP: English for specific purposes

SRL: Self-regulated learning

MSLQ: Motivated Strategies for Learning Questionnaire

SILL: Strategy Inventory for Language Learning

SRCvoc: Self-Regulating Capacity in Vocabulary Learning scale

S^2R model: Strategic Self-Regulation model

MALQ: Metacognitive Awareness Listening Questionnaire

OOPT: Oxford Online Placement Test

LP: Low proficiency

MP: Medium proficiency

HP: High proficiency

H&S: Humanities and Social Sciences

CEFR: Common European Framework of Reference for Languages

PCA: Principal component analysis

EFA: Exploratory factor analysis

RM ANOVA: Repeated measures ANOVA

RM MANOVA: Repeated measures MANOVA

List of Tables

Chapter 2

Table 2. 1. Listening in secondary EFL classes vs. in university EMI classes 20

Chapter 3

Table 3. 1. Measurements for key constructs of the study 68
Table 3. 2. Demographic traits of questionnaire battery participants at T1, T2 and T3..... 74
Table 3. 3. Pearson Chi-Square test for the remaining and missing participants for questionnaire battery 75
Table 3. 4. Descriptive statistics of OOPT listening scores by BELP group 76
Table 3. 5. Demographic traits of interview participants 78
Table 3. 6. OOPT scores mapped to CEFR levels 80
Table 3. 7. Summary of constructs measured by the questionnaire battery 82
Table 3. 8. Component loadings and Cronbach's α for the questionnaire 'Perceived listening difficulties in EMI classes' 84
Table 3. 9. Factor loadings and Cronbach's α for the questionnaire 'Metacognitive awareness of listening strategies'..... 87
Table 3. 10. Factor loadings and Cronbach's α for the questionnaire 'Deep processing listening strategies' 91
Table 3. 11. Factor loadings and Cronbach's α for the questionnaire 'Motivation in learning EMI courses' 92
Table 3. 12. Component loadings and Cronbach's α for the questionnaire 'Self-efficacy in listening to EMI classes' 93
Table 3. 13. An overview of questions for semi-structured interviews..... 95

Chapter 4

Table 4. 1. Descriptive statistics for perceived listening difficulties in EMI classes at T1... 114
Table 4. 2. Categories and themes of perceived listening difficulties in EMI classes at T1 . 118
Table 4. 3. Dummy coded demographic variables for hierarchical multiple regression..... 134
Table 4. 4. Descriptive statistics for BELP, self-efficacy and motivation at T1 134
Table 4. 5. Hierarchical multiple regression of learner-related variables on perceived listening difficulties in EMI classes at T1 (Model 1 vs. Model 2)..... 135
Table 4. 6. Hierarchical multiple regression of learner-related variables on perceived listening difficulties in EMI classes at T1 (Model 2 vs. Model 3)..... 136
Table 4. 7. Categories and themes of perceived listening difficulties by BELP group at T1 137

Chapter 5

Table 5. 1. Descriptive statistics for perceived listening difficulties at T1, T2 and T3..... 150
Table 5. 2. Estimation of significant effect of time on perceived listening difficulties 151
Table 5. 3. Item-based paired sample t-tests of perceived listening difficulties between T1 and T2, and between T2 and T3 154
Table 5. 4. Estimation of significant interaction effect of time and BELP on perceived listening difficulties 155
Table 5. 5. Categories and themes of perceived listening difficulties by BELP group at T1, T2 and T3 158
Table 5. 6. Descriptive statistics for self-efficacy and motivation at T1, T2 and T3 175
Table 5. 7. Mauchly's test for sphericity for RM ANOVA..... 175
Table 5. 8. Main effect of time on self-efficacy and motivational variables..... 176
Table 5. 9. Pairwise comparisons between time points for self-efficacy and extrinsic goal orientation..... 176
Table 5. 10. Simultaneous multiple regression of self-efficacy and motivation on perceived listening difficulties at T1, T2 and T3 180

Chapter 6

Table 6. 1. Descriptive statistics for reported use of listening strategies at T1 190
Table 6. 2. Categories and themes of SRL in relation to listening in EMI classes at T1 192
Table 6. 3. Categories and themes of SRL for out-of-class listening practice at T1 207
Table 6. 4. Materials and methods for out-of-class listening practice at T1 210
Table 6. 5. Simultaneous multiple regression of BELP, self-efficacy and motivation on the metacognitive awareness of listening strategies at T1..... 219
Table 6. 6. Simultaneous multiple regression of BELP, self-efficacy and motivation on the deep processing listening strategies at T1 220

Chapter 7

Table 7. 1. Descriptive statistics for reported use of listening strategies at T1, T2 and T3 .. 236
Table 7. 2. One-way RM MANOVA for the effect of time on the metacognitive awareness of listening strategies and the deep processing listening strategies as two collective sets 237
Table 7. 3. Univariate RM ANOVA for the main effect of time for each listening strategy 237
Table 7. 4. Pairwise comparisons of reported listening strategies between time points 238
Table 7. 5. Categories and themes for SRL in relation to listening in EMI classes at T1, T2 and T3 241
Table 7. 6. Categories and themes for SRL for out-of-class listening practice at T1, T2 and T3 259
Table 7. 7. Materials and methods for out-of-class listening practice at T1, T2 and T3..... 265

List of Figures

Chapter 2

Figure 2. 1. A three-phase cyclical social cognitive model of SRL (Zimmerman & Moylan, 2009, p. 300) 37

Figure 2. 2. Conceptual framework of the study 62

Chapter 3

Figure 3. 1. A fully longitudinal mixed methods design (adapted from Plano Clark et al., 2015, p. 308) 69

Figure 3. 2. Overview of the procedures of data collection 97

Chapter 4

Figure 4. 1. Stacked bar graph for perceived listening difficulties in EMI classes at T1 116

Chapter 5

Figure 5. 1. Line graph of the means of perceived listening difficulties at T1, T2 and T3 ... 150

Figure 5. 2. Example of rate of change in perceived listening difficulties for three prototypical students 156

Figure 5. 3. Profile plot of estimated marginal means for self-efficacy at T1, T2 and T3 176

Figure 5. 4. Profile plot of estimated marginal means for intrinsic and extrinsic goal orientations and task value at T1, T2 and T3 176

Chapter 6

Figure 6. 1. Boxplots of reported use of listening strategies at T1 191

Chapter 7

Figure 7. 1. Profile plot for estimated marginal means of reported listening strategies at T1, T2 and T3 239

List of Appendices

Appendix A Appendices for Chapter 3

Appendix 3. 1. English version of the questionnaire battery 340

Appendix 3. 2. Chinese version of the questionnaire battery 343

Appendix 3. 3. Details of changes for the adapted questionnaires 347

Appendix 3. 4. Scree plots of the factor analysis for questionnaires 350

Appendix 3. 5. English version of the interview protocol 352

Appendix 3. 6. Chinese version of the interview protocol 354

Appendix 3. 7. Codebook for the interview data from NVivo (coding framework) 356

Appendix 3. 8. Sample translation of the interview excerpt 358

Appendix 3. 9. Electronic consent form for the online questionnaire battery survey 359

Appendix 3. 10. Information sheet of the study 360

Appendix 3. 11. Paper consent form for the interviews 363

Appendix B Appendices for Chapter 4

Appendix 4. 1. Assumptions for hierarchical multiple regression in Chapter 4 (Section 4.3.1) 364

Appendix C Appendices for Chapter 5

Appendix 5. 1. Assumptions for multilevel modelling in Chapter 5 (Section 5.2) 366

Appendix 5. 2. Assumptions for paired sample t-tests in Chapter 5 (Section 5.2.1) 368

Appendix 5. 3. Assumptions for simultaneous multiple regression in Chapter 5 (Section 5.3.2.1) 370

Appendix D Appendices for Chapter 6

Appendix 6. 1. Assumptions for simultaneous multiple regression in Chapter 6 (Section 6.5.1) 374

Appendix E Appendices for Chapter 7

Appendix 7. 1. Assumptions for RM MANOVA in Chapter 7 (Section 7.2) 381

Chapter 1 Introduction

1.1 Background to the study

Against the backdrop of globalisation, universities worldwide have raced to launch programmes that use English, which has been widely recognised as a *lingua franca* globally, to teach academic subjects (Dearden, 2015; Walkinshaw et al., 2017; Wächter & Maiworm, 2008, 2014). This galloping growth of English medium instruction (EMI) programmes is accompanied by warnings revolving around issues of learning quality (e.g., Dafouz et al., 2013; Hellekjaer, 2010; Hu & Duan, 2018; Hu et al., 2014). Listening, as an important channel for intaking new knowledge in EMI classes within Higher Education (HE) institutions, has been reported to be an arduous task which is often held accountable for shallow processing of content knowledge across different EMI HE contexts (Ding & Stapleton, 2016 in Hong Kong; Hellekjær, 2010 in Germany and Sweden; Hua, 2020 in Taiwan; Kim and Yoon, 2018 in Korea; Kırkgöz, 2005 in Turkey). Given that the nature of listening is transient, ephemeral and uncontrollable (Vandergrift & Baker, 2018), the demand on this skill might be especially stringent in EMI HE classes where students are not simply coping with an unfamiliar second language (L2), but are also comprehending, digesting and absorbing disciplinary knowledge at the same time.

Listening in EMI classes might seem particularly challenging when students first arrive at an English-taught tertiary education context, especially for students who transit from a secondary school which used their first language (L1) as medium of instruction (MOI). These students have been reported to struggle against the massive amount of new vocabulary involved in EMI lectures and multiple attentional issues (Aizawa & Rose, 2020; Ding & Stapleton, 2016; Evans & Morrison, 2011, 2016; Lin & Morrison, 2010). More recently, a

burgeoning thread of research has also started to investigate the strategic and autonomous learning of students in response to such challenges (e.g., Ding & Stapleton, 2016; Evans & Morrison, 2011; Macaro et al., 2019; Soruç & Griffiths, 2018). However, research in this regard is still in its infancy, and although it has been indicated that students might regulate their learning in EMI settings through strategic behaviours and persistence, no studies have examined this issue through the lens of self-regulation. Guided by the call from Macaro et al. (2018) to focus on the critical transition period as well as the aforementioned gap in EMI literature, this doctoral research examines the difficulties perceived by Chinese first-year students in listening to EMI classes. It also explores students' self-regulated listening during their first semester of arriving at an EMI transnational university in mainland China. This first semester, as has been reported in EMI transition-year literature (Ding & Stapleton, 2016; Evans & Morrison, 2011), is often reflective of the most radical changes in learning.

In the Asia Pacific region, the growth of EMI has witnessed rapid expansion (Fenton-Smith et al., 2017; Galloway et al., 2017; Rose et al., 2019), and become a "new norm" in HE institutions in recent years (Walkinshaw et al., 2017, p. 2). Likewise, the past two decades have witnessed an exponential growth of EMI provision in Chinese tertiary education (Hu, 2019), which has resulted from an accelerated internationalisation agenda at many HE institutions in China (Beckett & Li, 2012; Hu et al., 2014; Tong & Shi, 2012). EMI in mainland China has traditionally been researched with reference to 'bilingual education' (see Tong et al., 2020), which first gained momentum as a response to the nation's entry into the World Trade Organisation to cultivate a globalised English-proficient workforce (Beckett & Li, 2012). Since then, EMI has enjoyed strong policy support (see Ministry of Education, 2001, 2007, 2010), and has expanded rapidly in the nation's tertiary education—by 2006, 132 out of 136 universities surveyed had offered EMI courses (Wu et al., 2010).

In the most recent decade (2010-2020), EMI policies in China seem to have developed in favour of a full-English model, which is parallel to the nation's intention to attract inbound international students in addition to cultivating globally competitive home students (Zhang, 2018). This trend has been noted in a recent study by Rose et al. (2019), which, based on a policy analysis of 93 EMI-related documents from 63 universities in China, revealed a shift in policy away from bilingual models of EMI (where some Chinese use is mandated in the curriculum) towards English-only programmes. An important form of these English-only provisions is transnational higher education (TNHE), also commonly known as 中外合作办学 (*zhong wai he zuo ban xue*) (De Costa et al., 2020). The TNHE in China refers to higher educational services in China jointly run by Chinese and foreign institutions which are offered mainly to Chinese students (State Council, 2003). Since in transnational universities, English has usually been regulated and implemented as a dominant language for instruction (Perrin, 2017), it sets more stringent requirements for local students in terms of their English competence and skills. However, as Hu et al. (2014) note, students coming from a Chinese-medium-instruction (CMI) educational background particularly struggle in tasks such as comprehending EMI lectures, presumably due to a lack of focus on listening training in high school. Therefore, by focusing on the listening experience of CMI students in an EMI TNHE context, the present study will offer insight into one of the most pressing transitional issues of students within a form of EMI offering that is expanding in China (McKinley et al., 2021; Ou & Gu, 2018), and globally (Phan, 2018).

Extant EMI research on listening-related difficulties has predominantly adopted a cross-sectional design (e.g., Airey & Linder, 2006; Evans & Morrison, 2016; Hellekjaer, 2010; Hu et al., 2014; Hua, 2020; Kim & Yoon, 2018; Kırkgöz, 2005). There has been a dearth of research that explores the longitudinal development of students' perceptions and attitudes

towards these difficulties over time, an issue also noted by Macaro et al. (2018) in a recent review. Further, the MOI of prior secondary education has been found to distinguish students in their perceived learning difficulties in EMI transitional period (Aizawa & Rose, 2020; Evans & Morrison, 2016). However, these studies have not controlled for the baseline English proficiency of students when entering EMI programmes, hence making it questionable whether it was the English proficiency that *de facto* led to the observed differences. Moreover, as Ding and Stapleton (2016) have pointed out, "university students are expected to be more autonomous than they were in high school because they are more mature" (p. 22). Therefore, the transition from secondary LI MOI to tertiary EMI might require self-regulatory learning initiated, managed and sustained by learners themselves. Accordingly, individual factors such as self-efficacy and motivation, which are closely related to such self-regulatory processes (see Zimmerman, 2011 for a review), might diversify the trajectory of students' self-regulated and strategic listening during their transition to EMI HE.

1.2 Aims of the study

In an attempt to address the above gaps in research, the present study adopts a fully longitudinal design with mixed methods (Van Ness et al., 2011), collecting both quantitative and qualitative data at the start (Week 2 and 3), the midterm (Week 8 and 9), and the end (Week 13 and 14) of the first semester to track how students adapt their perceptions of difficulties in listening to EMI classes and self-regulate their learning surrounding listening during their very first experiences in an EMI TNHE context. In particular, the role of students' *baseline English listening proficiency (BELP)* upon arrival, their perceived *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* (i.e., intrinsic and extrinsic goal orientation, and task value) are explored with regard to learners' listening

experience during this first semester. Specifically, the study aims to answer the following research questions:

1) What listening difficulties do students experience in EMI classes upon entering an EMI transnational university?
   a. What are the listening difficulties perceived by students in EMI classes at the start of the first semester?
   b. What is the role of *baseline English listening proficiency*, *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* in relation to the listening difficulties at the start of the semester?

2) Are there changes in the listening difficulties perceived by students during their first semester of study at an EMI transnational university?
   a. What is the general trend of development of listening difficulties over time?
   b. Do students with different *baseline English listening proficiency* experience changes in listening difficulties differently? If so, how?
   c. What is the role of *self-efficacy* and *motivation* in listening difficulties over time?

3) How do students self-regulate their listening upon arrival at an EMI transnational university?
   a. What strategies do students reportedly use when listening to EMI classes at the start of the first semester?
   b. How do students reportedly self-regulate learning in relation to listening in EMI classes?
   c. How do students reportedly self-regulate learning out of class for listening practice?
   d. What is the role of *baseline English listening proficiency*, *self-efficacy*, and *motivation* in self-regulated learning in relation to listening in EMI classes?

4) Are there changes in the self-regulated listening reported by students during their first semester of study at an EMI transnational university?
   a. Are there changes in the strategies that students reportedly use when listening to EMI classes during the semester? If so, what are the changes?
   b. Are there changes in how students reportedly self-regulate learning in relation to listening in EMI classes during the semester? If so, what are the changes?

c. Are there changes in how students reportedly self-regulate their learning out of class for listening practice during the semester? If so, what are the changes?

1.3 Outline of the thesis

This thesis includes nine chapters in total and the rest of the thesis is organised in the following way. **Chapter 2** presents the literature review that discusses the theoretical perspectives and empirical evidence to demonstrate the need for the current study. Section 2.2 of the chapter begins with a review of studies on listening-related challenges in EMI HE and then narrows down to discuss how a focus on the EMI transition period provides new implications for researching this topic. As such, it argues for a need to complement current EMI research with a *process-oriented* approach to delineate listening problems with regard to diverse cognitive stages in listening to offer an in-depth and detailed understanding on this issue. Accordingly, Section 2.3 delves into the classical theoretical models in listening (Anderson, 1995; Field, 2009) to understand how acoustic information is processed at specific cognitive stages of listening, especially when listeners are not totally familiar with the language. It also brings in literature on L2 listening difficulties for further illustration. Section 2.4 then moves on to recent studies regarding the self-initiated and regulated learning of students in EMI HE. Subsequently it traces back to research in educational psychology, where the construct of self-regulated learning (SRL) has been investigated for a longer history, and presents Zimmerman and Moylan's (2009) social cognitive SRL model as a framework for conceptualising self-regulated listening in this study. In arguing for a synergy between L2 research in learner strategy and self-regulation, Section 2.5 critically evaluates the extant evidence in these two areas to inform the design of this study. The chapter concludes with a conceptual framework based on a synthesis of the relevant literature, which guides the design of research methods in Chapter 3.

Chapter 3 describes the research design of the study and provides details about data collection and analysis. The chapter begins with an outline of the research aims and questions, followed by a discussion on the mixed methods longitudinal design of the study. This is followed by a detailed account of the settings and sampling of the study. Since attrition is an inevitable issue in longitudinal studies, this section also explains how this challenge has been considered and handled, while providing a full picture on both the remaining and missing sample. The research instruments are then introduced, and the questionnaires used in this study are examined for reliability using Cronbach's α and factor analysis. After that, the procedures for data collection are outlined. In particular, the chapter describes how the collection of quantitative and qualitative data informs each other recursively through three time points of data collection to allow for a 'strong' form of triangulation for research findings (Flick et al., 2012). Finally, the chapter discusses the analysis of quantitative and qualitative data respectively to address the research questions, and concludes with the methodological limitations and ethical considerations associated with the study.

Chapters 4-7 report on the findings of the study. **Chapter 4** combines quantitative and qualitative findings collected at Time point 1 (T1, Week 2 and 3), to respond to the first research question on students' perceived listening difficulties in EMI classes upon arrival at the transnational university. The chapter begins with descriptive statistics on listening difficulties, followed by a thematic content analysis of interview data to present findings on a taxonomy of the difficulties. References to the influence of prior secondary education are also analysed in relation to each category of listening difficulties to unpack its role during the transition. The chapter then moves to present findings from a hierarchical multiple regression to explore the role of students' BELP, *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* on their perceived listening difficulties, while controlling for

demographic variables. Interview data are subsequently analysed to explicate the interplay between these variables and students' perception of listening difficulties in depth.

Following the investigation of perceived listening difficulties at the beginning of the term, **Chapter 5** then proceeds to unravel the longitudinal development of these difficulties to address the second research question, drawing on a mixture of questionnaire data and interview data collected across three time points in the semester (T1, Week 2 and 3; T2, Week 8 and 9; T3, Week 13 and 14). This chapter is divided into two parts: First, results from multilevel modelling analysis are outlined to investigate whether students' perceived listening difficulties change over time, and if students with distinct BELP demonstrate different rates of change. These findings are complemented with results from paired sample t-tests on the individual difficulty items, as well as a qualitative description of the trajectories of perceived listening difficulties as per each BELP group (i.e., high, medium, and low BELP). Next, the chapter reports on the development pattern of students' self-efficacy and motivation longitudinally via one-way repeated measures ANOVA. It then describes findings from a series of simultaneous multiple regression, at each time point respectively, to examine whether these variables remain predictive of students' perceived listening difficulties consistently. Representative excerpts from interview data are presented to allow for a situated understanding of the interplay between these variables and listening difficulties over time.

In the face of the perceived listening difficulties reported in Chapter 4 and 5, **Chapter 6** sets out to explore the strategic and self-regulatory processes of listening employed by students when they first arrive at the EMI university (T1, Week 2 and 3) to answer the third research question. The chapter first outlines the strategies reportedly adopted by students in listening to EMI classes, using descriptive statistics of the questionnaire data. Then the chapter draws on a qualitative analysis of the interview data, providing a detailed picture on how students

self-regulate their learning both in relation to listening in EMI classes, and out of class for listening practice. Finally, the chapter reports on the results from simultaneous multiple regression analyses to explore the relationship between the learner-related variables (i.e., BELP, self-efficacy, and motivation) and the reported use of EMI listening strategies, while seeking qualitative explanations into how these variables play into various SRL processes related to listening in EMI classes.

Chapter 7 addresses the last research question on the longitudinal development of students' self-regulated listening during the first semester (T1, Week 2 and 3; T2, Week 8 and 9; T3, Week 13 and 14). The chapter begins with the quantitative results from one-way repeated measures MANOVA and ANOVA to examine whether students' reported use of listening strategies in EMI classes, both collectively and individually, varies significantly over time. This is complemented with descriptive statistics to showcase the longitudinal trend of development for each strategy. After that, the qualitative analysis of interview data provides a detailed picture of how students adapt their self-regulatory processes of learning in relation to listening to EMI classes, as well as for managing listening practice in their spare time during the first semester.

Findings of the present study are discussed in **Chapter 8**, which situates the results in relation to existing literature and empirical evidence. The discussion begins by considering the EMI transitional challenges related to listening. The chapter then moves to discuss how strategic and self-regulatory listening develops within such a challenging transition period. Finally, learner-related factors examined in this study (i.e., BELP, self-efficacy, goal orientation, and task value) are discussed regarding their role in EMI listening during the transition period.

Finally, the thesis concludes with **Chapter 9**, which summarises the findings of the study, discusses its theoretical and methodological contributions to EMI and L2 research, as well as its pedagogical implications for EMI HE practice. The chapter also considers the limitations of this doctoral study and offers suggestions for future research.

Chapter 2 Literature Review

2.1 Chapter introduction

This chapter reviews the theoretical perspectives and empirical studies that informed the conceptualisation and design of the present study. The purpose of this chapter is to situate the study in relation to extant literature on EMI listening and self-regulation in L2 research. Section 2.2 will review studies on listening challenges in EMI higher education (HE), and discuss these challenges in relation to the transition year experience. Section 2.3 will then examine the theoretical models of listening and bring in studies on L2 listening difficulties. Section 2.4 will first summarise recent research on self-initiated and regulated learning of students in EMI HE, after which debates and evidence in educational psychology regarding the construct of self-regulated learning (SRL) will be evaluated. The SRL model that guides the present study will also be introduced. Section 2.5 will discuss research on L2 learner strategy in the face of self-regulation, and review empirical studies conducted within the framework of self-regulation in the past two decades. Methodological implications of previous literature on the design of the current study are discussed in each respective section, which concertedly inform the conceptual framework of the study outlined in Section 2.7.

2.2 Listening in EMI HE classrooms

2.2.1 Listening difficulties in EMI HE classes

Listening has long been recognised as a difficult aspect in L2 learning due to its ephemeral nature (Vandergrift, 2007), especially in real-life communication where the input is short-lived and listeners rarely have control over what is delivered (Vandergrift & Baker, 2018). In a university classroom, the challenges of listening have been aggravated by the inclusion of

new and professional disciplinary knowledge on the top of linguistic obstacles. Hence, despite listening being an important channel for intaking new knowledge in HE classrooms, the process has been perceived as exceptionally arduous for students, leading to a proliferation of research globally that documents difficulties and challenges associated with listening in EMI HE classes in the past two decades (Aizawa & Rose, 2020 in Japan; Airey & Linder, 2006 in Sweden; Evans & Morrison, 2016 in Hong Kong; Hellekjaer, 2010 in Germany and Norway; Hu et al., 2014 in mainland China; Hua, 2020 in Taiwan; Kim & Yoon, 2018 in Korea; Kırkgöz, 2005 in Turkey; Tsuneyoshi, 2005 in Japan).

One of the most observable barriers in EMI listening, as discussed widely in the literature (e.g., Aizawa & Rose, 2020; Hellekjær, 2010; Hua, 2020; Tsuneyoshi, 2005), is the rather restrained attentional capacity against spontaneous teacher talk over a long duration of a subject lesson. Under such circumstances, students usually find it difficult to maintain concentration for a lengthy period of time (Aizawa & Rose, 2020; Hua, 2020; Tsuneyoshi, 2005). Using open-ended questionnaires and focus group interviews, Hua (2020) investigated the perceived challenges in listening to lectures of 30 first-year students enrolled in an EMI Psychology course in Taiwan. Participants in the study reflected a need to exert deliberate effort to maintain focus while listening to EMI classes, which easily led to exhaustion and then the loss of attention. The problem was exacerbated when the teacher talked fast and spontaneously with few breaks. Similar problems were also noted in Tsuneyoshi's (2005) study in Japan, where students reported it usual to give up halfway into an EMI lesson. Once they had given up, as the respondents reflected, it was easy to 'get lost' and they could hardly resume understanding again.

Attention problems often run in parallel with issues in the processing of subject knowledge. In Hua's study (2020), the students mentioned that when the subject knowledge was

unfamiliar, using L2 as an instructional language compounded learning difficulties. Because the teacher talk took place in real time, was ephemeral and lengthy, students were stranded between decoding the information just heard and receiving new incoming information. As listening through an L2 was already a demanding task for students, there was hardly additional working memory capacity left to process and digest content knowledge. Similarly, in Ding and Stapleton's (2016) study, students from mainland China, who had just arrived at an EMI university in Hong Kong, claimed to have no time to comprehend the 'deeper meaning' of lectures in class even though they could understand the literary meaning. Concerns in terms of shallow processing of content knowledge seem to be a common theme across different contexts and subject areas: At EMI universities in Germany and Sweden, Hellekjær (2010) reported *following teachers' line of thoughts* a top-rated problem for both German and Swedish students across a variety of disciplines; in Turkey, students claimed that their ability to comprehend both general and detailed concepts was reduced in EMI programmes in Engineering, Economics and Business (Kırkgöz, 2005); and at an EMI Science and Engineering university in Korea, Kim and Yoon (2018) reported that the students found it 'impossible' to engage in in-depth thinking while listening to EMI lectures.

Although attentional issues and the processing of subject knowledge often co-appear and the research conducted insofar seems to indicate a close relationship between the two, these studies have only examined the issue by treating students as a homogeneous group without exploring whether students at distinct English proficiency levels might draw on attentional resources differently to process the subject knowledge. Evidence from L2 listening research has shown that high-proficiency listeners tend to be capable of processing input at a deeper level, and often encounter problems at the stage of *assimilating knowledge to schemata* compared to their low-proficiency peers who stagnate at initial processing such as *segmenting speech* (see Section 2.3 for a detailed discussion of these processes). Hence, it is

probable that listeners at distinct proficiency levels might encounter attentional problems associated with different processes of listening in EMI classes, and accordingly, experience disparities in the depth of digesting subject knowledge.

In addition to attentional problems, another widely reported issue in EMI HE is the rarity and downgraded quality of classroom interaction (Airey & Linder, 2006; Dafouz & García, 2013; Hua, 2020; Jiang et al., 2019; Kim & Yoon, 2018; Tatzl, 2011; Yang et al., 2019). Drawing on discourse analysis of three recorded EMI lectures in Business, Physics and Engineering at universities in Madrid, Dafouz and García (2013) reported that the majority of interactions in these EMI sessions constituted teacher questions of *confirmation checks* (50%) or *self-answered questions* (22%), which required little to no response from the students. Even among the limited amount of *display* and *referential* questions, students either remained silent, or produced extremely limited output such as 'yes', 'no' or a couple of words. This strong reluctance of students to interact with teachers seems to be accompanied by a poor quality of interaction. Hu and Duan (2018), for example, analysed the discourse of 20 recorded lessons delivered by a sample of EMI teachers (n=20) from Engineering, Business and Economics at a university in mainland China. They discovered that an overwhelming majority of teacher questions and student responses were both cognitively and linguistically simple. Students most frequently engaged in low cognitive activities when answering a question (e.g., retrieving particular information from memory), whereas high-level cognitive activities such as applying, analysing, evaluating or creating knowledge were scarce. Both of these studies attest to a fact that interactions in EMI HE classes seem to be impoverished and, to a certain extent, pose doubts on whether students have actually understood content sufficiently. In consideration of these two concerns, the present study primarily focuses on the listening comprehension of students regarding what is delivered in EMI classes instead of

classroom interaction, while recognising that the latter is an important aspect to examine in future research.

Apart from the issues outlined above, some studies have also focused on specific aspects in listening, among which *vocabulary* and *teacher accent* are two prominently researched areas. In terms of vocabulary, a large volume of studies have reported insufficient vocabulary as a major barrier in understanding teacher talk in EMI classes (Aizawa & Rose, 2020; Ding & Stapleton, 2016; Evans & Morrison, 2011, 2016; Hellekjær, 2010; Tatzl, 2011; Uchihara & Harada, 2018). Among these studies, some particularly identified 'subject-specific vocabulary or terms' (Hellekjær, 2010), 'technical terminology' (Tatzl, 2011), or 'specialist vocabulary' (Evans & Morrison, 2011, 2016) as a major impediment to listening. Nation and Hunston (2013) distinguished vocabulary in academic texts into *general vocabulary*, *academic vocabulary*, and *technical vocabulary*. However, it should be noted that boundaries between the three levels of vocabulary in an EMI HE class are not always clear (see Macaro, 2018, 2020). This is especially the case with words that "are not discipline-specific in their form but have a discipline-specific meaning attached to them" (Macaro, 2020, p. 266). For example, the word 'preferences', which is often categorised as *general vocabulary* on the New General Service List (Brezina & Gablasova, 2013), has a very different meaning in Economics or Business subjects from when it is used in daily life. In recognition of this categorisation ambiguity, the present study does not seek to draw a clear distinction between different types of vocabulary in an EMI class. Instead, the study attempts to capture, in students' words, their perceived problems with vocabulary, and more importantly, how these perceptions evolve over time.

Finally, teachers' accent and pronunciation has been highlighted as a recurring issue in studies related to listening in EMI classes (e.g., Aizawa & Rose, 2020; Ding & Stapleton,

2016; Galloway et al, 2017; Hellekjær, 2010; Rose et al., 2019; Tatzl, 2011). In a large-scale survey, Galloway et al. (2017) collected data using student questionnaires (n=579) from 12 universities and staff interviews (n= 28) from 8 universities in Japan and China to investigate their attitudes towards EMI programmes. The results indicated that although teaching staff largely regarded 'native-like' accent as an incidental characteristic for being a qualified EMI teacher, students still favoured 'native-like' pronunciation and believed it as an important criterion for an ideal EMI teacher. Similar attitudes have emerged in other studies (e.g., Aizawa & Rose, 2020; Ding & Stapleton, 2016; Hellekjær, 2010), where students held the accents and pronunciation of non-native teachers accountable for their unsuccessful listening experience in EMI classes. Admittedly, the issue of accent is commonly recognised to affect listening in EMI contexts. However, the cross-sectional nature of these studies can only offer a one-shot description of students' perception of this issue instead of exploring whether the circumstances of listening problems associated with accent change over time. Considering the high hybridity of EMI staffing in non-Anglophone countries, it is possible that students develop a higher tolerance towards diverse accents after some time into their EMI courses.

In summary, this review of previous literature on EMI listening difficulties identifies that restricted attentional capacity, insufficient processing of subject knowledge, lack of classroom interaction, vocabulary knowledge, and teacher accent as widely reported problems. However, the extant studies in this respect have largely adopted a cross-sectional design to explore students' perceptions of difficulties at a certain time point. Without examining the longitudinal development of students' listening, these studies might be limited in their understanding of how students adapt to EMI contexts. Further, extant research has mostly investigated, in rather general terms, the learning difficulties of students without examining whether students at different proficiency levels vary in their listening experience. The present study addresses these limitations by adopting a longitudinal design to explore

how students with different English listening proficiency upon admission develop during a critical transition period, soon after entering an EMI university.

2.2.2 Listening during the EMI transition period

2.2.2.1 Transition from high school to EMI HE

Learning during the transition period from high school to EMI HE can be critical as students are suddenly presented with both linguistic challenges associated with a foreign language and disciplinary knowledge with higher professionalism. As Macaro et al. (2018) note, whether the transition is a gradual progression or an abrupt shock to students may exert long-term impact on learning outcomes. EMI research focusing on the transitional experience has emerged as foci of interest in the past decade (Aizawa & Rose, 2020; Ding & Stapleton, 2016; Evans & Morrision, 2011, 2016; Macaro et al., 2019; Soruç & Griffiths, 2018). Among these studies, the *prior education background* of students has attracted the most scholarly attention. An important study in this area is the longitudinal mixed methods research by Evans and Morrison (2016), comparing students from EMI secondary schools (n=427) with those from Chinese-medium-instruction (CMI) schools (n=337) in terms of their language-related difficulties during their first year at an EMI university in Hong Kong. Questionnaire data revealed that CMI students reported significantly more challenges in all four language skills compared to their EMI peers, corroborated by results from semi-structured interviews (n=23 from EMI schools, n=17 from CMI schools). In terms of listening, stark disparities existed in aspects such as *understanding specialist vocabulary*, *understanding lecturers' accents*, *taking notes*, and *understanding organisation of lectures*. However, interviews at the end of the first year found that these difficulties reduced, owing to students' unremitting practice and peer support. However, the longitudinal data only vaguely described that

students' listening problems "generally diminished" (p. 10) after an academic year, without specifying in what aspects of listening the difficulties seemed to disappear.

Perhaps an even more questionable issue regarding Evans and Morrison's (2016) research pertains to whether disparities identified in students' learning difficulties could be reliably attributed to the MOI in secondary school, or, *de facto*, were due to variations in English proficiency. In arguing for the latter, some studies have provided evidence that students indeed differ in their linguistic knowledge depending on the MOI adopted in prior education. Drawing on a sample of 585 first-year students enrolled in eight faculties at an EMI university in Hong Kong, Lin and Morrison (2010) found that during the transition year, 94.9% of students from EMI secondary schools gained a satisfactory score (i.e., 83% or higher in the test) in the receptive academic vocabulary test using the *Academic Word List* (AWL) (Coxhead, 2000), while only 61% of those from CMI schools achieved the same level of performance. In a similar vein, Aizawa and Rose (2020) used the AWL in a receptive test and the *Universal Word List* (UWL) (Xue & Nation, 1984) in a productive test to measure the academic vocabulary size of 107 first-year students enrolled in a variety of EMI disciplines at a university in Japan. Results showed that only 28.6% of students from Japanese-medium-instruction (JMI) high schools achieved a satisfactory level of productive vocabulary even in their second or third year at an EMI university compared to that of 89.4% of first-year students from schools that had some form of instruction through the medium of English. Additionally, the study also discovered a significant moderate correlation between the academic listening difficulties perceived by students in EMI classes and their receptive vocabulary ($r = .494$, $p < .001$) and productive vocabulary ($r = .490$, $p < .001$) respectively. The study, however, did not consider the confounding variable of English language proficiency in its analysis. That is, perhaps students coming from JMI high schools had lower

levels of English language proficiency, which could account for their greater academic difficulties.

The two studies outlined above raise a possibility that MOI in secondary education influences the English proficiency of students as they embark on learning in an EMI university, which might in turn, give rise to disparities in perceived difficulties. Some studies have shown a positive correlation between content learning and English proficiency at point of entry into university EMI programmes (Yang, 2015), and others have associated success in EMI learning with English test scores such as TOEIC (Rose et al., 2019) and field-specific English scores (Xie & Curle, 2019). In a large-scale quantitative study by Yang and Farley (2019), it was found that Chinese learners (n=676), who had less exposure to English in their prior education and who were presumably less proficient than Malaysian students (n=837) and native Australian students (n=1399), were severely disadvantaged in learning content knowledge in especially 'soft' subjects which involved more conceptually heavy content compared to 'hard' science subjects. These studies all point to the potentially important role of English proficiency in mediating learning in EMI courses, and in particular, the 'soft' subjects where English language might play a more influential role. In addition, most recently, some researchers have started to examine factors such as *motivation* (Lasagabaster, 2016; Rose et al., 2019; Xie & Curle, 2019), *self-efficacy* (Thompson et al., 2019) and *gender* (Macaro & Akincioglu, 2018; McMullen, 2014; Yang, 2015) in EMI settings, alluding to the necessity to take into account of other learner-related variables when examining students' listening experience in EMI classes. Drawing on these implications, the present study samples students enrolled in multiple 'soft' subjects in an EMI transnational university, and explores the role of students' baseline English listening proficiency upon admission, self-efficacy, and motivation in relation to their perceived listening difficulties in EMI classes, while controlling for demographic variables.

2.2.2.2 Transition from EFL to EMI classes

For students coming from L1 MOI secondary schools, English in high school is usually taught as a subject *per se* in EFL classes whereas in university EMI classes, English is used as a medium to convey disciplinary knowledge. The fundamental difference between the two lies in the goal of learning: Learning in EFL classes aims at acquiring linguistic knowledge and competence while that in EMI classes is building disciplinary knowledge, rather than just improving L2 proficiency (Fenton-Smith et al., 2017; Macaro et al., 2018). This distinction in purpose results in a number of differences in terms of listening in a typical EFL classroom in high school compared to listening to EMI classes in university. Table 2.1 summarises the respective features of listening in secondary EFL classes and in university EMI classes from macro-level syllabus to micro-level teaching.

Table 2. 1. Listening in secondary EFL classes vs. in university EMI classes

Aspect	**Listening in secondary EFL classes**	**Listening in university EMI classes**
Syllabus-related		
Main purpose	Acquisition of linguistic knowledge and listening competence	Acquisition of subject knowledge
Topic knowledge	Topic knowledge in listening materials is graded and field-general; topics between lessons are independent	Topic knowledge delivered is in-depth and field-specific; topics between lessons are connected
Linguistic knowledge	New vocabulary or linguistic rules are introduced and learned each lesson	No explicit teaching of linguistic knowledge; language used by the same teacher is recycled across lessons
Pre-listening task	Vocabulary pre-teaching; activating prior knowledge	Topic-specific pre-reading of textbooks, slides, etc.
Listening task	Listening for gist; listening for details	Listening to understand key concepts; taking notes to facilitate learning
Post-listening task	Answering questions to check comprehension	Content knowledge checked through homework or assessment (e.g., exams, essays, project work)
Teaching-related		

Length of listening	Short and repeatable listening passages	Long (at least 50 minutes) and one-shot teacher talk
Visual aid	Audio; video of scenarios with target language use	Slides with tables, figures, key terms, and possibly a lesson outline
Staffing	Fixed teacher; language expert with high linguistic awareness	A variety of teachers; content expert with less linguistic awareness
Speed of delivery	Fixed speed of delivery (unless manually adjusted); stable speed	Varied according to teachers, content intensity, etc.; real-time and unpredictable
Language flexibility	Complete sentences and clauses; pre-determined intonation, pauses, etc.	Contains incomplete sentences or phrases; dynamic in prosodic features (e.g., intonation, stress, rhythm)
Structure of Listening	Following the natural logic of daily conversation	Organised according to the delivery of content knowledge

As noted in the table, a main difference between EFL and EFL classes pertains to the role of topic knowledge. First, compared to an EFL class, topic knowledge in an EMI class usually involves in-depth subject content that is sometimes taught regardless of heterogeneity in listeners' English proficiency in many EMI contexts. As Macaro (2018) notes, topic knowledge in listening materials for EFL classes is usually 'graded' to tailor to the English proficiency of different listeners: Beginner-level listening materials tends to involve common knowledge to activate listeners' meaning inferences based on schemata to handle unfamiliar words/expressions. Whereas for advance listeners, whose low-level processing becomes automatic, topic knowledge may be more specific and based on an understanding that these listeners are capable of processing information from more efficient bottom-up decoding of words and phrases.

Further, the continuity of topic knowledge introduced across lessons in an EMI class differs from that in an EFL class. Unlike EFL classes where topics across lessons are independent from each other, topic knowledge instructed in a series of lessons within the same EMI

module or course usually all centre on a specific field of study, hence establishing a natural link between the subject knowledge conveyed across different lessons. Such an association of topic knowledge may allow students to expand their repertoire of relevant prior knowledge as they progress through the EMI course. Finally, the different learning objectives in EMI classes compared to EFL classes affect the types of listening and post-listening tasks in the two contexts accordingly. As mentioned before, the primary goal of EMI classes is the attainment of subject knowledge instead of building language competence which EFL classes focus on. Therefore, the listening tasks in an EMI classroom may require a deeper level of information processing for comprehending, digesting, and structuring knowledge rather than simply understanding the literal meaning that an EFL class requires. Concomitantly, the post-listening tasks in an EMI context may involve substantial self-study after class, such as organising class notes to form a knowledge structure, or browsing through the lecture slides to compensate for any missing information in class. These tasks differ observably from the typical EFL post-listening tasks such as answering comprehension-related questions.

Given the observable differences between listening in a high school EFL class and that in a university EMI class, it is likely that students might experience a 'learning shock' as soon as they arrive at an EMI HE context. Hence, the study focuses on this critical period of transition, and zoom in to examine the listening experience of students during their very first semester upon arrival at an EMI transnational university. In order to understand the processes and issues of listening through an L2 in depth, the following section reviews research on L2 listening and illustrates how the evidence has informed the design of this study.

2.3 Re-examining L2 listening problems in language learning contexts

Since the turn of the century, research on L2 listening has shifted from a focus on the *product-oriented* approach that analyses listening test scores towards a *process-oriented*

approach (Vandergrift, 2007), which explores the problems and strategies associated with different cognitive processes of listening. To allow for a detailed inspection of processes involved in listening, two theoretical models of listening will be introduced, one developed by Anderson (1995) and the other by Field (2009). These two models are chosen because they are comparable in certain ways (see Fung, 2016), and both models have informed the analysis of data collected on listening difficulties in the present study.

2.3.1 Theoretical models of listening

2.3.1.1 Anderson's (1995) three-stage listening model

Through the lens of an information processing theory, Anderson (1995) proposed three phases for listening comprehension, namely *perceptual processing*, *parsing* and *utilisation*. In the stage of *perceptual processing*, learners attend to acoustic input and segment phonemes from the speech stream. An important yet challenging procedure during this stage is *speech recognition*. Unlike in written passages where letters are independent to each other in a printed form, phonemes in a flow of speech are connected and ephemeral. The phenomenon of *coarticulation* is typical to this feature, where the highly overlapping and interdependent relationship between phonemes can thus make a natural speech difficult to segment.

In the *parsing* phase, words are grouped to form units, and meanings of an utterance are generated from recombing these units to form a mental representation. The meaning making process commences as early as the word level, when listeners try to figure out the meaning of each word as soon as they hear it. According to Anderson (1995), listeners may fixate on a particular word if it is unfamiliar or unpredictable to them. At the same time of extracting meaning at a lexical level, however, listeners are parsing the words in a sentence into what Anderson (1995) called the *constituents*. *Constituents* refer to the phrasal units that a listener

groups the words in a sentence into based on a set of linguistic rules. When listeners reach the end of a constituent as the speech unfolds, they need extra time to wrap up the meaning made from individual words to process the meaning at a constituent level. The eventual task of the *parsing* stage is to recombine these units of meaning to arrive at an overall representation or interpretation of the sentence.

Finally, in the third phase *utilisation,* this mental representation is further completed by forming a set of *prepositions* and to connect it to the listeners' existing schemata and long-term memory. As Anderson (1995) explicated, a *preposition* is an abstract meaning unit, and listeners remember the meaning of a complex sentence as a set of these simple units. The prepositions are attached to the listeners' existing knowledge through various inferences that make the interpretation personally meaningful to the listeners. During this stage, information transfers from short-term memory to long-term memory, and the *depth of processing* impacts on how likely certain information can be remembered.

Anderson's (1995) three-stage model is valuable in unpacking the process from how acoustic information is perceived to how such information is interpreted, represented and retained in long-term memory. However, this model is primarily based on the experience of the listeners native to the language, with little discussion on if and how the listening of L2 learners, especially those with limited proficiency, would be similar or different. Therefore, in what follows, Field's (2009) model of listening will be reviewed, which describes how listeners with limited proficiency handle input in an L2.

2.3.1.2 Field's (2009) two-stage listening model

Field (2009) delineated listening process into two main stages, that is, *decoding* and *meaning building*. *Decoding* is defined as the process that listeners translate the acoustic properties of

the speech into 'the standard forms of language' such as sounds, words and clauses, and then into a literal meaning of the speech. *Meaning building* takes from the literal meaning obtained from *decoding* and relates it to the contextual information that has been uttered. The *decoding* process consists of two main components: first, the decoding of sounds, syllables and words and second, using grammar and intonation to arrive at a literal meaning. These two *decoding* processes loosely match *perceptual processing* and *parsing* in Anderson's (1995) model.

Field (2009) described the first step of *decoding* as a 'matching' process, where listeners transform the speech signals into their knowledge of the language. When listeners hear the acoustic input of the word, they match the speech input to the existing knowledge anchored in their long-term memory in terms of the sound, form and meaning of the word. For unskilled L2 listeners, as Field (2009) noted, this match can be difficult because they may lack the ability to recognise the sound of the word or fall short of the vocabulary knowledge to decode its meaning. In addition, what complicates this *decoding* stage for L2 listeners even more is the considerable number of variations in a connected speech as compared to the articulation of an isolated word as in a dictionary. These variations can take place on the phoneme level (e.g., the *coarticulation* phenomenon), the word-level (e.g., speakers cut corners of a word to assimilate to the next word), or the speaker level (e.g., changes in accent, speech rate, and pitch), all of which can pose an extra layer of challenges for listeners with limited L2 proficiency.

After word-matching, listeners then arrive at the second stage of *decoding*, in which they separate a sentence into syntactic units based on their grammatical knowledge and also a consideration of intonation cues. This process is very similar to Anderson's (1995) *parsing* phase. For L1 listeners, this process can be automatic—they adeptly draw on a wide

repertoire of linguistic knowledge, picking up grammatical cues to detect where a syntactic unit ends. Their grammatical intuition also allows them to predict what comes next and to constantly revise their understanding as the speech unfolds. For L2 listeners, however, such syntactic knowledge is far less intuitive and under many circumstances, they may tend to draw on the cues appropriate to their mother tongue instead of the L2. An important cue that L2 listeners usually attend to is intonation. Field (2009) argued that for L2 listeners with very limited proficiency, the syllable that is stressed in a sentence usually marks a word not reduced and hence forms a trustable basis for the listeners to build a hypothesis of what the speaker is saying.

After listeners achieve a literal understanding of an utterance through *decoding*, their interpretation of the message is amplified through the *meaning building* process. This process echoes the *utilisation* stage in Anderson's (1995) model. Field (2009) operationalised this meaning building process at three levels: *preposition*, *mental representation*, and *discourse representation*. At the level of ***preposition***, listeners store in their memory a set of segmented and abstract representations they have formed from decoding the syntactic units. It is not until the stage of ***mental representation*** that these stand-alone prepositions with bare meanings are contextualised and made meaningful to the immediate situation. Field (2009) gave examples of multiple types of *contextual knowledge* that listeners can draw on to form mental representations, including world knowledge (common-sense knowledge), topic knowledge, knowledge about the speaker, the situation and the immediate environment, etc. For L2 listeners, the contextual knowledge might play a larger role compared to native listeners—it aids comprehension through activating schematic knowledge when the decoding process fails to provide sufficient information for comprehension. Finally, as listeners build up meaning, they also engage in what Field (2009) called a ***discourse representation***, where they continuously recall what has been said and update their understanding, a process often related

to *self-monitoring*. According to Field (2009), listeners may fail to effectively discern contradictory information in a speech while listening in a foreign language even though they can do so in their mother tongue.

At the last stage of comprehension, listeners store the information derived from *meaning building* to their long-term memory through selecting important and relevant messages, connecting ideas in a passage to achieve a holistic understanding, and constructing structures to organise the information. Likewise, this process poses tremendous challenges to L2 listeners with limited proficiency. For example, while native listeners can efficiently filter the redundant and irrelevant information based on their needs, L2 listeners might struggle in terms of what to listen for and attend to all details aimlessly. In a similar vein, compared to their L1 counterparts, Field (2009) argued that L2 listeners tend to construct a set of small units of ideas instead of building a complex network of associated thoughts while listening. On the one hand, their limited attentional capacity is almost all consumed by *decoding*; on the other hand, they might miss important links crucial for building the structure due to insufficient understanding of the speech.

Although the ephemeral nature of listening means that in reality the stages and processes outlined in the models of Anderson (1995) and Field (2009) might take place simultaneously and interactively (Field, 1999), disentangling the process of listening into various phases has indeed offered L2 researchers a framework to pin down problems and barriers in listening experienced by listeners at distinct proficiency levels, which is where the section below is turning to.

2.3.2 Research on L2 listening difficulties

Despite researchers' growing enthusiasm for a *process-oriented* approach on L2 listening (Vandergrift, 2007), a review of previous studies reveals only a handful of studies that have systematically explored listening challenges and difficulties in language learning contexts (e.g., Chen, 2013; Goh, 2000; Hasan, 2000).

Goh (2000) used weekly learning diaries (n=40), immediate retrospective verbalisation (n=23) and semi-structured interviews (n=17) to investigate the real-time difficulties while listening to English passages of undergraduate students from mainland China. The author selected two groups to compare the listening difficulties perceived by high- and low-proficiency students. The high-proficiency group consisted of eight students in the top 30% of a listening test, equivalent to a TOEFL score range of 550-600. The low-proficiency group had an equal number of students who were in the bottom 30% of the test with a range of scores equivalent to TOEFL 440-500. Results indicated that students, regardless of their level of proficiency, reported *perception-* and *parsing*-stage problems such as *recognising known words* and *quickly forgetting what is heard*, reflecting the limited processing capacity and working memory of the students to cope with the unfamiliar excessive demand of input. This finding echoes Hasan's (2000) survey study with Arabic intermediate EFL students (n=88), in which *perception*-related problems such as *understanding natural speech full of hesitations and pauses*, as well as *dealing with fast or accented speech* were prevalent and a *parsing*-related issue of *understanding long spoken text* was perceived as challenging due to limitations on working memory capacity. Nonetheless, in Goh's (2000) study, disparities were indeed spotted across proficiency levels. Low-proficiency students tended to be reportedly fixated on unfamiliar words or expressions easily, which came at a price of losing information of proceeding messages. In comparison, the high-proficiency cohort more often

reflected difficulties of understanding words but not the intended message, which was a *utilisation*-stage issue that was rarely talked about by the low-proficiency group.

While both Goh (2000) and Hasan (2000) investigated these issues cross-sectionally, Chen (2013) adopted a longitudinal approach to trace the perceived listening problems of a group of university EFL learners (n=33) during a 14-week strategy instruction course in Taiwan. Data were collected through reflective journals during the 14 weeks and a questionnaire on listening difficulties before and after the instruction. Results from a paired sample t-test suggested a significant decrease in difficulties related to *perception* and *parsing* such as *recognising linking sounds between words*, *listening to the next part when thinking about meaning*, *speaker accent*, etc. The drop in these difficulties, as data from the reflective journal showed, was closely related to a strengthened top-down processing owing to the strategy instruction. However, as students experienced a reduction in lower-level processing, they started to report more higher-level difficulties such as *finding the key idea of the text* or *remembering the meaning of a long text*. The author attributed these problems to a lack of background knowledge and the still limited linguistic ability of the listeners.

The listening models of Anderson (1995) and Field (2009) as well as the above reviewed L2 research on listening difficulties have important implications for the present study. First, the *process-oriented* approach, which has gained popularity in L2 listening research, has suggested that the examination of EMI listening difficulties could merit from applying a similar approach. In other words, breaking down listening problems according to cognitive listening processes, for example, *perception-*, *parsing-*, or *utilisation*-related issues might offer a more concrete and in-depth inspection of the crux of problems in understanding the teacher talk in an EMI classroom. Second, both Goh's (2000) and Hasan's (2000) research suggested that high- and low-proficiency listeners shared common ground in their perceived

problems with L2 listening, especially at lower-level *perception* and *parsing* stages. However, more proficient listeners also reported higher-level challenges related to *utilisation*, a stage that their less proficient peers hardly managed to engage. Likewise, similarities and differences in the listening difficulties among students with different proficiency levels might also exist in EMI classes. Nevertheless, this issue has remained underexplored in EMI research. Third, Chen's (2013) longitudinal study has indicated that, as students progressed in their listening, their perceived difficulties changed too, though this finding had to be interpreted with the intervention of a strategy training. In an EMI HE context, as students become more familiar with the content and topics of the courses and the teaching styles of their instructors, changes might occur in an organic way regarding their perceptions of listening problems. Hence, the present study captures such development of listening difficulties via a longitudinal design, and adopts a *process-oriented* approach to unveil how difficulties related to diverse processes of listening evolve over time in EMI HE classrooms.

2.4 Self-regulation in EMI and educational psychology

2.4.1 Autonomous and strategic learning in EMI HE

In response to the numerous learning difficulties reported in EMI HE settings, researchers in recent years have started to focus on the strategic and autonomous learning of students. This emerging trend of research seems to be developing at a global scale, with studies emerging across diverse regions including the Middle East (e.g., Ali & Ibrahim, 2020 in Oman; Eser & Dikilitaş, 2015 in Turkey; Shamim et al., 2016 in Saudi Arabia; Soruç & Griffiths, 2018 in Turkey), Asia (e.g., Ding & Stapleton, 2016; Evans & Morrison, 2011, 2016 in Hong Kong; Jiang & Zhang, 2019, Yang et al., 2019 in mainland China; Lee & Lee, 2018 in Korea; Yang, 2017, 2018 in Taiwan), and Europe (e.g., Macaro et al., 2019 in Italy; Malavska, 2017 in Latvia; Wilkinson & Gabriëls, 2017 in the Netherlands). Among these studies, mainland

China remains an underdeveloped area except for the study of Jiang and Zhang (2019) and Yang et al. (2019). Considering the velocity and magnitude of the expansion of EMI programmes in Chinese HE, the present study will contribute to a more comprehensive picture of learning that happens in EMI HE in mainland China.

Among the studies outlined above, a considerable proportion have focused on the transition year (Ding & Stapleton, 2016; Eser & Dikilitaş, 2015; Evans & Morrison, 2011, 2016; Macaro et al., 2019; Shamim et al., 2016; Soruç & Griffiths, 2018; Yang, 2017), highlighting the criticality of this period to the successful learning in latter years of tertiary education (Macaro et al., 2018). However, incongruence exists in findings regarding how students direct and regulate their learning. At EMI universities in Hong Kong, students were found to invest considerable effort into preview and preparation before class (Ding & Stapleton, 2016; Evans & Morrison, 2011). In contrast, Macaro et al. (2019) found that first-year students in Italy seldom prepared for lessons before their classes but instead, they were active in taking notes during class and reviewing after class to follow up what they had learned. This contrast in students' self-regulated learning surrounding EMI classes might be due to cultural differences, contextual affordances or individualistic idiosyncrasies. Therefore, more insight could be offered by explicitly asking students to explain *why* they preferred particular learning processes (see Wilkinson & Gabriëls, 2017).

In addition, inconsistencies also prevail in terms of students' strategy use in EMI programmes. For example, in both the studies of Eser and Dikilitaş (2015) and Shamim et al. (2016) in the Middle East, students were reported to rely heavily on *surface strategies* such as *translation* and *memorisation* in learning EMI courses, where the researchers noted that "what is missing from the responses is that they do not report that they use metacognitive strategies which involves arranging, planning and evaluation of a learning process" (Eser &

Dikilitaş, 2015, p. 127). Contrasting findings were reported by Soruç and Griffiths (2018) in Turkey, where the authors noted that some students used metacognitive strategies to regulate their listening process in EMI classes, for example, *managing note taking* or *sitting at the front to stay focused*. These disparities in results might stem from learner-related factors such as students' English proficiency, or motivation in learning, which were left unexplored in these studies.

A severe limitation in the extant EMI literature, especially during the transition period, is the paucity of longitudinal research, an issue also pinpointed by Ding and Stapleton (2016). Few researchers have explored the challenges and adaptations of students over time after entering an EMI university (Ding & Stapleton, 2016; Evans & Morrison, 2011, 2016). Evans and Morrison (2011), mainly drawing on interview data at the end of two academic terms, reported the first-year experience of 28 students from a variety of academic fields at Hong Kong Polytechnic University. The study found that students mostly overcame the learning challenges via *relentless reading and listening practice* and *peer support*. In their in-depth analysis of three cases, the researchers further revealed that Rita and Sally, both coming from a CMI school background and feeling disadvantaged in the EMI HE context, demonstrated great proactiveness in learning thorough *making thorough preparation* before class, *recording lectures* for listening after class and *seeking assistance from their peers*. Their third case, Edward, felt more at ease with learning through English due to his prior EMI secondary background, but was also motivated to further improve his 'competitiveness' by *taking an extra English programme* in the second term. Similar findings were reported in Evans and Morrison (2016), in which interviews with a larger sample (n=40) revealed that students grew accustomed to listening to EMI lectures by long-term immersion in the environment and cooperative learning with other students.

In a similar vein, Ding and Stapleton (2016) traced nine students from mainland China during their first-year study at a university in Hong Kong. These students majored in diverse subjects and they all achieved an upper-intermediate level of English proficiency in the national college entrance exam (Gaokao) in mainland China before university. In general, students encountered substantial difficulties especially during the first few weeks of listening to EMI lectures. They battled with these difficulties by *previewing textbooks and slides*, *preparing for vocabulary*, *searching for the Chinese equivalents of terminologies* online, and *systematically reviewing content* after class (sometimes with the help from more capable peers). Additionally, extra effort was identified after class for improving their English listening ability, for example, by watching English-taught open courses of other universities or English films. Describing these learners as "toddlers" who have to "learn how to walk on [their] own" (p. 22), Ding and Stapleton (2016) revealed that the trajectory of learning involved much trial and error, as well as stress and frustration, out of which each student developed their own strategies of learning.

The above studies (Ding & Stapleton, 2016; Evans & Morrison, 2011, 2016) have provided important insight into the self-initiated and regulated learning of students during the transition year. However, these studies have generally explored the development related to all four language skills and hence the discussion on *listening* is limited in breadth and depth. Further, although the data were collected longitudinally, the analysis did not clearly portray learning at each time point and hence the development of learners' autonomous learning over time remains obscure. Third, the purely qualitative and descriptive nature of these studies makes it difficult to detect if there are general patterns in students' strategy use over time. Finally and most importantly, although it was suggested that students might become more self-regulated in their learning, none of these studies have examined the issue through the lens of self-regulation. To address these gaps in research, the present study is guided by a

conceptual framework situated in self-regulated learning (SRL) theory, and adopts a 'fully longitudinal design' (Van Ness et al., 2011), collecting both quantitative and qualitative data at the beginning, halfway and the end of the first semester to systematically explore the development of students' self-regulated listening over time. In order to inform the research by underpinning it with SRL theories and studies, key concepts are first examined with reference to the literature in educational psychology where SRL has a much longer history.

2.4.2 Self-regulation in educational psychology

Self-regulatory processes in human development have attracted researchers' attention as early as the 1960s and 1970s (Zimmerman & Schunk, 2011). This concept was then later introduced into educational psychology in the 1980s, yielding a multitude of studies on *self-regulated learning* in the 1990s. Zimmerman and Schunk (2011) define self-regulated learning (SRL) as "the processes whereby learners personally *activate* and *sustain* cognitions, affects, and behaviours that are systematically oriented toward the attainment of personal goals" (p. 1). This definition of SRL factors in multiple cognitive, emotional, motivational and behavioural aspects in learning and foregrounds interactions among these constructs. In spite of such a comprehensive definition, however, researchers have noted that the scope of SRL has witnessed a change from a focus on metacognition in earlier studies to incorporating motivational and social factors as the field develops (Zimmerman & Schunk, 2011).

2.4.2.1 Metacognition in SRL

The concept of metacognition stemmed from *metacognitive monitoring* in the 1970s (Flavell, 1971). Flavell (1985) defined metacognition as "cognition about cognition" (p. 104), specifically, "as any knowledge or cognitive activity that takes as its object, or regulates, any aspect of any cognitive enterprise" (ibid). In Flavell's (1979) seminal work on metacognition,

he highlighted the role of *monitoring* of cognitive enterprise, putting forward that such monitoring could occur through interactions among four components: metacognitive knowledge, metacognitive experience, goals/tasks, and actions/strategies. *Metacognitive knowledge* refers to the individuals' world knowledge about themselves (*person knowledge*), the goals and demands of tasks (*task knowledge*), as well as the strategies needed for achieving the goals (*strategy knowledge*). A component to which Flavell (1979) attached equal importance was *metacognitive experience*. *Metacognitive experience* refers to any *conscious* cognitive or affective experience accompanying intellectual enterprise. Such metacognitive experience was described as "items of metacognitive knowledge that have entered consciousness" (p. 908). For example, a student who struggles with listening in a foreign language might suddenly realise that s/he has listened to a similar topic before. This experience, as Flavell (1979) hypothesised, would be more likely to occur in situations which require highly conscious thinking and demand the type of quality control that metacognition can provide. EMI listening happens in such a situation, where the dual demands of coping with professional subject knowledge and an unfamiliar L2 might require conscious decision-making of how to optimise the use of restrained resources of listeners.

Although Flavell (1979) first set the stage for metacognition, he did not explicate how it could be translated into SRL. Along this line, Paris and Winograd (1990) proposed to separate metacognition into *cognitive self-appraisal* and *self-management*, which started to bridge metacognition and the self-regulatory processes of learners. *Cognitive self-appraisal* reflects individuals' knowledge states and abilities, and is similar to Flavell's (1979) notion of *metacognitive knowledge*. In contrast, *self-management*, also referred to as "metacognition in action" (Paris & Winograd, 1990, p. 18), describes the executive management of individuals' cognition which helps learners to use a variety of strategies to plan, evaluate and regulate learning. The latter component, as the authors pointed out, has direct implications for

both learners' performance and classroom teaching practice. This dual system of metacognition has been supported by other researchers. For instance, Baker and Brown (1984) viewed metacognition as comprised of the *knowledge about cognition* and *self-regulatory mechanism* including planning, monitoring, testing, revising, outcome checking and evaluating strategies. Hence, it could be argued that the executive or regulatory aspect of metacognition, which is often operationalised in the form of strategies, is particularly pertinent to SRL processes and is hence incorporated as an important component in this present study for investigating self-regulated listening.

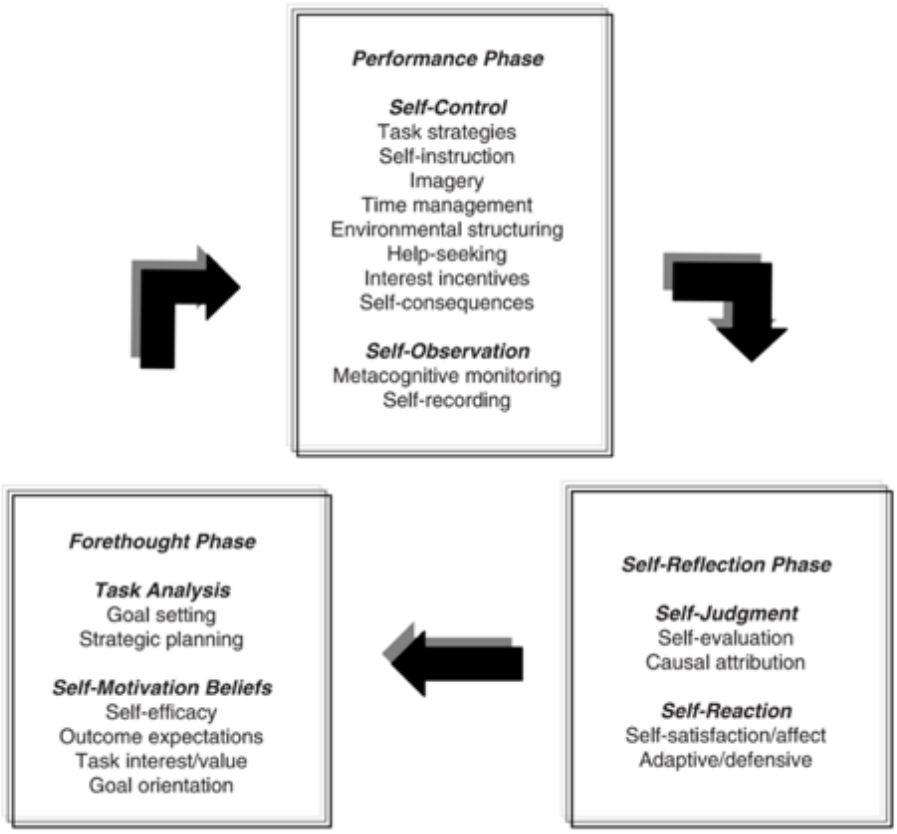
Given the tight relationship between metacognition and SRL, a number of earlier studies in SRL focused heavily on the metacognitive and cognitive aspect of learners (e.g., Borkowski, 1985; Brown et al., 1983; Pressley et al., 1982) and some devised SRL models based on a metacognitive framework (e.g., Winne & Hadwin, 1998). Later research, however, found that learners' awareness of metacognitive strategies alone did not necessarily warrant their use of strategies in authentic learning situations (Pressley & McCormick, 1995). On many occasions, the lack of use of strategies might derive from an absence of enjoyment or motivation of using them (Rabinowitz et al., 1992). This has led the researchers to expand the scope of SRL to incorporate the examination of social and motivational aspects of learners, and some of the most established work in this strand has been carried out by Zimmerman and his colleagues, which is firmly situated in social cognitive theory (Bandura, 1986, 1997).

2.4.2.2 Towards a social cognitive SRL model

Influenced by Bandura's social cognitive theory (1986), Zimmerman (1989) conceptualised SRL as a triadic process involving "reciprocal causality" among personal, behavioural, and environmental influences (p. 329). In addition to recognising the important role of metacognition which Winne and Hadwin's (1998) model primarily focused on, Zimmerman

(2000) also argued that self-regulation is informed by socially and contextually mediated self-processes such as *self-efficacy*. Based on this assumption, Zimmerman (2000) proposed a social cognitive model of SRL, consisting of three inherently related and cyclically sustained phases of SRL. This model was revised in the work of Zimmerman and Campillo (2003) where sub-processes of each phase were added, and was further developed by Zimmerman and Moylan (2009) to include more metacognitive and volitional strategies in the *performance* phase (see Figure 2.1).

Figure 2. 1. A three-phase cyclical social cognitive model of SRL (Zimmerman & Moylan, 2009, p. 300)



As Figure 2.1 illustrates, the social cognitive SRL model consists of three phases that function in a cyclical manner, that is, *forethought*, *performance*, and *self-reflection*. In the *forethought phase*, learners deliver task analysis by setting long-term or short-term goals and strategically plan to achieve the goals via appropriate methods. This phase is underpinned by a number of motivational beliefs such as *self-efficacy*, *outcome expectancy*, *goal orientation* and *task interest/value*. After that, learners enter the *performance phase*, which, also referred to as "volitional control processes" (Zimmerman, 2000, p. 18), involves the maintenance of both motivation and learning effort. In this phase, learners avail of a range of general or task-specific strategies to facilitate learning progress and employ self-motivating methods such as *interest enhancement* or *self-consequences* to stay motivated. Learners also observe their learning processes through *self-monitoring* or *self-recording*. The *self-reflection phase* follows the *performance phase*, where learners form *self-judgement* and *self-reaction* from the learning experience. *Self-judgement* takes place through *self-evaluation* and *causal attribution*. Learners usually evaluate their learning effort and outcomes with certain criteria and make causal attribution to justify the outcomes. Positive self-evaluative and attributional judgements usually lead to satisfactory affect about the learning experience. This in turn will be more likely to trigger positive *adaptive changes* to future performance such as modifying learning plans or strategies for the next learning cycle.

Although the cyclical model situates motivational beliefs in the *forethought phase*, empirical evidence has revealed that these beliefs interact with self-regulatory processes throughout all three phases. One construct that social cognitive theorists have for long attended to is *self-efficacy*. As a central notion of human agency (Bandura, 1997), self-efficacy refers to the belief in one's capabilities of implementing courses of actions to achieve certain attainments (Bandura, 1986). In the *forethought phase*, the perceived self-efficacy of learners has been found to both shape and be informed by *goal setting* processes (Zimmerman & Bandura,

1994; Zimmerman & Kitsantas, 1997). During the *performance phase*, self-efficacy mediates multiple metacognitive processes such as *time management* (Bandura, 1997), *help-seeking* (Zimmerman & Martinez-Pons, 1990) and *self-monitoring* (Bouffard-Bouchard et al., 1991). Learners with high self-efficacy can also adjust their strategy use efficiently based on their *self-monitoring* (Schunk & Dibenedetto, 2016). Finally, in the *self-reflection phase*, self-efficacy has been evidenced to be closely related to *causal attribution* and *self-evaluation*, where high-efficacy learners tend to attribute failures to controllable factors, for instance, the use of strategies (Zimmerman & Kitsantas, 1997, 1999), and are prone to generating positive evaluative judgements (Schunk & Dibenedetto, 2016). A closely associated motivational factor with self-efficacy is *outcome expectation* (Bandura, 1997), which refers to beliefs about the outcomes of one's actions. However, research has shown that self-efficacy is a better predictor of academic achievement than outcome expectation (Shell et al., 1989) and hence a primary focus is placed on self-efficacy in the present study.

Likewise, other motivational constructs such as *goal orientation* and *task value* have also been documented in SRL literature regarding their role in different phases of the model. *Goal orientation* involves two basic constituents, namely *mastery* and *performance goals* (Ames, 1992; Ames & Archer, 1988). *Mastery goals*, also referred to as 'learning goals' by some researchers (e.g., Dweck & Leggett, 1988), denote an orientation of learners towards mastering new skills, understanding their work and enhancing their competence, which focus on the intrinsic value of learning (Ames, 1992). In contrast, learners with a *performance goal* tend to view learning itself only as a means to achieving a desire goal which is associated with "normally defined success" (p. 262) such as grades, judgements from others, etc. Compared to *performance goals*, *mastery* or *learning goals* have been reported to be more closely associated with well-thought and strategic planning in the *forethought phase* (Valle et al., 2003), as well as the use of metacognitive strategies (Huang et al., 2012; Neuville et al.,

2007; Somuncuoglu & Yildirim, 1999) and deep processing cognitive strategies (Pintrich et al., 2001; Valle et al., 2003) in the *performance phase*.

Task value, which pertains to the perceived worth of certain tasks (Zimmerman, 2011), has been operationalised by researchers into three components, namely the perceived *interest*, *usefulness*, and *importance* of a task (Eccles & Wigfield, 1995; Neuville et al., 2007; Pintrich et al., 1993). It has been evidenced that students who value the task tend to set more stringent goals (Lawanto et al., 2014) and to have learning-oriented goals (Wolters et al., 1996) in the *forethought phase*. In the *performance phase*, task value has been reported to play a significant role in predicting how students manage and regulate time, environment and effort for learning, as well as seeking help and support from their peers (VanZile-Tamsen, 2001). Students with perceived higher value of a task were also reported to more heavily use metacognitive and deep processing cognitive strategies during learning (Neuville et al., 2007).

In recognition of the crucial role of motivational beliefs in SRL, one of the most relevant measures that coheres tightly to these constructs is the *Motivated Strategies for Learning Questionnaire* (MSLQ). The MSLQ, developed and validated by Pintrich and his colleagues during the 1980s and 1990s (Pintrich et al., 1993), was originally devised for evaluating college students' motivational orientations and strategies within an SRL framework. The design of the motivation section on the MSLQ was underpinned by the same social cognitive theory in which Zimmerman's SRL model situates. This shared theoretical background makes the MSLQ a legitimate measure for examining the motivational beliefs outlined in Zimmerman's model. Subscales of *self-efficacy* and *task value* correspond directly to the constructs discussed above. In addition, the subscale of *intrinsic goal orientation*, defined as a measure of "the degree to which the student perceives herself to be participating in a task

for reasons such as challenge, curiosity, and mastery" (Pintrich et al., 1991, p. 9), is very similar to the *mastery goals* discussed earlier. Likewise, the subscale *of extrinsic goal orientation* in the MSLQ measures "the degree to which the student perceives herself to be participating in a task for reasons such as grades, rewards, performance, evaluation by others and competition" (Pintrich et al., 1991, p. 10), hence aligning with the afore-discussed *performance goals*. Therefore, the MSLQ is included in the present study as a quantitative measure of the SRL-related motivational beliefs. Given the multitude of a range intricate sub-processes within each SRL phase, a qualitative measure of semi-structured interviews is also adopted to capture the richness and intricacy of the self-regulatory processes.

2.5 Self-regulation in L2 research

2.5.1 The synergy of learner strategy and self-regulation research

Despite the long history of SRL in educational psychology, the concept of self-regulation only made inroads into mainstream L2 research at the turn of the century (Dörnyei, 2005; Dörnyei & Skehan, 2003). The initial proposal and development of SRL came as an attempt to settle criticisms in learner strategy research, which has been widely discussed by researchers (e.g., Dörnyei & Skehan, 2003; Macaro, 2006). One of the issues that has been subject to frequent criticism centres on the measurement of strategies. Considering that questionnaires have been used predominantly in measuring strategies in the past, Dörnyei (2005) criticised the lack of psychometric robustness of frequently used scales such as the *Strategy Inventory for Language Learning* (SILL) as "psychometrically not justifiable" (p. 182). Such a comment was based on the understanding that unlike the MSLQ which focuses on the general inclinations of learning processes with scale descriptors indicating the extent of these inclinations ('not at all' to 'very'), the SILL incorporates items that tap into specific behaviours and the scale descriptors suggest the frequency of strategy use ('never' to

'always'). The latter, as Dörnyei and others pointed out (Dörnyei, 2005; Tseng et al., 2006), could not assume a linear relationship between the total scale scores and the individual item scores and hence were not cumulative or computable for mean scores. This issue has been taken into consideration when designing the scales used for the present study.

In addition to measurement issues, perhaps more predominant are the criticisms on the definitional fuzziness and lack of consensus on the conceptualisation of learner strategy. Traced back as early as to research on strategies deployed by 'good' language learners in the 1970s (e.g., Naiman et al., 1978; Rubin, 1975; Stern, 1975), numerous attempts to define and categorise learner strategies were made throughout the 1980s and 1990s (e.g., Cohen, 1998; O'Malley & Chamot, 1990; Oxford, 1990; Wenden, 1991; Wenden & Rubin, 1987), followed by a summarisation of contentions in defining and classifying learner strategies by Macaro (2006) during the watershed moment of learner strategy research. However, despite much attention to this issue, debates on the definition and conceptualisation issue remain unsettled till today, described by Oxford (2017) as an "unpruned garden" with various definitions "popped up everywhere, each containing a seed of a theory that was hidden and curled up" (p. 9).

In spite of the on-going debates, researchers have at least reached some common ground in recognising that 'strategic learners' are those who are 'proactive' in investing and managing learning effort (Dörnyei, 2005; Dörnyei & Ryan, 2015; Macaro, 2001). Based on this shared understanding, Dörnyei (2005) suggested to shift the focus from concrete strategies to the underlying self-regulatory capacity that fuels the use of strategies. He proposed to replace the field of strategy research with the notion of self-regulation, arguing that the concept could offer a "a far broader perspective than the previous focus on learning strategies" (p. 190). In the following year, Tseng et al. (2006) developed the *Self-Regulating Capacity in Vocabulary*

Learning scale (SRCvoc) based on a volitional framework of self-regulation (Corno & Kanfer, 1993; Kuhl, 1987), delineating the self-regulatory capacity into *commitment*, *metacognitive*, *satiation*, *emotion*, and *environment control*. However, as some researchers have noticed (e.g., Ziegler, 2014), such a taxonomy built from a volitional perspective mainly corresponds to the *performance phase* in Zimmerman's SRL cycle, hence neglecting other important components of SRL such as *goal setting* and *self-reflection*. In line with this argument, researchers such as Ranalli (2012) have called for a more diversified application of SRL models in L2 research as outlined by Zimmerman and Schunk (2001), which is what this present study attempts to contribute to.

Dörnyei's (2005) suggestion to replace learner strategy research entirely with the concept of self-regulation was a controversial one. Gao (2007) questioned whether learner strategy research has come to an end and argued that the sole focus on the relatively stable 'trait' aspect of strategy use, which SRCvoc measures, risks omitting the other equally important 'state' dimension of strategic learning. He therefore defended the legitimacy of strategy research arguing that it "can meaningfully complement the advance of self-regulation in research on learners' strategic learning" (p. 619), and this stance has been reiterated by other researchers such as Rose (2011, 2012). In the past decade, some attempts have been carried out to integrate learner strategy research with a self-regulation framework (e.g., Oxford, 2011; Teng & Zhang, 2016, 2018; Zeng & Goh, 2018), the one most relevant to the current study being the *Strategic Self-Regulation* (S^2R) model developed by Oxford (2011).

Highlighting the conscious and goal-directed nature of strategies, Oxford (2011) defined self-regulated L2 learning strategies as "deliberate, goal-directed attempts to manage and control efforts to learn the L2" (p. 13). The S^2R model includes four categories of strategies: *cognitive, affective*, *socio-interactive*, and most notably, *metastrategies*. Arguing that

previous taxonomies only encompassed 'metacognitive' strategies to regulate cognition, Oxford (2011) extended the 'meta-level' strategies to incorporate the *meta-affective* and *meta-socio-interactive* strategies. Drawing on six types of *meta-knowledge* (person, task, strategy, group or culture, whole-process, and conditional knowledge), these meta-strategies were conceptualised to 'orchestrate' or guide in their respective strategy type. Undeniably, Oxford's (2011) S^2R model has set a good example of bridging strategy research with self-regulation through the notion of 'meta' knowledge and strategies. However, the new categories of *meta-affective* and *meta-socio-interactive* strategies seem to merit a more thorough theoretical foundation to validly set them apart from other strategies. For example, it remains questionable whether in reality, the *meta-affective* strategy 'planning for affect' (e.g., setting goals to stay interested in learning) can be clearly separated from the typical metacognitive strategy of *planning/goal setting* when learners engage in a task. Further, by labelling the knowledge underpinning meta-strategies as 'meta-knowledge', Oxford (2011) did not elaborate on the theoretical basis upon which such knowledge was built whereas the term 'metacognitive knowledge' is solidly situated within information processing theory.

Regardless of the above limitations, another contribution of Oxford's (2011) S^2R model is the introduction of *deep processing strategies* into a self-regulatory L2 learning model. Arguing that "students who regularly use deep processing strategies are usually intrinsically motivated for learning or personal growth, and they show task persistence, good performance, and ability to regulate their learning" (p. 30), Oxford (2011) viewed *deep processing strategies* as integral to SRL. Indeed, this argument is supported by evidence from educational psychology, where the use of *deep processing strategies*, in contrast to *surface strategies*, has been found to associate with various SRL components such as *learning-oriented goals* (Pintrich et al., 2001; Valle et al., 2003) and *perceived value of the task* (Neuville et al., 2007), as well as to have a relationship with SRL in general (Heikkilä & Lonka, 2006;

Panadero et al., 2021; Zimmerman et al., 1996). Referring to the strategy section of the MSLQ, Pintrich (2004) discussed cognitive strategies in relation to the *surface* and *deep* approaches to learning. In doing so, he related *rehearsal* strategies to a surface approach, and associated *elaboration*, *organisation*, and *critical thinking* strategies to a deep learning approach. Given the tight association between deep processing strategies and SRL, the three subscales of cognitive strategies of MSLQ (i.e., elaboration, organisation, and critical thinking) in relation to a deep learning approach have been adopted as a measure of task-specific strategies subsumed within the overarching framework of self-regulated listening in the present study.

2.5.2 Self-regulation in L2 research

Studies drawing on a self-regulation framework have witnessed a vibrant growth since the initial proposal of the framework (Dörnyei, 2005), described by Dörnyei and Ryan (2015) as "the second wind of strategy research" (p. 148). Studies in this regard have mainly fallen into two categories: the first strand focusing on the development and validation of SRL-related measure instruments, and the second strand investigating the relationship between learner-related variables and SRL constructs.

In the first strand of research, a predominant number of studies have adopted quantitative methods to validate SRL scales in a variety of L2 learning contexts. Some of these studies validated the SRCvoc (e.g., Mizumoto & Takeuchi, 2012; Ziegler, 2015) and adapted it to suit more specific contexts such an information- and communication-based environment (Şahin & Savran, 2018), while others also developed new scales to examine SRL in writing (Teng & Zhang, 2016) and speaking (Uztosun, 2020). Unlike traditional scales developed for language learning in general such as the SILL, the skill- and context-specific nature of these newly developed SRL scales reflects a tendency to attend to the more situated strategic and

self-regulatory state of learners, hence addressing the criticism of traditional strategy scales in "overextend[ing] itself by lumping together all strategies to cover all language skill areas, thereby setting up numerous definitional hurdles" (Teng & Zhang, 2016, p. 676). Siding itself with this trend in SRL literature, the present study examines the self-regulatory processes of learners situated in a specific context (i.e., Chinese EMI HE) and pertinent to a particular skill (i.e., listening).

A major limitation of this strand of research, however, is its overemphasis on quantitative approaches. The drawback of using only scales for measuring SRL, as also noted by researchers elsewhere (Rose et al., 2018), is the inadequacy to investigate "the underlying driving force" that gives rise to certain strategic undertakings (p. 158), resulting to an absence of insight into the *process* (in contrast to *product*) of learning which is essential in self-regulation. Hence, the present study also addresses this limitation by incorporating semi-structured interviews to explore the factors that underpin the self-regulatory and strategic behaviours of learners in the EMI HE context.

The other strand of research in self-regulation has explored the role of learner-related factors in SRL such as *language proficiency* (Rose & Harbon, 2013; Ting & Chao, 2013; Zeng & Goh, 2018), *goal-orientation* (Abdulhay et al., 2020; Farsani et al., 2014; Kormos & Csizér, 2014; Lin, 2019), *self-efficacy* (Bown, 2009; Fadda, 2019; Su et al., 2018, 2019; Yabukoshi, 2018), *task value* (Su et al., 2019), and *gender* (Ting & Chao, 2013). The vast majority of these studies have adopted quantitative methods such as correlation or regression to investigate the relationship among variables cross-sectionally. Studies in this regard have reported a heavier use of *action control strategies* by high-proficiency students (Ting & Chao, 2013), as well as a positive relationship between *learning-oriented goals* and a wider range of SRL strategies compared to *performance-oriented goals* (Abdulhay et al., 2020;

Farsani et al., 2014; Lin, 2019). *Self-efficacy* was reported to be closely related to the strategy of *managing time and environment* (Fadda, 2019) and *goal setting* (Su et al., 2018, 2019), whereas *perceived usefulness*, as a sub-category of *task value*, was found to be particularly predicted by the strategy of *goal setting* (Su et al., 2019). Finally, the role of *gender* seemed incidental in any type of SRL strategies investigated (Ting & Chao, 2013). These studies have highlighted the important role of *language proficiency*, *perceived self-efficacy* and *motivational factors* in SRL for learning an L2, and these factors are thus incorporated in the present study to explore their interplay with students' self-regulated listening in an EMI HE context.

Compared to a plethora of cross-sectional quantitative studies reviewed above, only a limited number of studies have followed a qualitative approach to examine students' self-regulation of language learning longitudinally (e.g., Bown, 2009; Rose & Harbon, 2013). Collecting data via interviews, narrative journals, student records and programme documents, Bown (2009) investigated the self-directed learning of 20 adult learners in a Russian programme at a US university during a term. The findings showed that students with high self-efficacy, who understood their role as "the author of their own motivation" (p. 577), were found to be more proactive in regulating their learning behaviours and more confident in managing the learning environment to suit learning. However, the sample of this study was rather diverse—not only did the participants vary greatly in age (18 to 45) and employment status (unemployed to 30 hours/week), but also in terms of their prior language learning background (no to 'many years', which was not specified by the author) and proficiency levels (beginner to unspecified). These factors presumably would all affect the motivation for learning, leading to differences in SRL behaviours and thus potentially confounding the findings.

In another qualitative longitudinal study, Rose and Harbon (2013) drew on Tseng et al.'s (2006) five-facet framework to explore the SRL of kanji writing during a yearlong university exchange programme in Tokyo. Compared to Bown's research (2009), this study involved a more deliberate sample. Following a *maximum variation* sampling strategy, 12 participants balanced across three kanji proficiency levels (high, medium, low) were interviewed 10 times throughout the year. Results showed that while low-proficiency students were inclined to set short-term and manageable goals, their high-proficiency peers tended to set long-term goals which were usually abandoned due to the magnitude of these goals. Advanced learners also seemed to more easily lose control over emotions and satiation because of the perceived lack of progress in learning or self-criticism to reach their goals. However, the longitudinal nature of the study has not been made explicit, where the authors only generally discussed changes in the reported self-regulatory behaviours of the learners during the entire period instead of clearly deriving these changes from rigorous comparisons of themes between time points.

A review of literature on SRL in L2 research unveils a dearth of mixed methods longitudinal research that examines SRL while taking account into important learner-related factors. The present study addresses this gap in research by conducting longitudinal research that draws on both quantitative measures and qualitative interviews to explore students' self-regulatory learning processes for EMI listening while factoring in diverse variables considered to be important for SRL from previous literature, including English listening proficiency, self-efficacy, and motivation.

2.5.3 Self-regulation research focusing on L2 listening

Compared to SRL research on *vocabulary learning* (Mizumoto & Takeuchi, 2012; Tseng & Schmitt, 2008; Ziegler, 2015), L2 *writing* (Abdulhay et al., 2020; Farsani et al., 2014; Lam, 2014, 2015; Rose & Harbon, 2013; Teng & Zhang, 2016, 2018), the self-regulatory processes

pertinent to other skills such as *speaking* (Uztosun, 2020), *reading* (Morshedian et al., 2017), and *listening* (Mareschal, 2007; Yabukoshi, 2018; Zeng & Goh, 2018) have remained underexplored.

Among the limited number of studies on self-regulated listening, Yabukoshi's (2018) qualitative longitudinal study is most relevant to the present research. Yabukoshi (2018) based her research on Zimmerman and Moylan's (2009) social cognitive SRL model and focused on the role of *self-efficacy* in mediating self-regulatory behaviours related to L2 listening during a six-week research period. Drawing on qualitative data from learning diaries, goal setting and self-reflection sheets, as well as interviews, the author found that highly efficacious listeners tended to set more specific goals and analyse the tasks in more detail during the *forethought phase*, and more frequently monitored their learning during the *performance phase*. In the *self-reflection phase*, highly efficacious students more effectively evaluated their achievement and strategy use, spotted specific problems and made adaptive decisions for future learning. This study was innovative in applying the social cognitive SRL model to systematically explore the role of self-efficacy at different stages of self-regulated listening in depth. However, the sample size was very small (n=4), making the results difficult to generalise to a wider population. Further, the self-efficacy questionnaire adopted in this study was a 6-point Likert scale, which involved fewer steps than the 100-point (with 10-unit intervals) standard scale recommended by Bandura (2006) for measuring self-efficacy. Bandura (2006) has warned that scales "us[ing] only a few steps should be avoided because they are less sensitive and less reliable" (p. 312). The present study draws on these limitations to include a substantially large sample for both quantitative (n=316) and qualitative (n=34) data across all time points and use a self-efficacy scale designed according to Bandura's (2006) recommendations.

In addition to Yabukoshi's (2018) research, a couple of studies have investigated the effectiveness of a self-regulatory instructional approaches on listening over an extended period of time (Mareschal, 2007; Zeng & Goh, 2018). Although these studies slightly differ from the agenda of the present research, which is interested in the spontaneous self-regulatory processes of students in an EMI HE context with no explicit intervention, some findings from these studies offer useful implications. Both Mareschal's (2007) and Zeng and Goh's (2018) studies have integrated the *Metacognitive Awareness Listening Questionnaire* (MALQ) designed by Vandergrift et al. (2006) and reported a strengthened metacognitive awareness of students after receiving SRL instruction. The inclusion of the MALQ in both studies suggests that this instrument might be suitable for exploring learners' metacognition in listening within an SRL framework, and has been thus included as a measurement in the present study. However, the scale needs to be critically evaluated both theoretically and methodologically before being used in this study, which is further discussed in Section 2.5.4. Further, Zeng and Goh's (2018) study, which explored students' SRL in extensive listening, foregrounds the need to attend to the self-directed and regulated learning that happens 'behind the scene' and outside of classrooms. In an EMI HE context, this is particularly relevant as students might exert much effort for improving their listening ability in their spare time once they become cognizant of the high demands of listening skills required to understand EMI classes, as already evidenced by some research in EMI (e.g., Ding & Stapleton, 2016; Evans & Morrison, 2011). Therefore, the present study examines SRL in an EMI HE context in two important environments: one in relation to listening in EMI classes, and the other for listening practice out of the classes.

2.5.4 Listening strategy research related to self-regulation

2.5.4.1 Metacognition in L2 listening

Metacognition is the construct in L2 listening strategy research most relevant to self-regulation. Zhang and Zhang (2019) note a "revival of language learner strategy research" in recent years in the face of self-regulation (p. 887), among which metacognition has become the foci of interest (see Gao & Zhang, 2011; Rose et al., 2018; Teng & Zhang, 2016, 2018; Zhang, 2010, 2013, 2016). Though attempts to take stock of the relationship between metacognition, self-regulation, and self-regulated learning have emerged only recently in L2 research (see Teng & Zhang, 2021; Zhang & Zhang, 2019), such interplay has been discussed for a longer period in educational psychology. Based on an analysis of 255 studies, Dinsmore et al. (2008) identified important commonalities in how researchers define metacognition, self-regulation and self-regulated learning, and argued that the theorisations of all three concepts emphasise that "individuals make efforts to monitor their thoughts and actions and to act accordingly to gain some control over them" (p. 404). Regardless of this shared conceptual common ground, the authors pointed out that metacognition focuses on the individual cognitive development of learners, whereas self-regulation is deeply rooted in Bandura's social cognitive theory and hence highlights the interactions among person, environment and behaviour. Self-regulated learning, which gained prominence in the 1990s, integrates metacognition and self-regulation with an "exclusive focus on academic learning" (Dinsmore et al., 2008, p. 405). This delineation of the three concepts has also been supported by other scholars (see Fox & Riconscente, 2008). In recent years, the stance of self-regulated learning as an overarching construct has been introduced into the field of L2 research. For example, Zhang and Zhang (2019), drawing on empirical evidence from a confirmatory factor analysis of Teng and Zhang's (2016) Writing Strategies for Self-

Regulated Learning Questionnaire, suggest self-regulated learning as an overarching construct within which metacognitive strategies are situated.

Importantly, Zhang and his colleagues have also conceptualised metacognition as a complex and dynamic system (see Gao & Zhang, 2011; Zhang, 2010, 2013, 2016), contending that metacognition is "something embedded in language learners, which is intertwined with many modifiable variables, both cognitive and sociocultural" (Zhang, 2013, p. 115). More recently, Zhang and Zhang (2019) follow a Flavellian tripartite framework of metacognition, and delineate the relationship between the three components of metacognitive knowledge, metacognitive regulation, and metacognitive experiences. They posit that on the one hand, the metacognitive knowledge one possesses guides their metacognitive experiences and metacognitive regulation, while on the other hand, such knowledge system is constantly "revised because of the feedback loop effects of metacognitive regulation and metacognitive experiences" (Zhang & Zhang, 2019, p. 886). This dynamic system echoes Wenden's (1987, 1991, 1998) early work on metacognition, which foregrounds the adaptive nature of metacognitive knowledge in relation to SRL processes. Wenden (1987) pinpointed the reciprocity between SRL and metacognitive knowledge, arguing that on the one hand metacognitive knowledge is operationalised through regulatory skills, while on the other hand, the exercise of these skills further develops and refines the metacognitive knowledge base one possesses. The above conceptualisation of metacognition, especially metacognitive strategies, as a subordinate of self-regulated learning has important implications for the design of the present study. As such, students' *metacognitive awareness of listening strategies* is incorporated as an important component of the higher-order self-regulated listening framework in this study.

In recognition of the closeness of metacognition to self-regulation, Vandergrift et al. (2006) developed the *Metacognitive Awareness Listening Questionnaire* (MALQ). Claiming that the scale taps into "all components of metacognitive knowledge" (Vandergrift et al., 2006, p. 439), the initial item pool was compiled from questionnaires in reading and listening comprehension strategies (*strategy knowledge*) and research associated with *person* and *task knowledge*. Exploratory factor analysis was conducted with a sample (n=996) rather heterogeneous in nationality, age and L2 proficiency. This was followed by a confirmatory factor analysis (n=512) with mainly learners of French in Canada and learners of English in Iran. Eventually, a 21-item, 6-point Likert scale was confirmed which measures metacognitive awareness through five dimensions: *planning and evaluation*, *problem solving*, *directed attention*, *person knowledge*, and *mental translation*. The five-factor structure showed a robust goodness-of-fit (RMSEA = 0.07, CFI = 0.91, TLI = 0.90). The reliability of the components was acceptable, with Cronbach's alphas ranging from 0.68 to 0.78. Although the MALQ has been widely used as an instrument in listening strategy research (e.g., Baleghizadeh & Rahimi, 2011; Goh & Hu 2014; Mareschal, 2007; Zeng, 2012; Zeng & Goh, 2018), researchers in recent years have cast doubt on the reliability and validity of the scale when applied to samples in a different culture (e.g., Ehrich & Henderson, 2019; Xu, 2017). Ehrich and Henderson (2019) administered the MALQ to 299 Korean adolescent speakers of English. Results from Rasch modelling indicated that the subscale of *person knowledge* had problematic psychometric properties and the items displayed a poor fit with the overall model. Xu (2017) also reported that the subscale *directed attention* had a relatively low reliability (Cronbach' $\alpha = 0.44$) when distributed to Chinese university EFL listeners (n=560). These studies call for a need to further explore the structure of the MALQ if it is used for a different sample, which is addressed in the present study.

Researchers using the MALQ have particularly attended to the relationship between *listening proficiency* and *metacognition* (e.g., Goh & Hu, 2014; Mareschal, 2007; Vandergrift et al., 2006; Zeng, 2012). Studies along this line have mainly used a quantitative approach, conducting regression analysis to reveal the ratio of variance in listening scores explained by the MALQ factors (Goh & Hu, 2014; Vandergrift et al., 2006; Zeng, 2012). Despite the slight disparities in the variance explained due to different sample and listening tests adopted (Goh & Hu, 2014, 22%; Vandergrift et al., 2006, 13%; Zeng, 2012, 15%), these studies all attest to a close relationship between *listening proficiency* and *metacognition*. However, without in-depth qualitative data, the picture remains elusive regarding whether there are differences in the *process* and *quality* of strategy use by learners at distinct proficiency levels. This shortcoming can be somehow compensated by a strand of traditional listening strategy research, which has investigated *metacognitive strategies* between skilled and less skilled listeners (e.g., Goh, 2002; Graham et al., 2008, 2011; O'Malley et al., 1989; Vandergrift, 1998, 2003).

Studies inclusive of a qualitative description of listeners' *metacognitive strategies* have adopted *think-aloud* (Graham et al., 2008, 2011; O'Malley et al., 1989; Vandergrift, 1998, 2003) and *retrospective verbalisation* (Goh, 2002) to delve into the process of strategy use. These studies have suggested that skilled listeners not only had a wider range of metacognitive and cognitive strategies at their disposal (Goh, 2002), but were also inclined to orchestrate the strategy use in clusters drawing on metacognition (O'Malley et al., 1989; Vandergrift, 1998, 2003). Regarding *attention management*, less skilled listeners were found to fixate attention on particular parts easily, whereas skilled listeners were more aware of their listening process and more capable to redirect their attention to the listening task (O'Malley et al., 1989; Vandergrift, 1998). The skilled listeners were also reported to be better at selecting 'what' to listen to based on effective prediction of the unfolding content

(Goh, 2002; Vandergrift, 1998). Disparities in *monitoring* also seemed evident between novice and effective listeners: the former tended to purely engage in bottom-up translation, while the latter constantly monitored what was understood from decoding and verified the inferences drawing on world and text knowledge (Vandergrift, 1998, 2003). The integrated use of *inferencing*, *elaboration* and *monitoring* strategies by skilled listeners, as Graham and Macaro (2008) note, could help to address the potential misuse of prior knowledge when inferencing unfamiliar expressions. Despite the valuable insight offered by these studies into the process of strategy use, a major problem is the lack of consistency on determining skilled listeners from unskilled ones (see also Fung, 2016). O'Malley and Chamot's (1989) study delineated 'effective' listener from less 'effective' ones using a reading test, while Vandergrift (1998) distinguished 'successful' from 'less successful' listeners based on an oral proficiency interview. Only Vandergrift (2003) and Goh (2002) adopted listening proficiency tests as a dividing criterion. As such, the present study adopts students' listening scores in an established proficiency test, namely the Oxford Placement Test, as a measure of their English listening proficiency upon arrival at an EMI HE context. This decision is discussed further in the Methodology chapter.

Compared with scholarly attention to *listening proficiency*, relatively few studies have tapped into the relationship between *motivation* and *metacognition* in listening (e.g., Kassaian & Ghadiri, 2011; Vandergrift, 2005). Following a self-determination theory framework (Deci & Ryan, 1985), Vandergrift (2005) conducted a small-scale quantitative study with 57 high school French learners in Canada and found that *amotivation* negatively correlated with most of the strategies. *Intrinsic motivation* was reported to have more significant correlations with strategies than *extrinsic motivation*. However, this broad tripartite of motivation (amotivation, intrinsic, extrinsic) may not sufficiently capture the intricacy between strategy and more detailed motivational constructs such as *goal orientation* and *task value*. In addition, some

research on listening strategy instruction has tapped into the role of *self-efficacy* (Chen, 2013; Graham, 2007; Graham & Macaro, 2008; Vandergrift & Tafaghodtari, 2010; Yeldham & Gruba, 2016). However, the discussions have mainly centred on the effectiveness of the strategy instruction on improving learners' efficacy beliefs without detailing if and how their perceived efficacy interacts with strategy use in a reciprocal manner. Given the important role of *self-efficacy* and *motivation* in SRL and the paucity of research in this respect, the present study investigates the interplay between these variables and students' strategic and self-regulatory processes of listening in EMI HE.

In a nutshell, the inclusion of *metacognition* can contribute to a more comprehensive picture in describing self-regulatory processes in listening. However, the use of existing instruments such as the MALQ demands further scrutiny using statistical analysis to verify its robustness. *English proficiency* has been found to correlate with metacognitive awareness in listening, as well as to distinguish multiple metacognitive undertakings of skilled listeners from unskilled ones such as *attention management*, *monitoring*, etc. Some limited evidence has also alluded to the importance of motivational factors in metacognition. However, the role of these variables in the self-regulatory processes of listening in an EMI HE context remains unexplored, and is what the present study hopes to address.

2.5.4.2 Deep processing listening strategies

Another important facet in L2 listening strategy research highly relevant to SRL is the concept of *deep processing strategies*, which have been discussed briefly in Section 2.5.1. Considering that the primary purpose of listening in EMI is to build disciplinary knowledge instead of just enhancing L2 linguistic ability, strategies that facilitate an in-depth comprehension of content knowledge are of paramount relevance to the success of listening activities. In L2 listening strategy research, some scholars have suggested that skilled

listeners tended to engage in *deeper level processing* of input for constructing meaning by avoiding *surface level strategies* such as *repetition* and *memorisation of words* (Zeng & Goh, 2018) as well as *mental translation* (Vandergrift, 1998). However, although the term 'deep processing' has been frequently referred to in these studies, none of them have clearly conceptualised what the term means nor have they explicated the differences between a *surface* and a *deep processing approach*.

The concept of *deep* and *surface processing* was discussed in Marton and Säljö's (1976) seminal work which described the qualitative differences of students in the information processing of reading a passage. Students who adopt a *deep processing approach* are "directed towards the intentional content of the learning material (what is signified)" (Marton & Säljö, 1976, p. 7), where they attempt to comprehend the inherent meaning of the text via a variety of strategies such as *summarising main ideas*, *structuring the discourse*, *predicting what the author would say*, and *linking to prior knowledge or personal experience*. In contrast, students who follow a *surface approach of processing* direct their attention "towards learning the text itself (the sign)" (ibid.), by which they are prone to using *rote-learning strategies* that hinder further analysis, for example, *memorisation* and *rehearsal*. Based on this conceptualisation, a tentative connection could be drawn between a *deep approach* in information processing and the *meaning building* process discussed in Field's (2009) listening model as introduced in Section 2.3.1.2. This connection stems from the shared emphasis of both constructs on contextual knowledge as well as learners' prior knowledge and schema in comprehension. In a *deep processing approach*, learners avail of contextual cues to organise content and activate their schematic knowledge to comprehend information in a personally meaningful way. Similarly, during the *meaning building* process, listeners also draw on contextual knowledge to form mental representations of what is heard and link these representations to their existing schemata.

Although the deep processing of input has not yet been systematically investigated in L2 listening literature, studies that discuss the *top-down* and *bottom-up* processing of listening might offer some interesting insight into this topic. Macaro et al. (2005) summarise that in *top-down* processing, learners apply schematic and prior knowledge to the incoming speech stream to "offset the tendency to listen to every word, a virtual impossibility with fast flowing text" (p. 7). In *bottom-up* processing, learners employ cognitive strategies for *perceiving* and *parsing* the aural input, attending to phonemes in the speech stream, and then moving up to segment words and construct units of meaning in an accumulative manner. A *top-down* approach, which corresponds to the *meaning building* process in Field's (2009) model, might therefore relate closely with the *deep processing* of input. However, it should be noted that the sole use of a *top-down* approach does not necessarily result in better comprehension unless used in a coherent, balanced and interactive manner (Bacon, 1992; Graham, 1997; Murphy, 1985; O'Malley et al., 1989), and alongside the *monitoring* of comprehension (Vandergrift, 1998, 2003).

How prior knowledge is exercised influences the effectiveness of the *top-down* listening process in particular (see Macaro et al., 2005 for a systematic review). In language learning settings, it has been evidenced that by incorporating and enriching listeners' prior knowledge through *advance organisers*, students were reported to retain information better (Herron et al.,1998; Jones & Plass, 2002) and experience an enhancement of listening comprehension performance in the short term (Teichert, 1996). These studies suggest that prior knowledge relevant to the content of L2 listening tasks seems to facilitate effective top-down processing and contribute to a deeper level of understanding of the listening passage. However, as Macaro et al. (2005) have cautioned, the role of prior knowledge is not always facilitative. In other words, an over reliance on prior knowledge might lead to misunderstanding when information presented in listening is not consistent with listeners' expectations informed by

their prior knowledge and experience (see O'Malley et al.,1989; Tsui & Fullilove, 1998). It should be noted, however, these findings have been hitherto confined to the context of language learning.

Compared to language learning settings, listening in EMI HE classrooms involves a larger amount of new and more professional topic knowledge. Unlike in typical language teaching classrooms in which teachers can familiarise students with the listening topic by embedding *advance organisers*, EMI teachers seldom have the time or intention of doing so. Hence, responsibilities are shifted to students themselves to prepare for the lessons and to acquire necessary topic knowledge prior to classes. Presumably this preparation can provide students with a certain level of relevant topic and contextual knowledge to draw on, which might promote more deep processing of listening in class. However, little research has investigated the role of topic-relevant prior knowledge in the comprehension of EMI classes, or whether students are able to engage in any deep processing of the content when linguistic barriers are already apparent. The present study intends to address these gaps in research by exploring the self-regulated learning of students before EMI classes and examining if and how such pre-class preparation permeates into on-going listening process in class. The incorporation of *deep processing listening strategies* in the present study will also contribute to understanding the extent to which students engage in in-depth comprehension of content knowledge delivered in EMI classes.

2.6 Chapter summary

In summary, this chapter reviewed previous literature related to two broad constructs of the present study, namely *listening difficulties* and *self-regulation in listening*. EMI research on learning difficulties pinpointed a variety of commonly reported challenges in listening to university EMI classes across different national and cultural contexts. A process-oriented

approach in L2 listening implied a potential new avenue to examine EMI listening difficulties with regard to the subordinate cognitive stages of listening. As such, theoretical listening models of Anderson (1995) and Field (2009) were summarised to outline how these listening stages were delineated, with a review of studies to showcase how the process-oriented approach was incorporated in researching L2 listening difficulties. The review of EMI literature highlighted a need to focus on the transition period from L1 MOI secondary to EMI tertiary education, in particular, to adopt a longitudinal lens to explore how students' perceptions of listening to EMI classes adapt over time, while controlling for key learner-related variables such as English listening proficiency upon admission, self-efficacy, and motivation.

In response to the difficulties students encounter during transition to EMI at university, research into autonomous and strategic learning across various contexts has begun to emerge, among which evidence from mainland China is still scarce. While there are a handful of longitudinal qualitative studies, few have adopted statistical tools to quantitatively investigate students' use of strategies. Further, despite most studies reporting learning initiated and regulated by students during EMI transition, no research has examined the issue through the lens of self-regulation. To strengthen the theoretical basis for examining self-regulated listening of students in an EMI HE context, literature on SRL in educational psychology was reviewed. Zimmerman's social cognitive cyclical SRL model was established as an overarching framework for the present study to examine students' self-regulatory processes in listening. In conceptualising self-regulated listening, the study argued for a synergy between learner strategy and self-regulation research, and viewed the integration of the two to best capture both the 'state' and 'trait' characteristics of strategic learning. As such, the design of the study was informed by previous studies on L2 listening strategy, especially those related to *metacognition* and *deep processing* in listening.

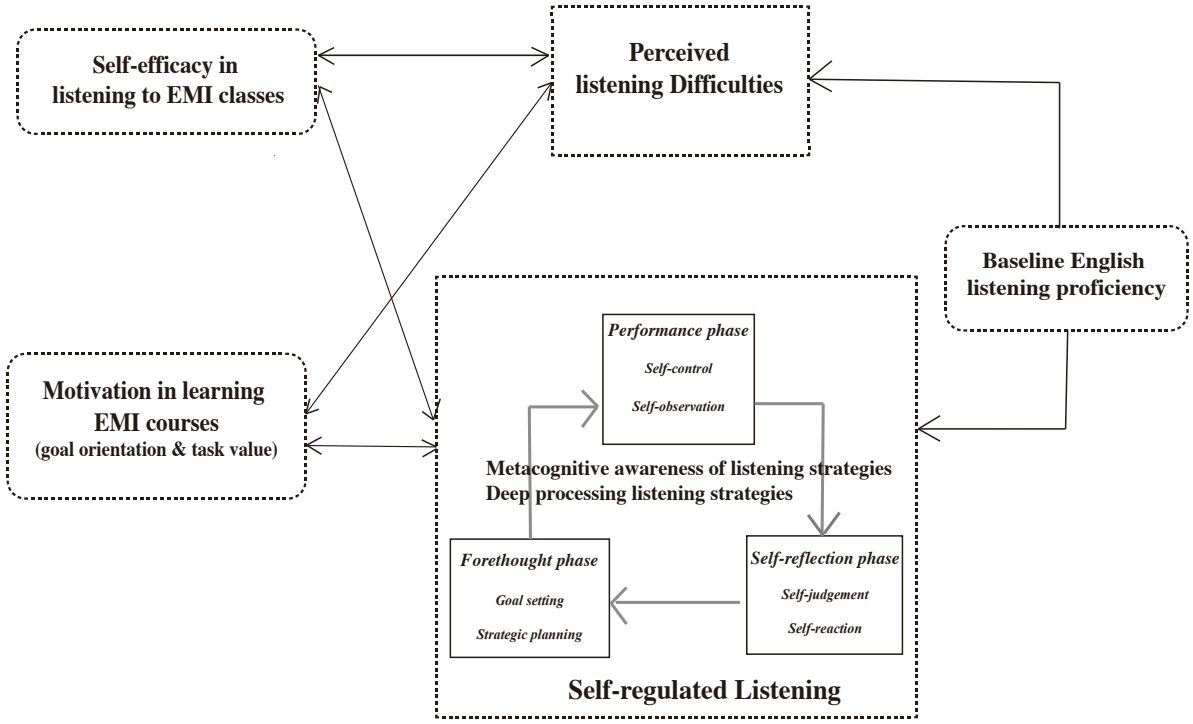
2.7 Conceptual framework of the study

A conceptual framework has been devised to guide the overall design of this study based on a synthesis of literature reviewed above. As Figure 2.2 illustrates, this study is interested in investigating, first, the difficulties that students encounter in listening to EMI classes during the first semester after entering an EMI transnational university. Second, the study examines how students self-regulate their listening in the face of these difficulties during this critical transition period. Students' *baseline English listening proficiency*, *self-efficacy in listening to EMI classes*, and *motivation in learning EMI courses* (i.e., intrinsic and extrinsic goal orientation, and task value) are examined for their respective role in relation to students' *perceived listening difficulties* and *self-regulated listening*. It should be noted that the arrows in the figure do not imply any causal relationships between the constructs, but rather an indication of a hypothesised interplay. As such, the figure suggests that the perceived listening difficulties and self-regulated listening might vary according to students' baseline English listening proficiency. Self-efficacy and motivation, however, might interact with students' perceptions of listening difficulties and self-regulated listening in a reciprocal way.

In terms of ***perceived listening difficulties***, a process-oriented approach, as introduced in Section 2.3, is adopted to examine concrete problems that students encounter regarding various cognitive processes of listening in EMI classes. Zimmerman and Moylan's (2009) socio-cognitive three-phase cyclical SRL model, as detailed in Section 2.4.2.2, serves as an overarching framework for investigating self-regulated listening in this study. ***Self-regulated listening*** is conceptualised to take place through three interactive and cyclical stages, namely the *forethought*, *performance* and *self-reflection* phase. In the *forethought phase*, learners conduct task analysis through *goal setting* and *strategic planning*. In the *performance phase*, students sustain their learning motivation and effort via *self-control* and *self-observation*,

using a variety of strategies to facilitate learning while monitoring and recording their performance. Finally, learners enter the *self-reflection phase*, where they deliver *self-judgement* and *self-reaction* to their learning effort and progress. The study explores how these three self-regulatory stages are carried out both in relation to listening in EMI classes, and out of class for listening practice. Given the important role of *metacognition* and *deep processing strategies* in SRL discussed in Section 2.5.4.1 and 2.5.4.2 respectively, measures for the *metacognitive awareness of listening strategies* and *deep processing listening strategies* are included to comprehensively capture students' self-regulated listening in an EMI HE context during the transition period.

Figure 2. 2. Conceptual framework of the study



Chapter 3 Methodology

3.1 Chapter introduction

This chapter details the methodology adopted in the study. Section 3.2 introduces the aim of the research and lists specific research questions. Section 3.3 explicates the philosophical underpinnings of the study, followed by a rationale in Section 3.4 for the mixed methods longitudinal design of the study. In Section 3.5, details about data collection are elaborated, including information on the settings, participants, instrumentation and procedures. Section 3.6 describes the analytical methods of the data collected to answer the research questions. The methodological limitations are then outlined in Section 3.7 and ethical issues related to the study are discussed in Section 3.8.

3.2 Research aim and questions

The present study aims to examine Chinese students' listening experience at an EMI transnational university during their first semester of study—a critical transition period believed to reflect some of the most radical changes in students' learning (Evans & Morrison, 2011). In particular, it depicts the developmental patterns of challenges that students encounter in listening to EMI classes, and their self-regulated listening in the face of these challenges. Students' *baseline English listening proficiency (BELP), self-efficacy in listening to EMI classes* and *motivation for learning EMI courses* are hypothesised to interplay with their listening experience and thus their roles are explored in relation to the listening difficulties and self-regulated listening.

Specifically, the study addresses the following four overarching research questions (RQ), which are unpacked by the more specific sub-questions listed below each:

1) What listening difficulties do students experience in EMI classes upon entering an EMI transnational university?
   a. What are the listening difficulties perceived by students in EMI classes at the start of the first semester?
   b. What is the role of *baseline English listening proficiency*, *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* in relation to the listening difficulties at the start of the semester?

2) Are there changes in the listening difficulties perceived by students during their first semester of study at an EMI transnational university?
   a. What is the general trend of development of listening difficulties over time?
   b. Do students with different *baseline English listening proficiency* experience changes in listening difficulties differently? If so, how?
   c. What is the role of *self-efficacy* and *motivation* in listening difficulties over time?

3) How do students self-regulate their listening upon arrival at an EMI transnational university?
   a. What strategies do students reportedly use when listening to EMI classes at the start of the first semester?
   b. How do students reportedly self-regulate learning in relation to listening in EMI classes?
   c. How do students reportedly self-regulate learning out of class for listening practice?
   d. What is the role of *baseline English listening proficiency*, *self-efficacy*, and *motivation* in self-regulated learning in relation to listening in EMI classes?

4) Are there changes in the self-regulated listening reported by students during their first semester of study at an EMI transnational university?
   a. Are there changes in the strategies that students reportedly use when listening to EMI classes during the semester? If so, what are the changes?
   b. Are there changes in how students reportedly self-regulate learning in relation to listening in EMI classes during the semester? If so, what are the changes?
   c. Are there changes in how students reportedly self-regulate their learning out of class for listening practice during the semester? If so, what are the changes?

3.3 Philosophical underpinnings

Among the four components in designing a study outlined by Crotty (1998), the first is the issue of philosophical stance, consisting of "a basic set of beliefs that guide inquiries" (Creswell & Plano Clark, 2017, p. 126), and is often referred to as a worldview or a paradigm. The present study is situated within a pragmatist paradigm, which according to Feilzer (2010), prioritises solving questions in the real world rather than strictly and exclusively following assumptions of the nature of knowledge. Ontologically, pragmatism transcends the dichotomy between post-positivism and constructivism, and views the world as both objectively existing and interpretable by individuals in distinctive manners. In line with this ontological position, the epistemological stance of pragmatism is to employ diverse approaches to acquire both objective and subjective knowledge in order to investigate the research questions comprehensively (Creswell & Plano Clark, 2017).

This pragmatic philosophical stance underpins the methodological orientation of the study, which allows for the collection of both quantitative and qualitative data to best address the research questions (Tashakkori & Teddlie, 2010). Unlike in a postpositivist or a constructivist research, pragmatist investigators integrate both inductive and deductive thinking to collect, analyse and interpret a mixture of qualitative and quantitative data (Creswell & Plano Clark, 2017). Sammons (2010) argues that the flexibility of mixed methods to synthesise qualitative and quantitative techniques can cultivate mutual illuminations, add extra explanatory power of the study, and generate new knowledge that outweighs the sum of individual qualitative or quantitative components. The logic of a pragmatist mixed methods design suits the present study because the research questions not only seek to describe the status quo and developmental trend of students' listening experience in EMI HE classes, but also intend to explicate and understand the factors that give rise to the phenomenon. Accordingly,

quantitative data could achieve the former aim by drawing an overview with statistical tools while qualitative data offer in-depth explanations into how the situation comes into being. Hence, a pragmatist paradigm aligns with both the epistemological orientation and methodological decisions employed for the present research.

3.4 A mixed methods longitudinal research design

The history of mixed methods research could be dated back to a paradigm debate in the 1970s and 1980s when scholars of post-positivism and constructivism argued about whether the quantitative and qualitative methods could be combined considering their distinctive philosophical assumptions (e.g., Rossman & Wilson, 1985; Smith, 1983). Although the paradigm reconciliation issue still exists (see Giddings, 2006; Holmes, 2006), the debate dwindled as pragmatism became accepted as the philosophical stance for mixed methods (Tashakkori & Teddlie, 1998). As early as the 1980s, researchers began describing and defining what was conceptualised as mixed methods (e.g., Brewer & Hunter, 1989; Bryman, 1988; Creswell, 1994; Fielding & Fielding, 1986). Johnson et al. (2007) synthesised 19 different definitions from 21 highly cited researchers in reaching a consensus on defining mixed methods:

> Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the purposes of breadth and depth of understanding and corroboration. (p. 123).

This definition extends the scope of mixed methods research to recognise it as a methodology that incorporates various components of a study from data collection to analysis and inferences. The purpose is dual focused, that is, both for understanding and corroboration. In

a similar vein, Creswell and Plano Clark (2017) contend that mixed methods fit a need to not only obtain a more complete picture of a phenomenon but also to cross-validate the results. Creswell and Plano Clark (2017) pinpoint that when researchers investigate a few cases qualitatively, they sacrifice the ability to generalise to a wider population. Conversely, the generic picture drawn from a large-scale quantitative study can hardly shed any light on the perspectives of individuals in depth. Hence, the combination of both methods provides a more complete picture to understand the research questions than either method alone because "the limitations of one method can be offset by the strength of the other" (Creswell & Plano Clark, 2017, p. 70).

The other purpose of mixed methods, as the definition suggests, is to corroborate results using different types of data. The issue is often associated with *triangulation*, a concept that has been discussed for over four decades (see Denzin, 1970). Based on a refined definition, Flick (2008) views triangulation as an approach via which researchers take diverse perspectives, using multiple methods, data, and/or different theoretical approaches, to answer research questions. In a strong form of the approach, Flick et al. (2012) argue that triangulation provides an extra source of knowledge to the question on an equal basis instead of confirming what is already known from the first approach. Hence, triangulation seeks to validate the results by "extend[ing] knowledge potential, rather than to confirm results derived from one method" (Flick et al., 2012, p. 100).

The present study aligns with both purposes of a mixed methods design and integrates qualitative and quantitative methods across multiple stages of the research. Starting as early as the stage of conceptualising key theoretical constructs (see Table 3.1), a mixture of quantitative and qualitative data has been employed to capture the complex and dynamic

nature of the difficulties, self-regulated learning, self-efficacy and motivation relevant to listening in EMI HE classes.

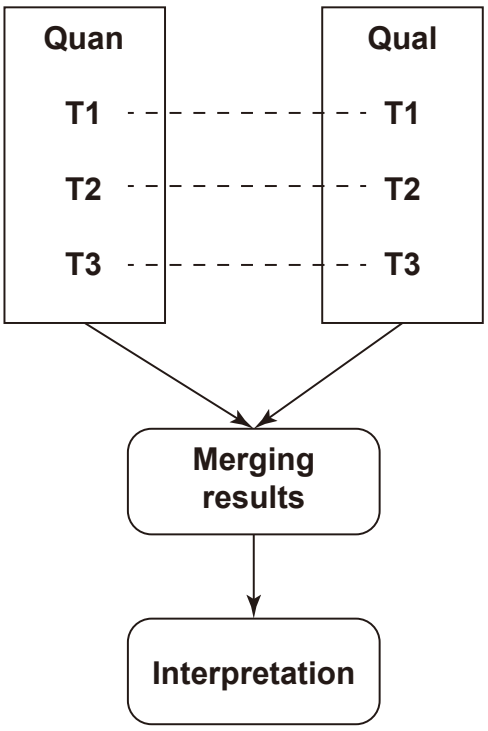
Table 3. 1. Measurements for key constructs of the study

Construct	Measurement
Perceived listening difficulties	**Quan:** • 12-item 6-point Likert scale on 'Perceived listening difficulties in EMI classes' **Qual:** • Semi-structured interviews
Self-regulated listening	**Quan:** • 18-item 6-point Likert scale on 'Metacognitive awareness of listening strategies' • 15-item 6-point Likert scale on 'Deep processing listening strategies' **Qual:** • Semi-structured interviews
Self-efficacy in listening to EMI classes	**Quan:** • 10-item scale ranging from 0 to 100 **Qual:** Semi-structured interviews
Motivation in learning EMI courses	**Quan:** • 14-item 6-point Likert scale on 'Motivation in learning EMI courses' consisting of measures for intrinsic orientation, extrinsic goal orientation, and task value **Qual:** • Semi-structured interviews
Baseline English listening proficiency (BELP)	**Quan:** • Listening scores of Oxford Online Placement Test (OOPT)
Demographic information	**Quan:** Gender, age, major, EAP class level, years of English learning, study/living abroad experience measured by a survey

The study follows what Van Ness et al. (2011) suggest as a 'fully longitudinal design', namely, collecting quantitative and qualitative data across all time points (see Figure 3.1). At each time point, a concurrent triangulation design is adopted (Creswell & Plano Clark, 2017), where the collection of qualitative data and quantitative data has been given equal importance and collected at approximately the same time. Van Ness et al. (2011) warn that fully longitudinal studies have the risks of overburdening the participants by the large amount of data collected simultaneously. Thus, the qualitative data were collected in the following week

of quantitative data to alleviate this concern. Given this short interval of time, the researcher was also able to run a simple initial analysis of the questionnaire data and to integrate the results in the subsequent interviews. This attempt strengthens the connection between the two sources of data and therefore adds to the depth and scope of the issues under investigation. The two strands of data are then integrated and mixed at the analysis stage and jointly inform the interpretation of the results.

Figure 3. 1. A fully longitudinal mixed methods design (adapted from Plano Clark et al., 2015, p. 308)



Note. T1, T2, and T3 represent the first, second and third time point of data collection.

3.5 Data collection

3.5.1 Settings

Data were collected at a Sino-British EMI transnational university located in southeast China. The university was selected because as the earliest joint venture between research-led universities in UK and China (founded in 2006), it has a more developed curriculum

compared to more recent EMI transnational institutions. The university recruits a large and demographically diverse student cohort of around 4000 every year. In Quacquarelli Symonds (QS) Mainland China University Rankings 2019, the university was ranked the 79th of all universities in mainland China and was the only China-foreign university that entered the top 100. By the time the data were collected, the university had 19 academic departments offering 44 undergraduate degree programmes, all of which were taught in English. Bachelor graduates receive two degrees upon the completion of their programmes, including a degree of this university recognised by the Chinese Ministry of Education, and a degree issued by its partner university in the UK.

The undergraduate programmes of the university involve a four-year curriculum and students have the option of completing the last two years at the partner university in the UK. First-year teaching, which was of particular interest of the present study, was delivered jointly by subject teachers from academic departments and EAP tutors at the Language Centre. Students were streamed into six abroad subject groups after enrolment: Business, Humanities, Social Sciences, Built Environment, Industrial Technology, Mathematical Sciences and Science. Students were required to take modules totalling 50 credits during the first year, each credit representing one hour of class contact per week. Modules had credit values of 2.5, 5, 7.5 or 10, depending on the subject or nature of the module.

It was mandatory for all students to take the 7.5-credit EAP module 'Introduction to English for Academic Purposes' during the first semester. Nonetheless, students were streamed into three bands of EAP classes, namely, *high level*, *standard*, and *foundation*, depending on their overall scores in the Oxford Online Placement Test (OOPT) upon arrival (see Section 3.5.3 for a description of the test). The three levels received four, six and eight hours of EAP courses per week respectively, ranging from *high level* to *foundation*. In addition, students

could choose two to three optional courses specific to their subject group up to 10 credits in total, all of which were taught in English. These EMI content modules were delivered in a 'lecture + seminar' format—the lectures usually took place in large classrooms or auditoriums for 200+ students while the seminars were held in small classrooms for around 50 students. Lectures were organised by topic and delivered by a variety of academic staff from relevant departments who had expertise in the subject. Seminars were usually taught by fixed instructors (working in groups of 2-3) either from subject departments or from the Language Centre.

3.5.2 Participants

Negotiation for access started from February 2019 when the researcher was introduced to the deputy head of the Language Centre, after which an email detailing the aim and potential contribution of the research was sent. This led to access for a pre-study pilot with the questionnaire battery (n=122) and semi-structured interviews (n=5) from a group of first-year students who were enrolled in 2018 (see Section 3.5.4 for procedures of the pilot). In August 2019, the researcher travelled to the university and was put in contact with course convenors of three content modules, namely 'Introduction to Communication', 'How Language Works', and 'Business Essentials', all of which were 5-credit modules. Similar to the course structure introduced in Section 3.5.1, the three selected courses of 'Introduction to Communication', 'How Language Works', and 'Business Essentials' also followed a 'lecture + seminar' framework. The lectures of all three courses were taught by academic staff from *School of Humanities and Social Sciences* and *International Business School*, where a variety of guest lecturers were invited to teach one or more topics during the 14-week course. In addition to lectures, seminars of the three selected courses were led by the teaching staff from the Language Centre with either a bachelor or masters degree related to the field of study.

Specifically, the seminar instructor for the course of 'Introduction to Communication' completed a BSc programme in Information and Computing Studies, whereas the instructors for 'How Language Works' and 'Business Essentials' possessed a bachelor degree in Applied Linguistics and Economics respectively. Additionally, they also obtained a language-teaching related degree such as MSc TESOL.

These three modules were chosen because they were coordinated by the Language Centre, which enabled the researcher to gain access to data collection through the director of the centre. Further, since the courses all belonged to 'soft' subjects with an academic discourse involving conceptual understanding via English, students may encounter more difficulties associated with language in these courses than those heavily dependent on scientific and mathematical formulas (Yang & Farley, 2019). However, given the nature of the relatively tight cooperation between academic departments and the Language Centre at the EMI university that this study sampled from, the findings will be mostly transferrable to similar contexts where attention is focused on the quality of education with the integration of language and content.

3.5.2.1 Survey participants

Following a *complete collection* sampling strategy (Cohen et al., 2017), all first-year students enrolled in the three modules described above were invited to participate by completing the questionnaire battery survey. In the second week of the new semester, the researcher briefed students at the end of all target-module EMI lectures about the purpose and contribution of the study. This led to a total of 412 valid responses, among which 267 students majored in *Business*-related subjects while 145 were in *Social Sciences and Humanities*. This ratio largely aligns with the ratio of all Chinese first-year students enrolled in the university in 2019 majoring in Business, Humanities and Social Sciences, among whom those majored in

Business (n=1057) approximately doubled those in *Humanities and Social Sciences* (n=416). The respondents' age ranged from 17 to 20, where the majority were at 18 or 19, making up around 95% (n=391) of the total sample. The participants included around 76% (n=313) of female and 24% (n=99) of male students, similar to the ratio of 7:3 (female: male) manifested in all Chinese students majoring in the afore-mentioned subject areas enrolled at the same year. All of the participants had Mandarin Chinese as the first language. Prior to university, all participants reportedly attended CMI high schools. The majority of the students were streamed into the EAP *standard* class (n=294, 71%), with around 16% (n=65) accepted into *high-level* and the remaining 13% (n=53) into the *foundation* class. This ratio was typical to that in all Chinese students enrolled in 2019 majoring in *Business* and *Social Sciences and Humanities,* in which *standard-class* students made up 74%, while *high-level* and *foundation-class* students occupied 11% and 15% respectively. Students varied in their reported number of years for learning English before university: A total of 268 participants (65%) had learned English for more than nine years; 113 (27%) reported experience of between six to nine years of English study; and only 31 (8%) reported English education less than six years. The large majority (n=356, 86%) of the students had never been abroad at the time the survey was conducted. Among those who had experience abroad, they tended to take short trips of less than a month (n=37, 9%), and occasionally longer sojourns but no more than half a year (n=19, 5%).

An almost inevitable challenge with longitudinal research is the attrition of participants over time, which potentially could introduce bias in the results if the sample composition changes. Multiple measures were adopted to maintain the participants. First, the researcher promised to send a personal customised development report to students individually by the end of the term, which required complete survey data at all time points. Second, the distribution of the survey at all time points was facilitated by the course convenors both in class and via emails

after class. Third, the researcher traced the responses every time after distribution and sent emails to iterate the importance and benefits of the research to the missing participants to encourage further participation. Lastly, those students who completed all three surveys were offered a chance to participate in a lucky draw with values ranging from £5 to £20. The measures seemed to be effective: From Time point 1 (T1) to Time point 2 (T2) the attrition rate was 16.5%, and from Time point 2 to Time point 3 (T3) was a further 6.8%, totalling a 23.3% of attrition rate throughout the duration of data collection. Table 3.2 presents the size and characteristics of the survey sample at three time points.

Table 3. 2. Demographic traits of survey participants at T1, T2 and T3

Variable	Groups	T1 (n=412)	T2 (n=344)	T3 (n=316)
Gender	Female	313	269	246
	Male	99	75	70
Age	17	16	16	13
	18	324	278	248
	19	67	54	52
	20	5	4	3
Major	Business	267	230	209
	Humanities & Social Sciences	145	114	107
EAP class level	High-level	65	52	50
	Standard	294	247	222
	Foundation	53	45	43
Years of English learning	More than 9 years	268	218	202
	6-9 years	113	99	88
	Less than 6 years	31	27	22
Study/living abroad experience	Never been abroad	356	302	275
	Less than 1 month	37	29	28
	1-6 months	19	13	13

According to Graham (2009), data can be 'missing completely at random', 'missing at random' or 'missing not at random'. Only 'missing not at random' could result in biased analysis since the missingness depends on unobserved data. However, as Cox et al. (2014) point out, there is no straightforward method to confirm whether the data is missing at

random or not even though most quantitative educational studies assume that data are missing at random. A common approach for dealing with missing data is listwise deletion (i.e., only using cases with complete data on the variables critical for the analysis), which was employed for the present study. However, Graham (2009) cautions that listwise deletion might cause variations in the parameter estimates between groups with complete data and those with missing data, thus resulting in biased analysis. To address this consideration, a Pearson Chi-Square test was applied to the data to compare the key demographic estimates between the remaining sample and the missing sample. As Table 3.3 shows, the missing cohort was not significantly different from the remaining sample in *gender* ($\chi^2(1) = 2.62$, p = .106), *age* ($\chi^2(2) = 0.04$, p = .981), *major* ($\chi^2(1) = 1.06$, p = .304), *EAP class level* ($\chi^2(2) = 0.70$, p = .704), *years of English learning* ($\chi^2(2) = 1.24$, p = .537), or *study/living abroad experience* ($\chi^2(1) = 0.44$, p = .507), indicating that the sample composition of the remaining participants (n=316) was similar to the complete sample at T1 (n=412) in terms of these key demographic characteristics.

Table 3. 3. Pearson Chi-Square test for the remaining and missing participants for questionnaire battery

Variable	**Group**	**Remaining sample (n=316)**		**Missing sample (n=96)**		**χ^2**	**df**	**Sig.**
		Count	**Expected**	**Count**	**Expected**			
Gender	Female	246	240.1	67	72.9	2.62	1	0.106
	Male	70	75.9	29	23.1			
Age	18	248	248.5	76	75.5	0.04	2	0.981
	19	52	51.4	15	15.6			
	Other	16	16.1	5	4.9			
Major	Business	209	204.8	58	62.2	1.06	1	0.304
	Humanities & Social Sciences	107	111.2	38	33.8			
EAP class level	High-level	50	49.9	15	15.1	0.70	2	0.704
	Standard	223	225.5	71	68.5			
	Foundation	43	40.7	10	12.3			
	> 9 years	202	205.6	66	62.4	1.24	2	0.537
	6-9 years	88	86.7	25	26.3			

Years of English learning	< 6 years	26	23.8	5	7.2			
Study/living abroad experience	Never	275	273.0	81	83.0	0.44	1	0.507
	Yes (<6 months)	41	43.0	15	13.0			

Note. Fisher's Exact Test is interpreted for p value when expected count is below 5.

3.5.2.2 Interview participants

At T1 when the battery of measures was administered via an online survey, students were asked to leave their contact information at the end of the survey if they were interested in the follow-up interviews. Then following a *maximum variation* sampling strategy (Dörnyei, 2007), the interviewees were selected to cover a range of baseline English listening proficiency (BELP) levels. It should be noted that since students were streamed into EAP classes based on the *overall* OOPT score (see Section 3.5.3 for OOPT components), this division did not necessarily reflect their *listening proficiency* upon arrival at the programme, which was of particular interest of the present study. Therefore, a non-hierarchical K-means clustering analysis was used to delineate students into three groups based on their OOPT *listening section score* (see Table 3.4). The interviewees were then sampled from the three groups respectively, which yielded a cohort of 35 students in total.

Table 3. 4. Descriptive statistics of OOPT listening scores by BELP group

Group	**n**	**Mean**	**SD**	**SE**	**Min**	**Max**	**CEFR**
Low proficiency (LP)	99	33.9	7.56	0.76	8	42	Approx. A1-A2
Medium proficiency (MP)	122	50.4	5.42	0.49	43	63	Approx. B1
High proficiency (HP)	93	79.0	8.92	0.93	65	110	Approx. B2-C2

Table 3.5 illustrates the characteristics of the interview participants. An ID number was assigned to each respondent during the data analysis stage for anonymity. The ID indicates both the *BELP* and *major* of a student. For example, 'HP1-H&S' refers to a *high-proficiency*

(HP) learner majoring in *Humanities and Social Sciences (H&S)*. The initial cohort consisted of 35 interviewees. One student dropped out at T2 (noted with * in Table 3.5), and none at T3, leaving a sample of 34 individuals who completed each of the interviews. The remaining sample included 10 male and 24 female participants, where 23 majored in *Humanities and Social Sciences* and 11 in *Business*. The majority were 18 years old, except for four participants at an age of 19. Students were well balanced across BELP levels, including 10 participants from the HP (high-proficiency) group, 12 from the MP (medium-proficiency) group and 12 from the LP (low-proficiency) group. The distribution was slightly different for EAP classes, where 7 participants were from the *high-level* class, 18 from the *standard* and 8 from the *foundation* class.

Prior to university, a total of 19 respondents had received English education for over nine years, 14 of them had an experience between six to nine years, and only one student had learned English less than six years. Most of them had never been abroad except for only seven students who had short sojourns ranging from one week to one month. The final interview sample (n=34) composition was largely representative of the final survey sample (n=316) in gender, age, BELP, EAP class level, years of English learning, and study/live abroad experience.

Table 3. 5. Demographic traits of interview participants

ID	Gender	Age	BELP	EAP class	English learning (years)	Study/live abroad
HP1-H&S	Female	19	83	high level	6-9	2 weeks/Europe
HP2-H&S	Female	18	74	high level	6-9	No
HP3-H&S	Female	18	83	high level	6-9	No
HP4-H&S	Female	18	81	high level	>9	No
HP5-H&S	Female	18	78	high level	>9	1 month/Canada
HP6-Business	Male	18	110	high level	>9	No
HP7-Business	Female	18	81	standard	6-9	No
HP8-Business	Male	18	80	high level	>9	No
HP9-Business	Female	18	76	standard	6-9	No
HP10-H&S	Female	18	77	high level	>9	2 weeks/Germany
MP1-H&S	Female	18	44	standard	6-9	No
MP2-H&S	Female	18	55	standard	>9	No
MP3-H&S	Female	18	49	standard	>9	2 weeks/France
MP4-H&S	Female	18	45	standard	>9	No
MP5-H&S	Male	19	55	standard	>9	No
MP6-H&S	Female	18	53	standard	>9	No
MP7-H&S	Male	18	44	standard	>9	No
MP8-H&S	Female	18	50	standard	6-9	No
MP9-H&S	Female	18	46	standard	>9	No
MP10-H&S	Male	18	44	standard	6-9	No
MP11-Business	Female	18	51	standard	>9	No
MP12-Business	Female	18	52	standard	>9	No
MP13-Business*	Female	17	51	standard	6-9	No
LP1-H&S	Female	18	37	standard	6-9	No
LP2-H&S	Female	18	29	foundation	>9	No
LP3-H&S	Female	18	28	standard	6-9	No
LP4-H&S	Female	19	22	standard	<6	No
LP5-H&S	Female	19	37	foundation	>9	No
LP6-H&S	Female	18	8	foundation	>9	2 weeks/Australia
LP7-H&S	Female	18	31	standard	6-9	2 weeks/Australia
LP8-Business	Male	18	28	foundation	6-9	No
LP9-Business	Male	18	37	foundation	6-9	No
LP10-Business	Male	18	23	foundation	>9	1 week/Thailand
LP11-Business	Male	18	30	foundation	>9	No
LP12-Business	Male	18	30	foundation	6-9	No

Note. * indicates the student who dropped out from the interview at T2; H&S = Humanities and Social sciences.

3.5.3 Instrumentation

Instruments for the data collected in the present study include

- students' listening scores in the Oxford Online Placement Test (OOPT) as a measure for their *baseline English listening proficiency (BELP)* at T1;
- a battery of measures consisting of questionnaires on *listening difficulties, listening strategies*, *self-efficacy*, and *motivation* at T1, T2 and T3 (referred to as a 'questionnaire battery');
- semi-structured interviews on students' *perceptions of listening difficulties*, and *self-regulatory processes related to listening* in and out of EMI classes at T1, T2 and T3.

3.5.3.1 OOPT listening score

All students were required to take the OOPT upon arrival at the university before the start of any courses. Developed by Oxford University Press, the test consists of two sections, that is, a section on the *Use of English* which assesses learners' grammatical and vocabulary knowledge, as well as a section on *Listening* which evaluates students' general English listening ability. The scores were automatically marked, producing scores for the two sections respectively, and an overall score of the test. The total score is 120 and the results are also benchmarked to the Common European Framework of Reference for Languages (CEFR) levels (see Table 3.6). The test has been piloted with thousands of test takers and is continually validated (see Oxford University Press, 2020). In the context of the present study, the university adopted the *overall OOPT score* for streaming students into various EAP class levels. The score for the *listening section*, however, was adopted as a measure of the *BELP* of the participants in the current study.

Table 3. 6. OOPT scores mapped to CEFR levels

Score	CEFR
101-120	C2
81-100	C1
61-80	B2
41-60	B1
21-40	A2
1-20	A1

Note. Table adapted from Oxford University Press (2020).

3.5.3.2 Questionnaire battery

The study used a questionnaire battery to measure a number of variables from all participants at the beginning (T1), halfway (T2) and the end (T3) of the first semester to obtain an overview of the development of their listening experience. The questionnaire battery was developed based on reviewing a substantial amount of relevant literature discussed in Chapter 2. The layout and format of the questionnaire battery was designed based on the guidelines developed by Cohen et al. (2017) and Dörnyei (2007). The questionnaire battery was designed in English (see Appendix 3.1) and was translated into Chinese by the researcher, who specialised in translation during her undergraduate study. It was then back translated and cross-checked by another Chinese researcher, who was doing a PhD in Applied Linguistics at Oxford by then. After that, the Chinese-version of the questionnaire battery (see Appendix 3.2) was piloted with first-year students enrolled in the university in 2018 (n=122) and was revised based on feedback from the pilot.

Information and constructs captured by the questionnaire battery included participants' demographic information, their reported *listening difficulties* and *use of strategies in EMI classes*, and their *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses*. Table 3.7 outlines the definitions, types of measurement, sources from which items were adapted or originated, and the statistical validation method for each measurement. As

could be denoted, the questionnaire of *'Perceived listening difficulties in EMI classes'* and *'Self-efficacy in listening to EMI classes'* were newly developed based on a synthesis of related literature and instruments, from which lists of items were generated. Other questionnaires were adapted from existing scales to suit the context of the present study, where only minor modifications to the wording of the items were made (see Appendix 3.3 for details on the changes of wording). Items of all questionnaires were then examined by several experts in Applied Linguistics for content validity, clarity of wording and readability. After that, the questionnaires were checked for factor structure using either principal component analysis (PCA) or exploratory factor analysis (EFA) with T1 data. For the newly developed questionnaires, a PCA was deemed most appropriate because the goal was to reduce the number of items so that a maximum amount of variance could be explained by fewer items. For the adapted questionnaires, however, an EFA was applied for the purpose of exploring the factor structure with the sample of the present study, which differed from the sample originally used for developing the scales. The reliability of all questionnaires at each time point was examined using Cronbach's alpha.

Table 3. 7. Summary of constructs measured by the questionnaire battery

Construct	Definition	Measure	Source	Validation
Demographic information				
Participants' demographic background	Gender, age, major, EAP class level, years of English learning, study/living abroad experience of the participants.	Nominal scale	N.A.	N.A.
Perceived listening difficulties in EMI classes				
Perceived listening difficulties in EMI classes	Students' perceptions of both general (e.g., *note-taking*) and specific (e.g., *segmenting speech*) difficulties in listening to EMI classes.	12-item 6-point Likert *6= strongly agree* *1= strongly disagree*	Items synthesised from scales on EMI listening difficulties (Evans & Morrison, 2016; Hellekjaer, 2010), and L2 listening difficulties (Chen, 2013; Goh, 2000)	PCA
Listening strategies in EMI classes				
Metacognitive awareness of listening strategies	Students' metacognitive awareness of strategy use when listening to EMI classes (i.e., *directed attention*, *plan-evaluation*, *problem solving*, and *mental translation*).	18-item 6-point Likert *6= strongly agree* *1= strongly disagree*	Adapted from the Metacognitive Awareness Listening Questionnaire (MALQ) (Vandergrift et al., 2006)	EFA
Deep processing listening strategies	Students' reported use of listening strategies that associate new knowledge with existing knowledge meaningfully (i.e., *elaboration*, *organisation*, and *critical thinking*).	10-item 6-point Likert *6= strongly agree* *1= strongly disagree*	Adapted from the 'learning strategy' section of the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1991, 1993)	EFA
Self-efficacy in listening to EMI classes				
Self-efficacy in listening to EMI classes	Students' beliefs in their abilities to listen to and improve listening for EMI classes.	10-item scale with an interval of 10 *0= cannot do at all* *100= highly certainly can do*	Items synthesised from scales on self-efficacy in L2 listening (Graham & Macaro, 2008; Yabukoshi, 2018)	PCA
Motivation in learning EMI courses				
Intrinsic goal orientation	Students engage in EMI courses for internal reasons such as for challenge, curiosity or mastery.	4-item 6-point Likert *6= strongly agree* *1= strongly disagree*	Adapted from the 'motivation' section of the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1991)	EFA
Extrinsic goal orientation	Students engage in EMI for external reasons such as grades, or evaluation of others.	4-item 6-point Likert *6= strongly agree* *1= strongly disagree*		
Task value	Students' perceptions of the interest, importance and utility of EMI courses.	6-item 6-point Likert *6= strongly agree* *1= strongly disagree*		

Questionnaire of 'Perceived listening difficulties in EMI classes'

The questionnaire of *'Perceived listening difficulties in EMI classes'* was informed by two strands of research, namely studies on listening difficulties in EMI HE (Evans & Morrison, 2016; Hellekjaer, 2010), and studies on L2 listening difficulties (Chen, 2013; Goh, 2000). The items from the EMI strand of research focused on general challenges for listening such as *note taking, following teachers' line of thought,* etc. The items from studies on L2 listening, on the other hand, investigated difficulties that existed in various cognitive stages of listening outlined in Anderson (1995), for example, *recognising the linking sounds between words*, which is a *perception-related* problem.

This resulted in a 12-item questionnaire, which was checked using PCA with T1 data. An orthogonal rotation (varimax) method was employed to maximise chances of identifying a variable with a factor. Prior to factor analysis, Bartlett's test of sphericity ($p < .001$) and Kaiser-Meyer-Olkin measure (KMO = 0.935) were examined to ensure both correlations between items and the sample were adequate for conducting PCA. The number of factors for extraction was based on both on eigenvalues and the scree plot (see Appendix 3.4 for the scree plot). Using Kaiser's (1960) criteria, one factor was identified with an eigenvalue above one (eigenvalue = 6.50), which accounted for 54.2% of the total variance. This was checked with the scree plot which also showed a clean-cut inflexion point, suggesting a one-factor solution. The communalities table was checked to ensure that no item had a communality value less than 0.40, indicating each variable had relatively sufficient proportion explained by the extracted factor. Table 3.8 presents the component loadings and the reliability of the questionnaire. As could be seen, the questionnaire demonstrated a Cronbach's α around 0.90 consistently over time, indicating a high reliability.

Table 3. 8. Component loadings and Cronbach's α for the questionnaire 'Perceived listening difficulties in EMI classes'

Item	
I find it difficult to follow teachers' line of thought in EMI classes.	0.84
I cannot understand the key points of teachers' talk in EMI classes.	0.82
The information in EMI lectures is presented too quickly that it hinders my understanding.	0.81
I cannot form a mental representation of what teachers talk about in EMI classes.	0.79
I find words or expressions in EMI classes unfamiliar.	0.75
I miss the next part of teachers' talk when thinking about the meaning.	0.74
Sometimes I do not recognise words I know while listening to EMI classes.	0.73
I cannot recognise the linking sounds between words when listening to EMI classes.	0.72
It is difficult to understand the organisation (structure) of the EMI lectures.	0.72
I have difficulty taking notes in EMI classes.	0.66
When listening to EMI classes, specialist vocabulary is challenging for me.	0.66
It is difficult to understand teachers' accents in EMI classes.	0.56
Eigenvalues	6.50
% of variance	54.15
Cronbach's α at T1	0.92
Cronbach's α at T2	0.89
Cronbach's α at T3	0.91

Questionnaire of 'Metacognitive awareness of listening strategies'

The questionnaire of *'Metacognitive awareness of listening strategies'* used in the present study was adapted from the Metacognitive Awareness Listening Questionnaire (MALQ) developed by Vandergrift et al. (2006), which was originally designed for listeners in L2 learning contexts. However, with only minor adjustments, all items in the MALQ were able to be made applicable to an EMI class context. An example of the amendments is illustrated below with the adjusted part underlined (see Appendix 3.3 for all changes in detail).

The MALQ (a *problem solving* strategy item):
'As I listen, I compare what I understand with what I know about the topic.'

The adapted questionnaire:
'As I listen <u>to EMI classes</u>, I compare what I understand with what I know about the topic.'

EFA with principal axis factoring was employed to explore the underlying factor structure of the adapted 21-item scale for the sample of the present study. An oblique rotation method (direct oblimin) was selected to allow for correlation between factors. Kaiser-Meyer-Olkin measure (KMO = 0.832) indicated that the sample was adequate for EFA and a significant Bartlett's test of sphericity ($p < .001$) confirmed that there were some relationships between items. In examining the table for communalities, however, it was found that two out of three items of the original factor *person knowledge* had low communality values of 0.290 and 0.287, indicating that the items were not sufficiently explained by the extracted factors. Theoretically, the factor measures one's beliefs and affect in listening, which differs from the rest of the items which describe the strategy use. Therefore, the three items pertinent to *person knowledge* were removed from the questionnaire to suit the aim of the present study. An EFA was run again on the remaining 18 items, where a four-factor solution was yielded based on eigenvalues and the scree plot (see Appendix 3.4 for the scree plot). The four factors together explained 59.18% of the total variance.

Table 3.9 lists the factor loadings for the items, which reports all loading values above 0.30. The factor structure of this questionnaire largely aligned with the original factor structure of the MALQ. Only two items which belonged to *plan-evaluation* and *problem solving* respectively switched positions (noted with * in Table 3.9). The item *'Before I listen to EMI classes, I think of similar topics I have listened to'*, which was clustered originally as a *plan-evaluation* strategy, also reflected a tendency to resort to topics stored in one's schemata to facilitate comprehension and tackle problems. Thus, the item could be legitimately considered a *problem-solving* strategy. The item *'As I listen to EMI classes, I quickly adjust my interpretation if I realise that it is not correct'* indicated the monitoring and rectifying process in listening, which was closely related to the evaluation process and was thus clustered to the *plan-evaluation* factor. Cronbach's α was calculated for each factor and the

entire questionnaire across three time points, suggesting a moderate to high internal consistency. As could be seen, Cronbach's α for the factor of *mental translation* yielded only a moderate value between 0.60 to 0.70, which was acceptable but not ideal. However, an inspection of the correlation matrix found that there was a respectable average correlation between items of 0.50 and the deletion of any item did not substantially change the overall α value. It was then decided that all the three items to be retained for this factor.

Table 3. 9. Factor loadings and Cronbach's α for the questionnaire 'Metacognitive awareness of listening strategies'

Item	problem solving	mental translation	directed attention	plan-evaluation
When I guess the meaning of the word, I think back to what I have heard to see if my guess makes sense.	0.86			
I use the general idea of the lesson to help me guess the words I don't understand.	0.72			
I use the words I understand to guess the meaning of the words I don't understand.	0.64			
I use my experience and knowledge to help me understand.	0.50			
Before I listen to EMI classes, I think of similar topics I have listened to. *	0.46			
As I listen to EMI classes, I compare what I understand with what I know about the topic.	0.37			
I translate in my head as I listen to EMI classes.		0.97		
I translate word by word as I listen to EMI classes.		0.53		
I translate key words as I listen.		0.50		
When my mind wanders in EMI classes, I recover my concentration right away.			0.83	
I try to get back on track when I lose concentration.			0.72	
I focus harder on what the teacher talks when I have trouble understanding.			0.68	
When I have difficulty understanding what I hear, I (don't) give up and stop listening.			0.64	
I have a goal in mind as I listen to EMI classes.				0.78
As I listen to EMI classes, I periodically ask myself if I am satisfied with my level of comprehension.				0.69
After listening, I think back to how I listened and what I might do differently next time.				0.57
Before I start to listen, I have a plan in my head for how I am going to listen.				0.44
As I listen to EMI classes, I quickly adjust my interpretation if I realise that it is not correct. *				0.37
Eigenvalues	5.57	2.13	1.63	1.32
% of variance (cumulative)	30.96	42.81	51.85	59.18
Cronbach's α at T1 **Scale:** 0.84 **Factor:**	0.83	0.66	0.80	0.74
Cronbach's α at T2 0.83	0.81	0.67	0.77	0.74
Cronbach's α at T3 0.84	0.83	0.64	0.82	0.75

Note. * indicates the questionnaire items that were clustered to a factor different from the original MALQ.

Questionnaire of 'Deep processing listening strategies'

The questionnaire of *'Deep processing listening strategies'* was adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) validated by Pintrich et al. (1991, 1993). The MSLQ was designed to evaluate the motivational orientations and learning strategies of university students, hence consisting of a *motivation* section and a *learning strategy* section. The MSLQ is comprised of 15 subscales in total which can be used independently or together. The *learning strategy* section of the MSLQ measures four types of cognitive strategies, namely *rehearsal*, *elaboration*, *organisation* and *critical thinking*. The present study selected three of them, which according to Oxford's (2011) definition of *deep processing strategies*, were those that "facilitate understanding, increase meaningful mental associations, and are the most useful strategies for the long-term retention of information" (pp. 29-30). As a result, a 15-item questionnaire was adapted from the MSLQ with minor revisions made to the wordings of the items to suit an EMI listening context. The example below illustrates how the items were adapted with the underlined part showcasing the changes (see Appendix 3.3 for a full list of changes).

The MSLQ (an *elaboration* strategy item):
'When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions.'

The adapted questionnaire:
'<u>When I listen</u>, I pull together information from different sources to help me understand, such as <u>pre-reading materials, slides, etc</u>.'

Similarly, EFA with principal axis factoring was conducted to explore the factor structure of the adapted questionnaire within the contextualised sample of the study. The oblique rotation method direct oblimin was adopted to allow factors to correlate. The Bartlett's Test of

Sphericity ($p < .001$) and the Kaiser-Meyer-Olkin measure (KMO = 0.908) suggested that the assumptions of correlations between variables and sample adequacy were met. The table of communalities detected no items with a communality value below 0.40. Results of the scree plot (see Appendix 3.4) and eigenvalues indicated a three-factor solution, which explained 64.29% of the total variance. Table 3.10 presents the factor loadings for the items and the internal consistency of each factor as well as of the questionnaire over time. The factor structure totally matched the clustering of items of the MSLQ and the Cronbach's α showed that each factor was moderately or highly reliable across time points. The overall questionnaire also yielded high reliability with the Cronbach's α at all three time points above 0.85.

Questionnaire of 'Motivation in learning EMI courses'

The questionnaire of *'Motivation in learning EMI courses'* measured three value- or goal-related motivational constructs, namely *intrinsic goal orientation*, *extrinsic goal orientation* and *task value* that drive students to learn subject content through English. This questionnaire was adapted from the MSLQ *motivation* section mentioned earlier (Pintrich et al., 1991, 1993). The section originally includes three components: 1) a *value* component measuring goals and values for studying a course, 2) an *expectancy* component on learners' beliefs in their capabilities to succeed, and 3) an *affective* component assessing anxiety about tests. All three subscales in the *value* component were chosen because they matched with the target constructs of the study. Similar to other adapted questionnaires, the item wordings were amended to fit an EMI learning context, as shown by the example below and Appendix 3.3 lists full changes that were made for adapting the questionnaire.

The MSLQ (an *intrinsic goal orientation* item)
'In a class like this, I prefer course material that really challenges me so I can learn new things.'

The adapted questionnaire:
'As I listen in EMI classes, I prefer content that really challenges me so I can learn new things.'

The 14-item questionnaire was then subject to an EFA (principal axis factoring) with oblique rotation (direct oblimin), which assumed that factors were correlated. Bartlett's test of sphericity ($p < .001$) and Kaiser-Meyer-Olkin measure (KMO = 0.852) produced results that were adequate for the analysis. In checking the table for communalities, however, two items had a low communality value of 0.297 and 0.293 respectively (i.e., *'When I have the opportunity in EMI classes, I choose course assignments that I can learn from even if they don't guarantee a good grade'*, and *'The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible'*). However, both items had a moderately high loading on the factor *intrinsic goal orientation* with a value of 0.56 and 0.53 respectively, the deletion of which led to a markedly lowered Cronbach's α for the factor. Hence, the two items were retained. The Kaiser's criteria and the scree plot (see Appendix 3.4) delineated a three-factor solution that explained 46.27% of the total variance. Table 3.11 presents the factor loadings of the items, which resembled the factor structure of the original MSLQ. The overall questionnaire had a consistently high reliability value around 0.85 over time, as too with the individual factors whose Cronbach's α all exceeded 0.70.

Table 3. 10. Factor loadings and Cronbach's α for the questionnaire 'Deep processing listening strategies'

Item				**elaboration**	**organisation**	**critical thinking**
When I listen, I try to relate what the teacher says to what I already know.				0.79		
When I listen, I try to understand the concepts in this class by making connections with what I read before the class.				0.78		
When I listen, I pull together information from different sources to help me understand, such as pre-reading materials, slides etc.				0.66		
When I listen, I try to relate ideas in this lesson to those in other lessons whenever possible.				0.59		
When I listen, I write brief summaries of the main ideas of what teacher talks.				0.41		
I try to apply ideas I listened in the class in other class activities such as discussion.				0.35		
After the class, I go over my class notes and make an outline of important concepts.					0.82	
After the class, I go through my class notes and try to find the most important ideas.					0.69	
As I listen, I make simple charts, diagrams, or tables to help me organise what I hear in class.					0.69	
As I listen, I outline key points to help me organise my thoughts.					0.48	
Whenever I hear an assertion or conclusion in this class, I think about possible alternatives.						0.80
When a theory, interpretation, or conclusion is presented in class, I try to decide if there is good supporting evidence.						0.77
I treat what I hear in class as a starting point and try to develop my own ideas about it.						0.73
I often find myself questioning things I hear in this course to decide if I find them convincing.						0.70
I try to play around with ideas of my own related to what I hear from the teacher.						0.67
Eigenvalues				6.71	1.61	1.32
% of variance (cumulative)				44.74	55.47	64.29
Cronbach's α at T1	**Scale:**	0.91	**Factor:**	0.84	0.84	0.84
Cronbach's α at T2		0.88		0.82	0.77	0.84
Cronbach's α at T3		0.89		0.87	0.86	0.86

Table 3. 11. Factor loadings and Cronbach's α for the questionnaire 'Motivation in learning EMI courses'

Item	**task value**	**extrinsic goal orientation**	**intrinsic goal orientation**
I am very interested in learning subject content through English.	0.83		
I like the subject matter of EMI courses.	0.80		
I think learning subject knowledge through English is useful for me.	0.73		
It is important for me to learn subject knowledge through English.	0.51		
Understanding the subject matter of EMI courses is very important to me.	0.48		
I think I will be able to use what I learn in EMI course in other courses.	0.46		
The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade.		0.70	
Getting a good grade in EMI classes is the most satisfying thing for me right now.		0.66	
If I can, I want to get better grades in EMI classes than most of the other students.		0.55	
I want to do well in EMI classes because it is important to show my ability to my family, friends, employer, or others.		0.49	
In an EMI class, I prefer topic that arouses my curiosity, even if it is difficult to understand.			0.78
When I have the opportunity in EMI classes, I choose course assignments that I can learn from even if they don't guarantee a good grade.			0.56
The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.			0.53
As I listen in EMI classes, I prefer content that really challenges me so I can learn new things.			0.50
Eigenvalues	5.03	1.88	1.16
% of variance (cumulative)	32.32	41.85	46.27
Cronbach's α at T1 **Scale:** 0.85 **Factor:**	0.85	0.71	0.71
Cronbach's α at T2 0.85	0.87	0.76	0.72
Cronbach's α at T3 0.85	0.87	0.71	0.76

Questionnaire of 'Self-efficacy in listening to EMI classes'

Items for the questionnaire of *'Self-efficacy in listening to EMI classes'* were synthesised from existing scales on self-efficacy in L2 listening (Graham & Macaro, 2008; Yabukoshi, 2018). In line with Bandura's (1997) definition of the domain-specific nature of perceived efficacy, the wordings of the items were tailored specifically to measuring students' beliefs in their capabilities of listening and improving listening for EMI classes. The scale format adopted Bandura's (2006) standard of a 100-point scale, ranging in 10-unit intervals from 0 (cannot do at all), through the middle point 50 (moderately certain can do), to 100 (highly certainly can do).

The 10-item self-efficacy questionnaire was subject to a PCA with orthogonal rotation (varimax). Bartlett's test of sphericity ($p < .001$) and Kaiser-Meyer-Olkin measure (KMO = 0.949) were checked prior to the analysis. Both Kaiser's criteria and the scree plot (see Appendix 3.4) confirmed a one-factor solution for the scale which explained 76.2% of the total variance. The table of communalities showed that all items had a communality value higher than 0.60. The reliability of the scale was calculated using Cronbach's α at all time points, which showed a consistently high α value of above 0.95 (see Table 3.12).

Table 3. 12. Component loadings and Cronbach's α for the questionnaire 'Self-efficacy in listening to EMI classes'

Item	
I can understand teachers' talk in EMI classes better than other students.	0.91
I can learn English effectively to improve my English listening skills.	0.91
I am good at listening to subject knowledge taught in English.	0.90
I am capable of using listening skills to enhance my understanding in EMI classes.	0.89
I can understand the knowledge details in EMI classes.	0.89
I can use strategies to improve my listening skills for EMI classes.	0.89
I can learn to improve my listening skills for EMI classes in my own way.	0.85
I can learn to improve my English listening skills more creatively than other students.	0.85
I can understand the general idea of EMI lectures.	0.83

I can work out the meaning of unknown words in teachers' talk in EMI classes.	0.80
Eigenvalues	7.62
% of variance	76.20
Cronbach's α at T1	0.97
Cronbach's α at T2	0.97
Cronbach's α at T3	0.96

3.5.3.3 Semi-structured interviews

Semi-structured interviews were employed in the study to obtain an in-depth qualitative narrative that sought to triangulate with and explicate the quantitative trend displayed by the results of the questionnaire battery. Previous studies have found semi-structured interviews useful for tracing changes in students' learning difficulties during first-year EMI programmes (e.g., Evans & Morrison, 2011, 2016). The method has also been acclaimed for revealing changes in L2 listeners' strategic behaviour in longitudinal research, and for exploring the factors that lead to the changes (e.g., Rose & Harbon, 2013; Yeldham & Gruba, 2016; Zeng & Goh, 2018).

The interviews included three sections. The first section asked about the participants' prior English learning experience. This prepared the students for the more specific and in-depth questions later. The second section involved questions concerning the difficulties that students discerned in listening to EMI classes. The third section then tapped into their self-regulated learning both in relation to listening in EMI classes and for listening practice out of class. A group of pre-set questions (see Table 3.13 for an overview) were initially designed based on the relevant literature reviewed on listening difficulties and SRL in Chapter 2. The questions were designed as open and general as possible for two purposes: first, to reduce the possibility of interfering with students' behaviours; second, to allow for enough flexibility for the emergence of new themes from the participants' elaboration (Dörnyei, 2007). Probes

were provided to encourage further and deeper discussion surrounding each question (see Appendix 3.5 and 3.6 for the detailed interview protocol in English and Chinese). Some probes were improvised and personalised for the interviewees when they tapped into interesting new themes.

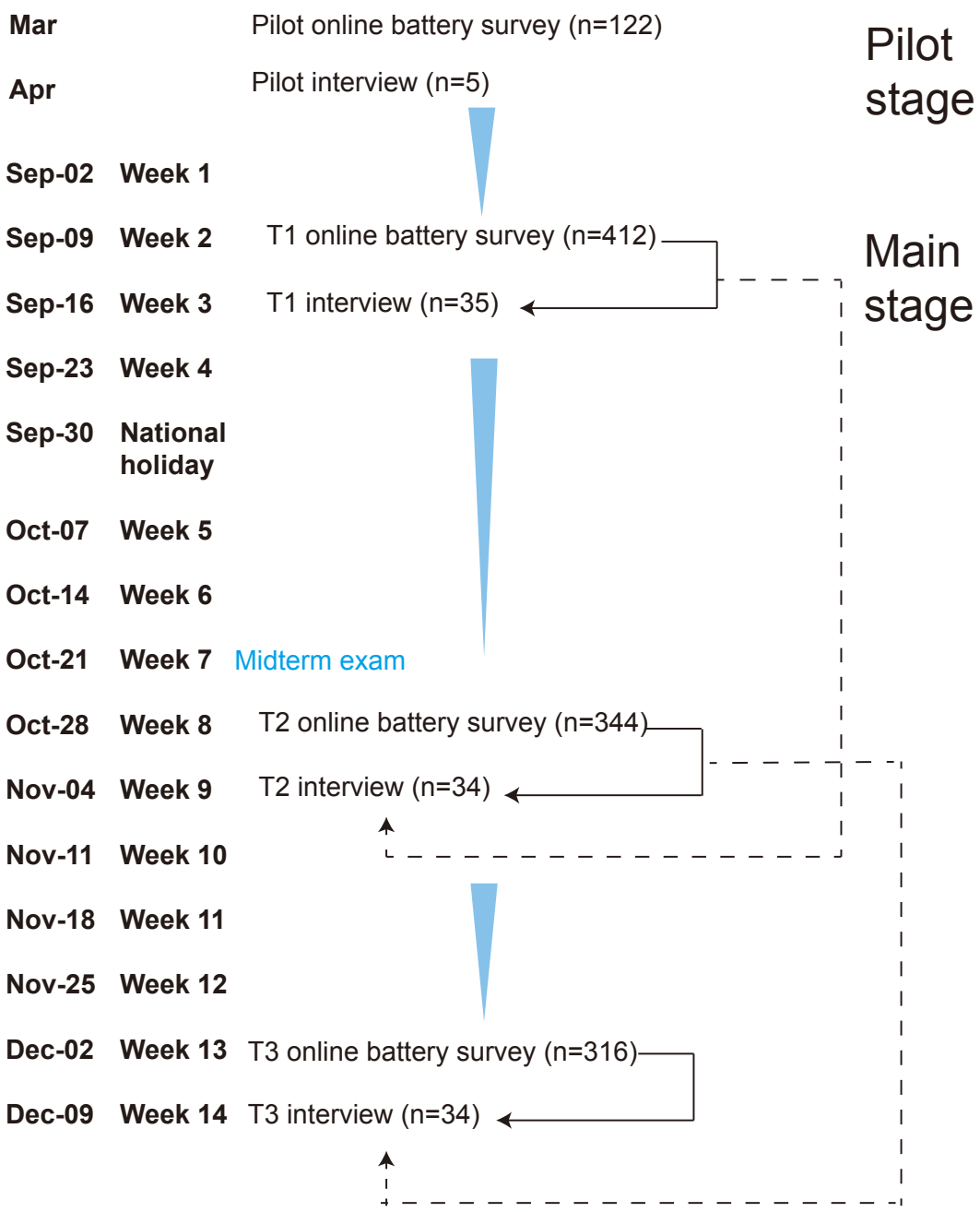
Table 3. 13. An overview of questions for semi-structured interviews

Prior English learning experience
➢ Could you brief me about your previous experience of English learning?
➢ Before coming to this university, have you learnt any sort of subject knowledge through English or participated in extra-curricular activities that used English to communicate?
Perceived listening difficulties
➢ What were the aspects that you found difficult in listening to EMI classes (today)?
SRL in relation to listening in EMI classes
Forethought phase
➢ What listening expectations (goals), if any, did you set for yourself before listening to EMI classes?
➢ What plans, if any, did you make for achieving the expectations (goals)?
Performance phase
➢ How did you feel (emotionally) when you listened to EMI classes?
➢ How did you feel about your attention while listening?
➢ While listening to EMI classes, were you aware of any problems in your listening processes?
Self-reflection phase
➢ How did you feel/think about your experience after listening to EMI classes?
➢ What would you like to do (change) for listening in EMI classes in the following weeks?
SRL for out-of-class listening practice
Forethought phase
➢ What listening expectations (goals), if any, do you set yourself for listening practice?
➢ What plans, if any, have you made for achieving the expectations (goals)?
Performance phase
➢ How have you implemented the plans? Could you describe your practice process in detail?
➢ How do you feel (motivationally/emotionally) when you practice listening?
Self-reflection phase
➢ What are the changes (progress), if any, have you made in listening (since our last interview)?
➢ How would you like to practice listening in the following weeks?

3.5.4 Procedures of data collection

Figure 3.2 presents an overview of data collection in both the pilot and the main stage. The pilot took place in late March and early April of 2019, which aimed primarily at improving the research instruments and procedures. The participants for the online (questionnaire) battery survey, who were recruited via convenience sampling, involved 122 first-year students enrolled at the university in 2018 who selected the three target EMI modules outlined in Section 3.5.2. The researcher then recruited five respondents from the online battery survey to pilot the interview protocol. Prior to the interview, they were asked to provide advice on revising the wording of the questionnaire items to enhance the clarity and preciseness. After that a 30- to 45-minute interview was delivered individually to each interviewee in person. Students were asked to provide feedback on the wording and sequencing of the questions and suggest additional ones that they considered relevant. The researcher then revised the questionnaire battery and the interview protocol based on a synthesis of the feedback and advice from the respondents.

Figure 3. 2. Overview of the procedures of data collection



Access to the main data collection was negotiated from May to July 2019 during which the researcher completed the ethical checks of the study required both by Oxford University and the university where data were collected from. In August the researcher travelled to the university and was introduced to the course convenors of the three target EMI modules via

the deputy head of the Language Centre. As Figure 3.2 shows, the main stage consisted of three time points of data collection (i.e., T1, T2, and T3), each including a set of questionnaire battery data and interview data. It was agreed that the questionnaire battery data be collected at Week 2, 8 and 13 through the online survey platform Qualtrics. The questionnaire battery at all time points was distributed immediately after an EMI lesson during the class break, which aimed at enhancing the accuracy and ease for responses. Each time the questionnaire battery was administered via online survey, an electronic consent form preceded students' responses. At the end of each survey, notice was given regarding the approximate time for the next time of collection and the expected time for an individual diagnosis report. Measures taken to reduce the attrition rate are detailed in Section 3.5.2.

At each time point of data collection, interviews were arranged in the following week after the questionnaire battery was distributed (Week 3, 9, 14). All the interviews were conducted on an individual basis, and in a face-to-face manner in a meeting room on campus. The interviews were arranged, as much as possible, on the same day that students had attended EMI classes to improve the accuracy of their depiction of listening experience. At the first time point of data collection, the researcher briefed each interviewee about the aim of the study, stressing that their responses would be kept in strict confidentiality, after which a paper consent form was signed. All participants were promised a one-hour consultancy session on their future master's programme application after the last interview to encourage their continued involvement. Each interview lasted between half to one hour and was audio-recorded. Chinese was used throughout the interviews to create a relaxing environment and encourage students' engagement.

The collection and analysis of quantitative and qualitative data informed each other in a cyclical manner throughout the three time points of data collection. As indicated by the solid

arrow line in Figure 3.2, within each time point the researcher first preliminarily analysed the general tendencies of questionnaire battery data both for the total survey sample and the interviewees during the weekend after distribution. The researcher then sought explanations for the aspects where individual respondents either conformed to or deviated from the general survey tendencies at the subsequent interviews. The interviews were partially transcribed after each time point, where salient themes were noted down. Then from the second time point onwards, the interview protocol was informed by the collated preliminary analysis of quantitative and qualitative data from the previous time point, as indicated by the dotted arrow line in Figure 3.2. For example, if a surge in the mean value on an item of *listening difficulties* was spotted from the questionnaire battery data from T1 to T2, then students would be asked to describe their perceptions concerning the item over the period of time and to reflect on the reasons that led to the changes.

3.6 Data analysis

3.6.1 Analysis of quantitative data

After the completion of the last time point of data collection, the questionnaire battery datasets from all three time points were imported into SPSS version 25.0 directly from the online survey platform Qualtrics to avoid inaccurate data entry. The three datasets were first cleaned individually, deleting any responses with a completion rate lower than 77% to ensure that the participants at least completed one of the questionnaire measures. The three datasets were then merged into a longitudinal set where repeated responses of every student were matched via a university ID. This resulted to a final dataset of 316 students, each with matched responses at three time points.

Next, negatively worded questionnaire battery items were recoded to reverse the values. A mean value was computed for each variable (construct) from all related items verified through the factor analysis and the reliability tests detailed earlier in Section 3.5.3. The researcher inspected outliers for all newly computed variables using boxplots. Missing values were then defined and listwise deletion was employed in all statistical analyses. For the present study, listwise deletion was deemed more appropriate than other methods of handling missing values. As Allison (2002) argues, "whenever the probability of missing data on a particular independent variable depends on the value of that variable (and not the dependent variable), listwise deletion may do better than maximum likelihood or multiple imputation" (p. 7). Listwise deletion was also considered better than pairwise deletion since the latter would easily result to biased statistics derived from a variance-covariance matrix, for example, the regression coefficient (Cox et al., 2014).

After that, the dataset was ready for the statistical tests to answer the research questions. Statistical tests were selected based on the types of questions, which could be largely divided into the following three categories:

1. Questions that require descriptive statistics to supplement the qualitative data in depicting *listening difficulties* and *self-regulated listening* reported by students at T1 (i.e., RQ 1a, and 3a).

2. Questions that require inferential statistics to display the longitudinal trend for the development of *listening difficulties*, *self-regulated listening*, *self-efficacy* and *motivation* (i.e., RQ 2a, 2b, 2c, and 4a).

3. Questions that require inferential statistics to measure the role of students' *baseline English listening proficiency, self-efficacy* and *motivation* in their reported *listening difficulties* and *self-regulated listening* (i.e., RQ 1b, 2c, and 3d).

For the first type of questions, descriptive statistics such as the mean, standard deviation, minimum and maximum values were calculated to outline the reported *listening difficulties* and *listening strategies* at the outset of the semester. As could be noted, apart from the first type of questions, the rest three all required tests of inferential statistics. The analysis for these questions involved a series of parametric tests, such as t-tests, ANOVA, MANOVA, regression analysis and multilevel modelling, all of which required a number of assumptions specific to the tests. These assumptions were checked and are reported prior to the analysis results in its respective chapter of findings.

The second type of questions required tests that could demonstrate the longitudinal development of the variables. Barkaoui (2014), based on a review of longitudinal quantitative L2 research, suggests six statistical approaches, ranging from the traditional repeated measures univariate and multivariate analysis of variance, for example, repeated measures ANOVA, to multilevel modelling or latent growth curve modelling. Because the study was interested in the average change patterns instead of the intra-individual variations (Collins, 2006), methods of repeated measures analysis of variance and multilevel modelling were considered sufficient and appropriate. A two-level multilevel modelling analysis was used to explore first, if students' reported *listening difficulties* changed significantly over time to answer RQ 2a, and second, whether the *rate of change* differed according to their BELP score to address RQ 2b. To address RQ 2c, one-way repeated measures ANOVA was conducted to examine the longitudinal development of students' *self-efficacy* and *motivation*, the results of which supplemented the qualitative analysis of the interplay among variables over time. RQ 4a intended to measure the longitudinal changes of two key components of *self-regulated listening*, that is, the *metacognitive awareness of listening strategies* and *deep processing listening strategies* reported by students. Since each component was comprised of a handful of sub-strategies, its analysis followed Vandergrift and Tafaghodtari's (2010)

adoption of repeated measures MANOVA to first examine the *time* effect on the two sets of strategies holistically. Univariate repeated measures ANOVA was then delivered to detangle the *time* effect on each sub-strategy individually.

The third type of research questions sought to quantify the role of students' *BELP, self-efficacy* and *motivation* in their reported *listening difficulties* and *strategy use*. A simultaneous multiple regression was used to answer RQ 3d, as students' BELP, self-efficacy and motivation were all presumed to be important for their reported strategy use and were thus input as predictor variables at the same time. A hierarchical multiple regression analysis was conducted for RQ 1b, in which the basic demographic variables were entered first into the model, followed by BELP, and then self-efficacy and motivation to allow the researcher to examine the change in total variance explained ($\triangle R^2$) of the outcome variable (i.e., listening difficulties) associated with different sets of predictor variables at T1. Then in answering RQ 2c, simultaneous multiple regression was employed to examine the contribution of self-efficacy and motivation to listening difficulties at all three time points to explore whether their role remained consistent throughout the first semester.

3.6.2 Analysis of qualitative data

After three time points of data collection, the researcher transcribed the audio recordings in Microsoft Word. In line with Roulston's (2014) suggestion, the transcripts were edited to improve the clarity and readability for analysing topical content:

- Utterances that were seen not to contribute to the analysis such as 'um,' 'uh,' 'like' 'well' were deleted.
- Words added for clarity were noted with square brackets [].
- Stressed words were noted by underlying (e.g., <u>very</u>).

A total of 102 transcripts were generated and imported into NVivo 11 for data analysis, which was conducted in Chinese. Thematic content analysis was implemented which coded the data into a range of analytical categories. These categories were developed based on an integrative approach, which were informed both by theories and research questions in a top-down manner, and enriched and refined based on data in a bottom-up way (Kuckartz, 2014). This approach is similar to what Rose et al. (2019) describe as "abductive reasoning" (p. 94), which allows the use of theories to support and inform the construction of bottom-up logic. The procedures of analysing the data mainly followed the guidelines of the thematic qualitative analysis process proposed by Kuckartz (2014), which were supplemented with Schreier's (2014) guidelines of qualitative content analysis. The analysis procedures are detailed below:

Initial work with texts: In this stage, the researcher first read transcripts carefully and thoroughly, highlighting passages that were relevant to the research questions. Memos were made when certain responses were particularly interesting, relevant and enlightening to the research questions. After that, a case summary was developed for each participant at each time point, synthesising key factual statements of each case relevant to the research questions.

Developing the main categories: The main categories were developed *a priori* from the main interview questions, which reflected the related literature. The development of main categories was ensured to meet the requirement of *unidimensionality* (Schreier, 2014), meaning that each main category covered one concept only. This resulted in five overarching categories of 'perceived listening difficulties in EMI classes', 'self-efficacy in listening to EMI classes', 'motivation in learning EMI courses', 'SRL in relation to listening in EMI classes', and 'SRL for out-of-class listening practice'. For the two categories related to SRL,

the three phases of 'forethought', 'performance' and 'self-reflection' were also incorporated under each category because they were mapped with different sets of interview questions clearly.

First coding—coding data using the main categories: In this stage, the researcher read the individual transcripts section by section and assigned the pertinent passages to the main categories while leaving the irrelevant parts to form a 'residual category'. The passages were coded by *units of meaning*, that is, each coded part could still make sense when taken out of its context. Passages that were relevant to multiple main categories were coded to all these categories repetitively and respectively, which allowed for the retrieval of themes indicative of relationships between main categories in the analysis using the 'matrix coding' function.

Creating sub-categories: After the initial coding was completed, the researcher used the 'matrix coding' function on NVivo to retrieve passages coded under each main category at all three time points. A list of sub-categories was first created from the data coded within each main category at each time point. The data-driven creation of sub-categories followed the requirement of *mutual exclusiveness* and *exhaustiveness* (Schreier, 2014). This ensured that any unit of meaning was coded only once under one main category, and all relevant passages were covered by a sub-category. After that, the sub-categories were systemised, where some sub-categories were grouped together into more general ones so that they were consistent and comparable across time. The researcher then referred back to the literature to name and define the sub-categories in NVivo to generate the coding framework.

Second coding—piloting and coding all data using sub-categories: The coding framework was first piloted, where the researcher and another coder, who was a Chinese-English bilingual PhD candidate in Applied Linguistics at the university where data were collected, independently coded three transcripts using the coding framework. After that, the two coders

discussed and revised the definitions of the sub-categories to finalise the coding framework (see Appendix 3.7 for the coding framework). After that, the researcher went through the data again and assigned all data under each main category to the newly developed framework of sub-categories.

Category-based analysis of data: After all data were coded, the researcher then proceeded to the stage of analysing the categories and sub-categories. This step was delivered with regard to the types of research questions investigated in the study, which is explicated next. Excerpts of the interview data for presentation were translated into English by the researcher of this doctoral study, and were back-translated into Chinese by another researcher who was doing a PhD in Applied Linguistics at Oxford to check the accuracy of translation (see Appendix 3.8 for a sample of the translated excerpt). The interview data were analysed to provide answers to the following three types of questions:

1. Questions regarding the cross-sectional descriptions of *listening difficulties* and *self-regulated listening* reported by the students at the beginning of the first semester (i.e., RQ 1a, 3b, and 3c).

2. Questions regarding the longitudinal changes of *listening difficulties* and *self-regulated listening* reported by the students throughout the first semester (i.e., RQ 2b, 3b, 3c, 4b and 4c).

3. Questions regarding the role of *BELP*, *self-efficacy* and *motivation* in relation to the reported *listening difficulties* and *self-regulated listening* (i.e., 1b, 2c, and 3d).

The first type of questions sought to describe the thematic categories belonging to the two key constructs of the study, namely, students' self-reported *listening difficulties* and *self-regulated listening* at T1. This descriptive step of presenting the categories and sub-categories is an initial procedure for understanding the phenomenon (Kuckartz, 2014). The

analysis involved exploring the frequencies of the themes that emerged within categories, and then qualitatively describing the respondents' comments in relation to the themes. The *frequency* of the themes refers to the *number of interviewees* who commented on a particular theme and is indicated with a bracket following the theme. For example, '*understanding the literal meaning of teacher language* seemed to be the primary goal for many students (n=13)' means the theme was talked about by 13 respondents during the interview. Then the qualitative description offers details on how the theme was talked about. For example, one of the participants might talk about 'comprehend[ing] all sentences to practice listening' (HP5-H&S) when the theme was mentioned.

The second type of questions investigated the longitudinal development of students' *listening difficulties* and *self-regulated listening* across three time points of the semester. As Thomson and Holland (2003) note, a key challenge for analysing longitudinal qualitative data is how to balance between the continuity of individual cases and the comparability of patterns across cases. Hence, the analysis was conducted in consideration of both aspects. To preserve the continuity of narratives, at the stage of '*Initial work with texts*', the researcher read through the transcripts of each case across all three time points and developed case summarises that highlighted 'turning point' experiences across time (Saldaña, 2003). Such a 'turning point' could be, for example, a student, at the midterm, noted a progress in segmenting speech when (s)he suddenly realised that some expressions were repetitively used and became recognisable. Then using the 'matrix coding' query function in NVivo, all passages coded under each pertinent sub-category could be extracted at distinct time points. This allowed the researcher to count reference frequencies of particular themes over time, while also making it possible to compare how the respondents described these themes as time went by. The development patterns could then be summarised based on the longitudinal comparisons, which were cross-checked with the case summaries made earlier. Any disparities between

these summarised patterns and the trajectory of an individual case were then reviewed to explore reasons for peculiarities, which added a new perspective to the narrative.

The third type of questions explored the role of *BELP*, *self-efficacy* and *motivation* in interacting with the *listening difficulties* and *self-regulated listening* reported by the students. During the coding stage, pieces that indicated connections between categories were coded respectively at both categories. For example, when a student stated that 'actually, when you are not confident or don't feel you can make it, you don't have the drive to continue listening and that affects the following process' (MP12-Business, T1), the student tapped into both the category of 'self-efficacy in listening to EMI classes' and 'perceived listening difficulties in EMI classes'. This piece of data would then be coded under the two categories respectively and became retrievable using the 'matrix coding' query function in NVivo. These references were then compiled, organised and summarised to reveal the association and interplay between categories as comprehensively as possible.

3.7 Methodological limitations

Despite the careful design of the study, it is still subject to several methodological limitations. The first potential limitation is the use of questionnaires to measure complex and dynamic constructs such as *listening strategies* instead of adopting methods such as stimulated recall interviews (e.g., Macaro et al., 2019; Soruç & Griffiths, 2018), which might offer more task-specific and contextualised description of the strategy use. Although stimulated recall was considered when designing the study, it was found impossible to implement due to prohibitions on the video recording of classes regulated by the university. As such, semi-structured interviews were adopted to offset this limitation, which offered more in-depth examination of the self-regulatory and strategic processes of students in an EMI HE context. Nevertheless, the limitations of using questionnaire for investigating strategies are discussed

below, and the measures taken to mitigate these shortfalls during data collection and analysis are introduced.

Cohen and Macaro (2007) point out three major threats in using questionnaire for strategy research: the participants might inaccurately interpret the strategy descriptions, report strategies not in use, or fail to recall strategies used in the past. In an attempt to alleviate these problems, the researcher first asked five students to explain their understanding on the items of the questionnaire battery during the pilot, and polished the item wording afterwards to increase the accuracy of descriptions. Then during data collection at the main stage, the questionnaire battery was administered immediately after EMI classes so that effort to recall could be reduced. Lastly, the semi-structured interviews were also arranged on the same day that students attended EMI classes as much as possible to provide triangulation with the questionnaire data. Admittedly, despite these considerations, there might still exist issues such as the 'unskilled and unaware effect', that is, lower performing students might be more likely to be unaware of their strategies or report inaccurately. Students might also want to appear to be studying more than they were and thus reported more strategies that they genuinely used. To offset this issue, the researcher explained to the students that their responses would be kept anonymous and have no effect on their grades to reduce their incentives to over emphasise their strategic behaviours.

Another challenge is how to trace the natural longitudinal development of constructs such as students' listening difficulties, self-regulated listening, and motivation accurately over time. In longitudinal studies, learning journals are often adopted to capture the continuity of changes in the L2 learners' use of listening strategies (e.g., Chen, 2017; Cross, 2014), listening difficulties (e.g., Chen, 2013; Goh, 2000), and motivation (e.g., Isabelli-García, 2006). However, such a method might pose a larger risk of causing self-reflections on

students' learning processes and thus unintentionally introduce intervention. Collecting longitudinal data via a questionnaire battery and semi-structured interviews with an interval of over one month could potentially reduce the intervention, if not prohibited totally. The researcher also addressed the participants at the beginning of the study that the instruments were just for recording their *real* learning experience and should *not* be taken as any guidelines for study. Further, the interview questions were framed as open and general as possible to avoid indicative questions that might interfere with the students' natural courses of development. Having said that, however, the 'Hawthorne effect', that is, participants modify their behaviours as a result of their awareness of being studied, might still exist and should be acknowledged. Still, the issue of the 'practice effect' (Barkaoui, 2014) also seems inevitable, namely the observed changes might be initiated by increased familiarity with the measurement instead of authentic changes in the constructs being measured. To alleviate this effect, the sequence of questionnaires on the questionnaire battery was changed at each time point of distribution to lower students' sense of familiarity to the instrument.

There are also limitations concerning the sample of the study. First, despite various measures to control for attrition described in Section 3.5.2, an observable number of students (n=96) still dropped out from the online survey during data collection. If these students dropped out due to reasons related to the constructs examined in this study (e.g., lack of motivation), then data would be considered not missing at random and certain bias could potentially be introduced. However, there seems to be no direct method to know whether this was the case in this study, which has been a common issue pointed out by Cox et al. (2014) based on a review of longitudinal studies in higher education. Results from the Pearson Chi-square test reported in Section 3.5.2, however, revealed that the missing sample resembled the remaining sample in terms of a variety of demographic variables, which to a certain extent, attests to a possibility that data might be missing at random. Further, the interviewee participants were

sampled to balance across different BELP groups delineated by a K-means clustering analysis (see Section 3.5.2). This method of dividing students into low, medium and high BELP groups might raise validity issues. For example, a student in the low-BELP group with a score of 37 might not be substantially different from a medium-BELP student with a score of 44. To address this issue, the researcher had tried to select the interviewees with a listening score close to the mean values of the BELP groups as much as possible to improve the representativeness of the interviewees. Finally, results from the factor analysis for validating the questionnaires involved several items with a relatively low factor loading minimally above the .30 cut-off point, which might affect the overall internal consistency of the questionnaires. Future studies may consider removing these items to further enhance the reliability of the survey instrument.

3.8 Ethical considerations

The study follows the ethical guidelines for educational research prescribed by the British Educational Research Association (BERA, 2018). Ethical approval was obtained both from University of Oxford's Central University Research Ethics Committee and the Ethics Committee of the target university prior to collecting any data.

Before the first time point of data collection, the researcher travelled in person to the classes to brief students about the purpose of the research and invited participation. Then each time the questionnaire battery was administered through the online survey platform Qualtrics, an electronic consent form preceded students' responses (see Appendix 3.9). The content form detailed the research aim, procedures of data collection and students' right to privacy, anonymity and confidentiality. Participants had the right to withdraw from the research anytime due to any or no reasons. An information sheet of the study (see Appendix 3.10) was also attached when the course convenors sent the invitation to students. At the end of the

survey, participants were asked to fill in their contact details on a voluntary basis for follow-up interviews. Before the first interview, the researcher distributed to all interviewees a paper consent form (see Appendix 3.11) and explained to them their right to opt out at any time. The forms were signed on a voluntary basis.

The data were kept in strict confidentiality throughout the process of data collection and analysis. The questionnaire data were collected using the online survey platform Qualtrics that could only be accessible with the researcher's university account details. Student interviews were audio-recorded using two devices and the recordings were transferred to the researcher's encrypted personal computer and deleted from the recording devices on a daily basis. A university ID was assigned to each participant, which was used throughout data collection. After using the ID to match questionnaire battery responses from separate time points, the information was removed and the data became totally anonymised in the phase of data analysis. Similarly, the university ID was used to organise interviewees during data collection and all participants were pseudonymised at the stage of data analysis.

3.9 Chapter summary

In summary, this chapter discussed the methodological considerations of the research design of the study. Situated in a pragmatist paradigm, the study drew on a fully longitudinal mixed methods research design, collecting both quantitative data and qualitative data at the beginning (T1, Week 2 and 3), midterm (T2, Week 8 and 9), and the end (T3, Week 13 and 14) of the first semester. This design allowed the researcher to trace the development trajectory of the participants in terms of their perceived listening difficulties and self-regulated listening during the semester. The mixed methods design at each time point made it possible to triangulate and corroborate results from either source.

Data were collected at an EMI transnational university in southeast China in 2019, including a pilot from March to April, and the main data collection from September to December. The main stage dataset included students' OOPT listening score upon arrival, quantitative data via a questionnaire battery, and qualitative data via semi-structured interviews. The questionnaire battery was completed by 412 Chinese first-year undergraduate students who enrolled in three EMI courses in Business, Social Sciences and Humanities at T1, and with stringent measures to control for attrition, resulting in a final sample of 316 participants who completed the survey at all three time points. Results of a Pearson Chi-square test confirmed that the missing sample of the survey resembled the remaining sample regarding a variety of demographic variables. A sub-cohort of 35 participants were sampled for the interviews at T1, which balanced across three BELP levels (high, medium, low) and only one student dropped out during data collection. The quantitative data were analysed using SPSS 25.0, drawing on descriptive statistics and diverse tests of inferential statistics (e.g., t-tests, regression, ANOVA, MANOVA, multilevel modelling) to address different research questions. Thematic content analysis was conducted for the interview data with NVivo 11, following Kuckartz's (2014) guideline. After that, methodological limitations of the study were acknowledged, and details were provided regarding the measures that were taken to address these limitations. The chapter concluded with a discussion on the ethical considerations of this research.

Chapter 4 Results: Perceived listening difficulties in EMI classes at the start of the first semester

4.1 Chapter introduction

This chapter combines results from quantitative and qualitative data collected at Time point 1 (T1, Week 2 and 3) to capture issues related to the *perceived listening difficulties* of students during their first experiences with EMI classes. Specifically, this chapter aims to answer the first research question outlined in Chapter 3 (Section 3.2):

1) What listening difficulties do students experience in EMI classes upon entering an EMI transnational university?
   a. What are the listening difficulties perceived by students in EMI classes at the start of the first semester?
   b. What is the role of *baseline English listening proficiency*, *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* in relation to the listening difficulties at the start of the semester?

Descriptive statistics from the questionnaire 'Perceived listening difficulties in EMI classes' will be first presented to respond to RQ 1a. Qualitative analyses of interview data will then provide a contextualised in-depth examination of the difficulties reflected by students, while exploring associations of these transitional listening difficulties with students' prior secondary education. In answering RQ 1b, findings from a hierarchical multiple regression will be first illustrated, examining the contribution of students' *baseline English listening proficiency (BELP)*, *self-efficacy* and *motivation (*i.e., intrinsic and extrinsic goal orientation, and task value*)* sequentially, while controlling for basic demographic variables. Representative excerpts from interview data will then be presented to further explain how these variables interplayed with the perceived listening difficulties in a situated manner.

4.2 Describing the perceived listening difficulties

4.2.1 Descriptive statistics of perceived listening difficulties

Table 4.1 presents the descriptive statistics of students' perceived difficulties in listening to EMI classes at the beginning of the semester and Figure 4.1 illustrates in detail how students rated the degree of difficulty on a 6-point Likert scale. Among all difficulties, *understanding specialist vocabulary* was rated the most problematic (Mean = 4.43, SD = 1.11). Three other aspects that students found particularly obstructive to comprehension were *recognising known words* (Mean = 3.65, SD = 1.36), *taking notes* (Mean = 3.59, SD = 1.27), and *missing subsequent content when thinking about the meaning* (Mean = 3.58, SD = 1.17).

Table 4. 1. Descriptive statistics for perceived listening difficulties in EMI classes at T1

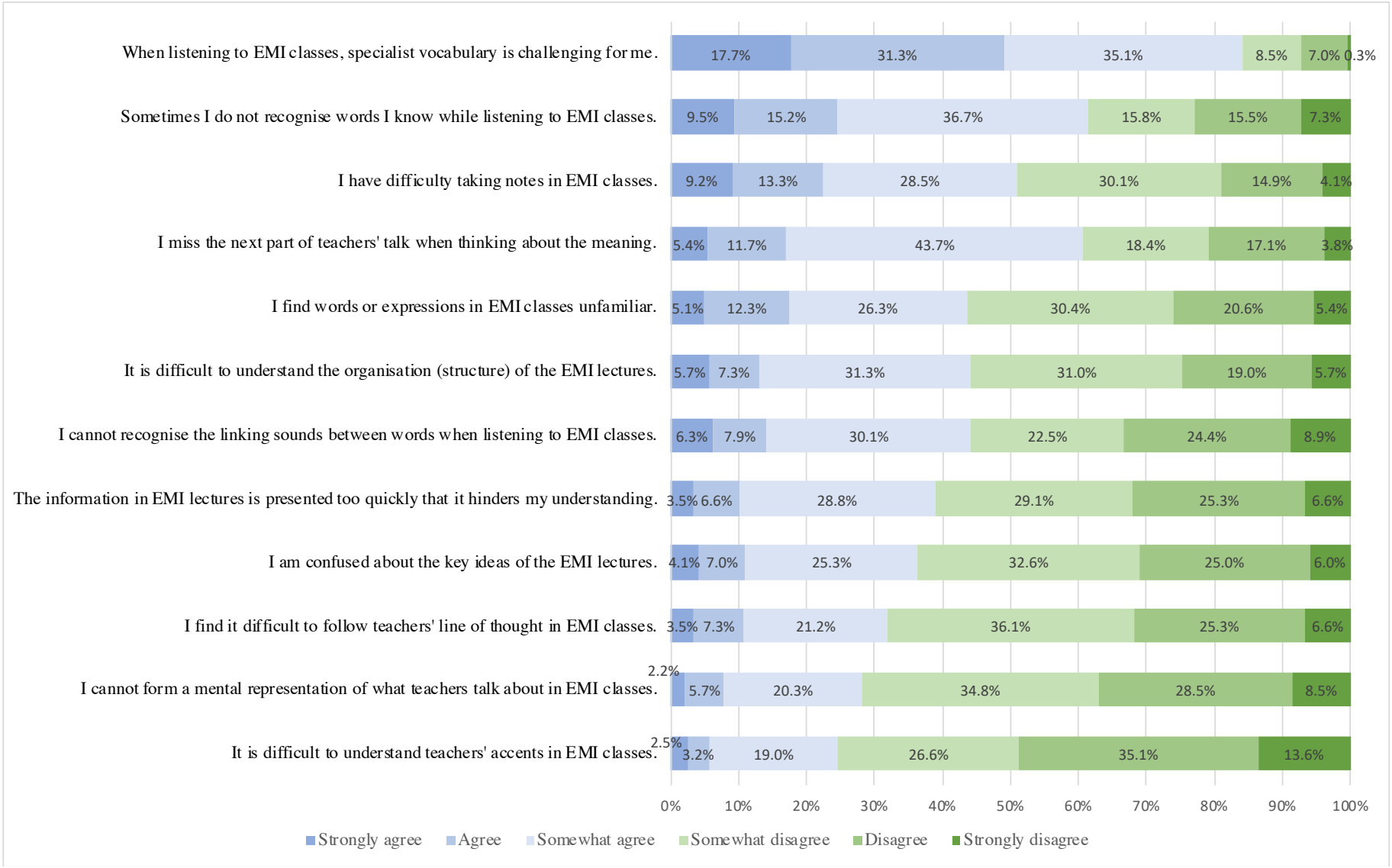
Items	n	Mean	SD
When listening to EMI classes, specialist vocabulary is challenging for me.	316	4.43	1.109
Sometimes I do not recognise words I know while listening to EMI classes.	316	3.65	1.361
I have difficulty taking notes in EMI classes.	316	3.59	1.268
I miss the next part of teachers' talk when thinking about the meaning.	316	3.58	1.172
I find words or expressions in EMI classes unfamiliar.	316	3.35	1.231
It is difficult to understand the organisation (structure) of the EMI lectures.	316	3.32	1.197
I cannot recognise the linking sounds between words when listening to EMI classes.	316	3.23	1.318
The information is presented so quickly that it hinders my understanding.	316	3.14	1.171
I am confused about the key ideas of the EMI lectures.	316	3.14	1.173
I find it difficult to follow teachers' line of thought in EMI classes.	316	3.08	1.155
I cannot form a mental representation of what teachers talk about in EMI classes.	316	2.93	1.120
It is difficult to understand teachers' accents in EMI classes.	316	2.71	1.165

Note. 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=somewhat agree, 5=agree, 6=strongly agree.

As can be seen from Figure 4.1, an overwhelming majority of around 87% of all participants appeared to find *specialist vocabulary* challenging to varying degrees. Around 60% of the students regarded issues of *recognising known words* and *missing next part when thinking*

about meaning as a problem, although the latter seemed to be perceived a minor issue by around 44% of students who only 'somewhat' agreed with the statement. Students' perceptions towards the difficulty of *note taking* in EMI classes were more balanced: Around half of the students (51%) found the task challenging whereas the other half seemed to handle it well. Notably, however, students in general seemed to perceive other aspects of listening less challenging two weeks into the semester. In particular, *teacher accent* seemed not to be an issue for the majority of the students (75%) with only less than 3% of the participants strongly felt that their teachers' accents hindered comprehension in EMI classes at the beginning of the semester.

Figure 4. 1. Stacked bar graph for perceived listening difficulties in EMI classes at T1



4.2.2 Findings from semi-structured interviews

Interview data were coded following a thematic content analysis approach with the main categories informed top-down from literature as discussed in Chapter 3 (Section 3.6.2). Four main categories of listening difficulties were formed, which were related to the listening processes of *perception*, *attention*, *vocabulary and syntax*, and *utilisation*. Themes were developed inductively from the data, after which they were refined and labelled by referring to similar concepts in both Field's (2009) and Anderson's (1995) models of listening comprehension. Table 4.2 outlines the categories and themes with a count of how many participants provided instances of each theme. For example, for the theme *connected speech*, there were 15 out of 34 interviewees who commented on the theme. In accordance to the recommendations of Selvi (2020), these frequency counts are intended to offer an overview of the prevalence of themes in the data, which are then illustrated qualitatively via representative excerpts. Excerpts are labelled for reference according to each participant's ID as described before in Chapter 3 (Section 3.5.2). The ID indicates the participant's *BELP group* (i.e., 'LP' for 'low proficiency', 'MP' for medium proficiency, and 'HP' for high proficiency) as well as the *major* (i.e., 'Business', and 'H&S' for 'Humanities and Social Sciences'). For example, 'LP2-H&S' represents the second student in the low-proficiency BELP group, who majored in Humanities and Social Sciences. During the interviews when students reflected on the reasons for the perceived listening difficulties, many referred to the influence of their prior education. Since students' learning, especially during the transition period, cannot be separated from the secondary education they have received (Macaro et al., 2018), these references were coded and reported with regard to each theme of listening difficulties.

Table 4. 2. Categories and themes of perceived listening difficulties in EMI classes at T1

Categories and themes	References (n=34)
Perception	
Connected speech	15
Word recognition	16
Teacher accent & delivery style	13
Attention	
Loss of attention	17
Inappropriate allocation of attention	12
Vocabulary and syntax	
Vocabulary (specialist/other)	15/6
Syntax	4
Utilisation	
Topic-related prior knowledge	15
Forming knowledge structures	19
Identifying key points & taking notes	16

Note. 'References' for each theme (e.g., *connected speech*) represent the number of interviewees that talked about the theme (i.e., 15 out of 34).

4.2.2.1 Perception-related difficulties

Connected speech

Interview findings show that *connected speech* seemed to be an observable difficulty for students at the beginning of attending EMI courses, where 15 out of 34 interview participants reported difficulties in segmenting the speech of their teachers. Many respondents associated the issue with the perceived fast speed of delivery of EMI lecturers. Among them, some students reflected *missing parts of information* due to fast and connected speech. One student (LP2-H&S), for example, described the experience as 'I could only hear the first and the last words of what he [the teacher] said, and totally lost thread of what was in between—it was too fast and all connected'. Other students also perceived the speech as 'scarcely paused' (MP7-H&S) and with some parts just 'smoothly slipped by' (MP12-Business). In addition,

students also reported difficulties to *isolate words from connected speech*, as stated in the excerpt below:

> It's mainly a problem of receiving the information, just hearing it. If he [the teacher] says a long sentence, like ten words, I can only hear four, five, or six words. Those I couldn't hear were connected—they just very vaguely passed by and left no impression in my mind.
> (LP9-Business)

This student's perception of connected words as non-receivable and 'very vaguely passed by' echoed other students' experiences. One respondent (MP10-H&S), for instance, also reported that *connected speech* allowed him to recognise only 'a small part of the words'. Similarly, another student (LP7-H&S) indicated that if the teacher's speech was slower and less connected, then she would have been able to distinguish more words.

Some students attributed the problem of *segmenting speech* to the absence of teaching of pronunciation rules in high school English classes. Phonological rules such as connection of syllables, sound omission or modification, and word stress were seldom taught (LP3-H&S). This was because, according to the students, the Gaokao (college entrance examination in China) heavily focused on reading and writing (LP3-H&S), and even if listening was part of it, the recording was usually clear and well-articulated (MP1-H&S), hence making the teaching of these pronunciation rules seem less important and necessary.

Word recognition

Recognising known words was another recurring listening problem in the interview data, which emerged in the account of 16 respondents. It frequently occurred to many students that they would recognise meaning of words if they were in written forms, but often failed to do so when hearing them in class (e.g., LP2-H&S, MP1-H&S, MP8-H&S, HP7-Business). Some

students indicated *a need to convert sound to script*: 'When I heard the [word] pronunciation, I quickly thought about how it was spelt', and then realised that this might not work 'but sometimes I couldn't match pronunciation to spelling' (MP9-H&S). Others, in a similar vein, reported *a slow process of matching word pronunciation with spelling*, claiming that they needed some time to respond (LP12-Business, MP2-H&S). As a result, some interviewees commented that the attempt was time-consuming, hindering them from keeping up with the spontaneous flow of teacher talk in class (e.g., LP3-H&S, MP1-H&S).

The problem was traced by some respondents to an emphasis on word spelling rather than pronunciation in high school, as illustrated by a student below:

> High school English was full of exercises. The focus was on vocabulary and dealing with exams. There was a lot of writing but little practice of listening and speaking. Now it [English] is your life language. You are forced to improve it in all aspects, to use it and not just for exams.
> (MP8-H&S)

The exam-oriented goal of English learning in high school seemed to have led to a negligence on listening, an issue that was also mentioned by other respondents (MP9-H&S, HP1-H&S, HP9-Business).

Teacher accent and delivery style

In the interviews, a total of 11 respondents made a clear distinction between Chinese teachers and non-Chinese teachers (often referred to as 'foreign teachers'). Chinese teachers were perceived as easier to understand due to an accent similar to the respondents themselves, as explicated by a student below:

> Chinese teachers' pace is alright for me. Foreign teachers talk relatively fast and not clear enough. I feel that their [the foreign teachers'] pronunciation must be accurate.

> But maybe their English is too pure for me to understand. Instead, it's the 'Chinglish' that I find easier to understand.
> (LP3-H&S)

Commenting on the foreign teachers' accent as 'too pure' to understand, the student seemed to devalue the so-called 'standardised' form of English. Instead, she clearly empathised with the Chinese teacher, deeming both the pace and the accent as more acceptable. This perception was also mirrored in other interviewees' accounts, where they depicted foreign teachers' speech as 'fast' and 'connected' (LP2-H&S, LP11-Business, HP7-Business), 'not very clear' (LP3-H&S), and 'severe in omitting sounds' (HP2-H&S).

In addition to accent, some of the respondents also commented positively on Chinese teachers' *delivery style* who, according to one student (LP11-Business), are 'teaching while considering from the perspective of Chinese students'. In contrast, he found it difficult to relate to foreign teachers: 'He [the foreign teacher] might be teaching us as if we were native speakers. Maybe because he wouldn't realise that we had problems in understanding, he just talked and talked all the time'. In addition, Chinese teachers seemed to better support students' comprehension by modifying their speech. These modifications were reported to include deliberate pausing (MP7-H&S) and slowing down at certain points (LP7-H&S, LP10-Business), altering intonation (HP7-Business, MP4-H&S), stressing and emphasising (LP9-Business), and using repetitions (MP10-H&S).

The differentiation of Chinese and foreign teachers was probably sharpened when the respondents viewed their high school English teachers as the 'benchmark'. For example, some students compared their EMI lecturers' *speed of delivery* in university classes to high school English classes, where they considered it 'not very arduous' and 'acceptable' if the two were similar (HP3-H&S). Other students compared the *accents* of EMI teachers to their

high school English teachers, the disparities between which were reported to result in a slow response in meaning making (LP3-H&S), or a failure to recognise known words (MP6-H&S).

4.2.2.2 Attention-related difficulties

Losing attention

The *declination* or *loss of attention* emerged as a marked problem for students in EMI classes, which featured in 17 interviewees' accounts. First, the lengthiness of EMI lessons, which usually lasted for 50 minutes, was reported to result in a decline in students' attention easily (e.g., LP2-H&S, MP3-H&S, HP4-H&S, HP3-H&S, HP10-H&S). Students reported feeling 'tired' at about two-thirds into the lesson (HP4-H&S), and one student stated that she 'couldn't even bear to sit there' after half of the lesson (HP3-H&S). Another reason frequently mentioned as contributing to the loss of attention was the *inadequate understanding of teacher talk*, which emerged mostly from the accounts of low- and medium-proficiency students (e.g., LP11-Business, LP12-Business, MP2-H&S). This was described as an uncontrollable process, where attention simply 'dissolved' when continuous input failed to convert into comprehension (LP11-Business). For other students, however, the decline in attention was not caused by comprehension problems, but rather, a sense of *confusion about the general goal and structure of teacher talk*, as described by a respondent:

> It was easy to lose attention because it was not clear <u>which part</u> the teacher was talking about. I didn't know from where she started and where she was going towards. I didn't know what her overall goal was, so it was easy to get lost.
> (HP5-H&S)

As denoted from the statement, this student felt confused about the underlying purpose and structure of the teacher talk, which eventually led to decreased attention. This feeling was

also reflected by other students. For example, one student reported failure in capturing the point the teacher tried to make, thus hampering her interest to continue and made her feel sleepy in class (HP3-H&S).

The *loss of concentration* was usually associated with listening in lectures than seminars, which took place in auditoriums with more than 200 students. The environment seemed to impact on students' motivation to stay focused. This was because, as a student (MP3-H&S) pointed out, high school subject teaching happened within classrooms of a smaller size, whereas only talks or gatherings for generic events were held in auditoriums. Hence, she developed a natural tendency to view lectures as 'nothing important' and 'just be there and listen', which was a mindset shared among other students (LP1-H&S, LP7-H&S, MP9-H&S). In addition, some students also reported a lack of participation (LP2-H&S, HP4-H&S), being easily distracted by people sitting next to them (MP6-H&S, MP8-H&S), and an absence of teacher regulation (MP8-H&S, HP9-Business) in EMI lectures, all of which seemed to negatively affect students' attention in listening to lectures.

Inappropriate allocation of attention

In addition to the loss of attention, another frequently mentioned problem pertained to the *inappropriate allocation of attention* while listening (n=12). In this regard, attention was reported to be *fixated on processing previous messages*, which usually led to missing incoming information. Students reported to *anchor their attention on certain words*, particularly words that 'sound familiar' (LP3-H&S, MP2-H&S, MP10-H&S), or words regarded as 'key words' (LP3-H&S). In addition to fixing attention at a lexical level, some students also reported *lingering on the previous topic* as a result of failing to capture discourse markers indicative of order: 'Since I couldn't hear the words that signposted the

sequence, I might stay at the first topic very long and didn't realise that he [the teacher] had already turned into the second topic' (MP6-H&S).

Another form of ineffective distribution of attention alluded to students' *simultaneous performance of multiple tasks*, which usually conflicted with noticing incoming information. One such task was *looking up words on slides*, which students reported as a distraction from the flow of teacher talk (LP12-Business, MP7-H&S, HP9-Business). Another task perceived as causing conflicts in attention allocation was *note taking*. As one student explained: 'I usually miss the next points when trying to take notes because I can't grasp the point in English as fast as in Chinese—I need to transform it to Chinese first' (HP2-H&S). Since *note taking* was an essential component in high school learning, the student naturally transferred the habit into university classrooms. However, this transfer seemed not smooth, as the student also realised that 'in high school the teacher used to stop to let you take notes but university lecturers never stop'.

4.2.2.3 Vocabulary- and syntax-related difficulties

Vocabulary

During the interviews, a total of 15 respondents mentioned field-related *specialist vocabulary* as a challenge, referring to them as 'terminology', 'specialised words [related to a discipline]', 'specialised nouns' or described as words they 'couldn't understand even if it's in Chinese'. *Specialist vocabulary* was perceived particularly threatening when the words were specific to topics in the field that students had little prior knowledge about (e.g., MP8-H&S, MP11-Business, MP12-Business). Looking up terminology prior to the lesson was reported as effective to solve the problem by some students (e.g., MP12-Business, HP2-H&S). Others, however, found preview less effective: 'To be honest, even if I remember

these terminologies beforehand, when the teacher talks fast and connected, I still don't understand' (LP7-H&S).

Apart from specialist vocabulary, the boundary between *general vocabulary* and *academic vocabulary* was not clearly demarcated in the interview, both of which were therefore termed as 'other vocabulary' (n=6) in Table 4.2. A *mismatch of vocabulary* instructed in high school with university learning was mentioned: 'Words we learnt in high school are different from what we use in university classes' (LP12-Business). Another student also alluded to *a wider range of vocabulary used by foreign teachers* compared to local Chinese teachers: 'I'm ok with Chinese teachers but some words used by foreign teachers, I haven't even heard of' (LP11-Business). More notably, some students pointed out that *words with multiple meanings* were misleading in comprehension (e.g., MP6-H&S, HP5-H&S). Especially when the semantic choices of EMI teachers differed from high school teachers for the same word, it resulted to a delay in understanding (MP6-H&S).

Syntax

At the beginning of the semester, only several students mentioned syntactical difficulties (n=4). One student indicated how the lack of syntactic knowledge impaired the preciseness of content learning: 'Even if I know all the words, I can't understand the precise message he's [the teacher] trying to convey when they [the words] form sentences' (MP1-H&S). Being unfamiliar with English syntactic structures was also reported to decelerate comprehension as one respondent described:

> Chinese is your mother tongue and you automatically understand it as soon as it's poured into your ears, but I need to digest if it's in English. When teachers use English to teach, they may use structures I'm not familiar with, or piece together several words—I may not understand then.

(HP1-H&S).

As can be discerned from this excerpt, this student attributed the lack of efficiency in processing input to the unfamiliarity with English syntactic structures. In line with this problem, some students also reported a need to translate or convert English sentences to Chinese before understanding content meaning (e.g., MP7-H&S, HP2-H&S, HP3-H&S).

4.2.2.4 Utilisation-related difficulties

Topic-related prior knowledge

Upon arrival at an EMI university, a total of 15 participants tapped into the influence of their *topic-related prior knowledge* on comprehending teacher talk in class. For some high-proficiency students, background knowledge seemed to be regarded as incidental to understanding new knowledge (HP4-H&S, HP7-Business, HP9-Business). They described the topics learned in class as 'close to daily life' (HP4-H&S) and 'easy in content', which according to one student (HP7-Business), were 'basic concepts and would be easy to get good scores if taught in Chinese'. For students with lower proficiency, however, topic-related prior knowledge appeared to play a more important role in *aiding comprehension* (LP3-H&S, LP8-Business, LP12-Business, MP1-H&S, MP2-H&S, MP3-H&S, MP10-H&S). Such knowledge seemed to polarise the learning experience for these students: 'I become more familiar with the topic if I'm already familiar with it and I feel the topic increasingly difficult if I know nothing about it from the beginning' (LP3-H&S). Other students noted that lacking relevant background knowledge particularly hampered *understanding knowledge in detail*:

> For example, this case about corporation, if I have some more knowledge about it, I'll be more confident when he [the teacher] analyses it, and I would develop my own line of thought to fill in some details. But if I don't know this case, then I would have no idea of the details he [the teacher] has omitted.

(LP12-Business)

This student depicted how prior knowledge in a business case compensated for a lack of detailed analysis, which according to him, was unexplained by the teacher. This finding also appeared in another student's account, where he noted that 'it's very difficult to elaborate on the details if it's in a field I have little knowledge of' (MP10-H&S). Notably, a small group of interviewees also denoted difficulties in *effectively activating prior knowledge* in class (LP2-H&S, MP4-H&S). The prior knowledge was described as 'a system different from knowledge taught in class' (MP4-H&S), and that even if it was relevant, this prior knowledge was 'in Chinese and I couldn't bridge it with what the teacher said in English' (LP2-H&S).

In order to unravel why students held the above perceptions, they were also invited to comment on the traits of subject knowledge in high school and in university respectively. In general, students considered content knowledge in university as more practical and related to daily life whilst in high school it was more targeted to exams (LP11-Business, MP1-H&S, MP2-H&S, HP1-H&S). This partially explained the importance attached to the background knowledge by some students above. In addition, subject knowledge in university was regarded as 'more professional, [and] in-depth' (LP3-H&S) and 'specific to a particular field' (HP7-Business). In contrast, high school knowledge was described as a 'hodgepodge' and involved anything tested in Gaokao (HP7-Business). Furthermore, many students noted the difference in the role of textbooks in the two contexts. According to the respondents, teachers more frequently referred to knowledge and examples out of the textbook in university teaching, whereas in high school teachers tended to strictly follow points included in textbooks (MP1-H&S, MP4-H&S, MP10-H&S, MP12-Business). Echoing the afore-mentioned feeling reflected by a student that the teacher seemed to skip certain details (LP12-Business), one student (MP4-H&S) noted that university required more self-study before

class, which enabled the teacher to build on knowledge already previewed and delve into more professional analyses in class.

Forming knowledge structures while listening

Interview findings show that students seemed to be able to identify the general structure of a lesson based on slides (e.g., LP3-H&S, MP1-H&S, MP6-H&S, MP8-H&S, HP7-Business, HP8-Bussiness, HP9-Business). They could also distinguish overarching procedures of a lesson, that is, the introduction, explanation and conclusion sections (e.g., LP10-Business, LP11-Business, MP6-H&S). It was, however, *mapping details and examples to the general lesson structure* that many students reported as difficult (e.g., MP6-H&S, MP10-H&S, HP9-Business). A respondent illustrated her experience of listening in an EMI lecture below:

> I largely know that he [the teacher] introduced a topic at the beginning and concluded by the end. For what was in between, I could only know some points from the PowerPoint but I couldn't tell directly from his speech. I couldn't hear words that represented sequences, like first, second, third.
> (MP6-H&S)

As could be seen from this student's account, she could grasp the general structure of a lesson and headline points from the slides. However, she lost the thread when trying to decode detailed information from the teacher talk, which did not include noticeable signposting discourse markers. One reason that could possibly explicate this situation was that students exclusively focused on what the teacher was saying, sparing no attention to organising knowledge (MP3-H&S, MP9-H&S, HP7-Business). This was explicit in one of the respondents' explanation:

> In a Chinese lesson, I can easily draw a logical structure but in English I just feel messy. In the seminar today, I partnered with an American girl. I think I differed from

her in that I needed to understand English while at the same time to grasp the lesson structure. It was not like in Chinese that you grasped it right away. It was hard for me, but for her, she just felt it easy and looked kind of bored.
(MP3-H&S)

The student clearly noticed a language barrier for organising content knowledge when comprehension was already challenging enough. Due to a lack of structure, this student later reflected related problems for memorising knowledge: 'Because I couldn't grasp the structure, I might know he [the teacher] had mentioned something but I couldn't know on which node I should fix this point on. As such, I remembered only the interesting events and it was chaotic'. Related to this, a few students also admitted that they could hardly form knowledge structures automatically in class (MP9-H&S), and could only do so after class (HP7-Business).

Students' difficulties for organising knowledge structures in EMI classes seemed to be partially accounted for by the pedagogical style that they were used to in high school. As the students explained, high school teachers preferred to draw knowledge maps and they usually outlined the knowledge structure in an explicit and detailed way, ranging from main points to sub-points and then even smaller details (LP8-Business, HP5-H&S). However, in university, students were expected to organise this structure themselves, which explained why students felt helpless in organising details at the beginning of their EMI experiences. Considering that students had spent a whole year carrying out the revision for Gaokao guided by their teachers, this transition from teacher-led to student-centred learning was perceived abrupt and challenging to cope with. According to a respondent (HP5-H&S), during the revision for Gaokao, even the smallest pieces of knowledge were 'fitted within the big puzzle' by their teachers so that students could quickly locate and retrieve it in the exam. This highly

structured and teacher-guided learning experience could possibly set students inappropriate expectations for learning in university upon arrival.

Identifying key points and taking notes

Isolating key information was reported to be difficult by 16 interviewees, and this theme was usually talked about in an intertwined manner with the issue of *taking notes*. Many students attributed the failure of extracting key points to *the insufficient understanding of teacher talk* in class (LP2-H&S, LP8-Business, LP10-H&S, LP12-Business, MP1-H&S, MP4-H&S, MP8-H&S). Again, slides became the straw that these students clutched at, who reported to often just copy down the headlines or conclusions (LP2-H&S, MP1-H&S, MP8-H&S). As one student stated (MP1-H&S): 'I used to note down key points or points I found enlightening. But now it's basically just copying the PowerPoint—because I can't understand the teacher, I follow the PowerPoint instead of the teacher'. Other students felt 'unsure if the information I get is key' (LP10-H&S) unless the teacher 'strongly emphasises it' (LP12-Business).

Although inadequate comprehension was a major barrier for grasping key points, it was not the only one. Some students reported *being unable to locate key ideas* even if they had understood the teacher (e.g., HP2-H&S, HP3-H&S, HP7-Business, HP10-H&S). As one high-proficiency student described:

> I could understand almost everything the teacher said but I couldn't tell which was key. It felt like the knowledge went into one ear and out the another. I couldn't remember them. I haven't learnt how to take notes in lectures—I felt the knowledge was very scattered and I just took notes wherever I thought was important. But when I looked at them [the notes] after class, they were so disconnected and kind of useless. (HP2-H&S).

Echoing this student's feeling, another student also described knowledge learnt in class as 'loose and without focus' (HP1-H&S). Students seemed baffled about distinguishing concrete knowledge points from incidental explanations. Aligned with this problem, some students expressed concerns about exams, commenting that 'without clear knowledge points how can you extrapolate what's going to be tested?' (HP3-H&S).

Similar to the aforementioned problem of identifying knowledge structures, students' inability to locate key information seemed also to be influenced by the pedagogical style in high school. According to the students, teaching in high school used to be teacher-led (HP1-H&S, HP9-Business), direct and with knowledge points iterated for students to take notes (MP1-H&S, MP2-H&S). In contrast, knowledge in university was introduced relatively 'loosely' (HP1-H&S), usually in a form of informal conversation-style of teaching. The methods of conveying knowledge were also 'indirect' (MP1-H&S), meaning that teachers often threw an open question, inviting students to think, discuss and elaborate on their own ideas (MP2-H&S, MP3-H&S). At the beginning of the semester, however, students seemed to perpetuate their old habits: 'I'm used to being told what the key points are and then taking them down, but university teachers never tell these so I won't know what is important' (LP7-H&S).

4.2.3 Summary of qualitative findings of the perceived listening difficulties at the start of the first semester

To sum up, qualitative analyses revealed that students encountered a variety of difficulties related to different stages of listening in their first experiences with EMI classes. Some of these challenges were related to lower-level processing stages such as *perception*, *attention*, *vocabulary and syntax*, whereas others pertained to a higher-level stage of *utilisation*, all of which are summarised below.

Perception-related difficulties:

- Difficulties to segment the connected teacher speech
- Being slow or unable to recognise the words which were known in written form
- Problems related to the accents and delivery styles of the foreign teachers

Attention-related difficulties:

- The declined attention in the lengthy EMI classes
- Fixing attention on previous lexical or topical items and excessive multi-tasking (e.g., looking up words, taking notes) to miss subsequent input

Vocabulary and syntax-related difficulties:

- Problems with specialist vocabulary when topics were unfamiliar
- Lack of transferability and utility of vocabulary learned in high school
- Difficulties with words with multiple meanings
- Unfamiliarity with syntactical structures for understanding the precise message

Utilisation-related difficulties

- Lack of topic-related prior knowledge which hampered the comprehension of knowledge details for especially lower-proficiency listeners
- Difficulties in forming elaborate knowledge structures while listening
- Problems in identifying and taking notes of key knowledge points while listening

These difficulties seemed to be closely associated with students' learning experience in their prior secondary education. The data showed that at the beginning of the semester, students seemed to carry on the expectations and learning habits they had developed during high school. The inconsistencies between high school and EMI university in a number of factors such as teaching style (teacher-led vs. student-centred), staffing (Chinese teachers vs. hybridity of foreign and Chinese teachers), purpose of knowledge instruction (exam vs. practical application), and venues of formal learning (classroom vs. auditorium) were all reflected to impact on students' perceptions of listening difficulties at the very start of their transitional experience.

4.3 The role of baseline English listening proficiency, self-efficacy and motivation in relation to perceived listening difficulties upon arrival

4.3.1 Results of hierarchical multiple regression

In this section, the role of students' *baseline English listening proficiency (BELP)*, *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* in their perceived listening difficulties in EMI classes was examined through a hierarchical multiple regression, controlling for basic demographic variables. A hierarchical multiple regression was adopted because it allowed the examination of the change of total variance explained of the outcome variable across models with different sets of predictor variables. The variable of *perceived listening difficulties*, which was held as the outcome variable, was calculated from the mean of multiple items measured by the questionnaire 'Perceived listening difficulties in EMI classes' introduced in Chapter 3 (Section 3.5.3). *Demographic variables*, *BELP*, *self-efficacy* and *motivation* were held as predictor variables. Among them, *self-efficacy* and three motivational variables, namely *intrinsic goal orientation*, *extrinsic goal orientation,* and *task value* were also calculated from the means of a number of items measured by their respective questionnaires outlined in Chapter 3 (Section 3.5.3).

The predictor variables were entered into the regression model stepwise with *demographic variables* in Model 1, then adding *BELP* in Model 2, and lastly incorporating *self-efficacy* and *motivational variables* in Model 3. Dummy variables were coded for demographic variables (see Table 4.3) before entering them into the model. The descriptive statistics of the outcome variable and other predictor variables are presented in Table 4.4. The following assumptions were checked for the regression analysis (see Appendix 4.1 for detailed results of assumption testing):

- Linearity—the relationship between predictor variables and the outcome variable is linear;
- Normality—residuals are normally distributed;
- Homoscedasticity—variances of error terms are similar across predictor variables;
- No multicollinearity—predictor variables are not highly correlated to each other, indicated by the value of Variance Inflation Factor (VIF) of all predictor variables lower than 10.0 and the Tolerance value above 0.20.

Table 4. 3. Dummy coded demographic variables for hierarchical multiple regression

Variable	**n**
Gender	
Male (0)	70
Female (1)	246
Major	
Humanities & Social science (0)	107
Business (1)	209
Years of English learning	
Less than 6 years (reference group)	26
6-9 years	88
More than 9 years	202
Study/living abroad experience	
Yes (≤ 2 months) (0)	41
No (1)	275

Table 4. 4. Descriptive statistics for BELP, self-efficacy and motivation at T1

Variable	**n**	**Mean**	**SD**	**Min**	**Max**
Perceived listening difficulties	316	3.33	0.874	1.08	5.67
BELP	316	53.65	19.278	8.00	110.00
Self-efficacy	300	52.87	18.985	6.00	98.00
Intrinsic goal orientation	296	4.47	0.760	2.25	6.00
Extrinsic goal orientation	296	4.35	0.795	2.00	6.00
Task value	296	4.78	0.734	2.67	6.00

Note. Variable *perceived listening difficulties*, *self-efficacy*, *intrinsic and extrinsic goal orientations,* and *task value* were computed from the means of a number of items measured by their respective questionnaires.

Table 4.5 presents the results of hierarchical regression comparing Model 1 and Model 2. In Model 1, *demographic variables* of gender, major, study abroad experience (SA exp.) and

English learning experience (EL exp.) together only predicted 7.6% ($R^2 = 0.076$, $F_{[5, 289]} = 4.73$, $p < .001$) of the perceived listening difficulties at T1. In Model 2 when *BELP* was included, an additional 14.9% ($\Delta R^2 = 0.149$, $F_{[1, 288]} = 55.48$, $p < .001$) of the variance in the perceived listening difficulties was explained.

Table 4. 5. Hierarchical multiple regression of learner-related variables on perceived listening difficulties in EMI classes at T1 (Model 1 vs. Model 2)

Predictor variable	**Model 1**				**Model 2**			
	B	**SE B**	**β**	**Sig.**	**B**	**SE B**	**β**	**Sig.**
Constant	3.647	0.250		0.000	4.840	0.280		0.000
Gender	0.055	0.119	0.027	0.645	-0.082	0.111	-0.040	0.462
Major	-0.133	0.105	-0.074	0.204	-0.209	0.097	-0.115	0.032
SA exp. (yes vs. no)	0.067	0.150	0.026	0.652	-0.013	0.138	-0.005	0.922
EL exp. (6 vs. 3 years)	-0.082	0.203	-0.043	0.686	-0.193	0.186	-0.100	0.301
EL exp. (9 vs 3. years)	-0.524	0.192	-0.290	0.007	-0.469	0.177	-0.260	0.008
BELP					-0.018	0.002	-0.402	0.000
ΔR^2					0.149 $F_{[1, 288]} = 55.48$			0.000
R^2	0.076 $F_{[5, 289]} = 4.73$			0.000	0.225 $F_{[6, 288]} = 13.93$			0.000

Note. SA exp. = Study abroad experience, EL exp. = English learning experience.
Model 1 adjusted $R^2 = 0.06$, $R = 0.275$, $p < .001$; Model 2 adjusted $R^2 = 0.209$, $R = 0.474$, $p < .001$.

Table 4.6 compares the results of Model 2 with Model 3 in which *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* (i.e., intrinsic and extrinsic goal orientation, and task value) were further incorporated as predictor variables. Model 3 explained an additional 30.5% of variance in perceived listening difficulties ($\Delta R^2 = 0.305$, $F_{[4, 284]} = 46.17$, $p < .001$) compared to Model 2, and the total variation explained reached 53% ($R^2 = 0.530$, $F_{[10, 284]} = 32.07$, $p < .001$) in Model 3. In Model 3, the only demographic variable that remained significant was *major* ($\beta = -.13$, $p = .003$), indicating that students majoring in Business tended to report fewer difficulties than those in Humanities and Social Sciences in the present study.

Students' *BELP* (β = -.13, p = .005), *self-efficacy* (β = -.61, p < .001) and *extrinsic goal orientation* (β = .10, p = .037) all significantly predicted perceived listening difficulties. However, *self-efficacy* seemed to be the strongest predictor, indicated by a larger standardised beta (β) value. The unique contribution of *self-efficacy* to R^2, as indicated by the squared semi-partial correlations (Sr^2), was 0.216, suggesting that 21.6% of the perceived listening difficulties was explained by students' self-efficacy alone. Comparing Model 2 and Model 3, the absolute β value of *BELP* decreased from .40 to .13, and its unique contribution to R^2 also dropped from 14.9% ($Sr^2_{Model\ 2} = 0.149$) to 1.3% ($Sr^2_{Model\ 3} = 0.013$), suggesting that the variance explained by BELP overlapped with the variance explained by the newly added self-efficacy and motivational variables.

Table 4. 6. Hierarchical multiple regression of learner-related variables on perceived listening difficulties in EMI classes at T1 (Model 2 vs. Model 3)

Predictor variable	**Model 2**				**Model 3**			
	B	**SE B**	**β**	**Sig.**	**B**	**SE B**	**β**	**Sig.**
Constant	4.840	0.280		0.000	5.359	0.366		0.000
Gender	-0.082	0.111	-0.040	0.462	-0.119	0.088	-0.058	0.175
Major	-0.209	0.097	-0.115	0.032	-0.234	0.077	-0.129	0.003
SA exp. (yes vs. no)	-0.013	0.138	-0.005	0.922	-0.015	0.108	-0.006	0.891
EL exp. (6 vs. 3 years)	-0.193	0.186	-0.100	0.301	-0.101	0.148	-0.052	0.495
EL exp. (9 vs. 3 years)	-0.469	0.177	-0.260	0.008	-0.199	0.141	-0.110	0.158
BELP	-0.018	0.002	-0.402	0.000	-0.006	0.002	-0.133	0.005
Self-efficacy					-0.028	0.002	-0.614	0.000
Intrinsic goal orientation					0.019	0.058	0.017	0.741
Extrinsic goal orientation					0.101	0.048	0.093	0.037
Task value					-0.078	0.065	-0.066	0.237
ΔR^2					0.305 $F_{[4, 284]} = 46.17$			0.000
R^2	0.225 $F_{[6, 288]} = 13.93$			0.000	0.530 $F_{[10, 284]} = 32.07$			0.000

Note. SA exp. = Study abroad experience, EL exp. = English learning experience.
Model 2 adjusted $R^2 = 0.209$, $R = 0.474$, $p < .001$; Model 3 adjusted $R^2 = 0.514$, $R = 0.728$, $p < .001$.

4.3.2 Findings from semi-structured interviews

4.3.2.1 The role of baseline English listening proficiency (BELP)

Results from the hierarchical multiple regression show that at the beginning of the term, students' BELP remained a significant predictor of their perceived listening difficulties in EMI classes, even when self-efficacy and motivational factors were incorporated. Findings from the interview data support this result, which reveal that students from different BELP groups demonstrated distinct patterns of listening difficulties. As explained in Chapter 3 (Section 3.5.2), interviewees were sampled to integrate a number of students from each of the three BELP groups (i.e., low, medium, high) delineated using K-means clustering of their OOPT listening scores upon arrival at the university. Table 4.7 summarises the categories and themes of perceived listening difficulties emerged in each of the BELP groups at T1.

Table 4. 7. Categories and themes of perceived listening difficulties by BELP group at T1

Categories and themes	**References**		
	LP (n=12)	**MP (n=12)**	**HP (n=10)**
Perception	**22**	**17**	**5**
Connected speech	8	6	1
Word recognition	7	7	2
Teacher accent & delivery style	7	4	2
Attention	**8**	**14**	**7**
Losing attention	4	8	5
Inappropriate allocation of attention	4	6	2
Vocabulary and syntax	**7**	**12**	**5**
Vocabulary (specialist/other)	4/3	8/2	3/1
Syntax	0	2	2
Utilisation	**17**	**20**	**13**
Topic-related prior knowledge	6	6	3
Forming knowledge structures	6	9	4
Identifying key points & taking notes	5	5	6

Note. LP = low proficiency; MP = medium proficiency; HP = high proficiency.
'References' for each theme (e.g., *connected speech*) represent the number of interviewees that commented on the theme; 'references' for each category (e.g., *perception*) reflect a sum of references of its subordinate themes.

Low-proficiency (LP) group

Perception-related difficulties stood out for students in the LP group more than in other groups with a total number of 22 references (MP: n=17; HP: n=5). Eight out of twelve students in this group considered the teacher talk too fast, and some recognised that the problem might be unique to them: 'The teacher was just talking at a normal speed and other students could understand' (LP2-H&S, similarly for LP6-H&S). *Segmenting speech* seemed to cause severe problems for these students, described as 'all connected and couldn't understand at all' (LP7-H&S), 'could only hear the first and the last words of what he [the teacher] said' (LP2-H&S), or a small part of the input (LP8-Business, LP9-Business). *Sound-script matching for known words* was regarded as time-consuming by many LP students, hampering their attempt to follow up spontaneous teacher talk (LP1-H&S, LP2-H&S, LP3-H&S, LP9-Business, LP11-Business). The *differentiation of foreign and Chinese teachers* was clearer in this group. Students considered foreign teachers' speech faster (LP9-Business, LP11-Business), with more sound connections, omissions (LP2-H&S, LP3-H&S), and unfamiliar pronunciation rules (LP3-H&S).

In term of *attention-related issues*, only four students reported a severe *loss of attention*, mainly due to insufficient understanding (LP7-H&S, LP11-Business, LP12-Business) and cognitive exhaustion (LP2-H&S). *High anxiety* was reported (LP1-H&S), which seemed to propel the student to try harder to focus in spite of the perceived difficulties. *Missing incoming information* was talked about by four students, mostly because they were thinking about word meanings in the previous sentences (LP3-H&S, LP7-H&S, LP9-Business) or looking up words on slides (LP11-Business). In line with this finding, LP students seemed to pay more attention at the lexical rather than at the syntactical level, indicated in Table 4.7 that the latter issue was not mentioned at all by students in this group. Students reported a variety of *vocabulary-related issues*, such as a small vocabulary size (LP11-Business), lack of life-

related words for describing details (LP9-Business), and difficulties in remembering and recognising terminology in class (LP3-H&S, LP7-H&S, LP8-Business, LP10-Business).

Topic-related prior knowledge was perceived as important by LP students, appearing in six students' accounts. Such knowledge was reported to impact on students' motivation to focus (LP7-H&S, LP12-Business) and the ability to compensate for their understanding (LP3-H&S, LP12-Business). Students in this group were mostly reliant on previewing (LP1-H&S) and slides (LP2-H&S, LP3-H&S) to form *a rough knowledge structure* of the lecture topic. Inadequate understanding of details, examples and explanations was considered to impair the formation of a *complete* mind map of subject knowledge (LP11-Business, LP12-Business). Many LP students seemed to *lack confidence in identifying key points* because of poor comprehension (LP4-H&S, LP7-H&S, LP8-Business, LP12-Business). Some, however, relied on slides (LP2-H&S, LP10-Business), 'keywords' (LP3-H&S), emphases or repetitions in teacher talk (LP12-Business) to roughly grasp what they considered to be important points.

Medium-proficiency (MP) group

As indicated in Table 4.7, students from the MP group also frequently mentioned *perception-related issues* (n=17). However, they differed from the LP students in the extent of these problems. Teachers' speed of delivery seemed to be 'normal' and acceptable for most students (e.g., MP1-H&S, MP8-H&S, MP12-Business). *Connected speech* was perceived difficult (n=6), but not fatal to understanding. Students described it as 'a bit confused' when speech was highly fluent and connected (MP7-H&S). Some 'occasionally missed a couple of sentences' (MP6-H&S) or let pass some details without much influence on understanding in general (MP12-Business). Like the LP group, students in the MP group also reflected *disparities between listening to foreign and Chinese teachers*. However, unlike the wide range of differences illustrated by LP students, problems of listening to foreign teachers in the MP

group surrounded unfamiliar pronunciation of words (MP6-H&S, MP8-H&S) or very strong accents (MP10-H&S). *Word recognition* was equally problematic for MP students as their LP peers (n=7). Issues in this respect included being slow in matching word sound with its spelling (MP1-H&S, MP9-H&S), and failing to recognise words due to differentiation in word pronunciation taught in high school (MP6-H&S).

Attention-related problems were perceived a major challenge for the MP group (n=14), reflected in a higher frequency of references than the other two groups (LP: n=8; HP: n=7). Compared to the LP group, students in the MP group displayed more *diverse reasons for declined attention*. The reasons included insufficient comprehension (MP1-H&S, MP2-H&S, MP5-H&S, MP6-H&S, MP12-Business), distractions from students sitting next to them (MP6-H&S, MP8-H&S), loss of interest in certain content (MP5-H&S, MP12-Business), and being indulged in one's own thoughts (MP3-H&S). *Fixing attention on figuring out word meaning* was a recurring theme in this group (MP1-H&S, MP2-H&S, MP7-H&S, MP10-H&S). In addition, some MP students expressed difficulties in keeping in pace with the teacher due to delayed translation of previously uttered sentences (MP1-H&S, MP9-H&S) or missing shifts between thematical sections in a lesson because of not recognising sequencing words (MP6-H&S).

Specialist vocabulary was also reported as a more observable issue in the MP group than both the LP and the HP group (LP: n=4; MP: n=8; HP: n=3). Some students reported a need to remember the terms before and after class (MP7-H&S, MP11-Business). Others complained that they never encountered these words (MP12-Business) and that the terminology was so professional that one would find it difficult to understand even if in Chinese (MP4-H&S). Especially in disciplinary topics that students were unfamiliar with, lengthy terminology seemed to pose threats to understanding entire sentences (MP8-H&S, MP12-Business). In

addition to specialist vocabulary, a couple of MP students also mentioned *a small vocabulary size* as problematic (MP1-H&S) and challenges understanding *words with multiple meanings* (MP6-H&S). A few MP students also touched on *syntactical problems*. For example, one student (MP1-H&S) was concerned that even though she knew all the words, she could not understand the precise meaning of the sentence. Another student (MP7-H&S) also reported forgetting part of information two to three seconds after the teacher talk, which prevented him from effectively decoding sentence meaning.

The role of *topic-related prior knowledge* perceived by the MP groups seemed to be similar to the LP group. Topics closely related to daily life enabled students to elaborate and guess meaning (MP1-H&S), strengthen memory (MP6-H&S) and figure out details in the content instructed (MP10-H&S). Like the LP students, MP students also often resorted to slides for knowing the rough structure of a lesson (MP1-H&S, MP8-H&S, MP10-H&S, MP12-Business). Additionally, MP students also showed more proactive effort to summarise the structure from teacher talk, as well as to look for discourse markers (MP6-H&S, MP10-H&S). However, these efforts were not always effective, especially when teachers gave many examples: 'If the lesson involves many examples, I would be attracted to these examples and the structure [of the knowledge] would break up' (MP10-H&S). Other students reported more focus on understanding the unfolding utterance of the teacher, rarely noticing the structures (MP2-H&S, MP3-H&S, MP9-H&S). Similar to the LP group, MP students were also not confident about *identifying key knowledge*, describing it as 'roughly know the ideas' (MP9-H&S), 'would miss some points' (MP6-H&S), 'not very clear' (MP2-H&S) and 'not sure if it's key' (MP10-H&S). Some relied on headlines and conclusive points from slides (MP1-H&S, MP8-H&S, MP9-H&S). Others availed themselves of teachers' emphases or repetitions (MP4-H&S, MP12-Business) just like the LP students did.

High-proficiency (HP) group

As can be seen from Table 4.7, students in the HP group encountered much fewer *perception-related* difficulties compared to the other groups (LP: n=22; MP: n=17; HP: n=5). A couple of students touched on the issue of *word recognition*, which only appeared occasionally in sentences with one or two words (HP7-Business, HP10-H&S). HP students recognised the *differences between Chinese and foreign teachers* in terms of accent (HP10-H&S), speed of delivery (HP7-Business) or connected speech (HP2-H&S). But these differences seemed to have little impact on their comprehension (HP2-H&S, HP3-H&S, HP9-Business).

Unlike the other two groups, students in the HP group appeared to *lose attention mainly due to a lack of interest* rather than comprehension problems (e.g., HP3-H&S, HP4-H&S, HP7-Business, HP10-H&S). Some students depicted the lessons as boring due to inadequate interaction (HP10-H&S), with content taught similarly to pre-reading materials (HP4-H&S) and without a clear purpose in terms of teacher talk (HP5-H&S). Looking up words on slides and taking notes were the sources of competing attention with listening for a few students (HP2-H&S, HP9-Business).

HP students overall perceived few difficulties regarding vocabulary, though occasionally words with more than one meaning would cause confusion (e.g., HP5-H&S). *Specialist vocabulary* was mentioned by three students as problematic in the HP group but seemed to be resolvable through preview (HP2-H&S). However, *mental translation* was still reported by some students (HP2-H&S, HP3-H&S), impeding forming direct understanding of sentences. One student (HP1-H&S) also admitted that sentences with too much new terminology were hard to understand.

Different from the other groups, *topic-related prior knowledge* seemed incidental to listening to HP students. Subject content taught could be familiar and 'close to daily life' for some students (e.g., HP4-H&S) while unfamiliar to others (e.g., HP7-Business, HP9-Business). Nonetheless, neither seemed to impact on understanding. *Preview* seemed to facilitate the establishment of a knowledge framework. For example, one student stated that *preview* helped her stay alert to what knowledge was to be introduced when the teacher asked a question (HP2-H&S). For other students, however, *organising knowledge structures* was still a challenging task, and more often, a task they were not used to completing on their own (HP5-H&S, HP7-Business). In a similar vein, many HP students also felt confused about *identifying key subject knowledge*. This confusion was not only because they were no longer explicitly told what was important (HP2-H&S, HP4-H&S, HP5-H&S) but also due to doubts about how the knowledge could feature in the exams (HP3-H&S).

4.3.2.2 The role of Self-efficacy in listening to EMI classes

Students' reference to *self-efficacy in listening to EMI classes* emerged as a recurring theme during the interviews at T1 compared to all other motivational beliefs. Students' beliefs in their capabilities of listening to and improving listening for EMI classes seemed to interact with their perceived listening difficulties in a reciprocal way. In what follows, this reciprocal relationship will be illustrated with the instances provided by the interviewees. In addition to *BELP* and *major*, an average of item scores from the questionnaire of 'Self-efficacy in listening to EMI classes' at T1 was included in the interviewees' ID. For example, 'LP4-H&S-SE 18' indicates a low-proficiency BELP student majoring in Humanities and Social Sciences, who had a self-efficacy (SE) rating of 18 out of 100 at T1.

First, self-efficacy appeared to inform students' perceptions of listening experience. Lack of self-efficacy was considered to impair students' *will to start and engage in listening*. Students with low self-efficacy described a fear, resistance to listening in English (LP4-H&S-SE 18, HP7-Business-SE 29), as well as a feeling of being defeated and frustrated as long as they were present in an EMI class (LP2-H&S-SE 9). Second, self-efficacy affected students' *attention and motivation to sustain listening* in the face of difficulties. For example, one student stated that 'actually when you are not confident or don't feel you can make it, you don't have the drive to continue listening and that affects the following process' (MP12-Business-SE 38). Further, one student also indicated that low efficacy led to an *uncertainty and hesitation in interpreting teacher talk*, described by her as being 'always worried that I understood it wrongly or missed anything' (HP9-Business-SE 49). In contrast, highly efficacious students were more sure-footed and believed that even if there were unknown words, they could find a way to work out the meaning (e.g., HP1-Business-SE 88, HP8-Business-SE 70).

At the same time, students' *self-efficacy in listening to EMI classes* was also shaped by their listening experience. Admittedly, some students' efficacy beliefs were derived from their *previous learning experience*. For example, some students were rather pessimistic about their English learning, saying that 'I can't understand English well no matter how hard I try' (MP1-H&S-SE 16). Others, however, alluded that *comparing themselves with their peers* in EMI classes lowered their efficacy beliefs: 'I feel that people around me all seem to understand better than me' (MP3-H&S-SE 26). One student also indicated a need to base her assessment of self-efficacy on *standardised criteria*: 'Without the exam results I can never be confident enough—I don't know how well I have understood. Neither am I sure about whether I've mastered the knowledge' (MP4-H&S-SE 70). In addition, various listening experiences sometimes resulted in fluctuations in students' efficacy beliefs. Students'

efficacy might be boosted when some part of a lesson was understood well whereas when other parts became difficult, their efficacy might suddenly plunge and this would lead to a feeling of 'lagging behind others' (MP8-Business-SE 50).

4.3.3 Summary of qualitative findings on the role of baseline English listening proficiency and self-efficacy in perceived listening difficulties at the start of the semester

In summary, findings from the qualitative interview data largely supported the quantitative results, highlighting the role of self-efficacy and BELP in students' perceptions of listening difficulties in EMI classes. *Self-efficacy in listening to EMI classes* appeared to both inform and be shaped by the listening experience. On the one hand, highly efficacious students appeared to be more willing to initiate and sustain listening. They also seemed more sure-footed towards handling difficult tasks in listening, such as dealing with unfamiliar words or expressions. On the other hand, students' prior learning experience, peer comparisons in listening, and external criteria would in turn revise their efficacy beliefs in listening to EMI classes. Further, students at different BELP levels reported distinct experiences regarding listening challenges upon arrival at an EMI university, as summarised below.

Low-proficiency group (LP group)

- A variety of severe *perception-related* problems which impeded comprehension
- Fixing attention heavily at solving word-related issues in listening
- Seldom losing attention due to high anxiety
- A variety of vocabulary-related issues and a small vocabulary size
- Topic-related prior knowledge perceived as important for comprehension
- Lack of confidence in identifying key points due to insufficient comprehension

Medium-proficiency group (MP group)

- *Perception-related* issues existed but not fatal to understanding, except for the problem of word recognition

- Fixing attention at solving word- and sentence-related problems in listening
- Heavy attention loss due to various reasons (e.g., poor comprehension, amotivation)
- Outstanding difficulties with specialist vocabulary
- Topic-related prior knowledge perceived as important for comprehension
- Lack of confidence in identifying key points due to insufficient comprehension

High proficiency group (HP group)

- Few *perception-related* issues with little impact on comprehension
- Losing attention mainly due to amotivation or lack of interest
- Certain problems with specialist vocabulary but resolvable through preview
- Topic-related prior knowledge perceived as incidental to comprehension
- Problems of structuring knowledge and identifying key points due to a reliance on teachers cultivated in high school

In sum, at the outset of listening to EMI classes, students from distinct BELP groups perceived listening difficulties differently. Although all groups reported *perception-related* difficulties, such difficulties seemed most obstructive to listening for the LP group, and less so for the other groups. Students in the LP group also encountered a wider variety of *vocabulary-related* issues, who also more easily fixed attention at a word-level. The problem of losing attention stood out for the MP and the HP group—both seemed to be linked with a lack of interest in the subject knowledge. The LP students, however, seemed to try to remain focused due to high anxiety. Finally, topic-related prior knowledge was valued by the LP and MP group, but less so by the HP group who found it easy to understand the teacher anyway.

4.4 Chapter summary

This chapter explored the difficulties reported by students in listening to EMI classes at their first experiences upon arrival at an EMI transnational university. Descriptive statistics revealed that specialist vocabulary, recognising known words, and missing next parts when thinking about meaning were the most prominent problems. Findings from the qualitative

data found that students perceived difficulties at all stages of listening, ranging from lower-level *perception-*, *attention-*, *vocabulary- and syntax-related* issues to higher-level *utilisation-related* ones. These difficulties appeared to be closely associated with students' high school experience of learning both the English language and subject courses.

Results from a hierarchical multiple regression highlighted the role of students' *BELP* and *self-efficacy in listening to EMI classes* in predicting their perceived listening difficulties. Analyses of the interview data corroborated with these results, identifying substantial qualitative differences in students' perceptions of listening difficulties across different BELP groups, as well as a reciprocal interplay between self-efficacy and perceived listening difficulties. Regarding the role of BELP, LP students more frequently reported *perception-related* problems than MP and HP students, and found such problems to be markedly detrimental to their comprehension. LP students also tended to easily fixate their attention on resolving problems at a lexical level, and reported a wider variety of vocabulary-related problems than the other groups. In contrast, MP and HP students reported more severe loss of attention than LP students who seemed to maintain concentrated due to a high anxiety. Interestingly, topic-related prior knowledge was considered important by both the LP and MP students for aiding comprehension, but not valued by the HP students who considered the content as somewhat simple or boring. Regarding the role of *self-efficacy in listening to EMI classes*, on the one hand, self-efficacy appeared to inform students' perceptions of how difficult listening tasks in EMI classes were, and to influence their will to engage and persist in listening. On the other hand, students' prior learning experience and their assessment of listening performance against others or externa criteria (e.g., exams) also seemed to shape their efficacy beliefs.

Chapter 5 Results: Longitudinal development of perceived listening difficulties in EMI classes during the first semester

5.1 Chapter introduction

This chapter presents and analyses both quantitative and qualitative findings across three time points of data collection (T1, Week 2 and 3; T2, Week 8 and 9; T3, Week 13 and 14) to examine a series of issues related to the longitudinal development of students' *perceived listening difficulties* in EMI classes during the first semester. These findings address the second research question outlined in Chapter 3 (Section 3.2):

2) Are there changes in the listening difficulties perceived by students during their first semester of study at an EMI transnational university?
   a. What is the general trend of development of listening difficulties over time?
   b. Do students with different *baseline English listening proficiency* experience changes in listening difficulties differently? If so, how?
   c. What is the role of *self-efficacy* and *motivation* in listening difficulties over time?

To answer RQ 2a and 2b, results from a two-level multilevel modelling analysis will be first analysed to examine whether students' perceived listening difficulties, in general, varied over time (2a), and whether students' *baseline English listening proficiency (BELP)* had an interaction effect with *time* on the changes of difficulties (2b). To allow for a more detailed understanding on these two sub-questions, results of paired sample t-tests will be summarised to reveal the longitudinal changes of a variety of difficulty items throughout the term. This will be followed by the analysis of interview data to depict the trajectory of listening difficulties perceived by each BELP group (high, medium, low) respectively over time. To answer RQ 2c, the longitudinal development

of students' *self-efficacy* and *motivational variables* will first be outlined via one-way repeated measures ANOVA, after which the role of these variables will be examined through a series of simultaneous multiple regression at T1, T2 and T3 to explore whether they consistently predicted perceived listening difficulties throughout the term. Lastly, interview data will be analysed to delve into how students' self-efficacy and motivation interplayed with their perceived listening difficulties across different time points during the semester.

5.2 Longitudinal development of perceived listening difficulties

Multilevel modelling was applied to investigate the trajectory of students' perceived listening difficulties in EMI classes over time, and whether their *BELP* had an interaction effect with *time* on the change of these difficulties. A two-level multilevel model was constructed, holding *student* as the grouping variable. At Level 1, variance in the *perceived listening difficulties* (outcome variable) was tested with *time* (Level-1 predictor variable). At Level 2, the variation in observed trajectories of change was tested for individuals' *BELP* (Level-2 predictor variable). Prior to the analysis, the following assumptions for multilevel modelling were checked (see Appendix 5.1 for detailed results of assumption testing):

- Linearity—the relationship between the predictor variable and the outcome variable is linear;
- Normality of random effect—this is checked via the normality of residuals at Level 1;
- Normality of the full model—residuals are normally distributed at Level 2;
- Homoscedasticity—variance of error terms are similar across predictor variables.

After checking that the above assumptions were met, Section 5.2.1 and Section 5.2.2 below present the results for Level 1 and Level 2 analysis respectively.

5.2.1 General longitudinal trend of perceived listening difficulties

Before testing the effect of *time*, an inspection of the descriptive statistics of *perceived listening difficulties* at three time points reveals that the overall trend of development could be quadratic (see Table 5.1 and Figure 5.1). Therefore, the orthogonal quadratic time covariate was included, which is labelled as 'quad time' in Table 5.2. The results show that both *time* ($\beta = -.063$, $t = 626.14$, $p < .001$) and *quad time* ($\beta = -.094$, $t = 627.08$, $p < .001$) had a significant effect on *perceived listening difficulties*. This suggests that students' perceived listening difficulties changed significantly over time and the relationship between difficulties and time was non-linear.

Table 5. 1. Descriptive statistics for perceived listening difficulties at T1, T2 and T3

Time	n	Mean	SD	Min	Max
T1	316	3.33	0.874	1.08	5.67
T2	312	3.54	0.711	1.33	5.67
T3	316	3.20	0.754	1.00	6.00

Note. The variable *perceived listening difficulties* was computed from the mean of a number of items measured by the questionnaire 'Perceived listening difficulties in EMI classes'.

Figure 5. 1. Line graph of the means of perceived listening difficulties at T1, T2 and T3

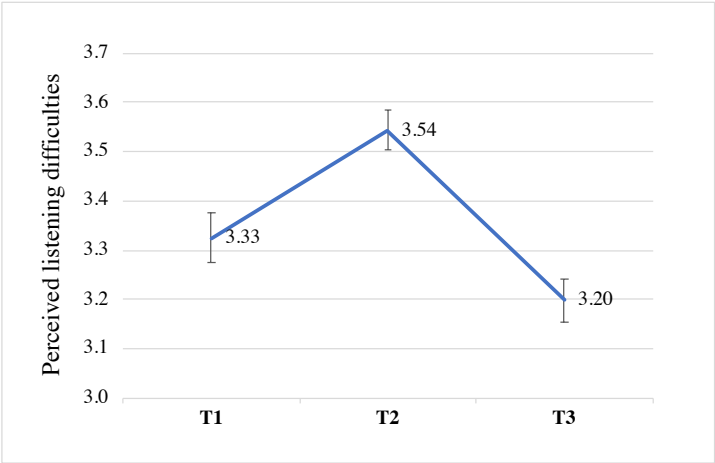


Table 5. 2. Estimation of significant effect of time on perceived listening difficulties

Fixed effect	**β**	**SE**	**t**	**df**	**Sig.**
Intercept	3.419	0.043	445.749	79.781	0.000
Time	-0.063	0.018	626.144	-3.614	0.000
Quad Time	0.094	0.010	627.081	9.234	0.000

Note. The estimated coefficients (β) associated with the time covariates correspond to time effects of -0.094, 0.125 and -0.220 at times = 1, 2 and 3, respectively.

In an attempt to draw a more detailed picture of how various aspects of listening difficulties changed across the semester, paired-sampled t-tests were carried out on individual items on the questionnaire 'Perceived listening difficulties in EMI classes' between T1 and T2 as well as between T2 and T3. Normality of difference scores between time points was checked prior to the tests to ensure no heavy kurtosis (< 2.0) or skewness (< 0.8) (see Appendix 5.2 for statistics on kurtosis and skewness of the difference scores), with the inspection of Q-Q plots and histograms to confirm the assumption was met. Boxplots were checked to ensure there were no obvious outliers which might distort the mean and variance of the sample. Since multiple pairs were compared, a Bonferroni correction was applied to set the alpha value at a more conservative level to control for Type I error from multiple comparisons ($\alpha = .05/24 \approx .002$). Results of the paired sample t-tests are presented in Table 5.3.

From T1 to T2, students reported the sharpest increase of difficulties in issues with *teacher accent* ($Mean_{T1} = 2.71$, $Mean_{T2} = 3.23$, $p < .001$). Meanwhile, students felt that *information was also delivered significantly faster* ($Mean_{T1} = 3.14$, $Mean_{T2} = 3.48$, $p < .001$) and *missing following information when thinking about meaning* was significantly more problematic ($Mean_{T1} = 3.58$, $Mean_{T2} = 3.88$, $p < .001$). Additionally, *unfamiliar words and expressions* were more difficult ($Mean_{T1} = 3.35$, $Mean_{T2} = 3.59$, $p < .001$) and *forming mental representations* became harder ($Mean_{T1} = 2.93$, $Mean_{T2} =$

3.11, p = .002). Lastly, students found it increasingly difficult to *take notes* in EMI classes ($Mean_{T1} = 3.59$, $Mean_{T2} = 3.91$, $p < .001$).

From T2 to T3, a significant drop in difficulties was detected for almost all aspects of listening. Most noticeably, students seemed to report fewer problems with *teacher accent* ($Mean_{T2} = 3.23$, $Mean_{T3} = 2.72$, $p < .001$). The *speed of delivery of information* was no longer perceived as obstructive to understanding ($Mean_{T2} = 3.48$, $Mean_{T3} = 2.99$, $p < .001$) and the problem of *missing following information when thinking about meaning* was reduced ($Mean_{T2} = 3.88$, $Mean_{T3} = 3.42$, $p < .001$). Problems with *specialist vocabulary* were also lessened ($Mean_{T2} = 4.49$, $Mean_{T3} = 4.01$, $p < .001$) and likewise with *unfamiliar words and expressions* in general ($Mean_{T2} = 3.59$, $Mean_{T3} = 3.25$, $p < .001$). Further, students tended to agree less with the statement 'it is difficult to understand the organisation (structure) of the EMI lectures' at T3 compared to T2 ($Mean_{T2} = 3.46$, $Mean_{T3} = 3.16$, $p < .001$). Concurrently, *identifying key points* ($Mean_{T2} = 3.30$, $Mean_{T3} = 3.09$, $p = .001$) and *taking notes* ($Mean_{T2} = 3.91$, $Mean_{T3} = 3.51$, $p < .001$) were reported as easier at the end of the term.

The longitudinal development of listening difficulties perceived by the students seemed to correspond with findings from the field notes that the researcher gathered through talking with the course coordinators of the three EMI courses during data collection. According to the course coordinators, there were variations in both the *content* and *staffing* for the EMI courses across the three time points when data were collected. In terms of *staffing*, lectures had only been delivered by three teachers in total two weeks into the semester when T1 data were collected, among which two were Chinese. However, by the midterm, students had attended lessons given by three to six lecturers depending on which courses they were enrolled. Each course had a mixture of Chinese

and foreign teachers, whose nationalities covered at least five different countries. After the midterm a few new lecturers were introduced but most of them had already given lessons before. In terms of the *content* of the courses, the course coordinators reflected that lectures at the start of the term aimed at introducing the field to students and hence the content tended to be relatively easy. As the course progressed, discipline content became more intense, in-depth and professional at the midterm and then remained approximately at an equivalent level for the rest of the term. These variations in *staffing* and *course content*, as reflected in the field notes, helped to contextualise the longitudinal pattern demonstrated in students' reported listening difficulties over time.

Table 5. 3. Item-based paired sample t-tests of perceived listening difficulties between T1 and T2, and between T2 and T3

Item	T1		T2		T3		T1 vs. T2		T2 vs. T3	
	Mean	SD	Mean	SD	Mean	SD	t	p	t	p
When listening to EMI classes, specialist vocabulary is challenging for me.	4.43	1.11	4.49	0.96	4.01	1.05	-0.86	.393	7.69	0.000
Sometimes I do not recognise words I know while listening to EMI classes.	3.65	1.37	3.79	1.18	3.55	1.15	-2.16	0.032	4.20	0.000
I have difficulty taking notes in EMI classes.	3.59	1.27	3.91	1.13	3.51	1.17	-4.28	0.000	5.74	0.000
I miss the next part of teachers' talk when thinking about the meaning.	3.58	1.18	3.88	1.04	3.42	1.05	-4.49	0.000	7.32	0.000
I find words or expressions in EMI classes unfamiliar.	3.35	1.24	3.59	1.03	3.25	1.03	-3.58	0.000	5.64	0.000
It is difficult to understand the organisation (structure) of the EMI lectures.	3.32	1.20	3.46	1.10	3.16	1.03	-2.00	0.046	5.27	0.000
I cannot recognise the linking sounds between words when listening to EMI classes	3.23	1.32	3.28	1.20	3.09	1.15	-0.93	0.355	3.41	0.001
The information in EMI lectures is presented so quickly that it hinders my understanding.	3.14	1.17	3.48	1.04	2.99	1.08	-5.22	0.000	8.44	0.000
I am confused about the key ideas of the EMI lectures.	3.14	1.18	3.30	1.08	3.09	1.07	-2.25	0.025	3.33	0.001
I find it difficult to follow teachers' line of thought in EMI classes.	3.08	1.16	3.27	0.97	2.99	1.00	-2.96	0.003	4.96	0.000
I cannot form a mental representation of what teachers talk about in EMI classes.	2.93	1.13	3.11	0.94	2.85	0.92	-3.18	0.002	4.72	0.000
It is difficult to understand teachers' accents in EMI classes.	2.71	1.17	3.23	1.07	2.72	1.05	-7.28	0.000	7.72	0.000

Note. Bonferroni correction applied, p is significant at .002.

5.2.2 Longitudinal development of perceived listening difficulties with regard to baseline English listening proficiency

5.2.2.1 Results from multilevel modelling analysis

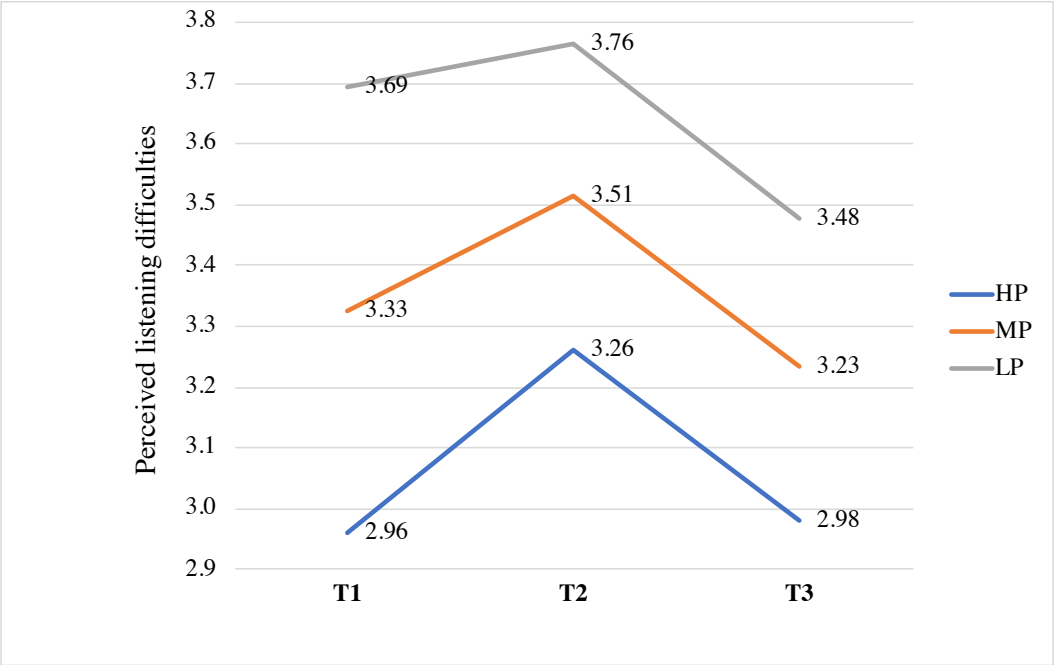
In an attempt to investigate whether students starting at various BELP levels experienced changes of perceived listening difficulties in EMI classes differently over time, Level 2 multilevel modelling examined the interaction effect between *time* and *BELP* on *perceived listening difficulties*. Results in Table 5.4 reveal a significant interaction effect of *BELP* with both *time* (β = -.003, t = 374.56, p = .008) and *quad time* (β = .001, t = 355.89, p = .004), indicating that in general students at distinct BELP upon entering EMI universities demonstrated different *rate of change* in their *perceived listening difficulties* over time.

Table 5. 4. Estimation of significant interaction effect of time and BELP on perceived listening difficulties

Fixed effect	**β**	**SE**	**t**	**df**	**Sig.**
Intercept	4.369	0.125	458.668	34.879	0.000
Time	-0.208	0.059	375.556	-3.538	0.000
Quad Time	0.024	0.027	357.446	0.887	0.376
BELP	-0.018	0.002	456.697	-8.145	0.000
Time * BELP	0.003	0.001	374.558	2.646	0.008
Quad Time * BELP	0.001	0.000	355.894	2.869	0.004

Note. The estimated coefficients (β) associated with the time covariates correspond to time effects of -0.024, -0.160 and -0.440 at times = 1, 2 and 3, respectively.
The estimated coefficients (β) associated with the BELP effects correspond to time effects of -0.019, -0.013 and -0.013 at times = 1, 2 and 3, respectively.

Figure 5. 2. Example of rate of change in perceived listening difficulties for three prototypical students



Note. HP = high proficiency, MP = medium proficiency, LP = low proficiency.

In order to illustrate the development patterns of listening difficulties perceived by students at different BELP, Figure 5.2 plots the listening difficulty scores of three prototypical students. The HP student had a BELP score one standard deviation higher than the mean (73, B2); the MP student was at a mean score (54, B1); and the LP student scored one standard deviation lower that the mean (34, A2). As can be seen, from T1 to T2, although all students experienced an increment in *perceived listening difficulties*, the *rates* or the *slopes of change* were different. The escalation in difficulty discerned by the HP student was most observable with a Mean Difference (MD) of 0.30, whereas the LP student only reported a slight increase (MD = 0.07). This suggests that students starting with a low proficiency might be less sensitive to the increased difficulty in listening to EMI classes at the midterm compared to their higher proficiency peers. From T2 to T3, the *perceived listening difficulties* seemed to be alleviated for all groups, suggesting that the students might have somehow become more adjusted to listening. However, an inspection of the overall development over the entire

semester (T1 vs. T3) reveals that the *perceived listening difficulties* of the LP student decreased the most (MD = -0.21) with that of the MP student slightly dropped (MD = -0.10). The difficulties reported by the HP student at the end of the term, however, even increased slightly compared to the beginning of the term (MD = 0.02). This pattern indicates that the lower the students' BELP, the more likely they would perceive a more substantial decrease in *perceived listening difficulties* after a semester of EMI classes.

5.2.2.2 Findings from semi-structured interviews

A more in-depth understanding on the changes of listening difficulties reportedly experienced by students with various BELP could be achieved through an analysis of qualitative interview data collected at the start of the term (T1, Week 3), the midterm (T2, Week 9), and the end of the term (T3, Week 14). Table 5.5 presents the frequency count of how many interviewees commented on each of the themes related to *perceived listening difficulties* at three time points respectively. However, it should be noted that these frequency counts only provide an overview of the prevalence of themes being talked about at each time point rather than a quantitative indication of change over time. The qualitative narrative presented later will offer a detailed and situated picture of how the trajectory of listening experience for each BELP group adapted during the entire semester.

Table 5. 5. Categories and themes of perceived listening difficulties by BELP group at T1, T2 and T3

Categories and themes	Interview references								
	LP (n=12)			MP (n=12)			HP (n=10)		
	T1	T2	T3	T1	T2	T3	T1	T2	T3
Perception	**22**	**10**	**4**	**17**	**10**	**10**	**5**	**10**	**2**
Connected speech	8	2	1	6	2	1	1	1	0
Word recognition	7	3	1	7	3	3	2	3	0
Teacher accent & delivery style	7	5	2	4	5	6	2	6	2
Attention	**8**	**4**	**3**	**14**	**10**	**5**	**7**	**9**	**1**
Losing attention	4	2	1	8	7	2	5	6	1
Inappropriate allocation of attention	4	2	2	6	3	3	2	3	0
Vocabulary & syntax	**7**	**13**	**10**	**12**	**5**	**10**	**5**	**4**	**5**
Vocabulary (specialist/other)	4/3	6/6	6/2	8/2	3/0	3/6	3/1	2/1	5/0
Syntax	0	1	2	2	2	1	2	1	0
Utilisation	**17**	**13**	**11**	**20**	**13**	**11**	**13**	**12**	**14**
Topic-related prior knowledge	6	4	8	6	4	4	3	4	6
Forming knowledge structures	6	3	2	9	5	3	4	3	3
Identifying key points & taking notes	5	6	1	5	4	4	6	5	5

Note. LP = low proficiency; MP = medium proficiency; HP = high proficiency.
'References' for each theme (e.g., *connected speech*) represent the number of interviewees that commented on the theme; 'references' for each category (e.g., *perception*) reflect a sum of references of its subordinate themes.

Low-proficiency (LP) group

Perception-related issues

Findings from qualitative data reveal that from T1 to T2, LP students experienced decreased difficulties in some aspects of listening while an increase in others. Fewer *perception-related* issues regarding *connected speech* were reported by LP students (T1: n=8; T2: n=2). *Word recognition* issues were also less frequently mentioned (T1: n=7; T2: n=3), which at T2 seemed to be mostly caused by a fast delivery speed (LP1-H&S, LP9-Business, T2) and accented speech (LP9-Business, T2). At the midterm, some LP students reflected that they were less nervous compared to the start of the semester, which improved their efficiency in

attending to teacher talk (LP4-H&S, LP7-H&S, T2). Many students also felt more comfortable with *teachers' speed of delivery* (LP1-H&S, LP2-H&S, LP3-H&S, LP4-H&S, LP8-Business, LP9-Business, T2) and became increasingly familiar with *frequently used expressions* (LP1-H&S, T2). *Connected speech* only appeared to pose challenges when teachers used long sentences (LP9-Business, T2) or talked fast to touch upon certain issues (LP11-Business, T2). At the midterm, students had attended classes taught by various teachers and *accent* therefore stood out as a major issue. Students complained about some *foreign teachers' strong accents* (LP2-H&S, LP6-H&S, LP7-H&S, T2), which was exacerbated by *fast delivery speed* (LP6-H&S, LP9-Business, LP11-Business, T2). One student also commented that frequent switching among teachers prevented her from familiarising with each teacher's pedagogical methods, which according to her, would at least take four to five lessons (LP7-H&S, T2).

At the end of the term, *perception-related* problems still existed but seemed to impact little on listening. Issues with *connected speech* were only reported problematic by one interviewee (LP9-Business, T3), while five others overtly commented that they could better understand teacher talk even if it was fluent and connected. The improvement was attributed both to more exposure to the teacher talk in class (LP3-H&S, LP4-Business, LP8-Business, LP12-Business, T3), and students' listening practice after class (LP2-H&S, LP8-Business, LP9-Business, T3). One student also mentioned the problem of *word recognition*, commenting that the issue 'still exists but rarely matters' (LP4-H&S, T3). Noticeably, some students seemed to foster *a higher level of tolerance* due to constant exposure to diverse teacher accents (e.g., LP3-H&S, LP10-Business, LP12-Business, T3). Listening problems only occurred when *accented speech* was coupled with *fast delivery speed* (LP3-H&S, LP10-Business, T3). Chinese teachers were still perceived easier to understand by some students, claiming that they felt affectively and cognitively closer to these teachers (LP10-Business, T3).

Attention-related issues

Many LP students at the midterm reported *improved concentration* in listening compared to the start of the term (T2: n=7). This change was primarily attributed to improved comprehension (LP3-H&S, LP5-H&S, LP7-H&S, T2). In addition, some students also reported that the midterm exams had an 'alarming effect' for their attention in class (LP7-H&S, LP12-Business, T2), propelling them to proactively make effort such as finding better seats to stay focused. Inevitably, however, a couple of students also reported a slight *decrease in attention* because of a diminishing excitement in the courses (LP2-H&S, LP10-Business, T2). Compared to T1, some LP students reflected a sense of 'coherence' in listening (LP6-H&S, LP12-Business, T2), which was depicted by the statement below:

> At the start of the term, it was like the teacher talked and I just looked at the PowerPoint. Now it's more like the teacher talks, I listen to her, and sometimes I look up words on the PowerPoint. I might miss the next sentence when looking up words, but then I could pick up the following sentences and I can chain the meaning up—there's a sense of coherence.
> (LP12-Business, T2)

From this account, it can be noted that different from T1 when the student focused exclusively on the slides, at T2 he manged to *alternate attention* between the slides and the teacher to achieve a holistic understanding of the lesson.

At the end of the term, the majority of LP students maintained *highly focused* in listening (T3: n=10), mainly due to an increased interest in subject content and the impending final exam. The increased interest seemed to be partially built up based on *enhanced comprehension*: 'I know what the teacher is talking about so I'm more willing to listen' (LP7-H&S, T3). Some students also demonstrated regulation of their attention in the fear of missing important information (LP8-Business, LP10-Business, T3), and to perform better in the final exam

(LP8-Business, LP11-Business, T3). Regarding the *allocation of attention* in class, students in general seemed to spend less time looking up words, but instead, more frequently *extrapolated word meaning* (LP1-H&S, LP2-H&S, LP5-H&S, LP8-Business, LP10-Business, LP11-Business, LP12-Business, T3). This attempt was sometimes accompanied with a *reduced effort to translate*, which accelerated the process of comprehension (LP1-H&S, LP8-Business, LP11-Business, LP12-Business, T3).

Vocabulary- and syntax-related issues

Specialist vocabulary remained challenging for LP students at the midterm (T1: n=4; T2: n=6). However, compared to T1, they seemed more comfortable with *terminology*, claiming that teachers would explain key terminology to them anyway (LP1-H&S, LP3-H&S, LP4-H&S, LP5-H&S, T2). Some students also seemed to *adapt their attitudes to specialist vocabulary*—instead of translating word meaning, the students reported viewing terminology as subject concepts and attempting to learn them directly through English (LP7-H&S, LP12-Business, T2). *Academic words*, however, were found to be a major difficulty for LP students at T2 (n=6). These words were described as 'relatively formal and advanced' (LP1-H&S, LP2-H&S, T2), 'academic' (LP6-H&S, T2), 'IELTS like' (LP3-H&S, T2) and 'basic professional words' (LP9-Business, T2). Different from *terminology*, students reported that teachers rarely explained these words, observed by one student as 'as if they [teachers] are not aware that we don't know it' (LP1-H&S, T2). *Syntactical problems* were still rarely mentioned, where only one student reflected that long and complex sentences were difficult to understand (LP9-Business, T2).

At the end of the term, *specialist vocabulary* still posed challenges for LP students, which was mentioned by half of the LP respondents in the interview (T3: n=6). As new concepts were introduced, new *terminology* emerged and sometimes caused problems of interrupting the

flow of comprehension (LP12-Business, T3), and slowing down the speed of information processing (LP3-H&S, T3). However, compared to T2, LP students reported fewer problems with *other types of words* at T3 (T2: n=6; T3: n=2). This might be because these students exerted effort taking down unfamiliar words from teaching materials (LP1-H&S, LP3-H&S, LP7-H&S, T3) and memorising academic expressions after class (LP11-Business, LP12-Business, T3). As introduced earlier, the learners also honed their skills to infer word meaning by drawing on the meaning of sentences before and after (LP2-H&S, LP11-Business, LP12-Business, T3) and the overall meaning of the message (LP8-Business, LP10-Business, T3). *Syntactical problems* were reported by a couple students at the end of the term (LP7-H&S, LP11-Business, T3), claiming that long and complex sentences needed extra time for 'converting into a different form' to be understood.

Utilisation-related issues

Topic-related prior knowledge seemed to remain important and was talked about by several LP students at the midterm (T2: n=4). Such knowledge, however, seemed to serve more diversified functions compared to T1. Specifically, there was a function that the prior knowledge seemed to allow LP students to discern teachers' intentions for certain pedagogical tasks: 'If you know the background of this [topic], you know what the teacher wants you to do and why' (LP5-H&S, T2). In addition, some LP students also reflected being capable of *forming more refined knowledge structur*es compared to the start of the term (T2: n=3). One of the reasons was because that the midterm exam propelled students to systematically review previously learnt knowledge, which helped 'identify teachers' line of thoughts in structuring knowledge' (LP2-H&S, LP11-Business, T2). Furthermore, as students became *more familiar with teachers' pedagogical styles*, they detected an inherent logic: 'You know what examples lead to what conclusions and how the conclusions are then connected to others' (LP6-H&S, T2). Lastly, many LP students reported to be *more confident in identifying key points*

compared to the start of the term (T2: n=6). Apart from PowerPoint headings (LP2-H&S, LP7-H&S, LP8-Business, LP10-Business, T2), students also availed themselves of other resources such as task sheets, lesson notes, and practices to *cross-identify key points (*LP3-H&S, LP12-Business, T2). Strengthened understanding of the subject itself after the intensive midterm revision was also mentioned as useful for locating key knowledge instinctively (LP8-Business, T2).

Topic-related prior knowledge was reported to impact multiple aspects of learning at the end of the term, including motivation (LP4-H&S, LP7-H&S, T3), compensating for breakdowns in comprehension (LP1-H&S, LP2-H&S, T3), and deepening understanding for academic concepts (LP3-H&S, LP8-Business, LP9-Business, LP11-Business, T3). LP students seemed generally confident at *structuring knowledge* at T3, where the knowledge framework was regarded to help achieve a complete, holistic and interconnected understanding of knowledge delivered in class (LP3-H&S, T3). In addition, *grasping key points* was no longer perceived as problematic as a result of overall improved comprehension (LP2-H&S, LP7-H&S, LP9-Business, LP12-Business, T3), skilful use of diverse resources in class (LP1-H&S, LP3-H&S, LP4-Business, LP5-H&S, LP10-Business, T3), and increased familiarity with teaching styles and procedures (LP1-H&S, T3).

Medium-proficiency (MP) group

Perception-related issues

Many MP students at the midterm reported remarkably severe problems with *foreign teachers' accents and teaching styles* (T2: n=5), claiming that the large diversity of foreign accents made it difficult to concentrate (MP6-H&S, T2), and hampered comprehension (MP3-H&S, MP5-H&S, MP8-H&S, MP12-Business, T2). Some students also pointed out that foreign teachers tended to talk fast (MP6-H&S, MP8-H&S, T2) and use more unfamiliar

words and expressions (MP3-H&S, T2). Nevertheless, fewer students reflected problems related to *connected speech* (T1: n=6; T2: n=2). Issues of *connected speech* were also discussed in a more fine-tuned manner. For example, one student commented that 'linking sounds between sentences which involved more alleviated sounds' and 'colloquial chunks' were difficult to segment (MP3-H&S, T2), reflecting an enhanced metacognitive awareness in identifying specific listening problems. *Word recognition* was also perceived less of a difficulty at the midterm (T1: n=7; T2: n=3). In this regard, teachers' intonation and accent were reported to hinder the recognition of known words (MP7-H&S, T2), especially when the word was only semi-familiar (MP11-Business, T2).

At the end of the term, *perception-related* difficulties seemed to pose little threat to listening. Only one interviewee mentioned that he could not *segment speech* sometimes when the teacher improvised to explain certain concepts and the flow of talk became faster and more casual (MP10-H&S, T3). MP students also demonstrated a *higher tolerance to teacher accent* at the end of the term compared to their attitudes at the midterm. At the end of the term, many students reflected that *accented speech* alone caused little disturbance to listening (MP3-H&S, MP5-H&S, MP8-H&S, MP9-H&S, MP12-Business, T3). However, six interviewees pointed out that it still caused severe problems for understanding when *accented speech* was coupled with *fast speed of delivery*, resulting in issues especially in terms of recognising known words (MP1-H&S, MP7-H&S, MP8-H&S, T3).

Attention-related issues

Attention loss remained a major problem for MP students at the midterm (T2: n=7). However, among those who reported losing attention, it happened in a more controlled manner, described by one student as 'unlike at the start I felt totally at sea, and once distracted I could hardly come back, now I can bring myself back if I find my mind wanders sometimes'

(MP12-Business, T2). This is because, as this student explicated, 'after some time, I'm more familiar with the teaching procedures', echoing other students' statement that they could let concentration 'loose' a little during less important pedagogical tasks (e.g., MP9-H&S, T2). Compared to T1, many MP students also showed less tendency to *fix attention* on translating words or sentences. For example, one student reported trying hard to stop himself from translating or lingering on certain words when he detected an inclination to do so (MP10-H&S, T2). As such, problems related to processing professional knowledge were more commented at the midterm. For instance, difficulties in *following teachers' line of thought* (MP9-H&S, T2) and *digesting meaning* (MP5-H&S, T2) were reported when disciplinary knowledge became more professional than the start of the term.

The *attention investment* of MP students at the end of the term seemed to become more individualised, and appeared to be increasingly subject to factors such as *motivation*. One such motivational factor was *interest in the subject content*. In this regard, some students *reduced their attention investment* to only key concepts and ignored detailed explanations due to declined interest (MP1-H&S, MP9-H&S, T3). Other students, on the contrary, became *more focused* due to improved interest in the subject (MP5-H&S, MP8-H&S, MP10-H&S, MP12-Business, T3), which was usually built upon *enhanced understanding* (MP8-H&S, MP12-Business, T3). Further, the trend of augmented attention on *digesting subject knowledge* as detected at the midterm continued until the end of the term, which seemed to be facilitated by an 'automatic' feeling of understanding teachers' talk without translating it into Chinese (MP3-H&S, MP5-H&S, MP9-H&S, MP10-H&S, MP12-Business, T3). Nevertheless, *mental translation* still existed, which usually happened when there were unfamiliar words (MP6-H&S, MP7-H&S, T3) or complex sentence structures (MP8-H&S, T3). Interestingly, *translation* was sometimes employed to achieve an in-depth understanding

of certain difficult concepts: 'I translate when I really want to digest it—it feels more intuitive when it's in Chinese' (MP3-H&S, T3).

Vocabulary- and syntax-related issues

At the midterm, some MP students reflected that problems associated with *specialist vocabulary* were alleviated compared to the start of the term (MP4-H&S, MP7-H&S, MP8-H&S, T2). However, fast speed of delivery was reported to impede their understanding of teachers' explanation of *terminology* (MP6-H&S, MP10-H&S, T2). Meanwhile, *new terminology* still posed a threat to *concept understanding* for some students (e.g., MP11-Business, T2). In addition, some students reported an increased familiarity with *frequently used words and expressions* through exposure to teacher talk, preview materials, homework and quizzes (MP2-H&S, MP5-H&S, MP8-H&S, MP9-H&S, MP12-Business, T2), among which some words were described as 'academic' and 'formal' (MP12-Business, T2). A few MP students also perceived changes at the *syntactic level* of processing input, reporting that it took less time to decode sentence meaning (MP1-H&S, MP9-H&S, T2). However, the process was by no means smooth, and decoding usually became stuck at long and unfamiliar words contained in the sentences (MP3-H&S, MP4-H&S, T2).

Specialist vocabulary still remained problematic at the end of the semester, where students touched on difficulties related to the processing of terminology (T3: n=6). For example, a student described the mere understanding of the literal meaning of terminology failed to suffice in-depth comprehension of the conceptual knowledge involved: 'I know what it [the terminology] means in Chinese but I haven't really digested it—maybe I haven't achieved that extent of understanding' (MP3-H&S, T3). Problems with *other types of vocabulary* were recognised as problematic by three students, but in most cases were reported to be resolvable through guessing meaning based on context (MP3-H&S, MP7-H&S, T3), or using prefixes

and suffixes (MP3-H&S, T3). It should be pointed out, however, that such meaning inference might not always work, especially 'when the unknown word affects the key meaning of the sentence' (MP7-H&S, T3).

Utilisation-related issues

When MP students touched on the role of *topic-related prior knowledge* at the midterm (T2: n=4), they commented more on facilitating the understanding of subject concepts. Students described the functions of *topic-related prior knowledge* as inclusive of matching new knowledge to existing schemata (MP9-H&S, T2), facilitating lines of thoughts (MP6-H&S, T2), and deepening understanding on certain topics (MP5-H&S, MP7-H&S, T2). Similar to what was reflected in the LP group, many MP students seemed more adept at developing *refined knowledge structures* at the midterm as they became familiarised with teachers' pedagogical styles and procedures (MP8-H&S, MP9-H&S, MP12-Business, T2). Compared to the start of the term, MP students at the midterm were also more *confident at identifying key knowledge*. They appeared to be able to do so through exploiting diverse resources simultaneously, including slides, task sheets, and teachers' repetitions or emphases (MP7-H&S, MP8-H&S, MP9-H&S, MP12-Business, T2).

The role of *topic-related prior knowledge* remained important for MP students at the end of the semester (T3: n=6), and was particularly reported to impact their *motivation in subject learning*. The possession of prior knowledge relevant to the content instructed in class was reported to cultivate interest (MP8-H&S, MP10-H&S, T3), sustain attention (MP5-H&S, MP9-H&S, T3), and deepen understanding and memory of certain concepts (MP5-H&S, MP11-Business, T3). Problems regarding *structuring knowledge* were rarely mentioned at the end of the term (T3: n=3), perhaps due to an internalisation of knowledge structures as students became familiar with the procedures and styles of teaching. This was reflected by

some interviewees as 'naturally' following a logic or a line of thought (MP4-H&S, MP8-H&S, MP9-H&S, T3). Interestingly, a few MP students at the end of the term seemed to question their accuracy in *identifying key points*, mainly due to inconsistencies between what they thought was important and what was tested in the exams. For example, some students reflected that the questions in the midterm exam required 'answers of not only what I thought were key points but also knowledge details' which went 'unnoticed during revision' (MP11-Business, T3), or the 'application of knowledge' instead of its definition as taught in class (MP7-H&S, T3).

High-proficiency (HP) group

Perception-related issues

Interview findings show that as HP students were exposed to a larger diversity of teachers at the midterm, they displayed rather negative attitudes towards *accented speech* (T2: n=6). Some HP students not only complained about the accents of foreign teachers but also that of Chinese instructors, claiming that 'some Chinese teachers have very strong accents and dragged out ending sounds for words' (HP2-H&S, T2). Other HP students reported being psychologically resistant to listening to *accented speech*, described by them as 'not happy' (HP10-H&S, T2), 'unsatisfied', 'sounds bad' (HP7-Business, T2) and 'strangely accented' (HP1-H&S, T2). As a result, many students simply stopped making effort to listen.

However, at the end of term, the negative attitudes of HP students towards *teacher accent* seemed to be eased (T2: n=6; T3: n=2), demonstrated by a *higher tolerance to diverse accents*, which was a change also manifested in the LP and the MP group. Students reflected that the accents became 'acceptable' (HP2-H&S, T3), 'no longer feel it' (HP3-H&S, T3) or do 'not really impact listening' (HP9-Business, T3). Nonetheless, some students did point out that they 'might feel tired if the accents are very strong' (HP4-H&S, T3).

Attention-related issues

At the midterm, *attention-related problems* reported by students in the HP group seemed to be further aggravated compared to the start of the semester (T1: n=7; T2: n=9). Factors contributing to the *loss of attention* appeared to be diverse. *Lack of interest* remained a major reason (HP1-H&S, HP2-H&S, HP4-H&S, HP10-H&S, T2). The fore-mentioned *resistance to teacher accent* (HP7-Business, T2) and a *passive learning style* such as sitting at the backrow (HP5-H&S, T2) also contributed to decayed attention. As the content knowledge became more in-depth and professional, and the speed of delivery was accelerated at the midterm, HP students by then no longer seemed at ease in processing teacher talk as they were at the outset of the term, reporting 'less time for digesting ideas' (HP9-Business, T2), meaning they 'cannot efficiently process information' (HP5-HS, T2), and overall that the 'content in itself is difficult' (HP6-Business, T2).

Similar to the MP group, the *attention investment* of HP students at the end of the term also seemed to vary on an individual basis, mainly subject to factors such as *interest* (HP1-H&S, HP2-H&S, T3) and *value* in learning subject content (HP1-H&S, HP3-Business, HP5-H&S, HP8-Business, HP9-Business, T3). Some students appeared to be more 'goal-directed' with a stronger intention to 'learn more' (HP9-Business, T3), whereas others felt the content was easy and 'could mostly be learned after class' (HP8-Business, T3). Meanwhile, many students showed highly *selective attention* to certain content considered as interesting (HP1-H&S, T3) or useful (HP1-H&S, HP5-H&S, HP8-Business, T3) while filtering out other information.

Vocabulary and syntax-related issues

For HP students, *vocabulary-related* issues in general were not perceived as problematic at the midterm, and were only commented by three students. Similar to what was reflected in the LP group, shifted attitudes were spotted among the HP students, who seemed to *understand*

terminology as a concept instead of just a word. As one student pointed out: 'Terminology doesn't need to be translated. There's no problem if you just look at the English explanation [of the terminology] but as long as you translate it into Chinese, there might be misunderstanding' (HP6-Business, T2). However, due to the accelerated speed of teaching at the midterm, some HP participants reported *syntactical problems* associated with a limited working memory capacity: 'Teachers would jump to the next sentence before I could form the words to understand the [previous] sentence' (HP5-H&S, T2).

At the end of the term, although five HP students mentioned issues of *specialist vocabulary,* none of them indicated that these words had marked impact on understanding. Among these students, some reflected a need to memorise the words (HP3-H&S, T3) or make preparation before class (HP9-Business, T3) as more concepts and terminology were introduced. Problems with *other types of vocabulary* were scarcely mentioned. Students reported a focus on understanding the overall meaning of sentences, and to infer meaning or just ignore the unfamiliar words as long as they did not threat overall understanding (HP2-H&S, HP5-H&S, T3). Notably, some HP students seemed to have *automatised the listening process* at the end of the term, where they reported to *hardly translate* unless some parts involved very complex concepts (HP4-H&S, HP9-Business, T3). Listening in English seemed to be natural for these students, as described by one student: 'At the start of the term it was tiring but now I feel much better as if I'm listening in Chinese' (HP4-H&S, T3). Another student also mentioned a feeling of 'subconsciously listening': 'It felt like I wasn't listening but when other students asked me a question, I knew all the answers—maybe I was listening but subconsciously' (HP1-H&S, T3).

Utilisation-related issues

Whereas *topic-related prior knowledge* was regarded as incidental at the start of the term (T1: n=3), some HP students at the midterm clearly attached more importance to it as the content knowledge became more professional (T2: n=4). Students found it easier to understand the academic content when they had relevant knowledge about the topic (HP4-H&S, HP10-H&S, HP9-Business, T2), as well as feeling more interested and motivated (HP5-H&S, T2). More positively, some HP students at the midterm reported to have become more used to and capable of *organising knowledge structures* by themselves based on an increased awareness of teaching styles and procedures (HP4-H&S, HP5-H&S, T2). One student commented that 'even if I have difficulties understanding previous parts, I can now re-orient to the next part and start afresh because of a clearer structure' (HP5-H&S, T2). In terms of *identifying key points*, HP students reported diversified experience. Some were able to do so via slides (HP3-H&S, T2), teachers' emphases (HP7-Business, T2) and comparing lecture content with seminars (HP1-H&S, T2). Others still favoured being told what was important (HP5-H&S, T2), or needed to locate key information through review because of limited attentional capacity in class (HP4-H&S, T2).

Similar to the LP and the MP group, students in the HP group at the end of the term varied in their attitudes towards *topic-related prior knowledge* on an individual basis, which seemed to be closely associated with *motivation*. Some students recognised the benefits of background knowledge in enhancing interest and motivation (HP4-H&S, HP5-H&S, T3), deepening the understanding of subject knowledge (HP1-H&S, HP4-H&S, T3), and strengthening memory (HP3-H&S, T3). A couple of students, on the contrary, found such knowledge incidental due to a lack of interest in the course (HP6-Business, HP9-Business, T3). Similar to the MP group, some HP students at the end of the term also seemed to have *internalised the knowledge structures*, commenting that it was 'clear' (HP1-H&S, HP9-Business, T3) and they 'just naturally followed it' (HP3-H&S, T3). Many HP students also felt more *confident about*

identifying key points at the end of the term (HP2-H&S, HP3-H&S, HP4-H&S, HP9-Business, T3) as they developed a familiarity with the teaching styles and procedures of different instructors (HP1-H&S, HP9-Business, T3).

5.2.2.3 Summary of qualitative findings of longitudinal development of perceived listening difficulties in EMI classes by BELP group during the first semester

A qualitative analysis of the interview data provided in-depth and detailed understanding on the perceived listening difficulties of students in distinctive BELP groups during the first semester. Some of the trends seemed to be commonly shared among all BELP groups, whereas other patterns of development appeared to be unique to each group, both of which are summarised below.

Common trends of development shared by all BELP groups:

- Acute problems or negative attitudes towards teacher accent at the midterm
- A higher tolerance towards diverse teacher accents at the end of the term
- *Attention-related* issues more associated with motivation at the end of the term
- A 'smoother' listening experience with less fixed attention or mental translation, and more extrapolation of meaning at the end of the term
- A shifted view of terminology as concept-related from the midterm, with an inclination to understand terminology directly in English
- Topic-related prior knowledge valued from the midterm
- Confidence in structuring knowledge and identifying key points from the midterm, due to familiarity with teaching styles and procedures, and multiple sources of materials

Trends of development unique to each BELP group:

Low-proficiency group (LP group)

- Remarkable decrease in *perception-related* difficulties, especially in terms of segmenting speech and word recognition
- Few problems with the loss of attention throughout the term

- Observable problems with academic words at the midterm, which diminished at the end of the term due to accumulation and meaning inferences of these words
- Enhanced interest and concentration due to better comprehension at the end of the term
- Specialist vocabulary remained a problem at the end of the term

Medium-proficiency group (MP group)

- Remarkable decrease in *perception-related* difficulties, especially in terms of segmenting speech and word recognition
- Loss of attention in a more 'controlled' way at the midterm
- Failure to understand the conceptual knowledge related to terminology at the end of the term
- Doubts concerning the accuracy of identifying knowledge useful for exams

High-proficiency group (HP group)

- Severe loss of attention at the midterm due to lack of interest and resistance to 'non-native' accents
- Rare issues with any type of vocabulary at the end of the term
- An 'automatised' experience of processing listening input at the end of the term

In general, students in all BELP groups seemed to report a 'smoother' listening experience in EMI classes at the end of the first term compared to the start of the term, characterised by fewer problems of fixed attention or mental translation, and more confidence to structure knowledge and identify key knowledge. They also commonly valued the role of topic-related prior knowledge in facilitating listening from the midterm, and demonstrated shifted views regarding teacher accent and specialist vocabulary. The decrease in lower-level *perception-related* problems seemed most obvious for the LP and MP group. The HP group, however, seemed to encounter severe issues of losing attention both at the beginning and the midterm, forming stark contrast to the LP group which seldom reported the issue throughout the term.

5.3 The role of self-efficacy and motivation in perceived listening difficulties over time

5.3.1 Longitudinal development of self-efficacy and motivation

In this section, results from one-way repeated measures (RM) ANOVA are presented to first examine the trend of longitudinal development of students' *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* throughout the term. These statistical patterns of development will aid the illustration of qualitative findings later, which unpack the role of *self-efficacy* and *motivation* in students' *perceived listening difficulties* in EMI classes throughout the term in detail. Table 5.6 presents the descriptive statistics of *self-efficacy* and the three motivational variables, namely *intrinsic goal orientation*, *extrinsic goal orientation*, and *task value* at the beginning (T1), halfway (T2) and the end (T3) of the semester.

Prior to the analysis, the assumptions for RM ANOVA were checked. First, the normality of dependent variables (DVs), namely *self-efficacy* and *motivational variables* were examined within each time point. Field (2009) warns that when sample size is large (i.e., n>200), normality tests such as Shapiro Wilk could show significant results even with only slight deviation from normality. He therefore recommends to check that the skewness and kurtosis statistics do not exceed 3.29 times of standard error (SE) to ensure that the data are approximately normal. Table 5.6 shows that the data addressed this recommendation and the histograms and Q-Q plots were also inspected to confirm that the distribution of data within all groups were approximately normal. Outliers within each subgroup were checked with boxplots and the 5% trimmed means of the variables were compared with the real means, indicating little differences caused by the outliers. Finally, the assumption of Sphericity was check with Mauchly's test (see Table 5.7) and Greenhouse-Geisser estimates were applied to correct degrees of freedom wherever the sphericity assumption was violated.

Table 5. 6. Descriptive statistics for self-efficacy and motivation at T1, T2 and T3

Time	Variable	n	Mean	5% trimmed Mean	SD	Skewness		Kurtosis	
						Statistic	SE	Statistic	SE
T1	Self-efficacy	298	53.01	53.34	18.971	-0.216	0.146	-0.182	0.291
	Intrinsic goal	278	4.48	4.47	0.757	0.176	0.146	-0.412	0.291
	Extrinsic goal	278	4.34	4.34	0.785	0.018	0.146	0.066	0.291
	Task value	278	4.77	4.78	0.718	0.005	0.146	-0.751	0.291
T2	Self-efficacy	298	53.82	54.32	17.428	-0.375	0.146	0.084	0.291
	Intrinsic goal	278	4.38	4.37	0.706	0.273	0.146	0.151	0.291
	Extrinsic goal	278	4.50	4.50	0.805	0.011	0.146	-0.548	0.291
	Task value	278	4.70	4.71	0.743	-0.034	0.146	-0.575	0.291
T3	Self-efficacy	298	57.01	57.23	16.062	-0.132	0.146	0.259	0.291
	Intrinsic goal	278	4.41	4.41	0.754	0.040	0.146	0.245	0.291
	Extrinsic goal	278	4.49	4.50	0.744	0.100	0.146	-0.368	0.291
	Task value	278	4.76	4.77	0.720	-0.116	0.146	-0.356	0.291

Note. Each variable was computed from the mean of multiple items measured by its respective questionnaire.

Table 5. 7. Mauchly's test for sphericity for RM ANOVA

Variable	Mauchly's W	Approx. Chi-Square	df	Sig.	Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Self-efficacy	0.888	35.069	2	0.000	0.900	0.905	0.500
Intrinsic goal	0.996	1.043	2	0.594	0.996	1.000	0.500
Extrinsic goal	0.961	10.937	2	0.004	0.963	0.969	0.500
Task value	0.969	8.731	2	0.013	0.970	0.977	0.500

After all assumptions were met, one-way RM ANOVA was delivered to examine the effect of *time* on the development of *self-efficacy* and diverse *motivational variables*. As shown in Table 5.8, a main effect of *time* was found for *self-efficacy* ($F_{[1.80, 534.30]} = 16.05$, $p < .001$, $\eta_p^2 = .051$) and *extrinsic goal orientation* ($F_{[1.93, 533.28]} = 8.13$, $p < .001$, $\eta_p^2 = .029$). Bonferroni post hoc analysis was then delivered to locate the changes through between-time pairwise comparisons for these two variables (see Table 5.9). Profile plots were also drawn to illustrate

how the estimated marginal means of *self-efficacy* and *motivational variables* changed over time (see Figure 5.3 and 5.4).

Table 5. 8. Main effect of time on self-efficacy and motivational variables

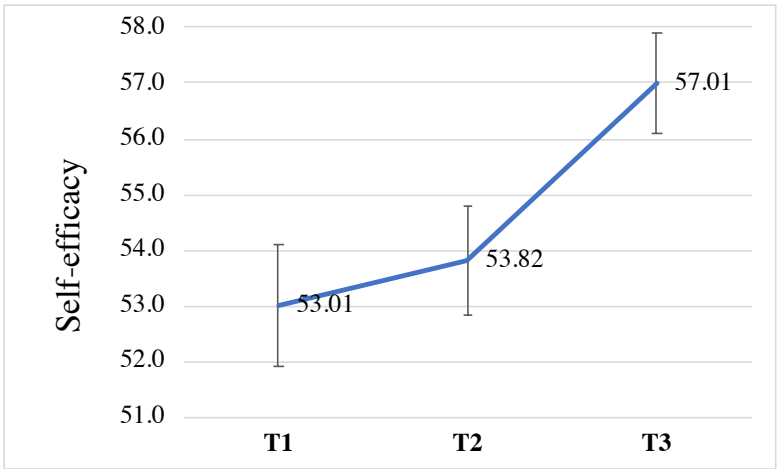
Variable	**Type III Sum of Squares**	**df**	**Mean²**	**F**	**Sig.**	**Partial Eta Squared (η_p^2)**
Self-efficacy	2675.53	1.80	1487.23	16.05	0.000	0.051
Intrinsic goal	1.29	2.00	0.64	2.32	0.100	0.008
Extrinsic goal	4.80	1.93	2.50	8.13	0.000	0.029
Task value	0.76	1.94	0.39	1.76	0.175	0.006

Table 5. 9. Pairwise comparisons between time points for self-efficacy and extrinsic goal orientation

Variable	**Time point**		**Mean difference**	**SE**	**Sig.**
Self-efficacy	1	2	0.81	0.769	0.881
	2	3	3.20	0.620	0.000
	1	3	4.01	0.839	0.000
Extrinsic goal	1	2	0.16	0.049	0.003
	2	3	-0.01	0.041	1.000
	1	3	0.16	0.048	0.003

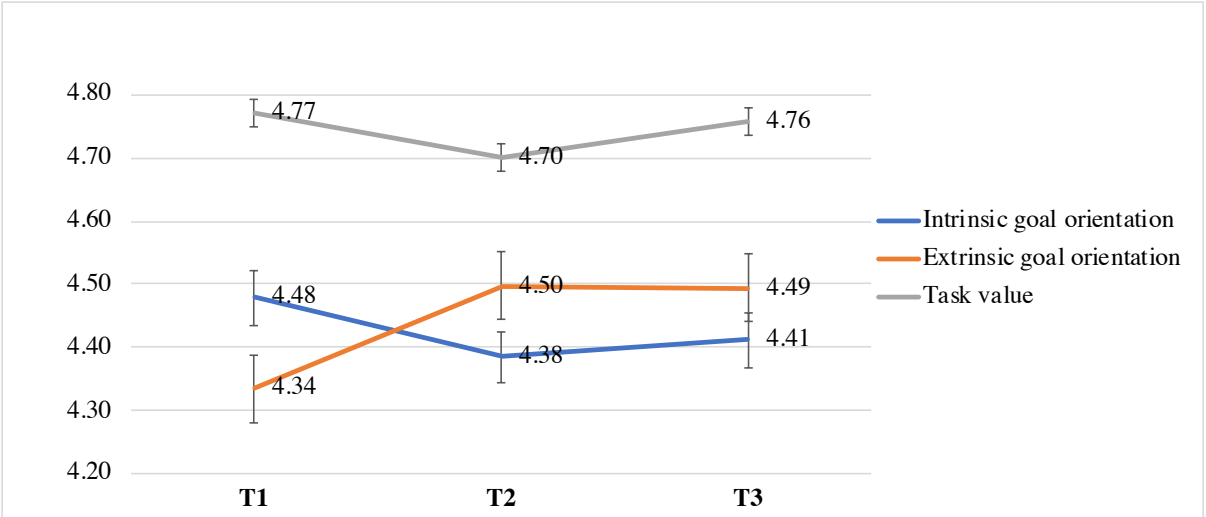
Note. Adjustment for multiple comparisons: Bonferroni; mean differences were calculated based on estimated marginal means of *self-efficacy* (n=298) and *extrinsic goal orientation* (n=278).

Figure 5. 3. Profile plot of estimated marginal means for self-efficacy at T1, T2 and T3



Note. Estimated marginal means were calculated for *self-efficacy* (n=298).

Figure 5. 4. Profile plot of estimated marginal means for intrinsic and extrinsic goal orientations and task value at T1, T2 and T3



Note. Estimated marginal means were calculated from a valid sample of n=278.

In general, students' *self-efficacy in listening to EMI classes* witnessed continuous growth throughout the semester with a total mean increase of 4.01 throughout the term ($p < .001$). From T1 to T2, the *self-efficacy* increased slightly but was not statistically significant ($Mean_{T1} = 53.01$, $Mean_{T2} = 53.82$, $p = .881$). However, from T2 to T3, a remarkable surge was observed ($Mean_{T2} = 53.82$, $Mean_{T3} = 57.01$, $p < .001$), indicating that students became substantially more confident in their ability to listen and improve listening after the midterm. In terms of the *motivation in learning EMI courses*, only *extrinsic goal orientation* was revealed to change significantly over time, the increment of which was most observable from T1 to T2 ($Mean_{T1} = 4.34$, $Mean_{T2} = 4.50$, $p = .003$), indicating that students at the midterm seemed to increasingly engage in EMI listening for external reasons such as exam grades. Interestingly, the upward trend in *extrinsic goal orientation* from the start of the term to the midterm was accompanied by a slight decline in measures of students' *intrinsic goal orientation* ($Mean_{T1} = 4.48$, $Mean_{T2} = 4.38$) and *task value* ($Mean_{T1} = 4.77$, $Mean_{T2} = 4.70$), though the effect was not significant. After the midterm until the end of the semester (T2 to T3), all three motivational variables remained relatively stable, with a minor rebound of *intrinsic goal orientation* and *task value*.

5.3.2 The role of self-efficacy and motivation in perceived listening difficulties at different time points during the first semester

5.3.2.1 Results of simultaneous multiple regression

A series of simultaneous multiple regression was conducted to investigate the contribution of *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* to explaining *perceived listening difficulties in EMI classes* at various time points across the term. In order to improve the precision of effect measurement, the demographic variables and BELP were included as covariates in all models. Assumptions of multiple regression were checked at each time point (see Appendix 5.3 for detailed results of assumption testing), including:

- Linearity—the relationship between predictor variables and the outcome variable is linear;
- Normality—residuals are normally distributed;
- Homoscedasticity—variances of error terms are similar across predictor variables;
- No multicollinearity—predictor variables are not highly correlated to each other, indicated by the value of VIF of all predictor variables lower than 10.0 and the Tolerance value above 0.20.

The results of multiple regressions are presented in Table 5.10. As can be seen, the role of *self-efficacy* remained consistent throughout the term, where it significantly predicted the *perceived listening difficulties* at all time points ($\beta_{T1} = -.61$, $p < .001$; $\beta_{T2} = -.57$, $p < .001$; $\beta_{T3} = -.61$, $p < .001$). Similarly, e*xtrinsic goal orientation* also significant explained *perceived difficulties* across all time points, although the explanatory power seemed to be smaller at T1 with a lower β ($\beta_{T1} = .09$, $p = .037$) compared to T2 ($\beta_{T2} = .19$, $p < .001$) and T3 ($\beta_{T3} = .16$, $p = .001$). This indicates that especially at the midterm and the end of the semester, the more students engaged in learning EMI courses out of external reasons such as completing homework or getting good grades, the more likely they perceived listening tasks as difficult in EMI classes. In contrast, *task value* was only a significantly predictor of *perceived listening*

difficulties at T2 (β_{T2} = -.12, p = .037), suggesting that at the midterm, the more *important*, *interesting* and *useful* students considered learning was, the fewer difficulties they perceived in listening to EMI classes. Noticeably, the contribution of *intrinsic goal orientation* was minimal throughout the semester. This suggests that learning motivated by an intrinsic *curiosity* or *mastery* of the knowledge seemed consistently irrelevant to how difficult students perceived listening in EMI classes was. In order to depict the dynamic longitudinal interplay between *perceived listening difficulties* and students' *self-efficacy* as well as their *motivation* in depth, qualitative data are analysed in the next section.

Table 5. 10. Simultaneous multiple regression of self-efficacy and motivation on perceived listening difficulties at T1, T2 and T3

Time	Predictor variable	B	SE B	β	t	Sig.	Model summary
T1	Constant	5.359	0.366		14.638	0.000	$R^2 = 0.530$ $F_{[10, 284]} = 32.07$ Adjusted $R^2 = 0.514$ $R = 0.728$, $p < .001$
	Gender	-0.119	0.088	-0.058	-1.360	0.175	
	Major	-0.234	0.077	-0.129	-3.037	0.003	
	SA exp. (yes vs. no)	-0.015	0.108	-0.006	-0.137	0.891	
	EL exp. (6 vs. 3 years)	-0.101	0.148	-0.052	-0.683	0.495	
	EL exp. (9 vs. 3 years)	-0.199	0.141	-0.110	-1.416	0.158	
	Placement listening	-0.006	0.002	-0.133	-2.811	0.005	
	Self-efficacy	-0.028	0.002	-0.614	-11.441	0.000	
	Intrinsic goal	0.019	0.058	0.017	0.330	0.741	
	Extrinsic goal	0.101	0.048	0.093	2.091	0.037	
	Task value	-0.078	0.065	-0.066	-1.184	0.237	
T2	Constant	4.942	0.310		15.930	0.000	$R^2 = 0.472$ $F_{[10, 285]} = 25.49$ Adjusted $R^2 = 0.454$ $R = 0.687$, $p < .001$
	Gender	-0.019	0.076	-0.011	-0.253	0.801	
	Major	-0.126	0.066	-0.085	-1.907	0.058	
	SA exp. (yes vs. no)	-0.059	0.092	-0.028	-0.635	0.526	
	EL exp. (6 vs. 3 years)	-0.019	0.124	-0.012	-0.155	0.877	
	EL exp. (9 vs. 3 years)	-0.065	0.117	-0.044	-0.558	0.577	
	Placement listening	-0.004	0.002	-0.111	-2.315	0.021	
	Self-efficacy	-0.023	0.002	-0.567	-10.831	0.000	
	Intrinsic goal	0.008	0.052	0.008	0.154	0.878	
	Extrinsic goal	0.161	0.041	0.186	3.919	0.000	
	Task value	-0.109	0.052	-0.115	-2.097	0.037	
T3	Constant	4.968	0.308		16.152	0.000	$R^2 = 0.491$ $F_{[10, 299]} = 28.81$ Adjusted $R^2 = 0.474$ $R = 0.701$, $p < .001$
	Gender	-0.041	0.078	-0.023	-0.522	0.602	
	Major	-0.212	0.070	-0.133	-3.043	0.003	
	SA exp. (yes vs. no)	0.016	0.095	0.007	0.167	0.868	
	EL exp. (6 vs. 3 years)	0.046	0.128	0.027	0.359	0.720	
	EL exp. (9 vs. 3 years)	0.063	0.121	0.040	0.519	0.604	
	Placement listening	-0.005	0.002	-0.128	-2.799	0.005	
	Self-efficacy	-0.029	0.002	-0.612	-12.259	0.000	
	Intrinsic goal	-0.025	0.050	-0.025	-0.490	0.624	
	Extrinsic goal	0.158	0.047	0.158	3.404	0.001	
	Task value	-0.077	0.055	-0.075	-1.398	0.163	

Note. SA exp. = Study abroad experience, EL exp. = English learning experience.

5.3.2.2 Findings from semi-structured interviews

The role of self-efficacy in listening to EMI classes

Results of statistical analysis show that students' *self-efficacy in listening to EMI classes* in general grew continuously throughout the semester ($Mean_{T1}$ = 53.01, $Mean_{T2}$ = 53.82, $Mean_{T3}$ = 57.01), and negatively predicted *perceived listening difficulties* consistently over time (β_{T1} = -.61, $p < .001$; β_{T2} = -.57, $p < .001$; β_{T3} = -.61, $p < .001$). Findings from the interview data reveal that the interplay between *self-efficacy* and *perceived listening difficulties* was dynamic and reciprocally informative.

At the midterm, many students reflected that their *self-efficacy* was lifted due to *sufficient exposure to English* during the first half of the term (T2: n=13). A number of students at the midterm reported that the omnipresence of an English environment helped them psychologically accept listening in English (e.g., LP2-H&S, LP7-H&S, LP9-Business, MP4-H&S, MP8-H&S, T2). This change in mindset reduced *resistance* (LP7-H&S, T2), *fear* and *anxiety* (LP9-Business, T2), and boosted students' *efficacy beliefs for listening* in general (e.g., LP2-H&S, LP8-Business, LP12-Business, MP3-H&S, T2). Some students talked about becoming more 'immune' to difficulties, saying that even if there were parts not understood, it rarely weighed on their confidence now as it did at the start of the term (LP2-H&S, MP2-H&S, MP8-H&S, T2). One student also realised that he overestimated challenges at the start of the term, and recalibrated assessment of his listening competence after some time into the course: 'Maybe you're not that bad at listening as you thought' (LP12-Business, T2). As students perceived *a reduction in listening difficulties* over the second half of the term, many students noted a further *surge in self-efficacy* (T3: n=10). Some students described improved efficacy beliefs as a 'gradual process' (LP4-H&S, T3), building upon successful listening experiences, which took time and should therefore be treated with patience, persistence and

resilience (LP5-H&S, LP9-Business, T3). In addition, students also reported feeling more relaxed, comfortable and natural in listening at the end of the term as their familiarity with the content and structure of the lessons increased (LP1-H&S, MP3-H&S, MP10-H&S, T3). This feeling was accompanied by *a higher sense of control*: 'I'm less panicking when I miss certain parts. Unlike before that I got nervous because I couldn't find the next point to continue, I can now adapt quickly to the next section' (LP1-H&S, T3).

Enhanced self-efficacy in turn also reshaped students' perceptions of listening difficulties. At the midterm, it appeared that students' improved efficacy in listening seemed to *alleviate their frustration in the face of difficulties* (MP8-H&S, T2). As students became more confident in their ability to improve listening, they expressed *a willingness to exert further effort* (LP5-H&S, LP9-Business, LP12-Business, T2). As one student described: 'I became more confident when I found that I could actually understand, so I want to give myself more challenges and listen more' (LP5-H&S, T2). The impact of self-efficacy in *sustaining learning motivation* was recognised by many students at the end of the term (LP7-H&S, LP8-Business, LP12-Business, T3). As students became more efficacious in listening, they *aimed higher* and *concentrated harder* to achieve more understanding: 'Now since I'm not afraid, I would actively listen to them [teachers] to see if they use some complex sentence structures' (LP7-H&S, T3). Other students commented that being more self-assured *offset the pressure* and enabled them to focus wholeheartedly on listening to the teachers in class (LP5-H&S, MP9-H&S, T3). Moreover, positive evaluation of their progress in listening confirmed their ability to improve, in other words, let students 'taste the sweetness' (MP10-H&S, T3), which seemed to further boost their passion to continue listening.

The role of extrinsic goal orientation in learning EMI courses

Quantitative results show students' *extrinsic goal orientation in learning EMI courses* significant increased during the first half of the term ($Mean_{T1} = 4.34$, $Mean_{T2} = 4.50$, $p = .003$) and remained relatively stable until the end of the term ($Mean_{T3} = 4.49$). From the midterm, *extrinsic goal orientation* started to more observably predict students' *perceived listening difficulties* ($\beta_{T2} = .19$, $p < .001$) and the effect lasted until the end of the term ($\beta_{T3} = .16$, $p = .001$). This indicates that the learning oriented at achieving external rewards or outcomes (e.g., homework exams) in EMI course was closely associated with how difficult students perceived listening in EMI classes was. This relationship is supported with qualitative findings. At the midterm, some students reflected that listening in EMI classes became more arduous due to the increasingly theoretical and professional disciplinary content. As such, some students commented that they no longer felt an eagerness to 'figure out everything' as at the start of the term (LP10-Business, T2), and were inclined to conduct learning simply for coping with the homework (HP2-H&S, T2). One student also admitted that she was there in EMI classes only for attendance (LP6-H&S, T2).

This increment in *extrinsic goal orientation* at the midterm, as the quantitative analysis has shown in Section 5.3.2.1, was accompanied by a declination in *intrinsic goal orientation* ($Mean_{T1} = 4.48$, $Mean_{T2} = 4.38$). This trend also emerged in the qualitative findings. For example, one student commented during the midterm interview that he somehow lost the internal drive to learn: 'Before the [midterm] exam I felt like treating it [listening to EMI classes] seriously and after the midterm I just found, oh, that's it, and kind of lost the curiosity' (LP10-Business, T2). Interestingly, however, the importance students attached to meeting external criterion (e.g., exams) was not necessarily negative. In this regard, some students talked about the role of the midterm exam in facilitating a reflection on their problems in listening to EMI classes. These students stated that the midterm exam made them

more aware of the deficiencies in listening (T2: n=7), describing the exam as having an 'alarming' effect which made them realise that many knowledge details tested in the exam were beyond those in their EMI classes (LP9-Business, LP12-Business, MP3-H&S, HP7-Business, T2). Some students also reflected that the midterm exam made them aware that they were too 'superficial' in understanding disciplinary content, claiming that the rote memorisation of knowledge points without understanding its application in life resulted to loss of marks in the exam (LP8-Business, LP10-Business, LP12-Business, T3).

The role of task value in learning EMI courses

Statistics show that students' *task value in learning EMI courses* remained relatively high and stable throughout the term ($Mean_{T1} = 4.77$, $Mean_{T2} = 4.70$, $Mean_{T3} = 4.76$). Nonetheless, a slight decrease was discerned at the midterm, when *task value* negatively predicted students' *perceived listening difficulties* ($\beta_{T2} = -.12$, $p = .037$). In the interview data, this decrease was more observable and so did its role in influencing the *perceived listening difficulties*. Many students at the midterm overtly expressed a downturn in 'excitement' and 'freshness' in learning EMI courses (e.g., LP2-H&S, MP9-H&S, HP10-H&S, T2). This was accompanied by a *languished interest* due to growing professionalism and theoreticality in subject knowledge (LP7-H&S, MP3-H&S, MP9-H&S, HP4-H&S, T2). Some students also questioned the *usefulness* of subject content, which was another aspect of *task value* (e.g., MP8-H&S, MP11-Business, MP12-Business, HP1-H&S, HP9-Business, T2). Students considered the 'solid and concrete knowledge' as useful (MP12-Business, T2), and reported feeling distracted when the knowledge was highly theoretical and unrelated to life (MP11-Business, T2) or involved only common ideas instead of solid knowledge points (HP1-H&S, HP9-Business, T2). At the end of the term, a more nuanced impact of different subcomponents of *task value* on the perceived listening difficulties was mentioned by the

students. In general, many students noted heightened attention at parts they considered useful and important (LP10-Business, LP12-Business, MP12-Business, HP3-H&S, HP5-H&S, T3). Among them, however, some students admitted that such concentration might be 'forced' if the content was *important* but *not interesting*, describing it as 'you can't control losing attention' (MP11-Business, T3).

In reverse, students' experience of *listening difficulties* also shaped their *perceived interest, importance* and *usefulness* in learning EMI courses. As students noted a reduction in their listening difficulties at the end of the term, they demonstrated an *increased interest* in learning the subject content (LP1-H&S, LP5-H&S, LP7-H&S, LP8-Business, LP9-Business, MP8-H&S, T3). Enhanced comprehension stimulated students' *curiosity* (LP8-Business, LP10-Business), making them see the 'tip of the iceberg' and facilitated in their further attempts to explore: 'Once you have secured some basic understanding [about a topic] in class, you start to feel that there must be some deeper knowledge regarding this topic' (LP8-Business, T3). Notably, however, this *enhanced interest* in learning was not only because of fewer linguistic barriers, but also due to an *enlarged repertoire of disciplinary knowledge* (e.g., LP1-H&S, LP8-Business, HP3-H&S, T3). As students accumulated their understanding on various topics in the field, they started to appreciate the width of knowledge and were more able to associate the knowledge learnt in class with their own *interest* (LP1-H&S, MP10-H&S, MP11-Business, HP5-H&S, T3).

5.3.2.3 Summary of qualitative findings on the role of self-efficacy and motivation in perceived listening difficulties during the first semester

Qualitative findings in this section highlighted the role of *self-efficacy in listening to EMI classes*, as well as *extrinsic goal orientation* and *task value in learning EMI courses* in interacting with students' perceived listening difficulties during the first semester. The

reported *self-efficacy* increased constantly throughout the term, especially for LP and MP students, due to their adjusted mindset in learning in an EMI environment and a perception of alleviated listening problems. The enhanced efficacy beliefs, in turn, also appeared to enable students to better handle listening difficulties, and to boost their ambition to further improve listening outcomes by concentrating harder in class.

The role of *extrinsic goal orientation in learning EMI courses* was noticeable at the midterm, when content knowledge became more theoretical and in-depth. The perceived escalation in listening difficulties seemed to hamper students' intrinsic *interest* and *curiosity* in learning, and propelled many students to learn for coping with homework and the midterm exam. On the other hand, the midterm exam also provided students opportunities to reflect on their listening problems and to hence make further adjustments in listening. Finally, the role of *task value* also emerged in the interviews at the midterm via its interplay with the perceptions of listening difficulties. Students at the midterm reflected a loss of attention due to a lack of *importance* recognised in the highly theoretical knowledge, which seemed detached from daily life. However, at the end of the term, students appeared to recover their *interest* in learning due to a perceived reduction in listening difficulties, improved comprehension, and an enlarged repertoire of disciplinary knowledge.

5.4 Chapter summary

This chapter investigated a series of issues related to the longitudinal development of students' perceived listening difficulties in EMI classes during their first semester in an EMI university. Results from multilevel modelling analyses revealed that their perceived listening difficulties, in general, varied significantly over time, increasing from the term start to the midterm and then decreasing towards the end of the term. A significant interaction effect was found between students' *BELP* and *time* on their perceived listening difficulties, suggesting

that students entering the university with distinct BELP might experience different rates of change in their perceptions of listening difficulties over time. The lower BELP students had upon arrival, the less acute they might discern the increment of listening difficulties at the midterm, and the more substantial reduction they might experience in difficulties after an entire semester of listening.

Qualitative analyses of the interview data provided details for the listening trajectories reported by students in distinct BELP groups over time. In general, students across all groups complained heavily about teachers' accents at the midterm, but unanimously developed a higher tolerance for diverse accents at the end of the term. Students overall seemed to develop a 'smoother' listening experience at the end of the term, which was characterised with more meaning inferences, as well as reduced mental translation or fixated attention in listening. In particular, the LP and MP group seemed to progress remarkably in *perception-related* issues such as segmenting speech and recognising words in listening. Notably, a shifted view of specialist vocabulary emerged in all BELP groups, recognising the terminology as related to disciplinary concepts that merit direct understanding in English instead of translating it into Chinese. From the midterm, students in all BELP groups valued topic-related prior knowledge for facilitating the digestion of more professional subject knowledge. Students, regardless of their BELP, also generally felt more competent in organising knowledge structures and identifying key points while listening, owing to their increased familiarity with the teaching styles, procedures, and materials of the EMI courses.

Results from simultaneous multiple regressions suggested that *self-efficacy in listening to EMI classes* negatively and significantly predicted perceived listening difficulties at all time points during the first semester. The role of *extrinsic goal orientation* and *task value in learning EMI courses*, however, became observable from the midterm. Qualitative analyses

revealed a dynamic and reciprocal relationship between these variables and the perceived listening difficulties. Though these variables demonstrated different patterns of change over time—some increased continuously such as self-efficacy, whereas others remained relatively stable (e.g., task value) or witnessed some turbulences (e.g., extrinsic goal orientation), all of these variables appeared to be constantly shaped by and modify student' perceptions of listening difficulties in EMI classes during the first semester.

Chapter 6 Results: Self-regulated listening at the start of the first semester

6.1 Chapter introduction

This chapter draws on quantitative and qualitative data at Time point 1 (T1, Week 2 and 3) to explore and understand students' reported *self-regulated listening* at the beginning of the first semester. Specifically, the chapter attempts to answer the third research question of the study outlined in Chapter 3 (Section 3.2):

3) How do students self-regulate their listening upon arrival at an EMI transnational university?
   a. What strategies do students reportedly use when listening to EMI classes at the start of the first semester?
   b. How do students reportedly self-regulate learning in relation to listening in EMI classes?
   c. How do students reportedly self-regulate learning out of class for listening practice?
   d. What is the role of *baseline English listening proficiency (BELP)*, *self-efficacy*, and *motivation* in self-regulated learning in relation to listening in EMI classes?

Descriptive statistics will first be presented to answer RQ 3a, which draw an overall picture of the reported strategy use of students in listening to EMI classes. Then the interview data will be analysed to explore detailed processes of how students regulated their learning in relation to listening in EMI classes (RQ 3b). Such self-regulatory learning processes might extend to out-of-class contexts where students initiated and regulated their listening practice. Exploration into these processes will draw on qualitative interview data and address RQ 3c. Lastly, the role of students' *BELP, self-efficacy* and *motivation* in relation to their self-regulated listening will be examined using a combination of simultaneous multiple regression and qualitative analyses to answer RQ 3d.

6.2 Listening strategies in EMI classes

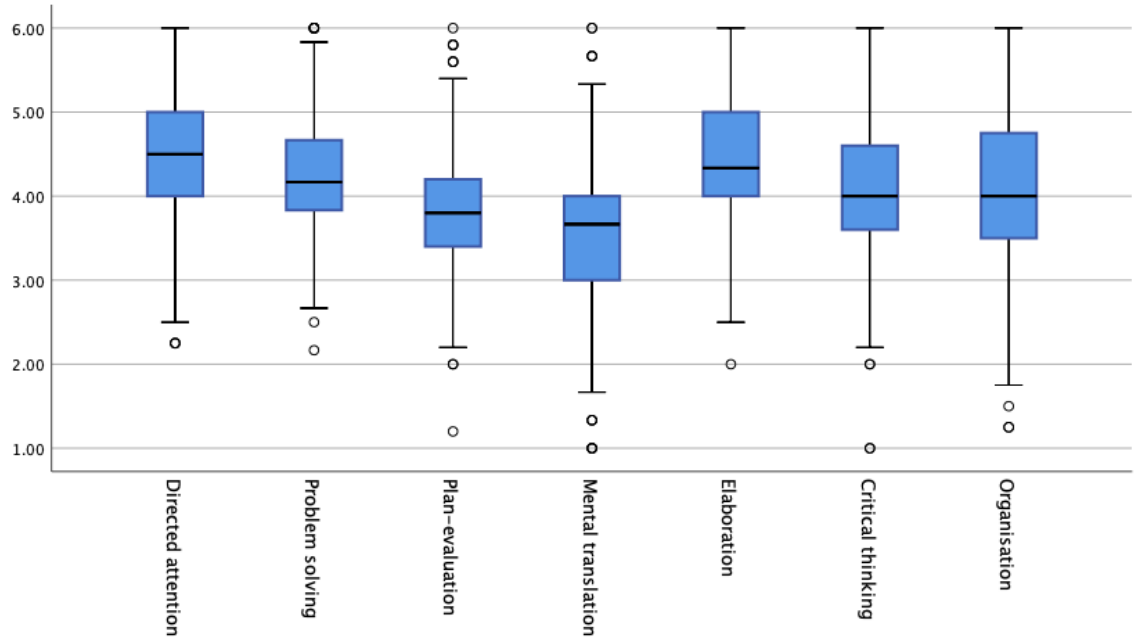
Table 6.1 presents the descriptive statistics for students' reported use of listening strategies in EMI classes at T1. These listening strategies were measured using the questionnaire of 'Metacognitive awareness of listening strategies' and 'Deep processing listening strategies'. Regarding the metacognitive awareness of listening strategies, *directed attention* (Mean = 4.48, SD = 0.796) and *problem solving* (Mean = 4.29, SD = 0.696) were reported to be most heavily used. In contrast, *plan-evaluation* (Mean = 3.84, SD = 0.772) and *mental translation* (Mean = 3.59, SD = 0.901) were reported to a lesser degree. In terms of deep processing listening strategies, *elaboration* (Mean = 4.42, SD = 0.697) was reflected to be the most heavily employed strategy. Students' reported use of *critical thinking* (Mean = 4.01, SD = 0.806) and *organisation* (Mean = 3.99, SD = 0.914) strategies were moderate and well balanced as indicated by a similar mean value. The distribution of the reported use of listening strategies is demonstrated in Figure 6.1.

Table 6. 1. Descriptive statistics for reported use of listening strategies at T1

Listening strategies	**n**	**Mean**	**SD**	**Min**	**Max**
Metacognitive awareness of listening strategies					
Directed attention	305	4.48	0.796	2.25	6.00
Problem solving	305	4.29	0.696	2.17	6.00
Plan-evaluation	305	3.84	0.772	1.20	6.00
Mental translation	305	3.59	0.901	1.00	6.00
Deep processing listening strategies					
Elaboration	291	4.42	0.697	2.00	6.00
Critical thinking	291	4.01	0.806	1.00	6.00
Organisation	291	3.99	0.914	1.25	6.00

Note. Each strategy was calculated from the mean of a number of items on its corresponding questionnaire.

Figure 6. 1. Boxplots of reported use of listening strategies at T1



6.3 SRL in relation to listening in EMI classes

The interview data (n=34) were analysed using thematic content analysis, through which categories and themes emerged and are presented in Table 6.2. The main categories of *'Forethought phase'*, *'Performance phase'* and *'Self-reflection phase'* were derived from a social cognitive SRL framework proposed by Zimmerman and Moylan (2009), as introduced in Chapter 2 (Section 2.4.2). The sub-categories within each phase (e.g., *goal setting*), however, emerged inductively from the data, which were then compared with the original constructs in the framework for labelling. A count of references is provided for each theme subsumed within the sub-categories, which indicates the number of interviewees (e.g., 13 out of 34) who commented on the theme. These frequency counts only display an overview of the prevalence of themes in the data, which will be described and reported in detail via the narrative and representative excerpts later.

Table 6. 2. Categories and themes of SRL in relation to listening in EMI classes at T1

Categories	Themes	References (n=34)
Forethought phase		
Goal setting	Understanding the literal meaning of teacher talk	13
	Prioritising subject knowledge	5
	listening for exams/homework	5
Strategic planning: Preview	Previewing slides or textbooks before classes	26
	Dealing with unfamiliar vocabulary	16
	Organising knowledge structures	16
	Generating opinions or questions of one's own	4
Performance phase		
Attention management	Controlling for loss of attention or resuming attention	12
	Selective attention based on teachers' delivery style	11
	Selective attention based on rhetorical functions	4
	Attending selectively to certain elements on slides	12
	Controlled switch between teachers and slides	6
Problem solving	Looking up new words in dictionary	14
	Inferring word or sentence meaning	14
	Marking new words and looking up after class	4
	Seeking help from others	6
Deep processing of content	Structuring and associating knowledge	8
	Anticipating teacher talk based on preview	6
	Reasoning and comparing class knowledge to preview	4
Note taking and monitoring	Taking selective notes	11
	Monitoring comprehension, attention & affect	13
Self-reflection phase		
Review and remedy	Reviewing with slides	14
	Reorganising and completing class notes	8
	Reviewing by completing homework	7
	Seeking help from others	9
Evaluation and causal attribution	Evaluating listening outcomes	20
	Attributing listening problems to lack of proficiency	7
	Attributing listening problems to learning methods	2
Planned adaptations	Planning to strengthen preview	4
	Planning to enhance listening efficiency in class	15
	Planning to adjust note taking in class	7
	Planning to review and practice	7

Note. 'References' for each theme (e.g., *understanding the literal meaning of teacher talk*) represent the number of interviewees (i.e., 13 out of 34) that commented on the theme.

6.3.1 Forethought phase

6.3.1.1 Goal setting

Findings from the interview data show that students set diverse goals at the start of the first semester regarding listening to EMI classes. First, *understanding the literal meaning of teacher talk* seemed to be the primary goal for many students (n=13). Students in this respect hoped that they could understand a bit more every time than the previous lesson (LP3-H&S), translate faster (MP9-H&S), understand new terminology (MP12-Business) and comprehend all sentences to practice listening (HP5-H&S). In addition to achieving literal understanding, other students specified goals related to *prioritising subject knowledg*e (n=5). This included identifying the key points of a lesson (MP2-H&S), organising the structure of knowledge (MP3-H&S, MP6-H&S), and 'digesting and absorbing' what was taught (HP6-Business, HP10-H&S). A few students also expressed a willingness to downgrade their linguistic requirements to allow for better processing of content knowledge (MP2-H&S, MP3-H&S, MP7-H&S). As one student stated: 'I can keep my questions about some words, but I hope I can understand 80% of the content' (MP3-H&S). Notably, some students articulated a clearer instrumental goal for listening, aiming at *handling homework and exams* (n=5). In line with this goal, they hoped to 'have a rough understanding of what was taught to pass the exam' (MP1-H&S) or to locate key points to finish homework or prepare for exams (LP1-H&S, LP7-H&S, MP1-Business).

6.3.1.2 Strategic planning: Preview

The majority of the students (n=26) reported to preview content via reading textbooks or slides prior to listening to EMI classes. Preview reflected students' proactive effort to prepare for listening based on anticipated task demands and challenges. This preparation therefore constituted an important part of strategic planning. First, *dealing with unknown vocabulary*

(n=16), especially terminology, was considered an important prerequisite for successful listening. In this regard, some students identified new words and looked up the meanings immediately (LP3-H&S, LP7-H&S, LP8-Business, MP9-H&S, MP11-Business). Others, however, marked the words, extrapolated meanings and only searched for the recurring words (LP1-H&S, MP4-H&S). Furthermore, a few students displayed a 'layered' method for previewing vocabulary: They skimmed the materials first and marked the words, then sorted out word meanings and read again to fathom the contextual meaning (LP1-H&S, MP2-H&S, HP1-H&S). In order to better follow teachers' line of thought, many students also compiled a list of new words beforehand for quick and easy reference in class (e.g., LP1-H&S, LP5-H&S, MP8-H&S, HP2-H&S).

Organising knowledge structures (n=16) was another frequently mentioned preview method that seemed to impact heavily on the quality of listening in class. In this regard, some students attended particularly to headings and sub-headings of materials for grasping key knowledge, while selectively ignoring explanations and examples (MP8-H&S, MP11-Business, HP9-Business, HP10-H&S). Another group of students opted for more careful reading of materials, summarising thoughts and ideas after delving into elaborated details (LP5-H&S, LP9-Business, MP7-H&S). *Structuring knowledge* prior to listening helped with predicting teacher talk, compensating for comprehension breakdowns, and organising information in class, which will be elaborated in Section 6.3.2 later.

In addition, a few students also commented on *generating and noting their own opinions or questions* (n=4) during preview. On the one hand, this enabled students to selectively direct their attention in class to the problematic parts diagnosed via preview, as exemplified in the statement below:

> I would preview so that I know what will be taught roughly. I would list myself some questions during the preview but they are neither too many nor too specific. I would then listen according to these questions in class and if I don't understand, I would ask the teacher. I also pay more attention when he [the teacher] talks about issues related to the questions.
> (MP10-H&S)

On the other hand, noting down points of interest seemed to stimulate in-depth learning, propelling students to actively compare teacher talk to what was understood during preview and thus to achieve a critical comprehension of knowledge. This was best described by the student below:

> [When I preview] I would write down points I'm curious about. When the teacher talks about these points [in class], I would listen more carefully and would feel 'oh I have come across this point in preview'! Then it could be either similar to or different from what I thought [during preview] and I would think about why. This [approach] deepens the learning—sometimes the teacher would explain things that the textbook doesn't say.
> (MP4-H&S)

6.3.2 Performance phase

6.3.2.1 Attention management

Attention is a restrained resource in EMI classes in which students not only need to cope with an unfamiliar instructional language, and on top of that, new and professional subject knowledge. Qualitative findings reveal that whereas the juxtaposition of these two facets inevitably tired students out and made them easily distracted, many students demonstrated an awareness to *persist against attention loss or to retain focus when feeling distracted* (n=12). As one student asserted: 'I told myself today in class not to lose attention and persist till the

end, and to focus wholeheartedly to listen even if I couldn't understand' (LP5-H&S, similar to LP3-H&S, MP4-H&S).

In addition, students also reported to *distribute their attention selectively* to optimise listening outcomes. First, *attending to teachers' delivery style* (e.g., intonation, speech speed, repetitions) (n=11) appeared to be the most frequently coded strategy. For many students, slow, stressed and repeated speech indicated key knowledge points to note down (e.g., LP5-H&S, LP10-Business, MP10-H&S). As one student explicated:

> Because I know I can't remain focused like a robot for a whole lesson, I need to distribute my attention to the truly important or difficult parts. When I find the teacher stresses the tone, repeats several times, or pauses for a while, I feel this must be important. But when the teacher states a tedious opinion or gives similar examples, I might skip if I already get his point.
> (MP10-H&S)

Likewise, several students also mentioned *discriminative attention to various rhetorical functions* in teacher talk (n=4). Some students chose to focus on key concepts and explanations while lessening attention on examples (LP10-Business, MP4-H&S, MP10-H&S). This was because the examples were considered just to assist understanding of concepts. Others, however, availed themselves more of the examples while attended less to abstract definition of concepts, because 'examples are vivid, memorable and help to quickly grasp what the teacher intends to convey' (LP6-H&S).

Moreover, some students also manifested regulated effort to *shift their attention between slides and teachers* (n=6). At the start of the semester, many students, especially those with low proficiency, admitted relying totally and passively on the slides due to their inadequate comprehension (e.g., LP10-Business, LP11-Business, LP12-Business). However, for some

others, slides were referred to only when they diagnosed problems with certain words or sentences (e.g., LP9-Business, MP2-H&S, MP9-H&S). Furthermore, many students consciously *directed their attention to certain elements on the slides* instead of reading everything (n=12). These elements included the headings and bullet points (LP8-Business, LP10-Business, MP8-H&S), highlighted and bold parts (LP4-H&S, HP1-H&S), parts that teachers pointed at (MP3-H&S, HP7-Business), as well as concluding remarks (LP8-Business, MP8-H&S). In terms of describing, explaining and elaborating on the concepts or giving examples, many students pulled their attention back to the teachers (LP3-H&S, LP5-H&S, MP3-H&S, MP4-H&S, HP5-H&S, HP8-Business). As one student commented: 'The teacher does a better job explaining concepts than PPT [PowerPoint]' (HP8-Business).

6.3.2.2 Problem solving

Students' reported methods for handling unknown vocabulary and expressions appeared to be diverse. When describing their use of these methods, students drew upon the task traits and gave reasons for preferring certain methods over others. First, many students *resorted to a dictionary* (n=14) when they encountered new words. While the majority of these students did not specify what type of words they tended to look up, four of them related to specialist vocabulary and terminology, referring to them as 'specialist nouns' (LP1-H&S) and 'field-specific terminology' (LP4-H&S, MP11-Business, HP2-H&S). Interestingly, among the students who reflected to look up words in a dictionary, some *awareness* of extrapolating word meaning was reflected though. For example, one student mentioned that 'our teacher told us not always to look up new words and should try to guess' (LP3-H&S). However, she expressed a concern later: 'But I can't guess accurately—when I looked up the word I guessed today, I realised that I failed to figure out what it was meant to be'. Some students opted for looking up words because they realised that when comprehension was minimal,

extrapolating the meaning could be difficult or even misleading (LP3-H&S, LP12-Business). Their attempt to search words seemed conscious and deliberate: 'I know looking up words would hamper attention. But since now I understand little, this influence is minimal' (MP7-H&S). Some students also noted down words or marked them in the dictionary after looking up the meanings, which enabled them to review and memorise after class (LP3-H&S, LP5-H&S, MP12-Business, HP1-H&S).

In addition to looking up meaning directly, a number of students also mentioned *guessing word meaning* (n=14) and *marking down words to search for meaning after class* (n=4). Students tended to extrapolate meanings to save time when teachers talked fast (LP4-H&S, LP10-Business), drawing on the overall meaning of the topic (e.g., LP1-Business) and the sentences before and after (e.g., LP4-H&S, MP6-H&S, MP12-Business), relating to preview materials to understand (e.g., MP7-H&S), and using prefix and suffix information (e.g., LP1-Business, MP4-H&S, MP12-Business). However, such inference of meaning, which was usually adopted to cope with a continuous flow of teacher talk, seemed to incorporate a risk of compromising the accuracy of comprehension. For example, one student commented: 'I would guess new words with prefixes and suffixes [of the words], or the general passage meaning [of teacher talk]. Though it might not be that accurate, it does save me much time' (LP10-Business). Additionally, several students chose to simply mark new words on slides and solve them after class in order to keep pace with the spontaneous teacher talk in class (MP3-H&S, MP4-H&S, MP8-H&S, HP10-H&S).

Apart from resolving vocabulary problems, several students also reported *seeking help from others* to compensate for missing information (MP6-H&S, MP11-Business, HP4-H&S). In this regard, a couple of students reported turning to others for help on parts that were difficult to understand (LP4-H&S, MP9-H&S). One student also commented on seeking advice from

more senior students regarding what listening strategies they found to be helpful: 'At the beginning I listened to everything, and it was very inefficient. Then I asked friends from higher grades, and they said I should listen to sentences that the teachers repeat' (LP8-Business).

6.3.2.3 Deep processing of content

At the beginning of the term, although students generally seemed to struggle in listening to EMI classes, some attempts for in-depth processing of knowledge were still reported. These included *structuring and associating knowledge* (n=8), *anticipating teacher talk* (n=6), as well as *reasoning and comparing knowledge* (n=4). Many of these strategies were made possible due to preview effort beforehand. First, the knowledge structure that students developed during preview seemed to enable students to 'thread' concepts, examples and terminology covered in class together to strengthen memory (MP6-H&S, MP11-Business). By mapping what the teacher was saying to a pre-developed structure, some students found it easier to locate the knowledge within this overall structure:

> [During preview] I would organise the structure of the readings to see what the sub-headings are below a main heading and what the topics are below each sub-heading. Then while the teacher is talking in class, I would think about which part he is covering, why he is proposing a question or an idea—just relate to the structure. I would reflect on if he is talking about the background, opinions, or examples. (LP5-H&S)

This structuring and associating process was considered helpful in *extrapolating meaning* and resolving comprehension breakdowns (LP5-H&S, LP9-Business, MP10-H&S). For example, one student explained: 'When the teacher gives an example that I could relate to the knowledge structure [organised during preview], even if I don't understand, I can guess out its meaning roughly and wouldn't feel completely at sea' (MP10-H&S).

Another strategy that some students touched on was *anticipating teacher talk based on preview* (n=6). When teachers introduced a new concept or gave an example, some students reportedly activated their surrounding knowledge and predicted what the teacher would say next (LP9-Business, LP10-Business, MP6-H&S, MP9-H&S). This strategy helped students to better follow teachers' line of thought (LP9-Business) and accelerated the comprehension of subject knowledge such as conceptual definitions (MP6-H&S). A couple of students also considered it effective to better understand teacher questions in class: 'I read the whole chapter about this question yesterday so when the teacher asked it, I knew the conclusion and why she asked it instead of feeling how weird the question was' (HP2-H&S, similar point made in HP10-H&S).

Finally, some students were also able to *reason and compare the knowledge taught in class based on what was learnt in preview* (n=4). As one student described: 'If I have previewed well, I feel my brain has very high involvement in class. The teacher talks about this point and gives an example, I would follow him and give another example' (MP3-H&S). Similarly, another student also depicted a stratified and deepened understanding of subject content: 'First I preview, second the teacher talks about it, and third I think over it—this gives me new ideas and inspirations' (LP1-H&S). Other students also compared between what they read from preview materials and teachers' explanation in class to 'check for understanding' (LP7-H&S, MP4-H&S).

6.3.2.4 Note taking and monitoring

The biggest challenge that students identified in note taking was the fast and spontaneous teacher talk. In response to this challenge, many students adapted to *take selective notes* (n=11) to keep up with the pace of teacher talk. First, some students chose to selectively write down the *key and important points* instead of details (e.g., LP1-H&S, LP8-Business, LP10-

Business, MP3-H&S, MP12-Business). To distinguish key information, some students resorted to using the teachers' system of PowerPoint mark-up, explaining that 'the blue words on PPT [PowerPoint] are terminology and red words are key points' (e.g., LP8-Business). Other students attended to speech signals such as repetitions and stresses (LP10-Business, MP3-H&S). Additionally, students also reported to take notes when *challenging concepts* were being taught. Particularly in terms of concepts which were elusive and vague, some students noted down their teachers' explanations or examples to aid comprehension (MP9-Business, HP6-Business, HP7-Business, HP8-Business). Sometimes the notes might be simplified to several words to save time (HP7-Business). A few students also mentioned an urge to take notes of *both new vocabulary and content* (e.g., MP3-H&S, MP9-Business), however, one student admitted that this attempt was not easy: 'My notes are kind of messy now—I want to note down new words as well as the content [knowledge] but it feels like two systems' (MP3-H&S).

Monitoring was another self-regulated effort that emerged from students' accounts (n=13). These students appeared to not only monitor *comprehension*, but also their *attention* and *affective state* while listening. In terms of *monitoring comprehension*, a few students identified the parts that they had problems understanding for remedy after class (e.g., LP1-H&S, LP10-Business, MP3-H&S). Noticing comprehension problems sometimes also propelled students to reflect on the effectiveness of their current listening methods, for example, attention management (LP9-Business) and the degree of preview (HP6-Business). In terms of *monitoring attention*, some students commented on their effort to recover attention when feeling distracted (LP12-Business, MP1-H&S, MP8-H&S). Others reported an attempt to recover attention to ensure the quality of processing incoming information: 'Sometimes I would find myself lingering on one point for too long and when I realise this, I would give it [the point] up immediately and continue to listen to what's up next' (MP9-

H&S). Lastly, students also seemed to *monitor affect*, where they often perceived frustration (LP7-H&S), nervousness (MP3-H&S), or even despair (LP7-H&S, MP1-H&S) in the face of frequent comprehension breakdowns. In this regard, they used strategies to counteract negative emotions such as reminding themselves of remedial methods (MP3-H&S) and convincing themselves 'not to overthink but just listen' (LP7-H&S).

6.3.3 Self-reflection phase

6.3.3.1 Review and remedy

The majority of the respondents reported to carry out review activities after class (n=27). The most frequently used materials for review were *slides* (n=14) and *class notes* (n=8). Nevertheless, students differed in the aims and methods of availing themselves of these materials. Some students skimmed the slides roughly to remind themselves of the general ideas and knowledge covered in class (e.g., LP1-H&S, LP12-Business, MP5-H&S). Others read through the slides carefully, 'word by word', and focused on detecting and resolving information missed in class (e.g., LP8-Business LP11-Business). Many students also filled in details from the slides into their class notes, then organising the structure of content and highlighting key knowledge (LP4-H&S, MP10-H&S, HP1-H&S, HP5-H&S, HP7-Business). Another frequently mentioned review method was through *completing homework* (n=7). In this respect, students reported revisiting the key points in class (LP1-H&S), organising content according to homework tasks (MP9-H&S), and referring back to slides and notes (HP3-H&S, HP5-H&S).

Apart from review, a number of students reflected to *resort to help from others* after class (n=9). Some of them sought help from their peers for missing information or parts of the lecture that they had difficulties understanding (LP9-Business, MP11-Business, HP1-H&S,

HP4-H&S). Others confirmed with their peers about homework requests or to solve homework difficulties (MP1-H&S, MP10-H&S). A couple of students also sought help from teachers, asking in person immediately after class (LP7-H&S) or emailing about specific parts that remained problematic after review (LP6-H&S). One student also mentioned isolating key knowledge based on advice from students in a higher year level (HP1-H&S).

6.3.3.2 Evaluation, causal attribution, and planned adaptations

After EMI classes, *evaluating listening outcomes* (n=20) was frequently reported by students. *Reflecting on problems* emerged as a common theme in assessing their perceived success in understanding and the usefulness of the content. For example, some students evaluated how much they had understood and cast doubts on whether they actually acquired anything in class (LP2-H&S, LP6-H&S, LP7-H&S, MP1-H&S). Others questioned the usefulness of the content and its application in future jobs (LP9-Business, HP2-H&S). Additionally, a few students also reflected upon their *listening behaviour*, feeling that they were not involved and focused enough when listening (e.g., LP9-Business, HP1-H&S, HP3-H&S). As one student commented: 'If there was a moment I didn't understand in class, after class I would think back to that moment on what caused the breakdown—was it that I wasn't focused enough or just a matter of my proficiency?' (LP9-Business). Consequent to evaluation came the *causal attribution*. Many students overtly attributed their insufficient comprehension in class to *a lack of English proficiency* (n=7), in particular, *vocabulary* (e.g., LP2-H&S, LP8-Business, MP1-H&S). A couple of students also criticised their *previous vocabulary learning method*, claiming that separating pronunciation from spelling resulted in word recognition problems (MP2-H&S, MP4-H&S).

In response to evaluation and causal attribution, many students commented on planned changes in behaviour, manifested in expected *adaptations* regarding *pre-class preparation*

(n=4), *in-class listening* (n=15), and *after-class review and practice* (n=7). In terms of *pre-class preparation*, several students intended to invest more time in preview (LP6-H&S, HP3-H&S, HP7-H&S). One student also hoped to search for more relevant information in Chinese and 'fully digest' the subject knowledge prior to attending classes (MP3-H&S). Concerning *in-class listening*, many students expected to stay more focused and closely follow their teachers' line of thought (e.g., LP6-H&S, LP9-Business, MP11-Business, HP1-H&S, HP3-H&S). Furthermore, several students also wished to develop their own understanding and generate new thoughts in addition to following their teachers (MP11-Business, HP10-H&S, HP4-H&S). Concurrently, some students hoped to foster the ability to extrapolate word meaning, thus reducing the need of searching dictionaries (LP6-H&S) and lowering chances of fixated attention (MP10-H&S) while listening.

Adjusting note taking was another adaptation that many students intended to make (n=7). Some students sought to compromise the conflicts between listening to teachers and taking notes. For example, one student mentioned taking notes directly on slides and supplementing details in class (HP6-Business). This echoed other students' opinions, who hoped to prioritise listening to teachers and intended to take notes minimally to ensure sufficient comprehension (e.g., LP5-H&S, LP4-H&S, HP2-H&S). Apart from pre- and in-class effort, some students also pointed out the necessity to practice listening (LP1-H&S, LP2-H&S, LP3-H&S) and develop their vocabulary in their spare time (LP2-H&S, LP12-Business, MP7-H&S). Such effort will be further analysed in Section 6.4.

6.3.4 Summary of qualitative findings on SRL in relation to listening in EMI classes at the start of the first semester

This section presented and discussed how students self-regulated their learning *before*, *during* and *after* class to facilitate listening in relation to EMI classes upon arrival at the EMI university. These self-regulatory listening processes are summarised below.

Forethought phase:

- Listening goals aimed primarily at understanding the literal meaning of teacher talk
- Prevalent effort of preview, mainly involving dealing with unfamiliar vocabulary and organising knowledge structures

Performance phase:

- Certain effort to control for the loss of attention
- Attention selectively directed at certain parts of the teacher talk
- Some controlled switch of attention between the teacher and the slides, though low-proficiency students seemed more easily fixed on the slides
- Prevalent use of dictionaries for handling unfamiliar words
- Certain level of meaning inferencing to cope with the spontaneous teacher talk
- Organising, anticipating, and reasoning teacher talk conditioned on sufficient preview
- Taking selective notes such as key points, challenging concepts, and new vocabulary
- Certain monitoring of comprehension, attention and affect while listening

Self-reflection phase

- Prevalent effort of review to revisit key points and knowledge details covered in class
- Seeking help from peers, teachers, and senior students
- Evaluation of comprehension outcomes, usefulness of the content knowledge, and appropriateness of listening behaviour
- Listening difficulties attributed mainly to insufficient English proficiency and a small vocabulary size
- Planned adaptations to strengthen preview before class, adjust listening methods in class, and carry out listening practice out of class

Findings in this section revealed that students engaged in a variety of self-regulatory processes of listening as soon as a couple of weeks into EMI courses. Not only did they carry out preview activities before class, but also listened strategically in class, and implemented industrious review after class. These self-regulatory and strategic processes appeared to function holistically, for example, the in-depth processing of content in class seemed closely associated with preview before class. *Looking up word meaning* appeared to be a frequently adopted strategy at this stage, both in preview activities before class and listening in class.

6.4 SRL for out-of-class listening practice

In this section, findings from the interview data are presented to focus on the learning and practice of listening initiated and regulated by students out of EMI classes. Different from Section 6.3, which explores the self-regulatory listening processes in relation to EMI classes, this section investigates how students planned, implemented and reflected on their listening practice in their spare time to become more competent English listeners in an EMI university in general. Table 6.3 summarises the categories and themes regarding such self-regulatory processes for listening practice. These categories and themes were both informed deductively by Zimmerman and Moylan's (2009) three-phase social cognitive SRL framework and derived inductively from the data.

Table 6. 3. Categories and themes of SRL for out-of-class listening practice at T1

Categories	Themes	References (n=34)
Forethought phase		
Goal setting	No specific goals	7
	Achieving sufficient understanding of EMI classes	11
	Improving listening for generic purposes	3
Strategic planning: Managing time and space	Managing listening practice on a daily basis	16
	Preferring flexible time for listening	3
	Practicing in dormitories for convenience	10
	Practicing in the library to stay focused	7
	Adapting environment to suit task needs	6
Performance phase		
Choosing listening materials and methods	Choosing authentic materials for listening	22
	Listening extensively	5
	Listening intensively and repetitively	15
	Attending to specific elements for improvement	12
	Using subtitles as scaffolding when watching video materials	5
	Learning vocabulary	14
Sustaining motivation and affect	Battling satiation by switching activities	4
	Ensuring commitment	4
	Reducing negative emotions	5
Self-reflection phase		
Evaluation and causal attribution	Affirming listening progress	20
	Highlighting the role of an EMI environment	5
	Attributing progress to practice and an EMI environment	8
Planned adaptations	Enlarging vocabulary	4
	Ensuring perseverance in practice	5
	Demotivated to continue practice	3

Note. 'References' for each theme (e.g., *no specific goals*) represent the number of interviewees (i.e., 7 out of 34) that commented on the theme.

6.4.1 Forethought phase

6.4.1.1 Goal setting

Apart from goals in listening to EMI classes, students were also asked about their general goals in English listening after arriving at an EMI university. Notably, quite a number of students had *no specific goals for listening* (n=7). Among them about half were satisfied at

their current English listening ability (HP5-H&S, HP8-Business, HP9-Business). Nevertheless, the majority of the students indeed specified their goals for listening (n=18). *Achieving sufficient comprehension of teacher talk in EMI classes* was the primary goal that many students hoped to achieve via out-of-class listening practice (n=11). Among them, some specified concrete areas that they intended to build on, such as reducing translation and understanding English directly (LP9-Business), being better at recognising words (MP2-H&S) or being able to take notes while listening (LP5-H&S). In addition, some students also touched on more *generic goals* (n=3). For example, one student hoped to achieve a level of listening proficiency that could 'normalise' her life at an EMI university (LP1-H&S). Two other students also expected to become accustomed to a larger variety of English accents (HP1-H&S, HP3-H&S).

6.4.1.2 Strategic planning: Managing time and space

When talking about planning for listening practice, about half of the students appeared to *arrange listening practice on a daily basis* (n=16). Among them, the majority preferred to use time at night after they finished classes and other extra curriculum activities (n=10). Early in the morning was another popular time period for practicing English listening (n=5). For example, one student scheduled listening the first thing in the morning as 'a refreshing start of the day' (LP5-H&S). Other students carried out listening tasks alongside their daily morning exercise (e.g., MP9-H&S, HP2-H&S). A few students also *preferred not to set a fixed time* and practiced whenever they had time available (e.g., LP3-H&S, MP3-H&S, HP5-H&S). As one student explained: 'I don't like setting a tight schedule because I might just hurry to finish' (MP3-H&S). She therefore only set a rough weekly plan and practiced whenever she had time available. For her, this arrangement not only ensured quality of

practice but also gave the control back to herself, which to a certain extent, alleviated procrastination.

Apart from managing *when* to practice, students also decided *where* to practice according to their own needs. Admittedly, many students chose to *practice in their dormitories for the sake of convenience* (n=10). It was also considered 'to be a better environment' (LP2-H&S) and to provide for relaxing listening experience after a whole day's classes (MP5-H&S, HP9-Business). For some students, however, staying in the dormitory easily led to procrastination, thus they would *go to the library to stay focused* (n=7). Furthermore, some students *structured their environment to suit the listening tasks* (n=6). For example, students availed themselves of time during daily routines (e.g., walking, queuing, and commuting) to *listen extensively* and familiarise themselves with the materials. However, they needed to 'find a place to sit down' (LP1-H&S) and study 'quietly by myself' (MP3-H&S) when they conducted *intensive listening*. For those students who preferred to vocalise while listening, they chose places with few people (e.g., MP10-H&S, HP5-H&S) and outdoor venues (e.g., LP5-H&S, HP3-H&S) to practice.

6.4.2 Performance phase

6.4.2.1 Choosing listening materials and methods

Students displayed a diversity in selecting the materials for listening practice, which are summarised in Table 6.4. Each type of materials is indicated with a count of 'references', meaning how many interviewees reported to use that type of materials, followed by a description of listening methods used in accordance with the materials.

As can be denoted, *authentic materials* such as BBC or VOA news (n=11), TED talk videos (n=9), English films, documentaries and TV series (n=8) were most commonly selected.

Many students also resorted to English learning mobile applications (n=7), which provided them with theme-based short passages (normally 2-5 minutes). Notably, *materials tailored specifically for language learning or tests* such as EAP listening materials (n=3) or IELTS (n=1) seemed less popular. Occasionally, some students also registered for subject-related online English-taught courses (e.g., LP12-Business). Other students with higher proficiency also listened to field-specific professional articles through podcasts (HP6-Business) or on journal mobile applications such as The Economist (HP7-Business).

Table 6. 4. Materials and methods for out-of-class listening practice at T1

Materials	**References (n=34)**	**Practice methods**
News broadcasts (e.g., BBC, VOA)	11 (7LP+1MP+3HP)	Listen extensively (2); listen repetitively (4); attend to vocabulary (3)
TED talks	9 (5LP+2MP+2HP)	Listen repetitively (4); attend to vocabulary (2)
English films, documentaries and TV series	8 (2LP+3MP+3HP)	Pause or rewind (4); attend to words and expressions (3); attend to pronunciation (1)
Thematic short passages on English mobile applications	7 (5LP+2MP)	Listen repetitively (6); attend to pronunciation (3); attend to vocabulary (3)
EAP listening materials (e.g., audios in EAP textbooks)	3 (1LP+2MP)	Listen extensively (1); listen repetitively (2), attend to pronunciation (1)
Field-specific professional articles (e.g., The Economist)	2 (2HP)	Listen extensively (2)
Listening practice for IELTS/TOEFL	1 (1MP)	Attend to vocabulary (1)
EMI online courses	1 (1LP)	Listen repetitively (1)
Learning vocabulary	14 (4LP+8MP+2HP)	Rote memorisation (5); learn from listening materials (12); attend to pronunciation (5)

Note. 'References' for each type of materials (e.g., *news broadcasts*) represent the number of interviewees (11 out of 34) that reported to use the materials.

For audio materials, students' listening methods can be largely divided into three types: *listening extensively* (n=5), *listening repetitively (and often intensively)* (n=15), and *attending to specific elements for improvement* (n=12). In terms of *listening extensively*, students reported listening to news (e.g., LP1-H&S), EAP materials (MP9-H&S) or podcast articles (HP6-Business) when commuting to classes or during other daily tasks such as waiting in a queue. For the majority of the students, however, *repetitive and intensive listening* was regarded a more useful method for improvement. Although the materials varied, most of their listening processes involved a deliberation to achieve a specific goal at each time of listening. For example, one student depicted his process of listening to BBC news as following:

> My habit is to listen to the entire passage first. Then I listen sentence by sentence and carry out dictation while listening. I only pause but never replay the audio the second time [I listen]. After that I replay the audio repetitively to resolve the problematic parts and check if the sentences that I write down are correct.
> (LP6-H&S)

Similar to this respondent, other students also followed a sequence of listening for gist, listening for details, and then listening to solve problems (LP1-H&S, LP4-H&S, LP9-Business). In addition, many students *attended to specific elements while listening* (n=12). For example, in order to clarify the rules for connected speech, one student replayed problematic sentences multiple times: 'When I can finally distinguish the words clearly and understand the sentence, that's a progress' (MP3-H&S). Other students used word-related strategies such as covering the text to listen to the pronunciation of words (LP7-H&S, LP11-Business), looking up words and listening again to contextualise word meaning (MP1-H&S), and focusing on the use of semi-familiar words (MP8-H&S).

When watching video materials, *subtitles* played an important role in *scaffolding listening* (n=5). Some students attempted to listen first and then check their understanding with

subtitles (LP3-H&S, LP12-Business, HP9-Business). A couple of students paused or rewound the video to check subtitles when comprehension problems occurred (e.g., MP6-H&S, MP8-H&S). Other students reported taking down and memorising new words (HP1-H&S, HP3-H&S), useful expressions or sentences (HP3-H&S, HP9-Business), and imitating pronunciation (MP9-H&S) when listening.

A main barrier to successful listening comprehension, as the majority of the students agreed (n=23), was the *shortage of vocabulary*. However, only a small number of them (n=5) mentioned enlarging vocabulary through pure *rote memorisation* (MP1-H&S, MP6-H&S, MP7-H&S, MP10-H&S, LP10-Business). This might be because that the outcome of this method was not satisfactory, as one student reflected: 'Memorising vocabulary is more strenuous than I thought. I imagined that I could learn this amount but in fact I could only remember less than two thirds. This made me less willing to memorise' (MP6-H&S). In contrast, many students intended to *accumulate vocabulary through listening practice* (n=12). In particular, *how words were pronounced in sentences* was increasing attended to (n=5), as exemplified in the excerpt below:

> When I reflect [on my listening process], I realise that in order to understand, I need to know how a word is pronounced and then link the pronunciation to meaning instead of matching how the word spells to meaning. I would reckon if it's useful to practice in certain way and what I can actually get out of it. My current problem in listening is, I think, that they [the teachers] talk fast and connected—sometimes a word is pronounced in one way individually and another way when it's in a sentence. (LP7-H&S)

6.4.2.2 Sustaining motivation and affect

Despite engagement and devotion in practicing listening, frustration, impatience, and demotivation occurred from time to time for many participants. Under such circumstances,

effort to counteract procrastination and negative emotions was reported. *Satiation* or *impatience* with practicing tasks was a commonly reflected challenge. To counter this problem, some students *temporarily switched to other activities* (n=4) such as listening to music (LP1-H&S) or reading Chinese materials (LP6-H&S). One student also reported to use a mobile application for recording practice and obtaining incentives to stay motivated (MP12-Business). Concurrently, students *safeguarded commitment to their listening goals* (n=4) through internalising the consequences for giving up (e.g., LP4-H&S, LP5-H&S, LP6-H&S, LP11-Business). This was clearly depicted by a respondent:

> I must persist because once I stop, I won't be willing to start again. At the beginning [of listening practice] I had very strong resistance like 'Ah, English again!', but I just overcame it. After all I have all classes in English, so if I don't practice, how am I going to listen to those classes? And scholarships? Never think about that! (LP4-H&S)

As can be seen, the student was driven by a fundamental demand to understand EMI classes and an ambition to obtain scholarships, with a self-awareness that any pause in study would potentially hamper the will to continue. In addition, some students also reported to *handle negative emotions* (n=5) when practicing. For example, one student felt 'anxious' to understand English (LP3-H&S). She therefore found a 'larger chunk of time' to practice so that she would not hastily complete the task. *Frustration* was another recurring affect in the students' accounts, especially in the face of comprehension breakdowns (e.g., LP5-H&S, LP6-H&S, LP7-H&S, LP11-Business). In response, students would leave the task for a while (LP7-H&S), trying to prevent their emotions from getting in the way of listening (LP5-H&S) or reminding oneself of the importance of the tasks (LP6-H&S, LP11-Business).

6.4.3 Self-reflection phase

6.4.3.1 Evaluation and causal attribution

As students invested time and effort into listening practice, many of them seemed to naturally evaluate the progress in their listening. The majority of the interviewees *affirmed the progress* (n=20). Psychologically, students reported to become less afraid of or resistant to listening to English (e.g., LP4-H&S, LP5-H&S, MP3-H&S, MP7-H&S). Linguistically, they found the listening process to be 'smoother' (e.g., LP8-Business, MP12-Business). As such, they reported to switch faster from daily communication in Chinese to listening to English in class (MP6-H&S), used less translation (MP12-Business), were more open to diverse accents (MP10-H&S), and even fostered a certain degree of cultural empathy (MP4-H&S).

Students attributed their progress to different causes, although the *EMI environment* (n=5) was mentioned as the most important reason by some students. These students commented that since everyone spoke English and everything was in English, they had no choice but to adapt and try as hard as possible to listen (e.g., LP3-H&S, LP7-H&S, LP10-Business, LP11-Business, MP12-Business). Others attributed the progress in listening to *a combination of personal effort and the EMI environment* (n=8). For these students, the environment provided them chances to interact with other people in English (LP1-H&S, MP10-H&S), to 'submerge' and cultivate another manner of thinking (MP4-H&S), and facilitated their use of English as a means of communication (HP6-Business). Commenting on their personal practice, many were positive about its usefulness in enlarging vocabulary (e.g., LP7-H&S, LP11-Business), and perceived its effect when listening to EMI classes (e.g., LP5-H&S, LP6-H&S, LP8-Business, LP12-Business). Apart from the positive side, however, some students were less certain about the benefits of out-of-class listening practice and expected to see more obvious effect in a longer term (e.g., LP3-H&S, HP7-Business). Still, some students

perceived their current practice not as much helpful (e.g., MP3-H&S, MP10-H&S, HP9-Business). This perception, as these students also reflected, might have stemmed from their lack of perseverance in the practice.

6.4.3.2 Planned adaptations

In addition to evaluation and causal attribution, the participants also commented on how they would like to *adapt* their listening practice in the following weeks. *Enlarging vocabulary size* was one of the planned adaptations (LP11-Business, MP1-H&S, MP9-H&S, HP3-H&S). In particular, a couple of students aimed to associate pronunciation with spelling when learning vocabulary (MP2-H&S, MP3-H&S). Other students hoped to *invest more time* and *persevere in practice* (LP5-H&S, LP6-H&S, LP8-Business, MP1-H&S, MP10-H&S). Such persistence, however, seemed to be conditional for some students. For example, one student admitted: 'If I find it's useless then I might not persist'(LP7-H&S). In a similar vein, another student hoped that the practice could bear more influence and be 'applicable' to listening in EMI classes (LP12-Business). One high-proficiency student also mentioned joining an English debate society and intended to watch more related videos for practice (HP1-H&S).

In addition to the planned adaptations, it should be noted that some students displayed rather passive and defensive attitudes to listening (n=3). For example, one student complained:

> I feel that my English hasn't improved much. It's just the lessons [in English] and I rarely communicate with teachers or other 'native speaker' students. I've thought about [listening] practice but I don't know how to proceed. I have homework and activities every day so I can hardly find a chunk of time to do it.
> (MP11-Business)

In a similar vein, several high-proficiency students also felt confused about how to practice (e.g., HP5-H&S), or lacked motivation unless supervised by others to regulate (HP10-H&S).

6.4.4 Summary of qualitative findings on SRL for out-of-class listening practice at the start of the first semester

This section reported on qualitative findings regarding how students regulated their listening practice out of EMI classes upon arrival at an EMI transnational university. The major findings regarding these SRL processes are summarised below.

Forethought phase:

- Understanding EMI classes as a prevalent goal for listening practice
- High-proficiency students tended to set no goals for listening
- Practice on a daily basis commonly reported, which was arranged in the dormitory, library and other environments considered to suit the listening tasks

Performance phase:

- Preference of authentic listening materials than those specially designed for language learning or tests
- Preference of intensive and repetitive listening with a focus on specific linguistic items
- A focus on learning vocabulary through listening practice
- Some effort to alleviate satiation, ensure commitment, and battle negative emotions

Self-reflection phase

- Listening progress (linguistically and psychologically) recognised in general
- Progress mainly attributed to both personal practice and the EMI environment
- Planned adaptations for future listening practice, especially for vocabulary learning
- A few medium- and high-proficiency students seemed demotivated to practice

Findings in this section revealed industrious listening practice conducted by students in their spare time upon entering an EMI university, much of which was arranged on a daily basis. The purpose of such practice appeared to be closely related to coping with EMI classes, and students seemed to prefer authentic materials over those specially designed for language learning or testing purposes. They also reportedly preferred an intensive listening approach,

focusing on specific linguistic elements and vocabulary learning. Notably, a few students already seemed demotivated at listening practice at the start of the term.

6.5 The role of baseline English listening proficiency, self-efficacy and motivation in SRL in relation to listening in EMI classes

This section analyses a mixture of quantitative and qualitative data collected at T1 to unravel the respective role of students' *baseline English listening proficiency (BELP), self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* in relation to their self-regulated learning associated with listening in EMI classes. First, results from a set of simultaneous multiple regression are presented to examine if these variables significantly predicted students' reported use of listening strategies in EMI classes. After that, findings from the interview data are reported to further shed light on the nuanced role of these variables in the self-regulatory and strategic listening processes in relation to EMI classes.

6.5.1 Results of simultaneous multiple regression

A series of simultaneous multiple regression was conducted to explore whether students' *BELP, self-efficacy* and *motivation* significantly predicted their reported use of listening strategies. In doing so, each *listening strategy* was held as an outcome variable while treating the *BELP, self-efficacy* and *motivational variables* as predictor variables, all of which were entered together into the same block for the regression model. The following assumptions were checked for the analysis (see Appendix 6.1 for detailed results of assumption testing):

- Linearity—the relationship between predictor variables and the outcome variable is linear;
- Normality—residuals are normally distributed;
- Homoscedasticity—variance of error terms are similar across predictor variables;

- No multicollinearity—predictor variables are not highly correlated to each other, indicated by the value of VIF of all predictor variables lower than 10.0 and the Tolerance value above 0.20.

6.5.1.1 Metacognitive awareness of listening strategies

As summarised in Table 6.5, results of simultaneous multiple regression show that at the start of the first semester, all types of listening strategies measured by the 'Metacognitive awareness of listening strategies' questionnaire could be significantly predicted by a combination of students' *BELP, self-efficacy* and *motivation* (i.e., intrinsic and extrinsic goal orientation, and task value). This combination best predicted the strategy of *problem solving* for a total variance of 32.3% ($F_{[5,289]} = 27.56$, $p < .001$), followed by *directed attention* for 25.2% ($F_{[5,289]} = 19.42$, $p < .001$) and *plan-evaluation* for 17.1% of the variance ($F_{[5,289]} = 11.93$, $p < .001$). The least predicted strategy was *mental translation*, for which only 10.7% of the total variance could be predicted ($F_{[5,289]} = 6.94$, $p < .001$).

A further inspection of the results reveals that amongst all predicator variables, students' *BELP* only significantly predicted *mental translation* ($\beta = -.26$, $p < .001$). Specifically, when students' BELP increased by one unit of SD, their reported use of *mental translation* strategy decreased by 0.26 SD. It seems, however, that *self-efficacy* and *motivation* were much more closely related to the reported strategy use. Among them, *intrinsic goal orientation* and *task value* significantly predicted most types of strategies. Both of these two motivational variables predicted *plan-evaluation* ($\beta_{\text{intrinsic goal}} = .27$, $p < .001$; $\beta_{\text{task value}} = .15$, $p = .035$) and *directed attention* ($\beta_{\text{intrinsic goal}} = .30$, $p < .001$; $\beta_{\text{task value}} = .17$, $p = .014$). Additionally, *intrinsic goal orientation* also predicted *problem solving* ($\beta = .33$, $p < .001$), and *task value* predicted *mental translation* ($\beta = -.17$, $p = .025$) respectively. *Self-efficacy* was also found to be a significant predicator for two out of four strategies, that is, *directed attention* ($\beta = .19$, p

= .004) and *problem solving* (β = .27, p < .001). *Extrinsic goal orientation*, however, did not reach the p < .05 significance level for any of the strategies outline below in the model.

Table 6. 5. Simultaneous multiple regression of BELP, self-efficacy and motivation on the metacognitive awareness of listening strategies at T1

Outcome variable	Predictor variable	B	SE B	β	t	Sig.	Model summary
Plan-evaluation	Constant	1.696	0.368		4.610	0.000	$R^2 = 0.171$ $F_{[5,289]} = 11.93$ Adjusted $R^2 = 0.157$ R = 0.414, p < .001
	Self-efficacy	0.005	0.003	0.111	1.609	0.109	
	Intrinsic goal	0.298	0.073	0.268	4.067	0.000	
	Extrinsic goal	-0.046	0.061	-0.043	-0.752	0.453	
	Task value	0.175	0.083	0.152	2.113	0.035	
	BELP	-0.004	0.003	-0.099	-1.629	0.104	
Directed attention	Constant	2.492	0.305		8.177	0.000	$R^2 = 0.252$ $F_{[5,289]} = 19.42$ Adjusted $R^2 = 0.239$ R = 0.502, p < .001
	Self-efficacy	0.007	0.003	0.191	2.900	0.004	
	Intrinsic goal	0.292	0.061	0.301	4.810	0.000	
	Extrinsic goal	-0.095	0.051	-0.103	-1.881	0.061	
	Task value	0.169	0.069	0.168	2.461	0.014	
	BELP	-0.002	0.002	-0.061	-1.065	0.288	
Problem solving	Constant	1.963	0.273		7.190	0.000	$R^2 = 0.323$ $F_{[5,289]} = 27.56$ Adjusted $R^2 = 0.311$ R = 0.568, p < .001
	Self-efficacy	0.010	0.002	0.266	4.248	0.000	
	Intrinsic goal	0.305	0.054	0.334	5.609	0.000	
	Extrinsic goal	0.017	0.045	0.019	0.373	0.709	
	Task value	0.057	0.061	0.060	0.922	0.357	
	BELP	0.002	0.002	0.059	1.078	0.282	
Mental translation	Constant	4.162	0.396		10.513	0.000	$R^2 = 0.107$ $F_{[5,289]} = 6.94$ Adjusted $R^2 = 0.092$ R = 0.327, p < .001
	Self-efficacy	-0.001	0.003	-0.030	-0.423	0.673	
	Intrinsic goal	0.152	0.079	0.132	1.923	0.055	
	Extrinsic goal	0.095	0.066	0.086	1.441	0.151	
	Task value	-0.200	0.089	-0.168	-2.248	0.025	
	BELP	-0.012	0.003	-0.262	-4.167	0.000	

6.5.1.2 Deep processing listening strategies

As Table 6.6 illustrates, all three types of deep processing listening strategies examined in the study were significantly predicted by the *BELP, self-efficacy* and *motivational variables* together. Amongst them, an observable chunk of the *elaboration* strategy, that is, 38.4% of

the total variance could be predicted ($F_{[5,289]} = 35.47$, $p < .001$). The strategy of *critical thinking* and *organisation* were predicted with a total variance of 24.6% ($F_{[5,289]} = 18.52$, $p < .001$) and 19.5% ($F_{[5,289]} = 13.75$, $p < .001$) respectively.

Notably, however, the *BELP* alone did not significantly predict any of the deep processing listening strategies. In contrast, *self-efficacy* and *intrinsic goal orientation* respectively predicted all three strategies significantly, that is, *elaboration* ($\beta_{\text{self-efficacy}} = .17$, $p = .005$; $\beta_{\text{intrinsic goal}} = .30$, $p < .001$), *organisation* ($\beta_{\text{self-efficacy}} = .20$, $p = .004$; $\beta_{\text{intrinsic goal}} = .27$, $p < .001$), and *critical thinking* ($\beta_{\text{self-efficacy}} = .31$, $p < .001$; $\beta_{\text{intrinsic goal}} = .32$, $p < .001$). *Task value* seemed to play a lesser role, which only significantly predicted the *elaboration* strategy ($\beta = .30$, $p < .001$).

Table 6. 6. Simultaneous multiple regression of BELP, self-efficacy and motivation on the deep processing listening strategies at T1

Outcome variable	**Predictor variable**	**B**	**SE B**	**β**	**t**	**Sig.**	**Model summary**
Elaboration	Constant	1.616	0.265		6.097	0.000	$R^2 = 0.384$ $F_{[5,289]} = 35.47$ Adjusted $R^2 = 0.374$ $R = 0.620$, $p < .001$
	Self-efficacy	0.006	0.002	0.173	2.855	0.005	
	Intrinsic goal	0.274	0.052	0.298	5.234	0.000	
	Extrinsic goal	-0.017	0.044	-0.019	-0.387	0.699	
	Task value	0.286	0.060	0.300	4.790	0.000	
	BELP	-0.001	0.002	-0.026	-0.485	0.628	
Organisation	Constant	1.756	0.398		4.414	0.000	$R^2 = 0.195$ $F_{[5,289]} = 13.75$ Adjusted $R^2 = 0.181$ $R = 0.441$, $p < .001$
	Self-efficacy	0.010	0.003	0.200	2.895	0.004	
	Intrinsic goal	0.327	0.079	0.271	4.162	0.000	
	Extrinsic goal	-0.015	0.066	-0.013	-0.226	0.821	
	Task value	0.129	0.090	0.103	1.439	0.151	
	BELP	-0.005	0.003	-0.116	-1.914	0.057	
Critical thinking	Constant	2.007	0.339		5.923	0.000	$R^2 = 0.246$ $F_{[5,289]} = 18.52$ Adjusted $R^2 = 0.233$ $R = 0.496$, $p < .001$
	Self-efficacy	0.013	0.003	0.308	4.595	0.000	
	Intrinsic goal	0.335	0.067	0.316	5.009	0.000	
	Extrinsic goal	0.012	0.056	0.012	0.219	0.827	
	Task value	0.001	0.076	0.001	0.009	0.993	
	BELP	-0.005	0.002	-0.109	-1.867	0.063	

To sum up the results from the inferential statistical analysis, upon arrival at an EMI university, students' *BELP* played a minimal role in their reported use of listening strategies, only significantly and negatively predicting the strategy of *mental translation*. In contrast, *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses* seemed to play a more observable role. *self-efficacy, intrinsic goal orientation,* and *task value* all significantly predicted some strategies to varying degrees, whereas the role of *extrinsic goal orientation* was not found to be statistically significant. In what follows, the interview data will offer a detailed picture of how these variables interplayed with students' SRL processes related to listening in EMI classes.

6.5.2 Findings from semi-structure interviews

6.5.2.1 Baseline English listening proficiency (BELP)

Quantitative results indicate that students' *BELP* only significantly predicted their use of *mental translation* strategy in class ($\beta = -.26$, $p < .001$). Specifically, the higher the BELP, the less students tended to mentally translate teacher talk. During interviews, however, students who talked about *mental translation* the most were those in the MP group (n=6). In contrast, only a couple of LP students explicitly commented on mentally translating while listening, deeming that their proficiency had not yet arrived at a level to allow them to translate as they listen. Instead, one student described 'Baidu Fanyi', an online dictionary software, as his 'good friend' (LP11-Business). In saying so, he frequently relied on the dictionary's picture capturing function to translate paragraphs on slides directly so that he could follow the class. Another student described a situation of being unable to translate due to lower-level processing barriers:

> When the teacher talked fast, I couldn't even tell the words. I tried to actively translate [teacher talk] and some sentences could be translated slowly in my mind.

> But there were always words that I couldn't recognise or think of at that moment, so it was hard to translate.
> (LP12-Business)

As could be seen, this LP student's attempt of mental translation seemed to be frustrated by lower-level processing issues such as *word recognition*. MP students, on the other hand, seemed more 'able' to translate. For short and relatively easy sentences, some MP students were capable of understanding meanings directly without translation (e.g., MP9-H&S). However, when the teacher talked fast with infrequent pauses, students tended to concentrate on converting the speech into Chinese sentence by sentence (MP1-H&S, MP7-H&S, MP9-H&S, MP11-Business). The translation process seemed to consume attentional resources which otherwise could be used for digesting content knowledge, as one student complained: 'All I had was translation but no comprehension' (MP7-H&S). Unfamiliar vocabulary was perceived as a major obstacle for translation, where students often stopped to 'think carefully' (MP9-H&S), to repeat to oneself (MP1-H&S), or to retrospectively re-decode the sentence (MP12-Business).

Three students in the HP group also mentioned translating when listening to teachers in class. However, for them, translating was more of a habit than a need. As one student commented: 'When I hear some familiar words, my brain sometimes just translates subconsciously. I hope I can skip the translation process and think in English directly' (HP2-H&S). The subconscious process of translation seemed more like a habit instead of a necessity caused by language deficiencies, as the student also commented elsewhere on dealing with unknown words: 'I mostly guess words—even if I don't know the word, I could usually figure it out when it's in a sentence. I let it pass as long as I can grasp the overall meaning of the sentence.' This top-down focus suggests that her translation was unlikely to be driven by lack of proficiency, setting the HP students apart from the MP and LP students.

6.5.2.2 Self-efficacy in listening to EMI classes

Results of the statistical analysis show that *self-efficacy in listening to EMI classes* significantly and positively predicted students' reported use of strategies such as *directed attention* ($\beta = .19$, $p = .004$) and *problem solving* ($\beta = .27$, $p < .001$), as well as multiple deep processing strategies including *elaboration* ($\beta = .17$, $p = .005$), *organisation* ($\beta = .20$, $p = .004$) and *critical thinking* ($\beta = .31$, $p < .001$). Interview findings largely support these results and offer insight into a reciprocal interplay between *self-efficacy* and a number of *self-regulatory processes of listening*. Similar to Chapter 4 (Section 4.3.2.2), excerpts in this section are labelled with an ID inclusive of students' self-efficacy (SE) score at T1 to more clearly illustrate the findings. First, *attention management* was found to be a primary process subject to the influence of self-efficacy. The more efficacious students perceived in listening, the more focused and engaged they remained (e.g., LP1-H&S-SE 71, MP4-H&S-SE 70). On the contrary, low efficacy in listening hampered motivation to sustain attention, as described by a student below:

> I'm always afraid that I can't keep up with the teacher. Actually, when you are not confident or don't feel you can make it, you don't have the drive to continue listening and that affects the following process. I would thus usually have a look [at the course materials] in advance so that I won't feel totally at sea in class.
> (MP12-Business-SE 33)

Notably, although the student seemed rather doubtful about her ability to follow the teacher talk, she remedied the situation via preview. Likewise, other students also considered preview or preparation prior to EMI classes as contributory to self-efficacy in listening (e.g., LP1-H&S-SE 71, MP4-H&S-SE 70). In addition, since self-efficacy in the present study involved not only students' beliefs in their current ability to listen, but also how confident they were in their ability to improve listening, the latter aspect was found to impact on students' will to

invest effort in listening. In the interviews, it was found that when students believed in their ability to progress, they reported to be more goal-directed and endeavoured to prevent distractions or the loss of attention in class (e.g., LP6-H&S-SE 69).

Problem solving was another strategic process affected by students' self-efficacy beliefs. Highly efficacious students appeared to be more inclined to recognise the benefits of preview and were more encouraged to extrapolate meaning based on clues from preview or contexts (e.g., LP1-H&S-SE 71, LP5-H&S-SE 71, LP10-Business-SE 66). In contrast, their less efficacious peers tended to resort to dictionaries immediately in the fear of guessing the meaning wrongly (e.g., LP7-H&S-SE 28, MP12-Business-SE 33). Self-efficacy also seemed to influence students' *attitudes towards problems*. Lack of efficacy seemed to result in a sense of disorientation (MP1-H&S-SE 16), frustration (MP12-Business-SE 33) and nervousness (MP9-H&S-SE 25) in the face of comprehension breakdowns. On the contrary, highly efficacious listeners seemed to be calmer and more reasoned when confronted with difficulties, where they reported to actively availed themselves of possible resources to compensate for the situation (e.g., LP5-H&S-SE 71, HP8-Business-SE 70).

Interview findings suggest that students' *self-efficacy in listening to EMI classes* and their reported use of *deep processing strategies* were mutually influenced. As noted earlier, *preview*, to a certain extent, was perceived to assure students of listening outcomes and to boost their efficacy in listening (e.g., LP1-H&S-SE 71, MP4-H&S-SE 70). The improved efficacy seemed to in turn encourage students to *make associations* between what was taught in class to materials read beforehand and *critically compare* the previously learnt knowledge with current understanding. As one student noted:

> As I listen to him [the teacher], if I realise that I have covered this point in preview, I'd feel more assured, and I won't worry that I can't understand at all. I'd be more

> confident, more efficient and I can compare what I read from preview to what he's teaching to see if there are differences.
> (MP4-H&S-SE 70)

In addition, the use of *organisation* strategy such as *structuring teacher talk based on preview* also reportedly gave students a sense of control over the pace of knowledge delivery, which in turn enhanced their efficacy beliefs in listening (e.g., LP5-H&S-SE 71, LP10-Business-SE 66). This process was sustained after class, as one student explicated: 'If I have organised well with clear key points and enough details, I'd feel that I acquired more in this lesson than before. This makes me feel more confident' (MP3-H&S-SE 26). Presumably, *summarising and structuring knowledge* enabled the student to diagnose her level of comprehension and confirm the mastery of knowledge, based on which she might gain more efficacy in listening to EMI classes.

6.5.2.3 Intrinsic goal orientation in learning EMI courses

The statistical results indicate that, amongst all motivational variables, *intrinsic goal orientation in learning EMI courses* predicted the widest variety of reported listening strategies. These included strategies of *plan-evaluation* ($\beta = .27$, $p < .001$), *directed attention* ($\beta = .30$, $p < .001$) and *problem solving* ($\beta = .33$, $p < .001$), as well as deep processing strategies of *elaboration* ($\beta = .30$, $p < .001$), *organisation* ($\beta = .27$, $p < .001$), and *critical thinking* ($\beta = .32$, $p < .001$). Intrinsic goal orientation, as defined in Chapter 3 (Section 3.5.3), represents that students engage in EMI courses for internal reasons such as for challenge, curiosity, or mastery. During the interviews, the self-regulatory processes of *goal setting* and *preview* were found to be closely associated with an intrinsic goal orientation. When students described their goal was to 'attain knowledge' or to 'absorb as much as possible', they were

inclined to specify their goals prior to listening and seek help from teachers beforehand to prepare for the lesson (e.g., LP7-H&S, LP10-Business).

In turn, *preview* was also considered to stimulate an intrinsic goal orientation in listening (e.g., MP3-H&S, MP4-H&S). As one student described: 'I come to look forward to a lesson after preview. I feel it's kind of a verification for what I have read' (MP4-H&S). Further, *preview* familiarised students with the content to be learnt, which allowed for in-depth processing of information later in class such as comparing, reasoning and thinking critically of what the teacher taught in EMI classes (e.g., LP1-H&S, LP7-H&S, MP3-H&S, MP4-H&S). Such *deep processing of knowledge* appeared to in turn foster intrinsic goals, as explicated by one student: 'Since I had some new, different and more profound understanding about this topic, this to a certain degree gave me a sense of achievement' (LP1-H&S).

Attention management in EMI classes also seemed to be affected by an intrinsic goal orientation. Knowledge that was considered new, professional, and challenging was reported to provoke curiosity and therefore appeared to catch more attention of the students (MP5-H&S, MP10-H&S, HP8-Business). On the contrary, common-sense, repetitive or familiar information was perceived 'boring' (HP1-H&S), 'irrelevant' (MP12-Business) or even 'useless' (MP10-H&S), where attention would be reduced or re-oriented to other tasks (HP8-Business).

In terms of *problem solving*, students who were oriented to mastering knowledge showed a tendency to *seek others' help*. They communicated with peers in an attempt to recover missing information in class (MP6-H&S) or sought advice from senior students in a higher year level to improve their listening methods (LP8-Business). One student described a

virtuous circle of remedying knowledge driven by an intrinsic goal orientation of mastery and curiosity:

> I've felt a strengthened desire to investigate. I feel that what I hear in [EMI] lectures might be somewhat limited and if I become interested in a point, I'd want to listen and search for more during follow-up seminars. I'd want to overcome this knowledge point and to figure out these chunks [of knowledge]. As I know more, some points would pop up when I listen and inspire me. Then I'd want to know even more.
> (MP3-H&S)

As can be denoted, the inherent desire to 'investigate' prompted the student to dig for in-depth information surrounding a topic, for which she rounded off the knowledge in follow-up seminars. The results of this endeavour in turn 'inspired' her and further strengthened her intrinsic goal orientation. For intrinsically motivated students, problems could be a source of *self-reflection* and potentially an opportunity for adapted behaviour for future learning. As one student explained:

> I'd always try to answer <u>every</u> question [in EMI classes]. But sometimes when I hesitate or even can't answer certain questions, I would ask myself 'why can't I answer it?' 'why is there only a vague concept?' Then I would think maybe I haven't prepared well enough beforehand.
> (HP6-Business)

The urge of this student to 'try to answer every question' showed a strong intrinsic goal orientation, which activated a series of self-questioning when problems occurred. As a result, he reflected on the effectiveness of preparation and presumably might make adjustment thereon.

6.5.2.4 Task value in learning EMI courses

Task value in learning EMI courses, which measures students' perceived usefulness, importance, or interest in learning content knowledge through English, was found to be a significant predictor for the reported use of strategies such as *plan-evaluation* ($\beta = .15$, $p = .035$), *directed attention* ($\beta = .17$, $p = .014$), *mental translation* ($\beta = -.17$, $p = .025$), and *elaboration* ($\beta = .30$, $p < .001$). The qualitative findings corroborate with these results and find *task value* to interact with multiple self-regulatory and strategic processes of listening.

First, *preview* was found to be observably influenced by *task value*. In this regard, the more *importance* students attached to the disciplinary content, the more motivated they were to engage in preview (e.g., LP7-H&S, HP3-H&S). The perceived *importance* was usually associated with the *usefulness* of an activity. As one student complained: 'I haven't previewed yet—I just don't feel it's important. My friends take the course too and the message they send me is like it's not very useful' (HP3-H&S). *Interest* in the topic was another influential factor associated with preview activities (e.g., LP7-H&S, MP1-H&S, MP8-H&S, HP5-H&S). Students were more willing to read materials beforehand or even search for extra information if that topic was an area of interest (e.g., LP7-H&S). On the contrary, when students were not inherently interested, they thought of preview as unnecessary and seemed reluctant to make preparation beforehand (e.g., HP5-H&S).

Attention management was another aspect that was found to be heavily influenced by *task value*. Primarily, the more *useful* or *important* students thought of the content, the more willing they were to maintain concentration, even in the face of comprehension barriers (e.g., LP2-H&S, LP10-Business). Some students also reported a heightened attention to search for certain information and take note of it when it was deemed valuable (e.g., HP5-H&S, HP8-Business). Whereas the perceived *usefulness* seemed to lead to *deliberate* attention

investment, *interest* was considered to influence attention in a *natural* and *sub-conscious* way. This could be seen from one student's account: 'If I find it [what is taught] important, then I would normally pull myself back when feeling distracted but actually, if it's really interesting, I won't be distracted in the first place' (HP7-Business). Further, when students were not inherently interested, they tended to invest in minimal attention for an instrumental end, as reflected in the statement below:

> I can't understand the content and commands he [the teacher] talks and it can't raise my interest. I don't have particular goals and neither do I want to work in this field in the future. I just hope to have a general understanding about this course, to pass the exams because I'm not interested in this. I would still try to listen but just wouldn't have that much of my attention invested.
> (MP8-H&S)

As the student commented, her *lack of interest* was partially aggravated by insufficient understanding due to linguistic problems. Reduced interest coupled with the need to pass exams led to her feeling obliged to 'try to listen', but at the same time caused an unwillingness to invest too much attention in the task.

Interview findings suggest that the relationship between *task value* and the use of *elaboration* strategy was a reciprocal one. On the one hand, when students felt the content were *interesting* or *important*, they were inclined to make connections between the knowledge and their existing schemata in order to deepen understanding (e.g., HP8-Business) or to better store it in long-term memory (e.g., LP5-H&S). On the other hand, topics that they were capable of associating to were often those that they were familiar with or relatable to daily life. This in turn boosted their *interest* and made them recognise the *usefulness* of the content. As one student explicated:

> If a topic is close to life and I know about it, I would feel more interested. For example, many of us like to drink Starbucks. If he [the teacher] can use this as a 'bait' to teach, then surely it will stimulate our interest and we would listen carefully to know the values and business operations behind this brand.
> (LP10-Business)

Similar to this respondent, other students also reflected that knowledge which could be extended to real life increased the *interest* to listen (e.g., MP9-H&S, HP9-Business). In contrast, abstract and non-relatable concepts devastated *interest*: 'You're just listening to it as a knowledge point and it's merely rote memorisation' (MP9-H&S).

6.5.3 Summary of qualitative findings on the role of baseline English listening proficiency, self-efficacy, and motivation in SRL in relation to listening in EMI classes at the start of the semester

Qualitative findings in this section revealed that students' strategic and self-regulated listening seemed to be closely associated with their *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses*. Students tended to *sustain and manage their attention* when they felt efficacious in their ability to understand, curious (intrinsic goal orientation), interested, or perceived value (task value) in the content knowledge. *Preview* was found to both influence and to be informed by students' efficacy or motivation. On the one hand, the more important, useful and interesting students perceived the topic (task value), the more willing they were to engage in thorough preparation before class. On the other hand, the in-depth preview was reported to in turn strengthen students' self-efficacy in listening and bring about a sense of achievement (intrinsic goal orientation). Highly efficacious students seemed to be more sure-footed in the face of comprehension problems while listening, and reported to be more likely to *extrapolate the meaning* of unfamiliar words and expressions

compared to less efficacious students, who tended to resort to dictionaries in the fear of inaccurate inferences.

Students who felt intrinsically driven by a curiosity or mastery of content knowledge tended to *seek others' help* and engage in extra learning to remedy shortfalls in comprehension. For these students, problems that occurred in listening could stimulate a *reflection* on their listening methods, presumably leading to meaningful *adaptations* in learning behaviour. In addition, multiple aspects of the *deep processing of content knowledge* were also found to interact with the self-efficacy and motivation. *Organising and structuring knowledge* both in and after class was considered to give students a sense of control over what was learnt, hence boosting their self-efficacy in listening. Students also reported to use more *elaboration* strategies to process knowledge that they recognised as interesting, important and useful (task value) to integrate it into their long-term memory. Compared to self-efficacy and motivation, students' BELP was only found to significantly predict the strategy of *mental translation*. The interview data showed, however, students with medium BELP seemed to translate the teacher talk most heavily, whereas their low-BELP peers reported being 'unable to translate' due to lower-level processing difficulties such as segmenting speech and word recognition.

6.6 Chapter summary

In summary, the findings presented in this chapter revealed that students demonstrated a degree of strategic listening in EMI classes from the outset of the first semester. *Directed attention* and *problem solving* were the most heavily reported strategies, suggesting that the students were most aware of their attempt to stay concentrated and resolve breakdowns in comprehension. Qualitative analyses identified a series of associated SRL processes surrounding EMI classes in relation to listening. In the **forethought phase** before class, preview appeared to be prevalently adopted, where students tackled unfamiliar vocabulary

and structured their knowledge in preparation. The primary goal of listening for most students at the start of the term, however, appeared to be understanding the literal meaning of teacher talk instead of absorbing subject knowledge, due to constraints of their attentional capacity. Accordingly, in the **performance phase** during class, students reported to selectively distribute their attention to optimise the intake of key information, and adjusted note taking to follow the fast teacher talk. Dictionaries were frequently used to handle new vocabulary, though some meaning inferences were also reported. Notably, students seemed able to deliver some in-depth processing of the content knowledge, which was usually facilitated by sufficient preview. Finally, in the **self-reflection phase** after class, students commonly reflected to engage in review activities and seek help from others to remedy their learning. Many students also identified causes of comprehension difficulties, based on which they planned for adaptations to facilitate future listening.

The above SRL processes in relation to listening in EMI classes, as reported later in this Chapter, appeared to be closely associated with students' *self-efficacy in listening to EMI classes* and *motivation in learning EMI courses*. Results from simultaneous multiple regression analyses found that self-efficacy, intrinsic goal orientation, and task value significantly predicted the reported use of various listening strategies. Students' BELP, however, only negatively predicted the *mental translation* strategy. Interview data supported these results and showed that self-efficacy, intrinsic goal orientation, and task value interacted reciprocally with a variety of self-regulatory and strategic processes of listening.

In addition to SRL related to EMI classes, qualitative analyses also revealed substantial listening practice initiated and regulated by students in out-of-class contexts. At the beginning of the term, a common goal of such practice was to achieve adequate comprehension in EMI classes. As such, students in the **forethought phase** industriously

arranged listening practice on a daily basis, and selected the environment to address diverse needs. When students implemented practice during the **performance phase**, they seemed to prefer authentic listening materials (e.g., news broadcasts) and favoured an intensive listening approach with a focus on tackling specific linguistic items. Certain effort to battle satiation, demotivation and negative affect was also reported during the practice. Students mostly recognised progress in listening in the **self-reflection phase**, which they often attributed to a combination of the EMI environment and their personal effort. Notably, students varied in their perceived effectiveness of listening practice, and some high-proficiency students reflected neither a need nor a willingness to continue practice even at the start of the term.

Chapter 7 Results: Longitudinal development of self-regulated listening during the first semester

7.1 Chapter introduction

This chapter analyses quantitative and qualitative data collected at Time point 1 (T1, Week 2 and 3), Time point 2 (T2, Week 8 and 9), and Time point 3 (T3, Week 13 and 14) to examine the longitudinal development of *self-regulated listening* reported by students during their first semester. Self-regulation is investigated for two contexts associated with learning: listening in EMI classes; and listening practice out of class. The chapter provides findings to answer the fourth research question of the study outlined in Chapter 3 (Section 3.2):

4) Are there changes in the self-regulated listening reported by students during their first semester of study at an EMI transnational university?
   a. Are there changes in the strategies that students reportedly use when listening to EMI classes during the semester? If so, what are the changes?
   b. Are there changes in how students reportedly self-regulate learning in relation to listening in EMI classes during the semester? If so, what are the changes?
   c. Are there changes in how students reportedly self-regulate their learning out of class for listening practice during the semester? If so, what are the changes?

To answer RQ 4a, results from one-way repeated measures MANOVA as well as multiple one-way univariate ANOVAs will first be analysed to examine the *time effect* on students' reported use of listening strategies both collectively as a set and individually. Descriptive statistics for the reported strategies at each time point of data collection will also be presented to outline a trend of development over time. After that, qualitative analyses of the interview data collected at the three time points will be presented to answer RQ 4b and 4c. Themes related to how students regulated their learning in relation to listening in EMI classes, as well

as for listening practice out of class will first be summarised with a count of references for an overview. This overview will serve to supplement the detailed depiction of the longitudinal trajectory of SRL with in-depth illustrative excerpts from the interview data.

7.2 Longitudinal development of listening strategies in EMI classes

One-way repeated measures (RM) MANOVA was first conducted to investigate whether there were differences in students' *metacognitive awareness of listening strategies* as well as *deep processing listening strategies* collectively over three time points. Descriptive statistics for the reported use of listening strategies across three time points are presented at Table 7.1. The *listening strategies* were held as dependent variables (DVs), and *time* was held as the independent variable (IV). The following assumptions were checked prior to the MANOVA test (see Appendix 7.1 for detailed results of assumption checking):

- No multivariate or univariate outliers—DVs were checked with boxplots, comparing the means with the 5% trimmed means of the DVs to delete outliers that might distort the mean and the variance of the sample;
- Multivariate normality—DVs collectively should have multivariate normality within IV groups. Field recommends (2009) to check univariate normality for each DV for practicality. Table 7.1 shows that no DV had severe skewness or kurtosis greater than 3.29 times of SE within the IV groups, and histograms and Q-Q plots were checked to confirm approximate normality;
- Linearity between DVs—the relationship between each pair of DVs for each group of the IV should be linear;
- No multicollinearity—the correlations between DVs should not exceed .70.

Table 7. 1. Descriptive statistics for reported use of listening strategies at T1, T2 and T3

Dependent variable	Time	n	Mean	SD	Skewness		Kurtosis	
					Statistic	SE	Statistic	SE
Metacognitive awareness of listening strategies								
Directed attention	T1	305	4.48	0.796	-0.160	0.140	-0.104	0.278
	T2	303	4.12	0.761	-0.131	0.140	0.770	0.279
	T3	315	4.14	0.823	-0.206	0.137	0.536	0.274
Problem solving	T1	305	4.29	0.696	0.298	0.140	0.191	0.278
	T2	303	4.23	0.588	-0.025	0.140	0.475	0.279
	T3	315	4.32	0.619	0.362	0.137	0.313	0.274
Plan-evaluation	T1	305	3.84	0.772	0.136	0.140	0.259	0.278
	T2	303	3.76	0.712	0.309	0.140	0.837	0.279
	T3	315	3.87	0.717	0.395	0.137	0.304	0.274
Mental translation	T1	305	3.59	0.901	-0.401	0.140	0.471	0.278
	T2	303	3.62	0.810	-0.479	0.140	0.663	0.279
	T3	315	3.62	0.811	-0.436	0.137	0.613	0.274
Deep processing listening strategies								
Elaboration	T1	291	4.42	0.697	0.024	0.143	0.201	0.285
	T2	295	4.30	0.666	-0.175	0.142	0.004	0.283
	T3	314	4.29	0.656	0.197	0.138	0.411	0.274
Organisation	T1	291	3.99	0.914	-0.201	0.143	0.061	0.285
	T2	295	3.82	0.883	-0.034	0.142	0.576	0.283
	T3	314	3.87	0.918	0.029	0.138	0.128	0.274
Critical thinking	T1	291	4.01	0.806	0.000	0.143	0.008	0.285
	T2	295	3.87	0.801	-0.066	0.142	0.607	0.283
	T3	314	3.91	0.762	0.228	0.138	0.730	0.274

Tests of one-way RM MANOVA were carried out after all assumptions were met, and the results of the tests are summarised in Table 7.2. A significant main effect of *time* was detected using Wilk's Lambda on the combined four components of *metacognitive awareness of listening strategies* ($\Lambda = 0.84, F_{[8, 1158]} = 13.56, p < .001$) as a group, and on the three *deep processing listening strategies* collectively ($\Lambda = 0.96, F_{[6, 1084]} = 3.54, p = .002$), suggesting that the two aspects of strategic listening demonstrated some changes over the first semester in general.

Follow-up univariate repeated measures (RM) ANOVA was conducted to further explore how each sub-type of strategy developed over time. Mauchly's test for sphericity suggests that variances of the differences between time points were unequal for four strategies included in the *metacognitive awareness of listening strategies*, thus violating the assumption of sphericity. Hence, Greenhouse-Geisser estimates were used to correct degrees of freedom. For the three *deep processing strategies*, however, the assumption of sphericity was met and thus the results were interpreted assuming equal variances. The results of the univariate RM ANOVA are shown in Table 7.3. As can be seen, among the *metacognitive awareness of strategies*, the strategy of *directed attention* ($F_{[1.84, 536,52]} = 46.02$, $p < .001$, $\eta_p^2 = .137$) and *plan-evaluation* ($F_{[1.89, 549.66]} = 3.56$, $p = .032$, $\eta_p^2 = .012$) varied significantly over time. In contrast, *time* had significant effect on all three types of *deep processing listening strategies*.

Table 7. 2. One-way RM MANOVA for the effect of time on the metacognitive awareness of listening strategies and the deep processing listening strategies as two collective sets

Dependent variable	**Wilk's Lambda**	**F**	**Hypothesis df**	**Error df**	**Sig.**	**Partial Eta Squared (η_p^2)**
Metacognitive awareness of listening strategies	0.84	13.557	8.00	1158.00	0.000	0.086
Deep processing listening strategies	0.96	3.536	6.00	1084.00	0.002	0.019

Table 7. 3. Univariate RM ANOVA for the main effect of time for each listening strategy

Dependent variable	**Type III Sum of Squares**	**df**	**Mean²**	**F**	**Sig.**	**Partial Eta Squared (η_p^2)**
Metacognitive awareness of listening strategies						
Directed attention	23.019	1.844	12.485	46.018	0.000	0.137
Problem solving	1.099	1.865	0.589	2.983	0.055	0.010
Plan-evaluation	1.659	1.889	0.878	3.555	0.032	0.012
Mental translation	0.361	1.891	0.191	0.680	0.499	0.002
Deep processing listening strategies						
Elaboration	2.667	2.000	1.333	6.271	0.002	0.023
Organisation	3.631	2.000	1.815	5.308	0.005	0.019
Critical thinking	3.168	2.000	1.584	6.179	0.002	0.022

Results of post-hoc Bonferroni analysis provide a detailed picture of how different listening strategies changed between each pair of time points, as shown in Table 7.4. A visual display of the developmental trend is illustrated by Figure 7.1.

Table 7. 4. Pairwise comparisons of reported listening strategies between time points

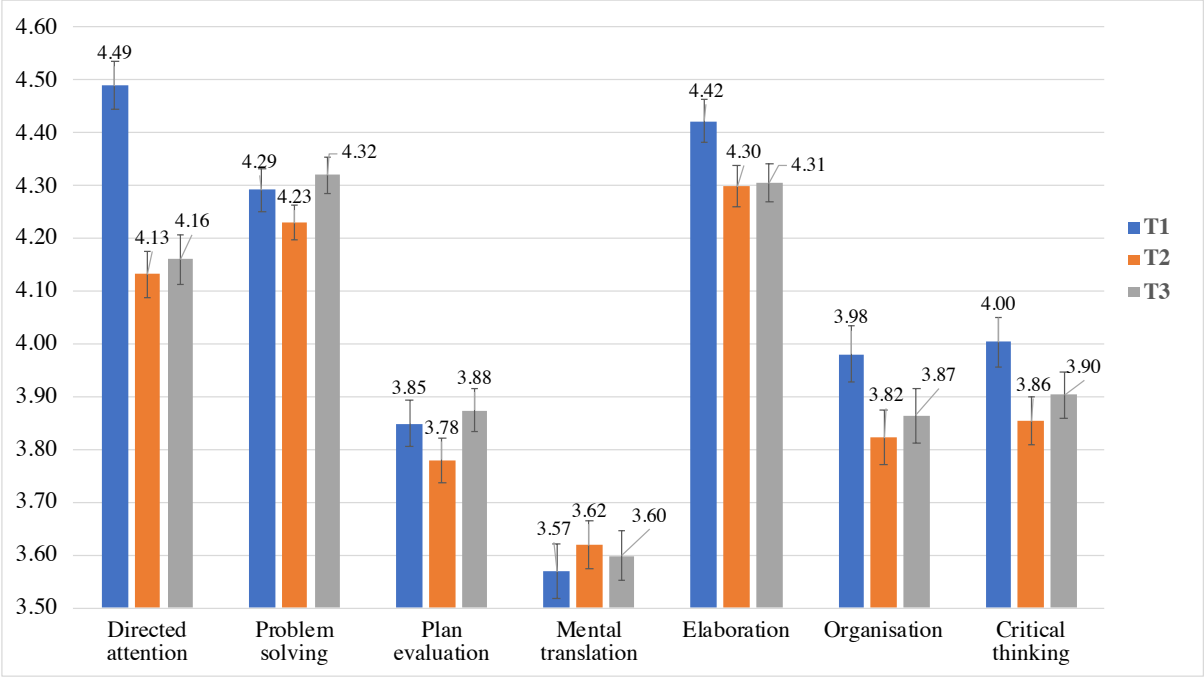
Listening strategy	Time point		Mean Difference	SE	Sig.
Metacognitive awareness of listening strategies					
Directed attention	T1	T2	-0.36	0.044	0.000
	T2	T3	0.03	0.035	0.585
	T1	T3	-0.33	0.045	0.000
Problem solving	T1	T2	-0.06	0.039	0.631
	T2	T3	0.09	0.030	0.011
	T1	T3	0.03	0.037	0.863
Plan-evaluation	T1	T2	-0.07	0.043	0.542
	T2	T3	0.10	0.036	0.010
	T1	T3	0.03	0.044	0.809
Mental translation	T1	T2	0.05	0.044	0.233
	T2	T3	-0.01	0.039	1.000
	T1	T3	0.04	0.044	0.369
Deep processing listening strategies					
Elaboration	T1	T2	-0.13	0.041	0.007
	T2	T3	0.01	0.036	1.000
	T1	T3	-0.12	0.041	0.014
Organisation	T1	T2	-0.16	0.050	0.005
	T2	T3	0.04	0.047	1.000
	T1	T3	-0.12	0.053	0.091
Critical thinking	T1	T2	-0.15	0.043	0.002
	T2	T3	0.05	0.042	0.727
	T1	T3	-0.10	0.045	0.076

Note. Adjustment for multiple comparisons: Bonferroni; mean differences were calculated based on estimated marginal means for *metacognitive awareness of listening strategies* (n=292) and *deep processing cognitive strategies* (n=273).

As illustrated in Figure 7.1, from the start of the term (T1) to the midterm (T2), the reported use of almost all strategies dropped except for a slight increase of *mental translation*. Among them, students perceived significant decrease in their use of *directed attention* ($Mean_{T1}$ =

4.49, $Mean_{T2}$ = 4.13, p < .001), *elaboration* ($Mean_{T1}$ = 4.42, $Mean_{T2}$ = 4.30, p = .007), *organisation* ($Mean_{T1}$ = 3.98, $Mean_{T2}$ = 3.82, p = .005) and *critical thinking* ($Mean_{T1}$ = 4.00, $Mean_{T2}$ = 3.86, p = .002). This might be because, as mentioned in Chapter 5 (Section 5.2.1), that at the midterm teachers talked faster and delivered more in-depth and professional subject content than the start of the semester, thus the cognitive resources to process the input might potentially compete with those for using strategies.

Figure 7. 1. Profile plot for estimated marginal means of reported listening strategies at T1, T2 and T3



Note. Estimated marginal means were calculated for *directed attention*, *problem solving*, *plan-evaluation* and *mental translation* based on a sample of n=292, and for *elaboration*, *organisation* and *critical thinking* on a sample of n=273.

From the midterm (T2) to the end of the semester (T3), the listening strategies in general witnessed a recovery in the degree of reported use, with noted growth in *problem solving*, which reached a significant level ($Mean_{T2}$ = 4.23, $Mean_{T3}$ = 4.32, p = .011). Similarly, students also reported to adopt more *plan-evaluation* strategy ($Mean_{T2}$ = 3.78, $Mean_{T3}$ = 3.88, p = .010) at the end of the term. Comparing T1 and T3, students' reported use of *problem*

solving ($Mean_{T1} = 4.29$, $Mean_{T3} = 4.32$) and *plan-evaluation* ($Mean_{T1} = 3.85$, $Mean_{T3} = 3.88$) strategies also seemed to be strengthened after the entire term in general. This indicates that students seemed more likely to infer the meaning of unfamiliar words or expressions, and might have become more goal-directed and evaluative when they listened to EMI classes at the end of the term. In order to investigate the development as well as the reasons underpinning these changes in detail, interview data will be analysed in the following section to offer a more contextualised description of students' *self-regulated listening* related to EMI classes across three time points of the semester.

7.3 Longitudinal development of SRL in relation to listening in EMI classes

An in-depth understanding on the longitudinal development of students' self-regulatory and strategic listening in relation to EMI classes could be achieved via a thematic content analysis of the interview data (n=34) collected at the start (T1, Week 3), middle (T2, Week 9), and the end of the term (T3, Week 14). Table 7.5 summarises the themes that emerged at each time point, indicated with a frequency count of the references for each theme. The frequency count represents how many participants commented on a theme. It should be noted that Table 7.5 provides an overview of the prevalence of themes being talked about rather than a quantitative indication of change over time, which only serves to aid and supplement the detailed qualitative narrative that describes the trajectory of students' SRL over time as presented later.

Table 7. 5. Categories and themes for SRL in relation to listening in EMI classes at T1, T2 and T3

	T1 (n=34)	T2 (n=34)	T3 (n=34)
Forethought phase			
Goal setting	• Understanding literal meaning (13) • Digesting subject knowledge (5) • Listening for exams/homework (5)	• Digesting subject knowledge (12) • Listening for exams/homework (4)	• Digesting subject knowledge (8) • Listening for exams/homework (4) • Other goals (5)
Strategic planning: Preview	• Dealing with unknown vocabulary (16) • Organising knowledge structure (16) • Generating opinions/questions (4)	• Reducing looking up new words (14) • Focusing on content (6) • Scanning for general ideas/structures (4) • Reducing preview (4)	• Reducing or stopping preview (10) • Selective preview (7) • Skipping parts of preview materials based on rhetorical functions (2)
Performance phase			
Attention management	• Controlling for attention loss (12) • Selective attention based on teaching styles/rhetorical functions (11/4) • Attending selectively to slides (12) • Switching between teachers and slides (6)	• Prioritising the teacher talk over slides (19) • Using slides only as guidance or aids (5) • Selective attention based on rhetorical functions (4)	• Selective attention based on individual needs or motivations (13) • Attending to exam-related parts (4)
Problem solving	• Searching dictionaries for new words (14) • Inferring meaning for words/sentences (14) • Noting words to look up after class (4) • Seeking help from others (6)	• Increased frequency and accuracy in meaning inferences (6) • Searching words to enlarge vocabulary (6) • Seeking help from others (3)	• Increased accuracy in meaning inferences (2) • Inferring meaning based on increased disciplinary knowledge (5)
Deep processing of content	• Structuring and connecting knowledge (8) • Anticipating based on preview (6) • Reasoning and comparing class knowledge to preview (4)	• Use of elaboration strategies (4) • Organising knowledge after class (3) • Comparing knowledge taught by the teacher with one's own understanding (2)	• Use of elaboration strategies (14) • Organising knowledge after class (9) • Improved critical thinking (9)

Note taking and monitoring	• Taking selective notes (11) • Monitoring comprehension (5)	• Reducing note taking to prioritise listening (19) • Monitoring comprehension (2)	• Reducing note taking to prioritise listening (26) • Monitoring comprehension (8)
Self-reflection phase			
Review and remedy	• Reviewing with slides (14) • Reorganising and completing class notes (8) • Reviewing by completing homework (7) • Seeking help from others (9)	• Shrinkage in time/frequency for review (12) • Browsing through slides/notes for key information (11) • Making mind maps or diagrams (4) • Focusing on digesting subject knowledge (6) • Seeking help from others (2)	• Reviewing for the final exam (13) • Organising knowledge for the whole term (9) • Seeking help from others (3)
Evaluation and causal attribution	• Evaluating listening outcomes (20) • Attributing listening problems to lack of proficiency (7) • Attributing listening problems to learning methods (2)	• Perceiving progress in comprehension (21) • Attributing progress to enhanced English proficiency/linguistic knowledge (10) • Attributing progress to altered mindset (8) • Attributing progress to familiarity with teaching procedures and styles (7)	• Rare reflection on comprehension (11) • Reflection occurred when problems were diagnosed (5)
Planned adaptations	• Planning to strengthen preview (4) • Planning to enhance listening efficiency in class (15) • Planning to adjust note taking in class (7) • Planning to review and practice (7)	• Planning to strengthen the understanding of content knowledge (4) • Planning to adjust listening methods informed by the midterm exam (7) • Defensive reactions and negative attitudes (6)	• Planning to invest more effort in preview (3) • Planning to improve note taking efficiency and effectiveness (6) • Planning to sustain attention (6)

Note. The frequency count of references following each theme, for example, *understanding literal meaning* (13), represents the number of interviewees (i.e., 13 out of 34) that commented on the theme.

7.3.1 Forethought phase

7.3.1.1 Goal setting

An overall trend emerged from the interview data seemed to be that students' *goals* of listening to EMI classes shifted from *understanding the literal meaning of teacher talk* (T1: n=12) to *achieving a sufficient understanding of the subject content* (T2: n=12) during the first half of the term, and then became more diversified and individualistic at the end of the term. At the midterm, students reflected that they were no longer satisfied with understanding just the language that teachers used, but instead, they hoped to more thoroughly digest content knowledge (e.g., LP12-Business, MP3-H&S, HP7-Business, T2), to establish connections between key concepts (LP5-H&S, MP4-H&S, T2), and to develop personal opinions based on adequate comprehension (MP3-H&S, T2). At the end of the term, some students maintained the goal of *digesting and absorbing subject knowledge* (T3: n=8). Others, however, reported to *set more diversified and specific goals* such as *structuring knowledge:* 'I hope to be able to take down the structure of the lesson' (MP6-H&S, T3), *memorising*: 'to remember [the knowledge] as much as possible so that I don't leave everything until after class' (LP5-H&S, similar to HP9-Business, T3), and *tackling challenging parts*: 'I hope that the teacher would give examples to further explain some terminology that I don't quite understand before class' (HP3-H&S, T3).

External goals directed at exams or homework were commented on throughout the term (T1: n=5; T2: n=4; T3: n=5). At the midterm when the exam was impending, some students expressed a clearer exam-oriented goal in learning: 'I don't have any particular goals—I just hope I can have good grades in exams' (MP5-H&S, T2). For some HP students in particular, this extrinsic goal orientation was clear at the end of the semester, which was accompanied

with a perception that the course was not challenging enough to stimulate their interest (HP2-H&S, HP8-H&S, T3). As such, a student stated: 'I've been rather absent-minded recently—I just listen to the important points that would feature in exams' (HP1-H&S).

7.3.1.2 Strategic planning: Previewing

Analyses of interview data reveal that students in general seemed to become more skilful in preview with an increasing focus on content understanding instead of solving linguistic problems, and gradually reduced investment in preview as their comprehension improved during the term. A noticeable change in preview over the first half of the term was the *discarded strategy to look up unknown words*, which was a change reflected by 14 interviewees at the midterm. Students commonly noted that unlike at the start of the term when they were eager to search the meaning for every word, at the midterm they tended to extrapolate meaning (e.g., LP5-H&S, LP8-Business, LP11-Business, MP4-H&S, T2), ignore words with minor impact on the overall comprehension (e.g., LP3-H&S, MP6-H&S, T2), and circle words to look up later depending on its recurring frequency and importance (e.g., LP4-H&S, LP6-H&S, T2). This changed approach in tackling vocabulary appeared to derive from students' attempts to improve the efficiency of preview and to save time for other activities (e.g., LP4-H&S, LP6-H&S, MP6-H&S, MP9-H&S, T2). The deviation from word searching also freed up attention to focus on content, as explained by the student below:

> Now I think I need to investigate and truly understand [the preview materials]. I would draw a rough mind map and it's effective. At the beginning [of the semester], as long as there was a new word, I would look it up and a long time already passed by when I finished [looking up all words]. But after all I may never know all the words, so now I look up fewer words. Then it's less time-consuming and more efficient. I now have more time to attend to the content.
> (MP4-H&S, T2)

Similar effort to *focus on content during preview* (T2: n=6) was also reported by others at the midterm, including selectively attending to certain concepts (e.g., LP1-H&S, MP2-H&S, MP7-H&S, T2), identifying key points (MP3-H&S, T2), and making mind maps (MP10-H&S, T2). Further, instead of reading through all materials, many students seemed to become more skilful at preview—they scanned the materials to *identify the general idea and structure* (LP3-H&S, LP5-H&S, MP7-H&S, MP11-Business, T2). At the end of the term, some students reported to further adjust their preview method as they became more familiar with the teaching: 'It's unnecessary to read explanations because the teacher would explain these in class anyway' (MP9-H&S, T3). Some other students also learnt to *distinguish different rhetorical functions* (MP8-H&S, MP9-H&S, T3), for example, definitions, explanations and examples, which informed their decision of which parts to skip during preview.

As students progressed in their listening comprehension in class, preview seemed to become redundant and unnecessary for some students (e.g., LP4-H&S, LP6-H&S, MP12-Business, HP6-Business, T2). A remarkable number of students at the end of the term reported to *cut down or even totally stopped preview activities* (T3: n=10). Other students selectively previewed to only attend to passage titles (LP1-H&S, LP8-Business, MP8-H&S, T3), the general structure (LP3-H&S, MP11-Business, T3), as well as key words or concepts (LP1-H&S, MP7-H&S, MP8-H&S, HP9-Business, T3).

7.3.2 Performance phase

7.3.2.1 Attention management

A noticeable change during the first half of the term regarding *attention management* appeared to be enhanced attention dedicated to the teacher talk and a reduced reliance on the slides. Then at the end of the term, students manifested more goal-directed attention

investment closely associated with individual needs and motivation. The *prioritised attention to teacher talk* (T2: n=19) instead of slides at the midterm seemed to be accountable by multiple causes. Some students expressed more willingness to listen to the teacher as they progressed in their level of comprehension (e.g., LP5-H&S, LP8-Business, MP7-H&S, T2). Some others, however, displayed a forced effort to focus on teachers even in the face of comprehension difficulties (e.g., LP9-Business, LP12-Business, T2). This was partially because after the midterm exam, these students realised that 'slides didn't cover all the necessary details in the exams' (LP9-Business, T2), and that teachers were better at explicating knowledge to facilitate in-depth comprehension (LP3-H&S, LP8-H&S, LP12-Business, MP12-Business, T2).

The enhanced focus on teachers was paralleled with a decreased reliance on the slides, where students only reportedly *referred to the PowerPoint as a guide* to roughly know what would be covered (LP4-H&S, MP8-H&S, T2), or *an aid* to cross check with the teacher talk to identify key knowledge (e.g., LP1-H&S, MP12-Business, HP1-H&S, T2). Similar to the start of the term (T1: n=4), *selective attention based on rhetorical functions* still featured in students' accounts at the midterm (T2: n=4). In this regard, some students reflected to pay particular attention to the explanations of concepts, especially when comparisons were made (e.g., LP5-H&S, MP3-H&S, T2). Others loosened their attention at concepts they already understood and emphatically listened to new examples to deepen comprehension (e.g., MP4-H&S, HP9-Business, T2). Students' *attention investment* at the end of the term seemed to vary according to *individual learning needs and motivation* (T3: n=13). Heightened attention was reported at parts of the lesson that they considered 'interesting' (MP10-H&S, T3), 'new' (HP1-H&S, T3), 'challenging' (HP8-Business, T3), or 'relevant for future development' (HP5-H&S, T3). Some students also reported to pay attention to *exam-related* parts (T3: n=4), as reflected by the student below:

> I feel that I have a strong goal when I listen in class now. I'd focus particularly to the terminology, any special phenomenon, or some specific methods, you know, something concrete, because I think they will appear in the exams.
> (LP1-H&S, T3)

7.3.2.2 Problem solving

The interview findings show that students seemed to foster a habit as well an ability for meaning inferencing during the term due to an enriched repertoire of subject knowledge and progress in overall comprehension. At the midterm, some students overtly noted improvements in *extrapolating meaning for unknown words* compared to the start of the term in both the *frequency* (LP5-H&S, LP11-Business, MP2-H&S, HP1-H&S, T2) and the *accuracy* (LP1-H&S, LP9-Business, T2). Interestingly, one student also mentioned a strengthened coherence in the current and previous learnt content knowledge, which facilitated meaning-guessing: 'After the midterm revision, I kind of feel a surge in the ability to connect and compare the knowledge [currently learned in class] to the previously learned knowledge. It's easier to guess [word meaning] when I think of them together' (LP9-Business, T2).

The growing expertise in the subject knowledge continued to facilitate meaning inferencing, as reflected by students at the end of the term (e.g., LP1-H&S, LP10-Business, HP9-Business, T3), alongside a reduction in *mental translation*:

> I feel that my ability to guess meaning has improved. Like just now when the teacher said a sentence, I didn't deliberately translate but I understood. Certain familiarity with the subject knowledge plus guessing helped me understand this sentence and even if I didn't know a word, I could basically figure it out according to the context.
> (LP1-H&S, T3)

Another reason that gave rise to the strengthened meaning inferencing ability appeared to be progress in overall comprehension. This progress was attributed by the students to an enlarged vocabulary size (T3: n=8). Compared to T1 when many students searched for words in dictionaries to cope with comprehension breakdowns (T1: n=14), students at the midterm often reported looking up words *to accumulate and to enlarge their vocabulary repertoire* (T2: n=6). In doing so, they appeared to be more selective in deciding which ones to look up and note down: 'I feel an urgency to transform the [new] words to my own resources. I would now selectively discard some [words] and only memorise the ones that frequently appear in class' (MP3-H&S, T2). Similarly, some students tended to only look up field-specific expressions or terminology while guessing other 'easier' words (e.g., LP5-H&S, LP9-Business, LP11-Business, HP2-H&S, T2). Others reported to attend to the prefixes or suffixes of words alongside the meaning in an attempt to 'activate' other related vocabulary (e.g., MP3-H&S, MP10-H&S, T2). The effort for vocabulary learning seemed to pay off as students reportedly benefitted from a better overall comprehension: 'Because I can understand the sentences before and after [the unknown word] clearer now, I can guess [the word] more accurately' (LP11-Business, T3).

7.3.2.3 Deep processing of content

In general, students at all time points reported to draw on prior knowledge to facilitate the processing of content knowledge in EMI classes, though the use of this *elaboration* strategy was least reported at the midterm. At the midterm only a few students commented on the *use of elaboration strategies* (T2: n=4) to connect what was taught in class to other sources of information. As content knowledge became more in-depth and theoretical at the midterm, some students found it hard to effectively connect what was heard in class to their prior knowledge: 'It [the content knowledge] has gone into a deeper field which I hardly know so

it's difficult to make associations [with what I know]' (LP4-H&S, T2). The fast speed of delivery also seemed to spare little attentional capacity for students to make use of relevant prior knowledge: 'As long as I try to relate knowledge taught by the teacher to real-life examples, I can't hear what the teacher says next' (MP11-Business, T2). However, as students gradually built up their expertise in disciplinary fields at the end of the term, reported attempts seemed to recover in terms of the use of elaboration strategies (T3: n=14). As one student described:

> Different lessons and topics within [course] MAN001 are closely connected, for example, marketing, international trade, etc. As I have more understanding on all these topics, some relevant ideas would 'jump out' from my mind when I hear the teacher talks about one point.
> (LP11-Business, T3)

Organising and structuring knowledge was reported by many students to happen after class from the midterm (T2: n=3; T3: n=9). At the midterm, organising knowledge to prepare for quizzes and exams was reported to raise an awareness of teaching procedures, as one student commented:

> I used to find it very problematic understanding [EMI classes] but as I organised the slides of all previous lessons to prepare for the quizzes last week, I found them very well structured. I noticed that every lesson had a specific focus, and our teacher had their own procedures of teaching. Later I matched the PowerPoint with the teaching procedures to follow our teachers' line of thought—I could then understand.
> (LP7-H&S, T2)

Noticeably, students from the midterm rarely mentioned organising knowledge *while listening*, but instead, seemed to view it an indispensable procedure *after class* because the knowledge seemed a bit 'scattered' and 'chaotic' in class (LP3-H&S, LP9-Business, T2). At the end of the term, many students still preferred tightly following what the teacher was

talking about instead of immediately organising it (e.g., LP3-H&S, HP1-H&S, HP3-H&S, HP4-H&S, T3). Even among those who indeed reported to organise content *in class*, these students seemed to keep their effort minimal, for example, identifying key points (LP5-H&S, MP3-H&S, T3), summarising slightly with one's own words (MP10-H&S, T3), or roughly recalling titles and bullet points on slides (LP5-H&S, T3).

Finally, a number of students reflected an overall improvement in their *critical thinking* after listening to EMI classes for a term (T3: n=9). This progress was attributed to the analytical style of teaching that instructors delivered in class (LP1-H&S, LP5-H&S, T3) and their growing expertise in the field (MP7-H&S, HP6-Business, HP8-Business, T3). However, this critical reflection of the content seemed to be one step further from decent understanding (MP4-H&S, MP10-H&S, MP12-Business, T3). As one student explicated:

> If it's in Chinese, I can think critically based on understanding. You need to clearly understand what the teacher is talking about. Now I'm only on the first stage, that is, understanding. If I can't even understand it well, I might not be critical. (MP10-H&S, T3)

7.3.2.4 Note taking and monitoring

While students at the outset of the semester already appeared to take selective notes out of an attempt to save attentional capacity to listen to teachers, this trend seemed to continue to develop throughout the semester. Students also seemed to foster a higher awareness to monitor their comprehension at the end of the term, which was even reported by students with a low BELP. These changes will be unpacked in detail between time points.

At the midterm, the majority of the students commented on *reduced note taking to prioritise listening to the teachers* (T2: n=19). Many students recognised the conflict between listening and note taking (T2: n=10), where the latter could potentially disrupt following the teacher's

line of thought (LP3-H&S, MP11-Business, HP10-H&S, T2). Taking notes was also considered to consume attention which could be otherwise used for digesting content knowledge, as one student commented: 'When I take notes it becomes hand-functioning instead of brain-functioning' (LP1-H&S, T2). As such, students reported to use strategies such as taking photos of slides when key knowledge was introduced (LP4-H&S, MP9-H&S, HP3-H&S, T2), taking notes directly on slides or task sheets (LP7-H&S, LP12-Business, T2), or using as few words as possible (sometimes in Chinese) to explain concepts or give examples (LP3-H&S, MP10-H&S, HP7-Business, T2). In addition, note taking at the midterm also appeared to be an occasion where students *monitored their comprehension* (T2: n=2). Some students reported to mark in their notes the parts that they found questionable while listening in class (MP3-H&S, HP1-H&S, T2), and to seek solutions after class through reorganising the notes with reference to slides, when there was more time to clarify the logic and links between knowledge (MP3-H&S, MP11-Business, T2).

Reduced or selective note taking continued to feature in the majority of students' accounts at the end of the term (T3: n=26), though subtle changes were detected. Many students seemed to take notes to enrich their existing knowledge repertoire, where they reported to note down novel and unfamiliar knowledge points, inconsistencies with previous understanding, or innovative and enlightening ideas (MP4-H&S, MP6-H&S, MP7-H&S, HP6-Business, HP8-Business, T3). Another noticeable change seemed to be students' raised awareness to *monitor comprehension* (T1: n=3; T2: n=2; T3: n=8). Some students, though relatively low in their BELP, still noticed misunderstandings in listening due to an inappropriate 'mode of thinking' as illustrated by the two excerpts below:

> Sometimes I have a pre-developed subjective understanding, but actually he [the teacher] might not mean it. For example, as I listened to a lesson [with the topic] on information management, there was something that our teacher talked about and it

> differed from what I thought. I would then look at the PowerPoint to see if there were explanations on that [point].
> (LP10-Business, T3)

> I found myself in a fixed 'mode of thinking'—I might use what I think on my own to look at a problem. For instance, sometimes when the examples I came up with were the opposite [to the teacher's], I would realise that I might have understood the whole concept in a wrong way.
> (LP12-Business, T3)

Both students referred to a habitual method of analysing or a subjective interpretation based on existing schemata, which might get in the way of processing new information. Being aware of this 'trap' in comprehension therefore seemed to enable these students to reason and rectify their interpretation. It should be noted, nevertheless, that monitoring comprehension could still be cognitively demanding even after a term of EMI courses, as a few students considered it 'a waste of time' (LP9-Business, T3) or 'distracting' (MP10-H&S, T3) when following the teachers.

7.3.3 Self-reflection phase

7.3.3.1 Review and remedy

Compared to the start of the term, the number of participants who reported review activities decreased slightly at the midterm and then witnessed an upswing at the end of the term (T1: n=27; T2: n=22; T3: n=26). At the midterm, the majority of the students still reviewed after class (T2: n=22), though many noted a *shrinkage in time and frequency* compared to the start of the term (T2: n=12). The increasingly busy university life was reported to compete with the time for review after class (LP8-Business, MP9-H&S, MP2-H&S, MP5-H&S, T2). Under such circumstances, some students appeared to invest in minimal effort in review to cope with quizzes and exams (MP8-H&S, HP3-H&S, T2) or finish homework (MP5-H&S, HP2-

H&S, HP10-H&S, T2). In addition, many students tended to *browse through slides or notes* to summarise key information (T2: n=11), forming contrast with a review approach focusing on *knowledge details* reported by a considerable number of students (T1: n=7) at the beginning of the semester. *Making diagrams or mind maps* during review was also talked about by multiple students at the midterm (T2: n=4), which was considered helpful for organising knowledge structures and making comparisons between concepts (LP7-H&S, MP3-H&S, MP4-H&S, HP1-H&S, T2). Additionally, a focus on *digesting subject knowledge* seemed to emerge (T2: n=6). In this regard, students reported to look for extra materials online to deepen their understanding of content knowledge (LP1-H&S, LP11-Business, HP4-H&S, T2), compare content with Chinese textbooks used in other universities (MP3-H&S, T2), translate difficult parts of EMI materials into Chinese for in-depth understanding (MP10-Business, T2), and rephrase content knowledge with one's own words for mastery (MP11-Business, T2).

At the end of the term, reported attempts to review witnessed an upswing from the midterm (T2: n=22; T3: n=26), mainly due to the pressure of the final exams (T3: n=13). Students reported to review not only the recently learnt knowledge but also all *knowledge delivered over the whole semester* (T3: n=9), as described by the statement of a student below:

> I started doing mind maps from the midterm and since then almost every two lessons I would draw one. Now I've started to combine them into a large one. This makes it faster to review because when I see this map, I know immediately where this knowledge point locates. Then I'd check PowerPoint to see what it [the knowledge point] is and what examples it involves and I'm like 'ok, I got it'. I don't need to go over the entire textbooks to find it.
> (LP8-Business, T3)

This review process depicted above seemed more directed at confirming the mastery of knowledge and troubleshooting instead of going into details for each knowledge point. Such a method was also mirrored in other students' accounts, where they reported to organise and list all key knowledge points and then question themselves if they had understood each one (MP9-H&S, HP1-H&S, T3). When problems were diagnosed, students tended to search online for explanations (LP12-Business, HP1-H&S, T3), seek help from peers (LP8-Business, LP11-Business, T3), or email teachers for help (LP1-H&S, T3). It should be noted, however, that two students expressed a preference to solve problems by themselves before turning to others (LP1-H&S, LP11-Business, T3), aligning with the reduced frequency of the theme *seeking help from others* during the semester (T1: n=9; T2: n=2; T3: n=3). As one of the students stated: 'I now try to understand a lesson on my own and ask the others as little as possible—after all you can't rely on others forever' (MP2-H&S, T3). This indicates that students might have become more independent in learning after a term in an EMI university.

7.3.3.2 Evaluation, causal attribution, and planned adaptations

In terms of *evaluation*, perceivable progress in comprehension over the first half of the term was more commonly reflected by the students. The progress was attributed to enhanced English proficiency and linguistic knowledge, adapted mindset in listening and the increased familiarity with teaching styles and procedures. Concomitantly, negative and defensive reactions started to emerge from the midterm alongside positive plans for adaptations. The role of the midterm exam was highlighted for catalysing reflections and planned adaptations for listening. In what follows, these trends will be illustrated in detail.

At the midterm, the majority of the respondents reflected on *positive changes in listening comprehension* in class (T2: n=21), and such progress was attributed to multiple reasons. First, the *improvement in English proficiency or linguistic knowledge* was accredited (T2:

n=10). Some students referred to the contribution of an enlarged vocabulary (LP4-H&S, LP6-H&S, LP8-Business, MP2-H&S, MP7-H&S, T2) or increased familiarity with pronunciation rules (LP4-H&S, LP12-Business, T2). Second, many students noted *an altered mindset towards listening to EMI classes* (T2: n=8). Students described themselves as more 'settled' (LP7-H&S, T2) and 'calm' in the face of difficulties (LP2-H&S, LP9-Business, T2), with 'lower expectations' (MP2-H&S, T2) and 'less anxiety' (MP8-H&S, T2), as well as being more acceptable to the level of professionalism in the courses (LP5-H&S, T2). Third, *being more accustomed to the intentions, procedures and styles of teachers* was another aspect that reportedly facilitated comprehension (T2: n=7). Knowing the 'rhythm of teaching' strengthened a sense of coherence in listening (LP6-H&S, T2), helped students to follow teachers' line of thought (LP1-H&S, T2), and enabled students to fathom the underlying intentions of tasks in class (LP5-H&S, MP3-H&S, T2). As one student described: 'Although I still can't understand it thoroughly as in Chinese, I know what they [teachers] are talking about and I no longer have the feeling of being thrown into the water' (MP2-H&S, T2). Compared to the remarkable progress in comprehension reflected over the first half of the term, however, students at the end of the term reported to *seldom reflect on their comprehension* (T3: n=11), *unless problems occurred* (T3: n=5), suggesting that students might have in general become well-adjusted to listening and this relatively 'smooth-sailing' experience presumably triggered less metacognitive experience of reflection.

When talking about future reactions to listening in EMI classes, students at the midterm touched on both *adaptive* (T2: n=11) and *defensive* (T2: n=6) measures. Compared to the start of the term, several students felt that their passion about the courses languished after the initial excitement died down (MP9-H&S, HP2-H&S, HP9-Business, HP10-H&S, T2). A few students noted an inclination to reduce learning to just cope with passing the exams (LP10-Business, MP5-H&S, T2), as one student stated: 'You no longer feel the eagerness to figure

out everything as at the start of the term' (LP10-Business, T2). Nevertheless, many others still seemed positive about adaptations and adjustments (T2: n=11). In particular, some of these students expressed a demand to strengthen their understanding of the subject knowledge instead of only achieving a superficial comprehension of the teacher talk (T2: n=4). Specifically, they hoped to proactively digest subject knowledge (MP3-H&S, T2), to anticipate teacher talk and respond to teacher questions faster (LP8-Business, T2), and to form their own opinions and feedback about the content while listening (MP4-H&S, MP8-H&S, T2).

In addition, the midterm exam seemed to catalyse meaningful reflections on students' listening experience, based on which many came up with *adaptive solutions for improvements* (T2: n=7). The exam appeared to make some students aware of the drawbacks of their listening methods: 'I used to look at the slides a lot but after the midterm exam I realised that most of the key points tested were actually talked about by the teacher and less so with the PowerPoint' (LP9-Business, T2). Other students appreciated the role of the midterm exam in helping them identify the weaknesses in knowledge mastery: 'For some [business] cases on the PowerPoint that the teachers explained, I thought I had mastered them but when tested in the exam, I still lost marks' (LP10-Business, T2). In recognition of these issues, students reportedly planned to adjust their attention between slides and teachers (LP3-H&S, LP6-H&S, LP9-Business, T2), to avoid translation (LP8-Business, LP12-Business, T2), and to improve note taking efficiency (LP5-H&S, HP1-H&S, T2). Some of these areas continued to feature in the 'wish list' of the students for further improvement at the end of the term, for example, *enhancing the efficiency and effectiveness in taking notes* (T3: n=6). Specifically, they hoped to be able to take notes at the same time of listening (LP3-H&S, LP6-H&S, MP4-H&S, MP6-H&S, T3), to note down more details (MP10-H&S, T3) and to better organise notes in class to save time for review (HP9-Business, T3). Additionally, *more*

investment in preview was intended by several students for the new term (LP1-H&S, LP7-H&S, HP1-H&S, T3), and six students *set requirements for their attention in class*, hoping to stay focused and patient even if certain content might not be that interesting (MP9-H&S, T3).

7.3.4 Summary of qualitative findings of the longitudinal development of SRL in relation to listening in EMI classes during the first semester

The thematic content analysis of interview data in this section revealed substantial changes in how students self-regulated their learning in relation to listening in EMI classes during the first semester. Major findings of the changes are summarised below.

Forethought phase

- Listening goals shifted from understanding literal meaning to digesting subject content of teacher talk from the midterm
- Goals driven by external rewards (e.g., exams, homework) existed throughout the term
- Preview with a clearer focus on digesting content knowledge, and increased meaning inferences for unknown words during preview from the midterm
- Reduced, more selective and skilful preview methods from the midterm

Performance phase

- Prioritised attention to teachers, while using slides only as visual aids from the midterm
- Attention more associated with learning needs and motivation at the end of the term
- Strengthened meaning inferences while listening in class from the midterm
- Raised awareness in monitoring comprehension while listening at the end of the term
- Enhanced use of elaboration strategies due to enriched repertoire of subject knowledge at the end of the term
- Structuring knowledge after class to prioritise comprehension in class from the midterm
- Selective note taking throughout the term to prioritise comprehension

Self-reflection phase

- Reduced and simplified review activities at the midterm due to busier university life

- Review to structure and check the mastery of key content knowledge from the midterm instead of focusing on details
- Reduced attempts to seek help from others from the midterm
- Progress in comprehension especially perceptible during the first half of the term
- Emergence of negative attitudes and defensive reactions in learning at the midterm
- Highlighted role of the midterm exam in catalysing reflections on listening experience and informing planned adaptations for future learning

Findings in this section revealed an increased focus on understanding content knowledge when students regulated their learning for listening in EMI classes from the midterm. This focus seemed to be paralleled with the strengthened inferencing of meaning for unknown words, a higher awareness to monitor comprehension while listening, as well as reduced note taking or structuring knowledge to free up attentional capacity for comprehension. In turn, the expanded subject knowledge repertoire of students appeared to facilitate the use of elaboration strategies to further aid comprehension. In addition, students generally seemed to become more selective and skilful in preview and review activities to save time, as the university life became busier from the midterm.

7.4 Longitudinal development of SRL for out-of-class listening practice

In addition to SRL in relation to EMI classes, changes are also observed regarding how students regulated their listening practice out of classes during the first semester. The interview data (n=34) collected at the start (T1, Week 3), middle (T2, Week 9), and the end of the term (T3, Week 14) were analysed to unveil these changes. Table 7.6 summarises the themes that emerged from the data at the three time points respectively with a frequency count of references for each theme. Again, these frequency counts only serve to show how prevalent the themes were in the interview data. Details of the changes are described via qualitative narratives and representative excerpts which will be presented later in this section.

Table 7. 6. Categories and themes for SRL for out-of-class listening practice at T1, T2 and T3

	T1 (n=34)	T2 (n=34)	T3 (n=34)
Forethought phase			
Goal setting	• No specific practice goals (7) • For understanding EMI classes (11) • Other practice goals (3)	• Lessened need to set practice goals (9) • For using English in daily life (4) • For future career development (2)	• No specific practice goals (6) • For communicating with others (15) • For preparing for study-abroad exams (2)
Strategic planning: Managing time and space	• Listening practice on a daily basis (16) • Preferring flexible time for listening (3) • Practicing at dorm for convenience (10) • Practicing in the library to stay focused (7) • Adapting environment to suit task needs (6)	• Listening practice on a daily basis (9) • No fixed time for listening (10) • Reducing or simplifying practice (6) • Practicing at dorm for convenience (11) • Practicing in the library to focus (6)	• Listening practice on a daily basis (11) • No fixed time for listening (7) • Practicing for the EAP listening test (5) • Flexible with where to listen (5)
Performance phase			
Choosing listening materials and methods	• Choosing authentic listening materials (22) • Choosing materials with entertainment value (e.g., films, TV series) (8) • Listening intensively & repetitively (15) • Attending to specific linguistic elements (12) • Listening extensively (5) • Using subtitles as scaffolding when watching video materials (5) • Learning vocabulary (14)	• Choosing materials designed for language learning (7) • Choosing materials with entertainment value (e.g., films, TV series) (10) • Selecting materials based on content topics (3) • Listening intensively & repetitively (7) • Listening extensively (8) • Learning vocabulary (10)	• Choosing materials designed for language learning (10) • Choosing materials with entertainment value (e.g., films, TV series) (7) • Selecting materials based on content topics (4) • Listening intensively & repetitively (3) • Listen extensively (7) • Learning vocabulary (7)
Sustaining motivation and affect	• Battling satiation by switching activities (4) • Ensuring commitment to listening goals (4) • Reducing negative emotions (5)	• Battling satiation by selecting materials with entertainment value (2) • Higher tolerance to obstacles in practice (3) • Ensuring commitment to listening goals (5)	• Battling satiation by selecting materials with entertainment value (7) • Making commitment sustainable by adapting practice methods (3)

Self-reflection phase			
Evaluation and causal attribution	• Affirming listening progress (20) • Attributing progress to both practice and an EMI environment (8) • Attributing progress mainly to an EMI environment (5)	• Affirming listening progress (20) • Complaining little or no progress (7) • Attributing progress to both practice and an EMI environment (11) • Attributing progress mainly to an EMI environment (4)	• Affirming listening progress term-wise (20) • Noting a plateau in progress (4) • Noting progress in strategic competence (3) • Attributing progress to both practice and an EMI environment (13) • Attributing progress mainly to an EMI environment (4)
Planned adaptations	• Enlarging vocabulary (4) • Ensuring perseverance in practice (5) • Demotivated to continue practice (3)	• Enlarging vocabulary (5) • Ensuring perseverance in practice (2) • Choosing more challenging materials (3) • Reducing reliance on others (1) • Demotivated to continue practice (2)	• Specifying areas for improvements (8) • Ensuring perseverance in practice (5) • Doubts about the implementation of practice plans (2)

Note. The frequency count of references following each theme, for example, *lessened need to set practice goals* (7), represents the number of interviewees (i.e., 7 out of 34) that commented on the theme.

7.4.1 Forethought phase

7.4.1.1 Goal setting

The overall trend of *goal setting for listening practice* during the first semester seemed to be two-fold. On the one hand, many students appeared to perceive a lessened need to set goals for practice due to improved comprehension in EMI classes. On the other hand, those students who indeed reported to set goals seemed to increasingly associate the purpose of practice with personal communication and development needs. At the midterm, many respondents reflected a *lack of necessity to set goals for listening practice* (T2: n=9). This diminished sense of requiring a practice goal to be set was partially because of the improved comprehension in EMI classes, as a student explained: 'Since now I can understand the content taught in class better, I don't feel a strong need to have a goal for listening practice' (LP4-H&S, T2). As a result, many students at the midterm reported to cut off listening practice to make way for extra curriculum activities (e.g., LP6-H&S, LP11-Business, HP2-H&S, T2).

Among those who still reportedly possessed goals for listening practice from the midterm, these goals seemed to detach from *understanding EMI classes* (T1: n=11), but instead, tended to be increasingly associated with understanding and using English for *daily activities or communication* (T2: n=4; T3: n=15). For example, when students were interviewed at the midterm, several of them stated a goal to watch English dramas or films without subtitles (LP3-H&S, MP6-H&S, HP1-H&S, HP3-H&S, T2). At the end of the semester, a substantial number of students discussed goals directed at better *communicating with their international classmates or teachers* (T3: n=15). As one student commented: 'I'm not really practicing

listening just for [understanding] classes but more because that I want to understand what my foreign classmates are talking about during group discussions in class' (MP10-H&S, T3).

In line with the above purpose of practicing listening for communication, a couple of students also expressed a desire to foster a higher tolerance of accent variations: 'I hope I'm not restricted to objective factors such as accent and would be able to understand whoever the person is' (MP4-H&S, T3). Further, some students also talked about an intention to enhance listening for the purpose of speaking (T3: n=5), enlarging their vocabulary (LP4-H&S, MP9-H&S, T3) as well as enhancing their pronunciation (MP8-H&S, T3) to achieve this end. Additionally, from the midterm, goals of practicing listening for *future personal development* (T2: n=2; T3: n=2) started to emerge. For these students, honing their listening skills was considered not only indispensable to their current grades, but also important to future career development (LP12-Business, MP3-H&S, T2). At the end of the term, some students also mentioned the opportunities to move to a '2+2' track (two years of study in China + two years in the UK), which brought about pressure to prepare listening to pass exams necessitated for such programmes such as IELTS (e.g., LP7-H&S, MP7-H&S, T3).

7.4.1.2 Strategic planning: Managing time and space

Compared with the start of the term when many participants seemed highly motivated and delivered *listening practice on a daily basis* (T1: n=16), only about half of them (T2: n=9) persisted in doing so at the midterm. This declined effort to practice appeared to be mainly affected by a busier schedule at the midterm (LP12-Business, MP7-H&S, T2), coupled with a decreased motivation to persist (LP2-H&S, HP1-H&S, HP2-H&S, T2). After two months of study, doubts regarding the effectiveness of listening practice seemed to emerge, as described by one of the participants below:

> I feel that I've made much effort, and I actually think I've persisted well. But I still feel very uncertain—I don't know whether my effort is meaningful, whether my [practice] methods are systematic, and whether the outcomes [of listening practice] are reasonable. I'm not sure if my time was well spent so at the start [of the term] I practiced one hour per day, then I realised that the efficiency was lowered day by day, so I compressed it to 30 to 40 minutes per day in the hope of concentrating better. I'm worried that I don't have a systematic method [to practice], and this could lead to low efficiency.
> (MP7-H&S, T2)

Echoing the feeling of uncertainty and doubts illustrated above, at the midterm some other students noted a decreased frequency for practice (LP12-Business, HP4-H&S, T2), and a few reported to rarely practice or even give up totally (LP2-H&S, HP1-H&S, T2). Even among those who indeed persisted in practice, an increasing number of students admitted to *set no specific time for listening* at the midterm (T1: n=3; T2: n=10), reporting practicing every other day (LP7-H&S, HP4-H&S, T2), several times per week (MP9-H&S, HP10-H&S, HP3-H&S, T2), over weekends (LP6-H&S, T2), or whenever they had time available (LP4-H&S, MP6-H&S, HP5-H&S, HP9-Business, T2). At the end of the term, however, those students who maintained listening practice seemed to have in general, developed a relatively stable habit of when and where to practice. Notably, multiple students also commented on *strengthening practice to cope with the final listening exam* of EAP classes (LP12-Business, HP2-H&S, HP3-H&S, HP8-Business, T3), suggesting that some practice at the end of the term was extrinsically motivated.

7.4.2 Performance phase

7.4.2.1 Choosing listening materials and methods

Analyses of the interview data suggest that many students seemed to change substantially in both their selected materials and methods for listening practice during the first semester.

Table 7.7 summarises the listening materials and methods adopted by students at the start (T1), midterm (T2) and the end (T3) of the first semester. In general, many students seemed to recover an interest in materials designed for language learning purposes at the midterm compared to an apparent preference of authentic listening materials at the start of the term. Materials with entertainment value seemed to maintain popular throughout the term, and some students demonstrated an inclination to select materials according to content topics. Most notably, many students appeared to develop a preference of an extensive listening approach rather than an intensive listening method, which featured heavily at the outset of the semester. These general trends of development will be illustrated in detail next.

As Table 7.7 shows, the number of participants who reportedly used *listening materials designed for language learning purposes* seemed to increase from the midterm (T1: n=4; T2: n=7; T3: n=10). These materials included EAP listening materials (T1: n=3; T2: n=4; T3: n=5), IELTS or TOEFL listening practice (T1: n=1; T2: n=2; T3: n=2) and online English courses (T1: n=0; T2: n=1; T3: n=3). The raised popularity of these materials, to a certain extent, reflected an increased awareness of some students to select materials tailored to their current listening competence: 'I used to listen to TED talks, but they were too difficult. Now I listen to some audios from our [EAP] textbooks—they are still authentic speech but much slower and clearer' (MP10-H&S, T2). At the end of the semester, students occasionally also reported paying for online English courses as they found that these courses could provide more specific support to areas which needed to be improved: 'I still find myself very weak in terms of pronunciation, so I signed up for an online course for IPA to systematically practice it' (MP8-H&S, T3).

Table 7. 7. Materials and methods for out-of-class listening practice at T1, T2 and T3

	T1 (n=34)		T2 (n=34)		T3 (n=34)	
Materials	**References**	**Practice methods**	**References**	**Practice methods**	**References**	**Practice methods**
News broadcasts (e.g., BBC, VOA)	11 (7LP+1MP+3HP)	Listen extensively (2); listen repetitively (4); attend to vocabulary (3)	8 (5LP+2MP+1HP)	Listen extensively (3); listen repetitively (3); attend to vocabulary (1)	5 (4LP+1MP)	Listen extensively (2); listen repetitively (3); accelerate speech rate (1)
TED talks	9 (5LP+2MP+2HP)	Listen repetitively (4); attend to vocabulary (2)	3 (1LP+1MP+1HP)	Listen extensively (2); listen repetitively (1), attend to vocabulary (1)	1 (1LP)	Listen extensively (1)
English films, documentaries, and TV series	8 (2LP+3MP+3HP)	Pause or rewind (4); attend to words and expressions (3); attend to pronunciation (1)	10 (4LP+3MP+3HP)	Avoid subtitles (4); pause or rewind (2); note words and expressions (2); note sentence structures (1)	7 (4LP+3MP)	Avoid subtitles (2); note words (1); note sentence structures (2); accelerate speech rate (1)
Thematic short passages on English mobile applications	7 (5LP+2MP)	Listen repetitively (6); attend to pronunciation (3); attend to vocabulary (3)	4 (3LP+1MP)	Listen extensively (2); listen repetitively (1); attend to vocabulary (1)	2 (1LP+1MP)	Listen extensively (2)
EAP listening materials (e.g., audios in EAP textbooks)	3 (1LP+2MP)	Listen extensively (1); listen repetitively (2), attend to pronunciation (1)	4 (2LP+2MP)	To finish EAP homework (2); listen for main ideas (2)	5 (1LP+1MP+3HP)	Prepare for EAP tests (4)
Listening practice for IELTS/TOEFL	1 (1MP)	Attend to vocabulary (1)	2 (1MP+1HP)	Attend to vocabulary (2)	2 (2MP)	Prepare for IELTS test (2)
Field-specific professional articles (e.g., The Economist)	2 (2HP)	Listen extensively (2)	1 (HP)	Listen extensively (1)	2 (1LP+1HP)	Listen extensively (2)
EMI online courses	1 (1LP)	Listen repetitively (1)	3 (2MP+1HP)	To learn subject knowledge (2); to improve English (1)	2 (2MP)	To improve English (2)
English language courses (online)	0	N/A	1 (MP)	Attend to vocabulary (1); attend to pronunciation (1)	3 (2LP+1MP)	Attend to speaking and pronunciation (2)
Learning vocabulary	14 (4LP+8MP+2HP)	Rote memorisation (5); learn from listening materials (12); attend to pronunciation (5)	10 (3LP+4MP+3HP)	Review learnt words (6); memorise new words (3); learn from listening materials (5)	7 (4LP+1MP+2HP)	Review learnt words (3); memorise new words (3); learn from listening materials (1)

Note. 'References' for each type of materials (e.g., *news broadcasts*) represent the number of interviewees (11 out of 34) that reported to use the materials.

Another noticeable trend regarding the selection of listening materials was a lasting enthusiasm in *materials with strong entertainment value* such as English films, documentaries, and TV series (T1: n=8; T2: n=10; T3: n=7). In contrast, materials that involved serious topics such as news broadcasts (T1: n=11; T2: n=8; T3: n=5) or TED talks (T1: n=9; T2: n=3; T3: n=1) seemed to be less adopted from the midterm. Students considered the former more interesting (e.g., LP3-H&S, MP6-H&S, T2) and close to daily life (e.g., HP10-H&S, T2), which sustained a willingness to continue watching or listening to. As a student commented: 'I tried to listen to BBC news but it's too high-end and detached from our life, and there were many terms I couldn't understand. Now I mainly watch English TV series—both for entertainment and for learning' (HP10-H&S, T2). It should be noted, however, that although students reportedly favoured English films or TV series for the entertainment value, many of them also demonstrated clear purposes of learning: 'I'd take notes of the useful expressions they [the characters] say, and I'd consciously listen to and think about what they are talking about' (HP9-Business, T2); 'If I notice that a sentence has an unfamiliar structure, I'd rewind to watch again' (MP6-H&S, T2).

In addition, a few students from the midterm also reported to *select listening materials according to the content topic* (T2: n=3; T3: n=4), hoping to 'kill two birds with one stone'. For example, at the midterm, some students reported to select online videos with an aim to teach communication skills (LP8-Business, MP5-H&S, MP10-H&S, T2). As one student commented:

> Now I watch more videos that introduce skills for conversations. On the one hand, it can better familiarise me with cultures of other nations. On the other hand, I can watch conversations of others and in this way it's easier to understand. It's more effective than rigid learning [of English] from video courses.
> (LP8-Business, T2)

Similarly, at the end of the term, several students seemed to favour *discipline-specific materials* (T3: n=4), for example, simple academic reports in Business (LP8-Business, T3), online EMI lectures in Economics (MP3-H&S, T3), recorded EMI classes (MP10-H&S, T3), or Business-related podcasts (HP6-Business, T3).

In addition to the selection of listening materials, changes also emerged in terms of the listening methods adopted by students across the three time points of interviews. The most observable trend was a decline in the reported use of *intensive and repetitive listening approaches* (T1: n=15; T2: n=7; T3: n=3), parallel to an increase in *extensive listening methods* (T1: n=5; T2: n=8, T3: n=7). At the midterm, students in general seemed to become more adept at listening with few reports of breakdowns in comprehension. They described the process as 'more skilful and could understand most words after the first time [of listening]' (LP6-H&S, T2), 'with little deliberate effort to look up words' (LP8-Business, T2), and 'no need to repeat the whole passage but only certain problematic sentences' (HP3-H&S, T2). Similarly, for video materials, several students reported attempts to reduce reliance on subtitles and to focus on listening *per se* (LP4-H&S, LP6-H&S, MP6-H&S, HP5-H&S, T2). At the end of the term, a few participants even reported to purposively accelerate the speech rate of listening materials to foster an ability to listen for main ideas (LP11-Business, MP3-H&S, MP4-H&S, T3). As one student explained:

> Now I seem to be able to absorb faster. My current listening ability could handle a higher speed [of delivery] so I normally listen to like, English-taught Economics lectures on Bilibili (an online video platform in China). It's very fast and I want to try to listen not intensively but extensively. I hope that I can foster an ability to grasp the general message from the talk [of the speaker].
> (MP3-H&S, T3)

In line with the rising trend of extensive listening, a couple of students also commented on attending to sentence structures rather than individual words while watching English films (LP12-Business, MP6-H&S, T3). One student even reflected on the impact of watching English films on adapting his 'mode of thinking', as depicted in the excerpt below:

> Sometimes when I watch English films, I set English-only subtitles so that I can change my way of thinking in Chinese. The Chinese way of thinking is to form English sentences according to the sequence of how we say it [the sentence] in Chinese, but this is actually not how the structure of English sentences works. (LP12-Business, T3)

Notably, some students also seemed to alter their vocabulary learning method during the term from memorising new words to consolidating learnt words. As students accumulated more words, they expressed a need to be more selective in choosing which words to focus on: 'I kind of feel that the new words might take the place of my existing vocabulary' (MP3-H&S, T2). This suggests that enlarging the quantity of new vocabulary might compromise the quality of using previously learnt ones. As such, six respondents at the midterm mentioned *reviewing previously learnt words* and only three referred to learning new ones.

7.4.2.2 Sustaining motivation and affect

Certain effort in *battling satiation* (T1: n=4; T2: n=2; T3: n=7) and *guarding commitment to listening goals* (T1: n=4; T2: n=5; T3: n=3) was noted throughout the term. Choosing materials with entertainment value, as depicted earlier, seemed to be the most commonly reflected approach for *battling satiation* (T2: n=2; T3: n=7). In addition, after some time of submerging oneself with the considerable amount of listening practice after class, a few students mentioned becoming more *acceptable of obstacles during practice* (LP7-H&S, MP3-H&S, MP6-H&S, T2). This mindset seemed to make students more resilient and open-minded during practice, which can be best denoted from one student's statement below:

> Before then I only looked for listening materials that approximately matched my vocabulary level or lower than that. But now even if they [listening materials] involve words above my vocabulary, I would feel ok, that is, psychologically accept it, and feel this is good–you are learning words from listening anyway.
> (MP3-H&S, T2).

In addition to the attempts to counteract satiation and negative affect, some effort to *adapt listening methods to sustain commitment to practice* (T3: n=3) was reported at the end of the term. For example, one student described how she changed her vocabulary learning method to make it more sustainable:

> I now only try to memorise the high-frequency words from IELTS, CET 4 and CET 6. I no longer force myself to listen to the word pronunciation until I fully master it as I did at the start of the term, because that's too complicated and I couldn't persist. I now just note the words down, rehearse several times and try to memorise them. In this way I could persevere [in the practice].
> (LP7-H&S, T2)

Similar to what this student reflected, other students also commented on adapting their listening methods to strive for a balance between invested effort and the long-term returns, using strategies such as reducing the amount of practice per day to trade for persistence over an extended period of time (LP1-H&S, LP6-H&S, LP11-Business, T3).

7.4.3 Self-reflection phase

7.4.3.1 Evaluation and causal attribution

Interview findings reveal that in general, the majority of the students across the whole semester appeared to recognise their progress in listening, though such progress was noted to slow down over the second half of the term. Such progress was primarily attributed to a combination of both personal practice and an EMI environment throughout the term, whereas

a few students deemed the latter as more influential. At the midterm, the majority of the students recognised *progress in listening* over the first half of the term (T2: n=20). In particular, students mentioned an enlarged vocabulary (LP9-Business, HP3-H&S, T2), enhanced recognition of known words (LP7-H&S, MP8-H&S, T2), progress in coping with connected speech (LP3-H&S, MP10-H&S, T2), and higher tolerance to diverse accents (MP4-H&S, MP11-Business, T2). Despite the overall positive assessment of listening progress, it should be noted that some students also complained about *discerning little or no progress in their listening* (T2: n=7). As one of the students noted, the change was by no means easy:

> When I listen to the authentic English materials, I still find myself slow in understanding and thinking. I still need to use the Chinese way of thinking to convert the sentences, and to change the sequence of words into our own [sequence of words in Chinese]. It might be because that the opportunities to be exposed to English on a daily basis takes place quite late so that the change is not easy.
> (LP3-H&S, T2)

Similarly, some high-proficiency students also described changes as unperceivable and minimal at the midterm (HP2-H&S, HP4-H&S, HP5-H&S, HP9-Business, T2). Notably, the rate of progress was perceived to be slowed down more evidently over the second half of the term. Students described the progress in listening as 'very slow and almost unperceivable' (LP1-H&S, T3), 'some improvement but not quite as expected' (MP10-H&S, T3), 'not enough for as long as half of a term' (HP9-Business, T3), and 'a sense of getting stuck and can't get improved further' (HP6-Business, T3). Nevertheless, the improvement regarding *strategic competence* in listening was still recognised by some students (LP12-Business, MP3-H&S, MP7-H&S, T3). These students indicated that they listened better not necessarily because of improved linguistic knowledge but because they learned *how* to listen. This was best depicted by a student's statement below:

> I might know the same amount of words, but at the beginning [of the term] I didn't understand as much [as now]. In other words, now I can use the limited amount of words I know to understand a sentence. For example, if I knew five words at the beginning, I couldn't piece them together to understand the sentence. But now if I still just know five words, I can figure out what the sentence means. Maybe as I have listened more, I learnt to identify important messages.
> (LP12-Business, T3)

Similar to at the beginning of the semester, the perceived progress in listening was primarily attributed to a combination of *both personal practice and an EMI environment* (T1: n= 8; T2: n=11; T3: n=13). Students with such a stance recognised the value of personal effort on top of an EMI environment, as one of the students commented: 'Without good practice after class, what you heard in class simply just passed by. After all it's not your first language so only if you practice afterwards, you can turn this [listening ability] into your own' (MP3-H&S, T2). Echoing this point, another student also pointed out that, unlike English courses in high school, the university EMI courses assigned no mandatory homework for language learning, so it depended on individuals to decide whether or not to conduct extra learning (MP11-Business, T2). Interestingly, however, the above attribution of listening progress was not agreed by everyone. A few students who invested little effort in practice attributed the development to *mainly the EMI environment* (LP2-H&S, LP7-H&S, MP2-H&S, HP10-Business, T2). As one student stated: 'Actually I don't feel I've put in much effort—the all-English environment has pushed me forward, so I feel more courageous in listening to others' (LP7-H&S, T2). This highlighted role of an EMI environment was talked about by a total of four interviewees at the end of the semester (LP7-H&S, LP10-Business, MP1-H&S, MP9-H&S, T3).

7.4.3.2 Planned adaptations

Although students commented on the *planned adaptations* to positively adjust their practice throughout the term (T1: n=9; T2: n=10; T3: n=13), *negative attitudes and defensive reactions* were also visible at all time points (T1: n=3; T2: n= 2; T3: n=2). As introduced earlier in this section, uncertainty and doubts about the effectiveness of practice were noted at the midterm, which appeared to lead to amotivation in persisting practice (MP7-H&S, HP2-H&S, T2). As one student reflected: 'I always feel it's hard to gauge progress in listening—it's abstract and has no output so I'm not really motivated even if I might have a strong desire [to listen well]' (MP7-H&S, T2). This perceived effectiveness of listening practice also appeared to be closely associated with students' plans for future learning at the end of the semester. Students who regarded their previous practice as useful seemed inclined to *specify areas they intended to further enhance* (T3: n=8), for example, enlarging their academic vocabulary (LP4-H&S, LP6-H&S, T3), consolidating known words and avoiding fixed attention (MP3-H&S, MP8-H&S, T3), and sustaining attention while listening (MP6-H&S, T3).

In addition, students who thought positive of the effectiveness of listening practice also seemed to envisage a progression in their listening ability step by step: 'I hope my listening could 'grow a second leaf' in the next term and I need to carefully think about my [practice] plan over the winter holiday' (LP8-Business, T3). These students also reported to actively seek more appropriate listening methods: 'You need to adjust the method periodically to get rid of the old and make way for the new' (LP5-H&S, T3). In contrast, students who were dissatisfied with the results of their listening practice commented on how to *arrange their time to facilitate perseverance* (T3: n=5), commenting that 'I need to schedule my [university] life more reasonably so that I'll have time for practice' (LP1-H&S, T3), and 'I

need to schedule it [listening practice] as something I have to complete everyday no matter how much homework or extra curriculum activities I have' (MP1-H&S, T3). However, it remained questionable whether these students would commit to their plans as one student already admitted: 'I surely have plans but I don't think I can persist' (HP2-H&S, T3).

7.4.4 Summary of qualitative findings of the longitudinal development of SRL for out-of-class listening practice during the first semester

The interview data collected across three time points during the first semester revealed observable changes in how students regulated their listening practice in out-of-class contexts at an EMI university. These changes are summarised below.

Forethought phase

- A lessened need to set listening practice goals from the midterm
- Goals for practicing listening increasingly associated with personal communicative and development needs from the midterm
- Reduced investment in listening practice from the midterm due to busier university life
- Certain degree of recovered listening practice at the end of the term for exams

Performance phase

- Increased use of extensive listening approaches from the midterm, parallel to a declined adoption of intensive listening methods
- Listening materials with entertainment value remained popular throughout the term
- Some recovered use of materials designed for language learning from the midterm
- Selection of listening materials based on content topics from the midterm
- Some effort to adapt listening methods for sustainable practice from the midterm

Self-reflection phase

- Overall positive evaluation of progress in listening throughout the term, though the progress seemed less perceptible for high-BELP students
- Perceived increase in strategic competence in listening at the end of the term
- Perceived decrease in the rate of progress in listening from the midterm

- Future plans for practice affected by the perceived effectiveness of listening practice
- Certain doubts and demotivation of listening practice throughout the term

Findings in this section revealed that the midterm seemed to be a 'watershed' moment, after which many students perceived less need to practice listening as they became satisfied with comprehension in EMI classes. Students who did set goals for practice tended to associate the goals with personal communicative and development needs. From the midterm, many students seemed to favour an extensive listening approach rather than intensive listening methods, and selected materials with entertainment value or quality content. Students overall recognised progress in listening after a term of study in EMI courses, though such progress was less obvious for students with a high BELP. The rate of progress also appeared to slow down over the latter half of the term. Finally, students reported doubts, uncertainty, and demotivation throughout the term regarding listening practice, which seemed to be associated with their perceived effectiveness of practice.

7.5 Chapter summary

This chapter reported findings regarding the longitudinal development of students' strategic and self-regulated listening during the first semester in an EMI environment. One-way RM MANOVA identified significant overall changes in the reported use of listening strategies in EMI classes over time. A series of univariate RM ANOVA and descriptive statistics further showed that compared with the start of the term, a downturn appeared in all reported listening strategies at the midterm except for *mental translation*. Nonetheless, an upswing was observed in these strategies at the end of the term, with most notable increase in *problem solving* and *plan-evaluation* strategy.

Analyses of qualitative data offered detailed insight into the longitudinal changes in students' SRL in relation to listening in EMI classes. As students progressed in comprehension, many of them appeared to reduce or become more skilful at preview during the **forethought phase**, strategically selecting which parts to focus on and inferring meaning for unknown words. The learning of subject knowledge seemed to be prioritised from the midterm, where students reported more inferences of meaning and a higher awareness of monitoring comprehension in the **performance phase** of listening. They also reportedly reduced note taking or moved the structuring of knowledge after class to free up working memory for comprehension in class. Interestingly, an expanded repertoire of subject knowledge was noted, which further facilitated the use of elaboration strategies and the accuracy of meaning inferences. Finally, in the **self-reflection phase**, many students seemed to cut down review from the midterm due to a busier university life, and tended to focus on digesting, structuring, and checking the mastery of key subject knowledge instead of delving into knowledge details. Seeking help from others also decreased, indicating that students might have become more independent learners. The midterm seemed to be a critical moment when some students lost passion in learning, whereas others made meaningful reflections from the midterm exam and planned for adaptations in their listening methods.

In addition, changes also emerged in how students regulated their listening practice in out-of-class contexts. At the midterm, many students no longer found it necessary to set practice goals in the **forethought phase** due to enhanced comprehension in EMI classes. Meanwhile, reduced time and frequency was noted in the practice of many students due to busier university life. Among those who persisted in practice, in the **performance phase**, extensive listening approaches seemed to gain preference from the midterm over intensive listening methods which were popular at the start of the term. Students also seemed to become more selective of listening materials based on the content. Materials with entertainment value (e.g.,

films, TV series) remained popular throughout the term given its effect in battling satiation, and some students seemed to have resumed interest in adopting materials designed for language learning purposes, deeming these materials as better tailored to their current ability. Notably, some effort to make the practice more sustainable was reported from the midterm, manifested in the adaptations of practice methods based on personal learning styles, motivation, and affect. Finally, in the **self-reflection phase**, students in general affirmed their progress in listening throughout the term, especially in the strategic competence of listening. However, the listening progress was perceived to decelerate from the midterm, and generally seemed imperceptible for some high-proficiency listeners during the entire semester. Notably, negative and defensive measures for future learning existed throughout the term alongside positive adaptations, both of which seemed to be closely related to the perceived effectiveness of listening practice.

Chapter 8 Discussion

8.1 Chapter introduction

This chapter discusses the key findings of the present study with reference to theoretical perspectives and empirical evidence in previous literature. The discussion is organised around three themes, drawing on findings from a mixture of quantitative and qualitative analyses detailed in Chapter 4 to 7. Section 8.2 discusses the transitional challenges related to listening to EMI classes, comparing the findings with extant research in L2 listening and EMI studies. Section 8.3 then conceptualises this challenging transition period as a 'cradle' for strategic and self-regulated listening, discussing the findings in relation to research in educational psychology, as well as strategy-related studies in both language learning and EMI contexts. Finally, in Section 8.4, findings on a number of key learner-related variables (i.e., baseline English listening proficiency (BELP), self-efficacy, goal orientation, and task value) are synthesised and discussed to explore their role in listening at an EMI HE context.

8.2 Transitional listening challenges in EMI HE contexts

8.2.1 Examining EMI listening: Towards a process-oriented approach

The present study sets out to examine the listening problems encountered by Chinese undergraduate students during their very first experiences at an EMI transnational university. Unlike previous EMI research that examined the general learning difficulties associated with listening (e.g., Aizawa & Rose, 2020; Hellekjær, 2010; Hua, 2020; Tsuneyoshi, 2005), this study unravels issues related to different cognitive processes of listening drawing on Anderson's (1995) and Field's (2009) listening models. This process-oriented approach

allows the current study to unpack the intricate nexus among different aspects of problems associated with listening in an EMI HE classroom.

First and foremost, the results of the study highlight a necessity to examine lower-level *perception-related* problems that students might encounter at the outset of listening to EMI classes. As shown in Chapter 4 (Section 4.2.2), students across all proficiency levels reported *perception-related* issues including segmenting teacher speech, recognising known words, and understanding teachers' accents to varying degrees, echoing previous research in L2 listening (Goh, 2000; Hasan, 2000). In particular, students seemed to stumble over segmenting the spontaneous and connected teacher speech upon arrival at an EMI HE class. An interesting finding in this respect is a differentiation that students made between Chinese and foreign teachers, where the latter were seen to be less aware of students' linguistic problems and seemed to seldom modify their speech to suit the level of the students. In contrast, students reported that the Chinese instructors seemed to better empathise with their listening difficulties, where they paused and slowed down from time to time, altered intonation, stressed and repeated to make the lessons more understandable.

EMI researchers have for long lamented the lack of linguistic awareness of EMI lecturers in classroom teaching due to their identity as subject experts instead of language teachers (e.g., Aguilar, 2015; Aiery, 2012; Chapple, 2015; Galloway et al., 2017). The above finding, however, suggests that this lack of sensitivity and empathy with the linguistic barriers of students might not be necessarily shared among all EMI teachers. Local teachers, especially those with a study abroad background, share a similar trajectory of learning with the Chinese students, and hence might be more understanding of the linguistic challenges faced by the students and to 'think in their shoes'. Although it is beyond the scope of this study to examine whether native, foreign, and local teachers differ in their awareness of adjusting

their delivery style to address students' needs in learning, there has been some empirical evidence showing that non-native teachers in EMI classes use a variety of accommodation strategies (Tsai & Tsou, 2014), slow down (Thøgersen & Airey, 2011), and adapt prosodic and morphosyntactic features (Jiang et al., 2019) to make their teaching more understandable. In this study, it is found that some low-proficiency students also somehow devalued the 'native' accent as 'too pure' to understand and instead, regarded the Chinese accent as more friendly to comprehension. This finding stands in contrast to the study of Galloway et al. (2017), which reported favourable attitudes among Japanese and Chinese students towards 'native' accents in university EMI programmes. Therefore, the findings in the present study suggest a need for EMI instructors, especially those coming from a different L2 background of the students, to adjust their delivery style to scaffold students in their first listening experiences in an English-medium environment.

Word recognition emerged as a prominent issue at the outset of listening to EMI classes, as reported in both statistical and qualitative analysis (see Chapter 4, Section 4.2.1 and 4.2.2). Given the large volume of studies that documented vocabulary as a major impediment in comprehending EMI lectures (e.g., Aizawa & Rose, 2020; Ding & Stapleton, 2016; Evans & Morrison, 2011, 2016; Hellekjær, 2010; Tatzl, 2011), this study foregrounds a necessity to distinguish the words that students know but fail to recognise while listening from the words that are totally unfamiliar to them. Uchihara and Harada (2018) distinguished the receptive vocabulary size of students enrolled in an undergraduate EMI Education course in Japan into an *aural form* and a *written form*. Using the Listening Vocabulary Levels Test (McLean et al., 2015), the authors found that although the majority of the participants mastered the most frequent 2000, 3000-word families, and academic words in written form, most of them only achieved the 1000 word-level in aural form and failed at 2000-word level and above. The findings of the current study align with the results of Uchihara and Harada's study (2018),

revealing that students struggled to match the sound of a word to its spelling when listening in EMI classes, even though they knew the word in written form. This problem of word recognition seemed particularly prominent when the teacher talk was fast and connected, involving much sound omission and co-articulation. As such, it is probable that students might not be able to fully avail of their vocabulary knowledge to decode meaning while listening to EMI classes. Tied in with previous research that examined the vocabulary size of students in EMI contexts (e.g., Aizawa & Rose, 2020; Lin & Morrison, 2010), one implication from this study is that language support programmes in EMI HE might as well focus on fostering students' ability to link word pronunciation with spelling to make the most use of their extant vocabulary resources in comprehending EMI classes.

This study also contributes to a deepened understanding of the complex *attention-related* issues in EMI listening. Findings from Chapter 4 (Section 4.2.2) underline that at the beginning of the term, students, especially those with low and medium proficiency, tended to miss the following input when thinking about meaning of previous messages. Fixated attention was reported at the lexical, syntactical, and discursive level. First, the stagnation of attention at particular words or sentences in an EMI classroom resembles a common problem reported in the L2 listening literature (Chen, 2013; Goh, 2000). As Goh (2000) explains, for students who are not completely proficient, the search of meaning has to consume the limited short-term memory which would be otherwise used for attending to the incoming new input. In this study, this situation is most observable when students talked about the afore-discussed problem of word recognition, and reported to miss the following input as a price for searching meaning of words that 'sound familiar'. As such, students might be stranded in what Goh (2000) calls "a vicious circle of perception and parsing, with few opportunities to utilise mental representations they tentatively formed" (p. 64). Since the indulgence in *perception* and *parsing* processes could potentially prevent students from accessing higher-

level *utilisation* of the content, this finding may partially explain why in previous EMI literature, attention-related issues were usually reported in parallel to the shallow processing of content knowledge as discussed in Chapter 2 (Section 2.2.1).

Perhaps what is even more interesting in the findings from Chapter 4 (Section 4.2.2) is the reported attentional problems at a discursive level, where students attributed their misplacement of attention between topical turns to a lack of explicit discourse markers in teacher talk. Additionally, students also seemed to blame teachers' unclear indication of the overall intention or purposes of EMI lectures for their declined attention in class. Compared to listening tasks in an EFL class which are often short and repeatable, a typical EMI lesson usually lasts for at least 50 minutes. The lengthiness of teacher talk in EMI classes has hence been often regarded as one of the culprits for students' dissolved attention (e.g., Aizawa & Rose, 2020; Hua, 2020; Tsuneyoshi, 2005). Findings from the present study, however, suggest that this problem might be addressed by adapting the discursive structure of teacher talk. In other words, students might be more focused and goal-directed if teachers could make the overall aim of an EMI lesson clear, as well as to signpost the subordinate sections of the lesson using discourse markers. Tsuneyoshi (2005) notes that in EMI classes, an occasional drop of attention could easily result in a feeling of 'getting lost', leading to an impossibility to resume understanding again for the rest of the lesson. Explicit and appropriate use of discourse markers to delineate diverse rhetorical functions such as introducing, defining, and explaining (Tsai & Tsou, 2014), presumably, could help students to 'repick the thread' at the turn of a new discursive or topical turn.

8.2.2 The preparedness of prior education for HE EMI listening

Findings in Chapter 4 (Section 4.2.2) tap into the role of students' prior education in shaping their listening experience upon arrival at an EMI HE context. First, these findings add an

understanding to the issue of whether English learning in CMI secondary education addresses the linguistic demands in listening to university EMI lessons. In this study, students attributed the difficulties in recognising known words and segmenting teacher speech in EMI classes to the absence of teaching of pronunciation and phonological rules in high school English classes. This finding echoes Hu et al. (2014), who also argue that the lack of focus on listening in Chinese EFL education in secondary schools contributes to remarkable difficulties of students to comprehend university EMI lectures. Further, students in this study also noted that the vocabulary instructed in high school differed from what was required for comprehending EMI HE classes. This mismatch between English learnt in high school and that demanded in EMI academic contexts seems to be a commonly shared concern across different contexts (e.g., Aizawa & Rose in Japan; Chang et al., 2017 in Korea; Lin & Morrison, 2010; Macaro et al., 2016 in Turkey; Yung & Fong, 2019 in Hong Kong). The findings of this study confirm this concern within the context of EMI HE in mainland China, and answer calls from other researchers for tailored preparatory language support such as EAP or ESP programmes to foster the cognitive academic language proficiency (CALP) of students demanded for EMI classes (e.g., Galloway & Ruegg, 2020; Jiang et al., 2019; Macaro, 2018; Yung & Fong, 2019). Such support might especially merit from a skill-based training approach which could facilitate the direct application of language skills to EMI learning tasks (e.g., listening to EMI lectures).

In addition to the linguistic readiness, findings from Chapter 4 (Section 4.2.2) also raise the question of whether students' prior secondary education prepares them to sufficiently cope with the subject learning in EMI tertiary education. These findings reveal that the teacher-centred, textbook-oriented and well-structured teaching in high school reportedly 'spoiled' the students, resulting in a bewilderment of isolating key points and taking notes in university classes which required higher learner autonomy. Such findings imply that listening in an EMI

classroom is a compound issue involving not only linguistic competence but also subject-learning approaches, habits and strategies which are derived from students' prior education in high school. However, this aspect has seldom been discussed in extant EMI literature. In a recent study conducted in a Dutch university, Jansen et al. (2017) also identified a lack of preparedness of first-year Asian students (primarily Chinese) for their study in university compared to their European peers, where the former expected more from teachers to teach them how to take lecture notes, and were less confident in processing the content knowledge in the course. The results of the present study corroborate with this finding, and suggest that research focusing on EMI transitional experience should not slice linguistic issues from subject learning-related factors cultivated in prior education. As Macaro et al. (2018) note, "HE EMI cannot be considered in isolation from what has come before" (p. 67). Echoing this notion, findings from this study suggest that the investigation of the role of prior education in HE EMI learning might benefit from considering the 'legacy' that students inherit in terms of both language and subject learning.

8.2.3 A longitudinal dynamic perspective of EMI listening challenges

A unique contribution of this study lies in its longitudinal exploration which unveils the evolving perceptions of students regarding a variety of listening-related difficulties during the EMI transition period. Such a longitudinal and dynamic lens, as a review of literature in Chapter 2 (Section 2.2.1) has suggested, is in severe scarcity in extant EMI literature on learning challenges. Findings from Chapter 5 (Section 5.2.1 and 5.2.2) describe a series of changes in students' perceived listening difficulties, some of which appeared to be commonly shared trends whereas others seemed specific to students' BELP levels.

A notable tendency that has emerged among students at all BELP levels, as reported in Chapter 5 (Section 5.2.2), is a higher tolerance of diverse accents after students were exposed

to a variety of teachers' accents in EMI lessons from the midterm. For high-BELP students, they shifted from regarding the accented speech as 'sounds bad' and 'strange' to accepting the legitimate existence of these variations in English at the end of the term. Similarly, low- and medium-BELP students also reportedly changed their negative views of teacher accent, and developed their ability to comprehend, as reflected in a student's wish to be able to understand regardless of whatever accent the speaker might possess. Previous cross-sectional studies have often projected students' perceptions of teacher accent as 'problematic' in EMI listening (e.g., Aizawa & Rose, 2020; Hellekjær, 2010; Rose et al., 2019; Tatzl, 2011). By examining this issue through a longitudinal lens, this study complements the findings of extant research and reveals that as students become accustomed and familiar to accented speech after sufficient exposure, they might adapt their views and recognise diverse teacher accents as a 'new normality' in the EMI context. Research has shown that the 'familiarity' with an accent can impact on the 'intelligibility' of the speech perceived by listeners (Adank et al. 2009; Gass & Varonis, 1984). Therefore, adequate exposure to EMI teachers with diverse accents could presumably familiarise students with the phonetic and phonological features, and hence boost their perceived intelligibility of the speech. Such enhanced intelligibility could possibly in turn make students realise that the problem is not necessarily in the accent *per se*, but rather, their ability to receive and process the accent.

Another common trend from the findings in Chapter 5 (Section 5.2.2) that is worth noting is an altered view of terminology or specialist vocabulary in EMI listening. A comparison of findings in Chapter 4 (Section 4.2.2) and Chapter 5 (Section 5.2.2) reveals that as students progressed into the EMI courses, they seemed to discard the initial impulse to translate specialist vocabulary as at the beginning of the term, and tended to directly comprehend meaning resorting to explanations in English. This approach was accompanied by a perception of the terminology as closely related to the subject-specific concept, which would

merit more from direct understanding in English compared to seeking its Chinese equivalent. The latter, according to a student, might cause more confusion and misunderstanding. Macaro (2020) pinpoints the complexity of theorising what is meant by 'vocabulary knowledge' in an EMI setting. He contends that the definition of a subject concept in EMI classes encompasses not only the technical terms that encapsulate the concept, but also explanatory language that might involve lexical items with non-field-specific forms but a meaning specific to the field. Unfortunately, the participants in this study did not specify why translating terminology into Chinese seemed to generate confusion instead of aiding understanding. Nonetheless, a plausible explanation could be that the vocabulary constituent of the English explanation of the concept involves the type of words described earlier. Hence, the pure translation might sacrifice the contextual and field-specific meaning of the words that are important for a "masterful" understanding of the concept (Macaro, 2020, p. 265). Echoing Macaro's (2020) statement that "what we mean by 'vocabulary knowledge' in an EMI setting is still an under-theorised concept when applied to the understanding of teacher talk" (p. 265), the findings in this study underline a need to investigate how students conceptualise different types of vocabulary in EMI listening, and how they perceive the impact of these words on understanding subject-related concepts longitudinally.

In addition to the common patterns of change in students' perceptions of listening difficulties, findings from Chapter 5 (Section 5.2.2) reveal that variations exist in the rate of change across different BELP groups. All BELP groups reportedly experienced a quadratic trajectory of perceived listening difficulties due to the introduction of more in-depth subject knowledge and larger teacher diversity at the midterm (see Chapter 5, Section 5.2.1). However, findings from multi-level modelling analyses in Chapter 5 (Section 5.2.2.1) suggest that the lower the students' BELP, the less acute they discerned the surge in the difficulty at the midterm, and the more obvious they perceived the overall decrease of listening problems after an entire

semester. This finding, to a certain degree, indicates that students who enter into EMI courses with a low proficiency might observe a more substantial progress compared to their highly proficient peers in listening, at least over the short term of the first semester. In an EMI Engineering course at a university in Spain, Aguilar and Muñoz (2014) found that students starting with a lower score in listening and grammar, as measured by the Oxford Placement Test (the same as the present study), showed more obvious progress in these two aspects compared to those starting with a higher score after 15 weeks into the course. Although the present study does not directly measure the linguistic gains of students via a post-term listening test, the finding of this present study ties in with the results reported by Aguilar and Muñoz's study (2014). A possible explanation could be that the students with lower BELP in this study might have harvested more improvement in especially *perception-related* issues compared to their high-BELP peers (see Chapter 5, Section 5.2.2.2), thus giving rise to the differentiated slopes of change in perceived difficulties over time. The finding and the hypothetical explanation therefore foreground a prerequisite to control for students' entry-level English proficiency when examining the impact of EMI programmes on language gains. This variable may potentially explain differences in conflicting results that previous studies have reported on this topic (e.g., Lei & Hu, 2014; Yang, 2015).

Moreover, findings of this study also identify qualitative variations in students' listening difficulties across the first semester as per their BELP group, among which the differences in *attention-related* issues seem to stand out. Findings from Chapter 4 (Section 4.3.2.1) and Chapter 5 (Section 5.2.2.2) reveal that low-BELP students seemed to maintain stronger concentration throughout the term and encounter fewer problems regarding the loss of attention than other BELP groups. Interestingly, at the beginning of the semester, these students reported to consciously sustain their attention due to an anxiety of not being able to follow the teachers. Both Hua (2020) and Ding and Stapleton (2016) noted high anxiety of

students while listening to EMI classes, and the latter authors found this issue especially observable when students had just embarked on their EMI journey. However, both studies hinted that such anxiety would downgrade the comprehension of students. The finding of this study posits a different stance and suggests that a certain level of anxiety might not be necessarily detrimental in listening to EMI classes. The positive role of anxiety might particularly benefit low-BELP students, as findings in Chapter 4 (Section 4.3.2.1) reveal that when their comprehension was minimal at the beginning, 'keeping to listen' seemed to be fuelled by an anxiety of not understanding. Such effort seemed to pay off when these students reflected progress in their comprehension in later stages of the semester (see Chapter 5, Section 5.2.2.2), which further facilitated their concentration while listening.

In contrast, high-BELP students at the beginning of the term reported severe loss of attention owing to a demotivation of attending to content which they perceived as boring or unchallenging (see Chapter 4, Section 4.3.2.1). This finding denotes a tricky issue, that is, how to secure learning for a cohort of students with heterogenous language abilities (Bradford, 2016; Choi, 2013; Tatzl, 2011). Bradford (2016), for example, pinpoints the danger of alienating high-proficiency learners when pitching the instruction to suit the low-proficiency group. In a similar vein, Choi (2013) warns that shallow content teaching with massive repetitions in EMI HE classes, though lowering the cognitive demands for students, could make the class rigid and boring—an issue that has already been reported to incur students' resistance such as skipping classes in some places (e.g., Huang, 2018 in Taiwan). While there seems to be no easy solution for this problem, a possible remedy might be to adapt the level of linguistic difficulty of instructional language in a progressive manner into the semester instead of lowering the standard of content teaching. This might require strengthened cooperation between EMI lecturers and language teachers, as many EMI researchers have appealed for (e.g., Doiz et al., 2019; Galloway & Ruegg, 2020; Li, 2020).

8.3 Transition period as a 'cradle' for strategic and self-regulated listening

8.3.1 Towards a holistic model of self-regulated listening

Findings from the current study support previous research which has attested to the autonomy of students to initiate and manage their learning to cope with demanding tasks during an EMI transitional period (Ding & Stapleton, 2016; Evans & Morrison, 2011, 2016; Macaro et al., 2019; Soruç & Griffiths, 2018). This study reveals multiple strategic and self-regulatory processes of listening undertaken by students in their first semester of studying in an EMI university. Most importantly, this study finds that students engaged in holistic self-regulatory cycles of learning to handle the transition to listening to EMI classes. Upon entering an EMI university, not only did students engage in preview and preparation *before class*, but also listened strategically *in class*, and carried out industrious review and reflection *after class*.

A noticeable finding of this study is that students' use of listening strategies in class was closely associated with their preview before class. As illustrated in Chapter 6 (Section 6.3.2), sufficient preview enabled students to activate a number of *deep processing strategies*, including anticipating teacher talk, making connections with one's prior knowledge, structuring knowledge while listening, and even a certain level of critical evaluation of what was taught. The amount of time and effort that students in this study poured into preview stands in contrast to Macaro et al.'s (2019) research in Italy, which found that students seldom previewed any notes, topics or vocabulary prior to EMI classes. Ding and Stapleton (2016) also noted that students seemed to find the preparation before class useless, viewing what was delivered in class "totally another thing" from what they had previewed (p. 18). A plausible explanation for this difference in findings might be that the materials provided to the students for preview (e.g., slides, textbooks) in this study highly cohere to the structure and content of lessons that EMI teachers deliver. This consistency in content and structure

might provide students with the appropriate prior knowledge to draw on when listening, hence making what is previewed more transferable and effective.

Moreover, findings from the present study also highlight a crucial stage in SRL, namely *self-reflection*, when students evaluate their performance, make causal attributions, and adapt their goals and plans for the subsequent learning cycle. From findings in Chapter 6 (Section 6.3.3) and Chapter 7 (Section 7.3.3), two peaks can be spotted when reflective activities were most active, one at the start of the term, and the other after the midterm exam. First, confronted with substantial barriers at the outset of listening to EMI classes, students reported to 'think back' to the reasons of comprehension breakdowns, and to contemplate the causes of the problems and the effectiveness of their listening methods (see Chapter 6, Section 6.3.3). Zhang (2010, 2013, 2016) proposes a 'dynamic metacognitive system', arguing that the metacognitive knowledge system of learners involves not only the cognitive aspect, but also sociocultural dimensions of agency, environment and learning tasks. Most importantly, such system constantly evolves and adapts, which is to "be enacted upon by learners and induced by the learning tasks, task environments, and sociocultural contexts where learning takes place in its 'situated' locales" (Zhang, 2013, p. 115). Since the task of listening to teacher talk in EMI classes posits a stringent demand to understand new content knowledge on top of a foreign language, the situation might be more likely to trigger what Flavell (1979) referred to as a 'metacognitive experience'. Such experience might propel students to consciously think about themselves, the tasks, and the strategies, making adjustment to their metacognitive knowledge system dynamically, based on which they can choose the strategies most appropriate to their own competence and the situated task.

In addition, findings from Chapter 7 (Section 7.3.3) denote that the midterm exam also catalysed meaningful reflections, where students diagnosed shortfalls in their knowledge

mastery and prior listening methods based on the outcomes of the exam. Educational research has confirmed the role of post-assessment reflection in enhancing the accuracy of monitoring learning problems (e.g., Zimmerman et al., 2008; Zimmerman & Moylan, 2009). In particular, Zimmerman and Moylan (2009) argue that self-reflection benefits learning the most when students "shift perceptions of assessment feedback from being an end-point to instead being viewed as a source for enhanced self-regulation" (p. 309). In line with this argument, findings from this study advocate for an inclusion of exams and quizzes that allow students to systematically check their learning outcomes. More importantly, reflective sessions should be embedded into teaching that scaffold students to constructively use feedback from the tests.

In addition to the SRL cycle that the students engage in surrounding listening to EMI classes, findings from Chapter 6 (Section 6.4) and Chapter 7 (Section 7.4) show that such learning also extends to listening practice in extra-curricular times, an area that has hitherto attracted very little attention from EMI researchers (except for Ding & Stapleton, 2016). Especially at the outset of studying in an EMI environment, the goal of listening practice of students in this research seemed to be closely associated with the pressing demand of understanding EMI lessons (see Chapter 6, Section 6.4.1). At the beginning of the term, a noticeable preference of authentic listening materials (e.g., BBC news, TED talks) was detected, which forms stark contrast to the minimal interest in materials specially designed for language learning purposes (e.g., EAP textbooks). This finding aligns with Ding and Stapleton's (2016) study, where students reported to listen to TED lectures and attended online courses from other universities to get themselves accustomed to the lengthy EMI lectures during the transition year. Given that the students in the present study mostly come from CMI secondary schools with a test-oriented language learning approach reliant heavily on language textbooks, it is likely that the students might hold bias at the beginning that materials designed for language

learning purposes are artificial and useless for improving listening in a naturalistic setting like EMI classes. They might therefore turn to materials that involve more authentic use of the language, which are presumably regarded to resemble the type of listening in EMI classes.

Curiously, however, findings in Chapter 7 (Section 7.4.2) further illustrate a resumed interest of some students in using EAP materials from the midterm. As a student explained, the materials provided by their EAP courses seemed to be better tailored to their proficiency levels whereas authentic materials such as TED talks were too difficult. This adjusted preference of listening materials of some students indicates that the input involved in the listening materials needs to be 'comprehensible' for students for an optimal practice outcome (Krashen, 1985). Further, considering that an essential aspect of listening competence required in EMI classes is the familiarity with the academic genre, EAP practitioners might consider what Alexander et al. (2008) propose as "a principled approach to authenticity" (p. 225). In other words, EAP teachers could choose materials with less linguistic demand (e.g., more intelligible, slower speech) at the beginning to enable listeners to focus on "global aspects, such as organization and the links between ideas, and improve their ability to monitor these" (Alexander et al., 2008, p. 226). If properly designed, the EAP materials could effectively scaffold students to foster their competence to listen to EMI lessons. This progress in performance may presumably form a virtuous cycle of feedback and further catalyse subsequent self-regulated practice of students in their spare time.

8.3.2 Towards becoming more strategic and sustainable listeners

The longitudinal findings on students' self-regulated listening as reported in Chapter 7 suggest that students seem to have not only cultivated their strategic competence in listening to EMI classes, but also fumbled to develop and stabilise highly personalised self-regulatory learning suited to their respective needs and motivation at the end of the first semester.

Findings in Chapter 7 (Section 7.3.1 and 7.3.2) highlight that a primary change regarding the strategic competence in listening is the strengthened capability of meaning inferencing over the term, manifested in students' reduced attempts to search dictionaries and increased extrapolation of word meaning both during preview and in listening to EMI classes. This trend is indicative of a more *top-down* listening process, which might be partially driven by an increasing focus on content learning. As findings in Chapter 7 (Section 7.1.1) illustrate, students expressed listening goals more associated with digesting subject knowledge in EMI classes from the midterm, and increasingly focused on digesting content during preview. Yang (2017) noted a similar trend in freshman students' language learning in a Tourism EMI programme in Taiwan, where they changed from learning English by "decoding it into discrete pieces, as they likely did when previously studying English in language courses" towards "learning English as a whole" (p. 16). The author attributed this trend to a fact that in an EMI context, content learning becomes the "top priority" and language only as "the medium to master the content" (p. 13). Noticeably, in the present study, this tendency of moving away from *bottom-up* processing towards a *top-down* approach also emerged in students' altered preference of listening practice methods (see Chapter 7, Section 7.4.2). Compared to the popular intensive listening approach with a focus on cracking individual linguistic items (e.g., vocabulary) at the start of the term, many students appeared to turn to extensive listening intended to foster an ability to understand main messages of listening materials from the midterm.

Parallel to the strengthened ability of meaning inferencing, findings in Chapter 7 (Section 7.3.2) also allude to a higher awareness of students to monitor their comprehension at the end of the term. What is worth noticing is that such awareness was even reported among low-proficiency listeners. Research on L2 listening has for long recognised the importance of monitoring comprehension, without which the misuse of elaboration and meaning inferencing

strategies is considered likely to generate misunderstandings (Graham & Macaro, 2008). L2 researchers usually associate the ability to monitor and rectify the processing of ongoing input with students at a higher listening proficiency (e.g., Vandergrift, 1998, 2003), describing them as "successful listeners" who are capable of "keeping in mind the established conceptual framework and the ongoing interpretation of the text" (Vandergrift, 1998, p. 392). However, findings in this study tentatively show that in an EMI HE context, even low-proficiency students might be able to detect misalignments between what they understand from the teacher and their extant repertoire of subject knowledge, resorting to additional resources such as slides for verification. Whereas topic knowledge in EFL listening is usually field-general and independent between lessons, subject knowledge in EMI listening is field-specific and connected in the same module. Hence, as students accumulate and establish connections between subject knowledge in the field, it is possible that they gain access to an expanded repertoire of *relevant* topic knowledge well organised for activating when listening in class, thus freeing up the working memory capacity for monitoring their comprehension (see Macaro et al., 2005). In this study, this is somewhat evidenced in students' reflection of an enhanced accuracy in inferencing the meaning of words, owing to strengthened connections established between knowledge taught in a series of lessons as well as their expanding expertise in the field (see Chapter 7, Section 7.3.2).

Another facet of strengthened strategic competence in listening is manifested in students' more balanced attention management during the transition period. Macaro (2020) points out that EMI research has yet to establish "how a student might decide what to selectively attend to in response to the incoming teacher speech stream given that it is unlikely that they can attend to its totality" (p. 267). Indeed, in the present study, findings from Chapter 6 (Section 6.3.2) and Chapter 7 (Section 7.3.2) reveal a consistent attempt of students to manage and selectively direct their attention throughout the term. In particular, in recognition of their

limited attentional resources, students reported to deliberate their attention according to intonation, prosodic and discursive cues (e.g., repetitions, emphases, and pauses) as well as rhetorical functions (e.g., concept definitions, explanations, and examples) in the teacher talk. This finding corroborates with Soruç and Griffiths's study in Turkey (2018), where the authors also reported that students availed of teachers' gestures, stresses, and emphases as cues for strengthened attention while listening to EMI classes. Further, a new understanding that emerges from this present research is that students seemed to become increasingly selective in their strategy use in listening from the midterm, temporarily forsaking some strategies that might aggravate the cognitive burden in class. For example, qualitative findings in Chapter 7 (Section 7.3.2) reveal that in order to prioritise understanding in class, students delayed the organising process until after class. Since the use of strategy *per se* is cognitively demanding (O'Malley & Chamot, 1990), the findings from this study suggest that a larger quantity of strategies might not be necessarily facilitative when the listening task itself is already difficult. Instead, a constrained amount of well selected and proficiently used strategies might be more helpful in handling the fast-paced and strenuous listening tasks in EMI classes.

Similarly, findings in Chapter 6 (Section 6.3.2) and Chapter 7 (Section 7.3.2) also consistently note that students reportedly curbed the amount of note taking in class so that they could better focus on following the teachers. In contrast to Macaro et al.'s (2019) study in Italy, which reported that students tried to take as many notes as possible to compensate for their insufficient understanding in class, students in this study reportedly took fewer notes to free up attentional resources for digesting content knowledge. Most interestingly, recognising that excessive note taking might be detrimental, students in this study simplified explanations from the teacher in a couple of words, marked where they had problems and attempted to solve this problem after systematically organising and reviewing content after

class. Note that this 'listen-note-remedy' approach seems to develop during the latter half of the semester, it is probable that the differences between Macaro et al.'s (2019) research and this study are due to a differentiation in the stage of the transitional period. In other words, after students have already spent some time in an EMI environment, they might become more comfortable in handling comprehension problems with strategic note taking instead of rushing to take maximum notes out of a fear of missing information. In addition, having access to a variety of teaching materials (e.g., slides, textbooks, and task sheets) also enables students to catch up and cross check comprehension after class, hence making them more assured in focusing on digesting information in class.

In addition to the strengthened strategic competence, findings in Chapter 7 generally indicate that students seemed to adapt their self-regulated listening to make it sustainable and balanced at the end of the semester. Ding and Stapleton (2016) reported that during the first three to four weeks into an EMI university, students were left alone feeling "shocked, confused, and frustrated" and developed "various coping mechanisms" to struggle to survive (p. 21). Then about two months into the first semester, they started to exercise higher autonomy, being selective in learning materials and strategies. Curiously, this timeline of development largely corresponds to the present study, where students seemed eager to experiment various self-regulatory processes and strategies a couple of weeks into the new semester. They then fine-tuned, adjusted, and balanced their learning according to individual and contextual factors from the midterm. Notably, in this study, a strengthened autonomy is embodied not only in what learning students chose to engage, but also what they decided to 'let go'. Compared to high school where learning mostly takes place in classrooms, university provides various opportunities of learning and personal development through diversified extra curriculum activities. This may require a more 'economical' use of the time to balance learning in and out of classrooms. Accordingly, findings in Chapter 7 (Section 7.3.1 and

7.3.3) identify reduced, simplified and more selective preview and review activities delivered by students to save time from the midterm as university life became busier. As such, students reportedly skimmed and scanned preview materials based on rhetorical functions, and focused on organising knowledge structures and checking the mastery of key knowledge during review. Such a macro learning approach with strategic selection of what to preview or review differs from the detail-focused approach adopted by many students at the beginning of the term (see Chapter 6, Section 6.3.1 and 6.3.3).

Apart from more balanced self-regulated listening, findings in Chapter 7 (Section 7.4.2) also denote effort of some students to adapt listening methods to make the practice more sustainable from the midterm. However, such sustainability is by no means achieved easily. Instead, it seems to come as a result of constant trial and error as well as experimentation and adjustment. For example, some students reflected to limit the amount of practice per day or to simplify practice procedures to trade for persistence in practice. This adaptation appeared to be commensurate with the personal learning styles, motivation, and emotional needs of these students. Additionally, it is observed from the midterm that students demonstrated diversified goals for listening practice. In a university Medical Science EMI programme in China, Jiang and Zhang (2019) found that English learning driven by long-term needs for personal development seemed to only feature among high-achieving EMI students. In the present study, the newly developed goals associated with personal communicative needs and future development seemed to be more commonly shared among students at different proficiency levels. Since the context of the current study (i.e., an EMI transnational university) differs from that of Jiang and Zhang's (2019) research (i.e., an EMI degree programme in a CMI university), English might play a more important and imperative role in a wider variety of learning situations in this research, ranging from extra curriculum activities to future study-abroad opportunities. Therefore, the practice goals associated with personalised needs in this

study seem more associated with such contextual constraints and affordances of the environment, rather than with the level of EMI achievement as in Jiang and Zhang's (2019) study. These findings also support Gao and Zhang's (2011) contention that the exercise of autonomy and metacognitive operations in language learning cannot be divorced from the sociocultural contexts. As such, variations exist among individuals in their strategic and autonomous learning during EMI transition (Ding & Stapleton, 2016; Wilkinson & Gabriëls, 2017), which should hence be examined in conjunction with cultural, contextual, and learner-related factors.

Finally, findings from this study caution that a promising experience of persistent, committed and self-regulated listening may not be unanimously shared by all students during EMI transition. Even among the students who generally seem to persevere in listening practice, the trajectory of autonomy could be turbulent and inevitably involves distress, discouragement, and a sense of uncertainty. As revealed in findings from Chapter 7 (Section 7.4.1), marked doubts and frustrations regarding the effectiveness of practice emerged at the midterm, which led to reduced or even ceased effort in listening practice for some students. Section 7.4.3 in Chapter 7 further reports a deceleration in the listening progress after the midterm, which might presumably discourage students from continuous investment in practice. This potential breakdown of commitment to practice may be especially problematic for low-proficiency students, who could stagnate in their learning even before they acquire a language ability sufficient to thrive in an EMI context. Moreover, for high-proficiency listeners, the progress in listening seemed imperceptible throughout the term (see Chapter 7, Section 7.4.3). Rose and Harbon (2013) warn that intermediate and advanced learners might be "more prone to a loss of self-regulation due to frustration caused by a lack of progress in learning" (p. 96). Indeed, in this study, it is found that many high-proficiency listeners already seemed demotivated in practice even as early as the start of the semester (see Chapter 6, Section 6.4.1

and 6.4.3), and some of them also questioned their will to persist in practice at the end of the semester (Chapter 7, Section 7.4.3). Given the above issues, language support programmes for EMI should consider embedding formative assessment to make the progress explicit to learners at all proficiency levels during the transition period, which will in turn boost their efficacy beliefs in further improvement and motivate self-directed learning.

8.4 Learner-related variables in EMI listening during transition

8.4.1 Baseline English listening proficiency

This study examines the role of several learner-related variables in both perceived listening difficulties and self-regulated listening during the EMI transition period. These variables include students' *baseline English listening proficiency* (*BELP)*, their *perceived self-efficacy in listening to EMI classes*, and *motivation in learning EMI courses* (i.e., intrinsic and extrinsic goal orientation, and task value). The investigation of these variables contributes to a fine-grained understanding of transition-year experience in an EMI HE context.

An unexpected finding of this study is, as shown by the results of simultaneous multiple regression in Chapter 6 (Section 6.5.1), that students' BELP alone did not significantly predict any listening strategies at the start of the term except for *mental translation*. In an EFL context, low-proficiency listeners have been found to more likely fixate their attention on particular parts to translate, and less effective in maintaining attention during listening (Goh & Hu, 2014; O'Malley et al., 1989; Vandergrift, 2003). In this study, however, these disparities among students with different BELP seem less apparent. Findings in Chapter 4 (Section 4.3.2), Chapter 5 (Section 5.2.2) and Chapter 6 (Section 6.3.2) consistently attest to how low-BELP students exerted effort to stay concentrated even in the face of substantial comprehension difficulties. They also reportedly distributed their attention selectively

according to prosodic features and rhetorical functions of teacher talk. Since listening is high-stakes and affects the attainment of all types of knowledge in EMI classes, it is possible that students, regardless of their proficiency levels, exercise deliberate and stronger control on their attention while listening.

The lessened importance of BELP in strategy use, to a certain extent, might also be explained by the role of prior knowledge in EMI listening. In EFL listening, prior knowledge *relevant* to the listening topic, usually introduced through *advance organisers* (Herron et al., 1998; Jones & Plass, 2002; Teichert, 1996), is reported to facilitate the use of top-down listening strategies (see Macaro et al., 2005 for a review). In this EMI context, the type of prior knowledge relevant to understanding seems to be related to subject topics. Though it may be no longer practical to ask teachers to embed any advance organisers in EMI classes, findings from this study suggest that students could still access this knowledge via at least two main channels. First, this could be achieved through previewing well-designed materials cohering to the subject content delivered in class. In the discussion above (see Section 8.3.1), the role of preview in activating deep processing listening strategies has already been discussed. Interview data in Chapter 6 (Section 6.3.2) show that this preview seemed to especially benefit low- and medium-BELP students in terms of anticipating and structuring teacher talk in EMI classes. This finding stands in contrast to a notion in EFL listening that low-proficiency listeners appear to less plan what to listen based on a prediction of unfolding content (Goh, 2002). Second, a well-structured EMI syllabus with topics inherently connected could help students build an elaborated network of subject knowledge. This network may be particularly helpful for inferring the meaning of unfamiliar expressions and monitoring comprehension for low-BELP students, as discussed earlier in Section 8.3.2.

8.4.2 Self-efficacy in listening to EMI classes

Results of multiple regression in Chapter 4 (Section 4.3.1), Chapter 5 (Section 5.3.2) and Chapter 6 (Section 6.5.1) reveal that students' *self-efficacy in listening to EMI classes* was a significant predictor of not only how difficult students perceived EMI listening, but also how likely they were to use a variety of listening strategies. Interestingly, the self-efficacy of participants in general also appeared to grow consistently throughout the term (see Chapter 5, Section 5.3.1).

Qualitative findings in Chapter 4 (Section 4.3.2) and Chapter 5 (Section 5.3.2.2) identify a reciprocal relationship between students' self-efficacy and their evaluation of listening problems. This reciprocal relationship also appears in Chapter 6 (Section 6.5.2) between self-efficacy and multiple strategic and self-regulatory processes of listening in relation to EMI classes. In the first place, students with a low self-efficacy expressed fear and resistance to listening in EMI classes as well as demotivation to sustain concentration (see Chapter 4, Section 4.3.2). This finding corroborates with the study of Thompson et al. (2019), which also found that inefficacious learners tended to focus on the difficulty of learning tasks and were less engaged in EMI learning activities. Further, findings in Chapter 6 (Section 6.5.2) reveal that high-efficacy students seemed more sure-footed when confronted with comprehension problems, and more trusted their ability of meaning inferencing. These findings echo research in EFL listening, where improved self-efficacy has been associated with a less likelihood to panic about not understanding (Yeldham & Gruba, 2016) and more use of problem solving strategies (Rahimi & Abedi, 2014). Since self-efficacy represents "more than just a reflection of the amount of skill one possesses" (Graham, 2007, p. 82), and is believed to "contribute to academic performance over and above actual ability" (Zimmerman, 1995, p. 213), its role might be more vital in a demanding task such as

listening to EMI classes because students need to persist in their learning effort and strategically make the most of their abilities.

Moreover, students' self-efficacy also appears to be shaped by their listening experience and self-regulatory activities. In this study, sufficient preview and the strategy of organising knowledge structures reportedly gave students *a sense of control* over listening, hence boosting their efficacy in understanding EMI classes (see Chapter 6, Section 6.5.2). Graham and Macaro (2008) conclude that feedback which allows students to see the link between strategy use and successful listening outcomes could improve their self-efficacy in listening. In this study, a plausible explanation for the noted improvement in self-efficacy via preview and organising knowledge structures might be that the outcomes of these two processes are easily perceptible. In other words, students might clearly discern a progress in their understanding in class after preview, as well as a feeling of better mastery after systematically organising knowledge after class. *Enactive mastery experiences*, as Bandura (1997) asserted, "are the most influential sources of efficacy information because they provide the most authentic evidence of whether one can master whatever it takes to succeed" (p. 80). Indeed, findings in Chapter 5 (Section 5.3.2.2) show that students, especially those with a low and medium BELP, attributed their boosted efficacy to decreased listening difficulties and improved comprehension over the term. This may also partially explain the consistently augmented self-efficacy during the first semester. Such positive feedback from prior experiences could possibly form a 'virtuous cycle' and encourage further investment in learning (Thompson, 2018). This is evidenced in Chapter 5 (Section 5.3.2.2) where a student reported to be more enthusiastic about listening to the teacher as she confirmed her progress in understanding EMI classes.

8.4.3 Goal orientation and task value in learning EMI courses

Findings from Chapter 6 (Section 6.5) reveal that students' self-regulatory and strategic listening in relation to EMI classes seemed to be steered and motivated by their *intrinsic goal orientation* and perceived *task value* in undertaking EMI classes. In contrast, an *extrinsic goal orientation* only significantly explained perceived difficulties in listening to EMI classes (see Chapter 5, Section 5.3.2.1).

Intrinsic goal orientation is conceptualised in this study as an internal drive to engage in EMI courses for reasons such as challenge, curiosity, or mastery. Results of simultaneous multiple regression in Chapter 6 (Section 6.5.1) reveal that *intrinsic goal orientation* positively and significantly predicted the most types of listening strategies investigated in this study, including metacognitive strategies of *directed attention*, *problem solving*, *plan-evaluation*, and all three deep processing strategies in listening to EMI classes. This is in line with evidence from educational research that has shown that students who are intrinsically oriented towards a competent mastery of knowledge tend to use more metacognitive strategies (Huang et al., 2012; Neuville et al., 2007; Somuncuoglu & Yildirim, 1999) and deep processing cognitive strategies (Pintrich et al., 2001; Valle et al., 2003). Although EMI research has yet to explore the role of motivation in the process or outcomes of learning subject knowledge through English (Doiz & Lasagabaster, 2018; Lasagabaster, 2016; Rose et al., 2019; Xie & Curle, 2019), some researchers have suggested that studies in this regard should consider non-language-oriented motivational measures (Rose et al., 2019). This appeal has come after the findings that language-related motivational constructs, such as the ideal L2 self, failed to predict EMI course grades (Rose et al., 2019; Xie & Curle, 2019). The results of the present study address this appeal, and suggest that students' intrinsic goal orientation in undertaking EMI courses seem to be more directly and closely related to

learning in an EMI HE context. In other words, students who are driven by an internal curiosity and sense of achievement to understand content and topic knowledge taught in EMI classes may use more metacognitive and deep processing strategies in listening.

Further, qualitative findings in Chapter 6 (Section 6.5.2) show that in the EMI context, students' goal orientation seemed to be intertwined with their perceived task value, that is, the perceived *interest*, *importance,* and *usefulness* in learning EMI courses. This interplay could be most evidently noted at the midterm, when an increase in the extrinsic goal orientation was accompanied by a decrease in the intrinsic goal orientation and task value (see Chapter 5, Section 5.3.1). Qualitative findings in Chapter 5 (Section 5.3.2.2) further unveil that when students found content knowledge more theoretical at the midterm, they viewed it as detached from practical application and became somewhat 'useless'. The enhanced depth and professionalism in subject knowledge also abated their interest and curiosity in listening. Under such circumstances, the learning of the students seems to be no longer driven by an eagerness to understand the knowledge thoroughly, but more by external demands such as coping with the homework and exams. This finding supports the study of Wolters et al. (1996), which found that when students positively valued the academic task, they tended to be motivated by learning-oriented goals and use more SRL strategies. Conversely, when students perceived less interest or usefulness in learning, they tended to focus on external rewards such as exam grades and hence less regulated their learning.

The highlighted role of motivation related to subject learning rather than language learning in EMI HE, however, poses a question of whether the proposed baseline goal of EMI to "demonstrate some improvement in English language learning" (Macaro et al., 2018, p. 37) is realisable. In this regard, Gao (2008) cautions that although subject learning through the medium of English provides initial incentives for students to learn English, such language

learning effort might diminish as long as academic learning is not affected. Indeed, in this study, many students reported to feel it unnecessary to set goals for listening practice as they secured relatively satisfactory comprehension in EMI classes from the midterm (see Chapter 7, Section 7.4.1). Therefore, a question that EMI language support should consider is how to sustain long-term language learning of students towards higher academic English competence, after they have met the basic demands of coping with EMI classes. Given the influential role of intrinsic goal orientation and task value in students' self-regulated listening, one possible solution might be that language support programmes select listening materials with content knowledge interesting, informative and valuable to students to sustain their motivation in practicing with these materials. As can be seen from findings in Chapter 7 (Section 7.4.2), students appeared to become more selective in listening materials based on content topics from the midterm. Therefore, offering students a selection of listening materials with content that match their personal interest or aid their subject learning could be potentially effective in sustaining their long-term SRL effort.

8.5 Chapter summary

This chapter discussed key findings reported in Chapter 4 to 7 in relation to literature in EMI research, studies on L2 listening difficulties and strategies, as well as empirical evidence in education psychology. The discussions on EMI transitional difficulties foreground the value to adopt a process-oriented approach, examining issues regarding various cognitive processes of listening to allow for more nuanced understanding of listening difficulties in university EMI classes. Further, the discussion revolving around the preparedness of secondary education for learning in EMI HE calls for a more comprehensive approach to examine the 'legacy' of students' prior education, combining their beliefs and habits related to both language and subject learning, which together feed into their listening experience during EMI

transition. The challenging transition period appeared to be a 'cradle' for strategic and self-regulatory processes of listening. These processes were discussed in terms of its interrelated and cyclical nature, suggesting that future research may need to examine strategic behaviours in EMI classes in relation to the self-regulatory learning activities surrounding the classes for a comprehensive picture of strategic learning.

More importantly, echoing the call from Macaro et al. (2018) to investigate HE stakeholders' beliefs in EMI over time, the longitudinal lens adopted in this study attests to shifted attitudes and perceptions of students on a number of listening-related issues (e.g., teacher accent, and terminology) after a semester into EMI courses, hence offering new perspectives to extant attitudinal research in EMI HE. The cross-time comparisons also indicated strengthened strategic competence of students, which developed in tandem with a top-down listening approach focusing on subject content learning. These findings were compared and discussed in relation to strategy research in L2 listening. Noticeably, the path towards autonomy during EMI transition, as this study unveiled, appeared to be highly explorative, experimental, and expedient, from which some students developed more balanced and sustainable SRL whereas others became demotivated and abandoned practice. Meanwhile, the trajectories of listening during the transition period demonstrated marked variations due to individual differences. Students entering at distinct listening proficiency levels might perceive progress in their EMI listening differently. Their perceived self-efficacy in listening to EMI classes as well as motivation in learning EMI courses also fluctuated over time, and interacted reciprocally with their self-regulatory and strategic listening processes. These findings highlight a necessity to unpack learning processes and outcomes in EMI HE contexts in relation to relevant learner-related factors, instead of viewing students as a unitary cohort.

Chapter 9 Conclusion

9.1 Summary of the study

9.1.1 Review of research aims and methodology

The present study has examined the listening difficulties and self-regulated listening of Chinese students during their first semester upon arrival at an EMI transnational university—a critical transition period considered to reflect observable challenges and adaptations (Evans & Morrison, 2011). The study has investigated three overarching issues related to the transitional experience:

- The perceived difficulties of students in listening to EMI classes at the beginning of, and longitudinally during the first semester;
- The self-regulatory and strategic processes reported by students in relation to listening in EMI classes, as well as for out-of-class listening practice upon arrival at an EMI university, and over time during the first semester;
- The role of students' *baseline English listening proficiency (BELP)*, *self-efficacy in listening to EMI classes*, and *motivation in learning EMI courses* (i.e., intrinsic and extrinsic goal orientation, and task value) in relation to the perceived listening difficulties and self-regulated listening.

A fully longitudinal mixed methods design has been adopted to address the above-listed aims of the research (Van Ness et al., 2011), collecting a hybrid of quantitative and qualitative data at the beginning (T1, Week 2 and 3), midterm (T2, Week 8 and 9), and the end (T3, Week 13 and 14) of the first semester. Data were collected at an EMI transnational university located in southeast China, which is the earliest joint venture between research-led universities in UK and China. Data collection of this study includes a pilot and the main data collection. The main dataset was collected from September to December, when three content-based courses

belonging to the academic clusters of Business, Humanities and Social Sciences were accessed. The instruments for main data collection include

- listening scores in Oxford Online Placement Test as a measure for students' BELP upon arrival at the university;
- a questionnaire battery administered at T1, T2 and T3 to measure EMI listening difficulties and strategies, self-efficacy and motivational variables;
- semi-structured interviews at T1, T2 and T3 to explore students' perceptions of EMI listening difficulties, and self-regulatory and strategic processes of listening.

Participants for the questionnaire battery include 412 students at T1, 344 at T2 and 316 at T3, with a total attrition rate of 23.3%. Those students from the T1 sample who did not continue with the study resembled the remaining sample in terms of gender, age, EAP class level, years of English learning, and study or living abroad experience, indicating that the missing sample was demographically similar to the remaining sample. The questionnaire data were collected via the online survey platform Qualtrics, immediately after EMI classes when students were presumably fresh about their listening difficulties and strategies. A sub-cohort of interviewees were sampled from the survey participants (n=35, T1), with only one student dropping out during the research (n=34, T2 and T3). Three BELP groups (high, medium, low) were delineated using K-means clustering, and a maximum variation sampling strategy was adopted to balance the number of interviewees across different BELP groups. At each time point of data collection, students were interviewed on an individual basis in the following week after they completed the online survey, and all interviews were audio recorded. The questionnaire data were analysed through SPSS 25.0, calculating descriptive statistics and using inferential statistical tests including regression analysis, multilevel modelling, t-tests, ANOVA, and MANOVA to address the research questions. The qualitative interview data were transcribed and imported into NVivo 11 for thematic content

analysis, where the categories and themes were developed both deductively from relevant theories and research questions as well as inductively from the data.

9.1.2 Summary of major findings

This doctoral research has revealed substantial difficulties of students in listening to EMI classes at the beginning of their first semester. In response, students have also been found to employ strategic and self-regulatory processes to handle the challenges. The listening difficulties and self-regulatory activities seemed to change markedly during the semester, and to interplay with students' BELP, *self-efficacy in listening to EMI*, and *motivation in learning EMI courses* dynamically. Findings are summarised below to address each research aim outlined in Section 9.1.1 above.

Regarding listening difficulties: Chapter 4 has revealed that, at the beginning of the semester, the difficulties experienced by students in listening to EMI classes could be largely categorised into *perception-*, *attention-*, *vocabulary- and syntax-*, as well as *utilisation-related* problems, largely corresponding to the theoretic models of listening (Anderson, 1995; Field, 2009). Problems regarding specialist vocabulary and lower-level processing issues such as word recognition were prominent, as identified both in the questionnaire battery and the interview data. The difficulties, to a great extent, appeared to stem from disparities in a number of language and subject learning-related factors between high school and an EMI transnational university. In Chapter 5, a quadratic overall trajectory of students' perceived listening difficulties has been illustrated statistically over the first semester, where a surge at the midterm went in parallel to the introduction of new teaching staff and more professional content knowledge. An analysis of the interview data has pinpointed common patterns of development, highlighting a higher tolerance of teacher accent, and an altered view of specialist vocabulary as being concept-related at the end of the term. Overall, students

reported a 'smoother' listening experience with less chances of mental translation or fixed attention after a term in listening to EMI classes.

Regarding strategic and self-regulated listening: Findings in Chapter 6 have demonstrated that students engaged in strategic and self-regulatory processes of listening as soon as a couple of weeks into EMI courses. Such processes have been found to function cyclically and interrelatedly, aligning with Zimmerman's three-phase social cognitive model of SRL. The role of preview (*forethought phase*) stood out in the interview data, which appeared to be a prerequisite for activating various deep-processing strategies while listening in class (*performance phase*). After class, substantial review activities were reported, and students also reflected on their listening performance, problems, and methods for future adaptations (*self-reflection phase*). Inadequate English proficiency, especially a lack of vocabulary, was frequently held accountable for listening difficulties in class, hence catalysing industrious listening practice on a daily basis. A common preference of authentic listening materials was noted over those specially designed for language learning. Students at this stage also reportedly favoured an intensive listening approach, focusing on specific linguistic elements and vocabulary learning.

The longitudinal analysis in Chapter 7 has revealed that students altered their strategic and self-regulated listening during the term as they increasingly valued the learning of subject knowledge. As such, a more top-down listening approach in EMI classes has been observed, manifested in increased attempts in inferencing meaning for unknown words and a raised awareness in monitoring comprehension. Selective attention and note taking were noted throughout the term, and some strategies such as organising knowledge structures were delayed until after class to prioritise attention to comprehension in class. Further, it has been found that as college life became busier at the midterm, students seemed to become more

strategic and selective in preview and review activities to save time. The midterm has been considered a 'watershed' moment when some students stopped listening practice due to satisfaction with their comprehension in EMI classes, while others set new practice goals related to wider communicative needs and personal development. For the latter, they drifted away from a preference of intensive listening towards extensive listening methods, while selecting materials with entertainment value and quality content. Finally, it has been noted that the self-regulated listening during the transition period was by no means smooth, but was instead characterised with distress, doubts, and frustrations. These motivational and affective factors appeared to dynamically inform the perseverance of practice.

Regarding the role of BELP, self-efficacy, and motivation: Statistical analyses in Chapter 4 have shown that upon arrival at the EMI university, students' BELP was an important predictor of their perceived listening difficulties. In Chapter 5, the rate of change in listening difficulties over time has been found to vary according to BELP: The lower the students' BELP, the less acute they experienced the surge in difficulty level at the midterm, and the sharper drop they perceived in difficulties after an entire term. These results have been supported with findings from the interview data, where low- and medium-BELP students reported substantial decrease in lower-level processing difficulties at the end of the term. Results in Chapter 5 have revealed that students' s*elf-efficacy in listening to EMI classes* grew consistently throughout the term, significantly predicting listening difficulties at all time points. The interplay between the two constructs has been found to be reciprocal in the interview data. Other motivational variables, however, fluctuated over time, where the *extrinsic goal orientation* and *task value in learning EMI courses* became a stronger predictor of listening difficulties at the midterm. This was because, as shown through the analysis of interview data, the increasingly theoretical and professional content knowledge at the midterm appeared to hamper students' perceived *interest* and *usefulness* (task value) in

learning. Meanwhile, the escalated listening difficulties propelled students to focus on *extrinsic goals* such as coping with homework or passing exams.

Unlike its role in perceived listening difficulties, BELP has been found incidental in students' reported use of EMI listening strategies, predicting only the strategy of *mental translation*, as revealed in Chapter 6. Likewise, *extrinsic goal orientation* did not significantly explain any strategy. In contrast, the role of *self-efficacy*, *intrinsic goal orientation*, and *task value* seemed more important, all of which significantly predicted some strategies to varying degrees. Qualitative analyses have further illustrated how these three variables interacted with diverse self-regulatory processes of listening in relation to EMI classes, such as preview, attention management, seeking other's help, problem solving, and the deep processing of content knowledge.

9.2 Theoretical contributions of the study

This doctoral study contributes to new understandings on the transition-year experience from L1 MOI secondary school to EMI tertiary education, which has hitherto remained an underexplored area (Macaro et al., 2018). The longitudinal lens employed in this research offers unique insight into changes in students' perceptions of listening difficulties in EMI classes. In doing so, the findings of the study contribute to a dynamic perspective, and complement extant EMI studies of language challenges, which have often drawn on a cross-sectional design to portray a static picture of the issue (see Chapter 2, Section 2.2.1). Moreover, by adopting a process-oriented approach for examining EMI listening difficulties, this study bridges the research on EMI challenges with L2 listening research. The findings in this study have confirmed the rigor of this approach, where EMI listening difficulties have been found to largely correspond to the cognitive processes outlined in Anderson's (1995) and Field's (2009) listening models. Such an approach specifies problems at each cognitive

stage of listening, based on which tailored language support could be devised to scaffold students in a more precise way.

In addition, this study is among the very first attempts to apply a self-regulated learning (SRL) framework to examining students' listening during EMI transition, which has meaningful contributions to both EMI and L2 self-regulation research. With respect to EMI research, a focus on mainland China provides contextualised evidence to the burgeoning thread of studies on autonomous learning in EMI HE worldwide. Further, the study brings students' self-regulatory processes related to listening into the spotlight, hence addressing the dearth of empirical evidence on *listening* in L2 self-regulation research. In particular, self-regulated listening in this study has been conceptualised based on Zimmerman's cyclical social cognitive SRL model. The adoption of this model expands the scope of current L2 research related to self-regulation, which has predominantly followed a Dörnyeian volitional control model (Ranalli, 2012). The close relationship between the *pre-class* self-regulatory process of preview and the reported use of deep processing listening strategies *in class* found in this study, to a certain extent, also offers empirical support to noted synergies of research on learner strategy and self-regulation (e.g., Oxford, 2011; Rose, 2011, 2012). Specifically, to situate the employment of strategies within the SRL framework has made it possible to extend beyond the immediate context when certain strategies are adopted, and offer insight into the prerequisites and affordances for these strategies provided by the learning revolving around strategy use.

The inclusion of multiple learner-related variables in this study contributes to a more precise understanding on students' learning experience in EMI HE contexts. Findings on the differentiated experiences in perceived listening difficulties across BELP groups challenge previous studies that have researched the learning difficulties of students in EMI HE

programmes as a unitary cohort (see Chapter 2, Section 2.2.1). Since these disparities have been observed among students who all come from CMI high schools, the study hence posits a critical stance to re-evaluate evidence on the role of MOI of secondary education in relation to learning challenges in EMI HE, underlying the necessity to control for covariates such as students' entry-level English proficiency. Moreover, the incorporation of self-efficacy and motivational variables in this study adds to the growing body of research in EMI that has started to explore these factors in recent years. Findings in this respect affirm the importance of examining non-language-related motivational factors in EMI learning, which has already been noted by some researchers (e.g., Rose et al., 2019; Thompson et al., 2019).

Methodologically, this study is the first to apply a fully longitudinal mixed methods design, collecting quantitative and qualitative data at all time points, to investigate the EMI transitional listening experience. Such a design has rarely been employed in either learning challenge- or strategy-related studies in EMI HE, as revealed by the literature review in Chapter 2. The analysis of the data has followed what Flick et al. (2012) consider a 'strong form of triangulation', analysing each source of data separately and then joining the results for interpretation. In doing so, results from the quantitative and qualitative data corroborate each other at all time points, and extend extra knowledge instead of confirming from either source. Hence, the study suggests such a design as a promising way to more comprehensively capture the longitudinal development of students' learning during EMI transition. Further, as reported in the Methodology Chapter (Chapter 3, Section 3.5.3), the questionnaire of 'Perceived listening difficulties in EMI classes' and 'Self-efficacy in listening to EMI classes' have been found highly reliable with a Cronbach's alpha around or above 0.90 across three time points, which could potentially be adopted in future research. Finally, the EFA for the adapted MALQ has found low communality values for the factor 'person knowledge', echoing Ehrich and Henderson's (2019) study of Korean EFL listeners. This finding

highlights a need to re-assess the robustness of the MALQ when it is applied to cultural contexts different from where it was originally designed.

9.3 Practical and pedagogical implications

The findings of the present study offer implications for both the teaching of EMI courses and language support programmes during transitional periods when students are taking English medium courses for the first time. First, the importance of preview in this context indicates that EMI teachers can facilitate listening in class by making their slides available to students before class, and teaching with a transparent structure congruent with the slides. By building up students' knowledge of the content before the lesson, effective preview activities may free up cognitive space for deeper processing of information while listening. Likewise, providing students with access to a variety of teaching materials (e.g., task sheets, a list of key points, and lesson notes) after class could also make students more assured and focused on digesting knowledge in class instead of rushing to take many notes.

Further, the findings of the study suggest that EMI teachers might need to teach with a sensitivity that within the same classroom, students' abilities to comprehend subject knowledge through English are heterogeneous. Given the disparities in problems that students with different proficiency grapple with, EMI teachers could consider adjusting their instructional language to provide more scaffolding to low-proficiency students instead of watering down content knowledge. The latter, as shown in this study, seems to especially alienate high-proficiency students and result to their loss of attention in class. Specifically, as this study suggests, EMI teachers could use explicit discourse markers to signpost students of topical turns and rhetorical functions, as well as to change prosodic features to help low-proficiency students direct their attention efficiently to important parts.

Moreover, the study points to the importance to devise assessment in EMI courses, considering its observable role in catalysing students' reflections on their learning. Summative assessment such as midterm exams, as revealed in this study, seems especially useful in triggering serious reflections on students' listening methods as well as facilitating diagnosis of knowledge attainment. EMI teachers could therefore devise the form (e.g., essay, project, or exam) and the content of such assessment to guide students on their self-regulated learning in relation to EMI classes. To optimise the effect of the assessment, EMI teachers could embed reflective sessions after the assessment, and scaffold students on how to constructively use feedback from the assessment.

In addition to implications for EMI practitioners, the findings of the study also offer practical suggestions for language support programmes. The substantial EMI listening difficulties that students reported upon arrival indicate that the language support for EMI programmes should consider students' prior English learning experience. Especially in contexts where English learning in secondary education focuses heavily on grammatical tests, EMI language support should focus on fostering communicative and academic skills. For example, phonological awareness training could be offered to help students eradicate basic problems such as word recognition to free up working memory for higher-level processing of content knowledge. Language support that fosters the academic English competence demanded in EMI HE, such as EAP and ESP courses, is especially recommended. In particular, these courses could include the teaching of field-specific terminology, and cultivate students' ability to understand these words via explanatory language in English to foster their command of academic English at the same time. Stratified language support programmes, as the university in this study has adopted, might make it possible to offer tailored support to students arriving with varying English proficiency. For students starting with a lower English proficiency, a 'principled approach to authenticity' (Alexander et al., 2008) with fewer linguistic demands

could allow students to focus on global aspects such as the organisation of speech, hence scaffolding them towards a more top-down comprehension approach. Meanwhile, offering language materials with informative and professional content to high-proficiency learners might sustain their intrinsic goal orientation and task value for self-directed learning.

Finally, the study points to the importance of scaffolding students to become self-regulated and strategic learners in EMI HE contexts. As such, language support programmes could embed strategy training to strengthen students' appropriate and adept use of listening strategies. For instance, students could be taught how to monitor their comprehension to verify their inferences of unfamiliar words, which is an ability that students in this study seemed to lack at the beginning of listening to EMI classes. Given the important role of self-efficacy in predicting strategy use revealed in this study, self-efficacy raising tasks could be incorporated in language support programmes to pave the way for successful strategy use and SRL. These tasks could take the form of pair or group discussions that allow students to establish the link between listening strategies and successful listening outcomes (see Graham, 2011), or to break listening tasks into small and achievable pieces to make students feel more efficacious via enactive mastery experiences (see Thompson, 2018). To conclude, since EMI programmes envisage dual goals of the improvement of English as well the quality of subject knowledge learning, EMI teachers and language specialists need to make concerted and collaborative effort to achieve such goals.

9.4 Limitations of the study and recommendations for future research

Despite the careful design of the study, the findings have several limitations. These limitations, however, offer important implications for future research. First, the scope of this study is limited to full EMI programmes in a transnational university. The EMI courses at this type of university are presumably better supported than in other non-EMI ordinary

universities (see McKinley et al., 2021). For example, the three EMI classes where this study sampled from are delivered in a 'lecture + seminar' format, where the seminars are co-designed and delivered by teachers from the Language Centre and academic faculties. Concurrent EAP support is also offered to first-year students, which could potentially facilitate their listening progress during the transition. These unique features of EMI provision in this study have therefore limited the ability to generalise the findings to other EMI HE programmes, where such support may be lacking. Hence, future research is needed to investigate transitional difficulties and self-regulatory behaviours of students in partial EMI programmes at normal universities in China (see Rose et al., 2019), and to compare whether disparities exist between different forms of EMI provision. In addition, an investigation into how students interact with others (e.g., teachers, and peers) in EMI classes, which has not been explored in this study, would also contribute to a more comprehensive understanding on students' listening experience in EMI HE contexts.

Second, this research has focused on students' EMI listening experience in 'soft' subjects. These subjects could set higher linguistic requirements compared to 'hard science' subjects (e.g., Physics, Engineering, and Statistics) which depend much on mathematical formulaic expressions or graphical illustrations. It might be that the listening difficulties and strategic behaviours reported in this study are specific to the disciplinary fields. Hence, future research could be conducted in EMI courses in 'hard science' subjects to compare with the findings of this study, and to examine whether there are differences in the listening experience of students across disciplinary fields. Further, since EMI lectures in this study were taught by different academic experts based on subject topics, variations existed in the teaching styles of the lecturers. This could contribute to variations in students' perceptions of listening difficulties. Results may have been different if all lessons in the same EMI courses were taught by the same lecturer. Whereas it is typical that in EMI HE, lecturers vary in the same

module according to topics, there might be EMI courses where the staff are relatively stable. Future research could sample from such courses to see whether students' transitional listening experiences concur with the findings of the current study. In terms of the duration of this longitudinal research, this study has only collected data during the first semester upon students' arrival at the EMI university. Future research would merit from adopting a longer duration of research, for example, an academic year, to examine when students might perceive themselves as 'fully competent' in comprehending EMI courses, and whether they still engage in language-related SRL practice.

Third, there are limitations regarding the measurement of constructs in this research. One of these limitations, as also pointed out in the Methodology Chapter (Chapter 3, Section 3.7), is the absence of task-specific and contextualised measures of listening strategies such as stimulated recall interviews due to practical constraints. Although data were collected in close proximity to EMI classes to improve the accuracy of self-report, the data still could not depict the concrete strategic reactions that students employed in response to specific listening tasks in EMI classes. Future research could improve from this limitation, to video-record the EMI classes if possible, and use stimulated recall interviews to gain insight into what tasks are likely to generate strategic processes, and to ask students to explain how and why they use certain strategies in relation to the tasks.

Since that listening tasks in EMI HE contexts might differ according to the format of class organisation (e.g., lecture vs. seminar), topic (e.g., the familiarity of content), style of teaching (e.g., speech rate, interaction, and pedagogical strategies), use of teaching tools (e.g., slides, task sheets, and videos), etc., future research would especially merit from more specific description of listening tasks in EMI classes. In addition, vocabulary-related problems that students described in this study should be treated with caution. Since students

might not be able to reliably distinguish and name different types of vocabulary, findings related to vocabulary difficulties are only restricted to what students 'perceived' them to be. Stimulated recall interviews could partially address this limitation. That is, researchers in the future could ask students to pause at words or expressions that they have difficulties in understanding, and to identify exact words that students grapple with. This will advance our understanding on how students conceptualise 'vocabulary knowledge' in EMI contexts, a concept that is under-theorised insofar (Macaro, 2020).

Finally, this study is limited in its efficacy in contributing direct evidence to the effectiveness of EMI programmes in language learning. Findings on the longitudinal changes in students' perceptions of listening difficulties suggest that the entry-level English listening proficiency might contribute to differentiated rates of progress in listening competence. However, due to the absence of a post-semester listening test, this study does not directly measure the gains in listening proficiency of students. Therefore, future research could be carried out to examine the improvement of language proficiency via a pre-post test design, while controlling for the initial proficiency of learners. Last but not the least, this study has focused on the 'bright side', examining the strategic and self-regulatory processes of students. However, as noted and discussed in Chapter 8, the transition period could never be void of struggle, frustration, and despair. Hence, future research is needed to investigate the amotivation, resistance, or even 'drop-out' of students during the transition period, and explore what factors lead to these outcomes.

In conclusion, this doctoral study contributes to extant research in EMI and self-regulation, and offers pedagogical implications for EMI practices. The findings invite future researchers to build on these contributions, so that our understanding of these important constructs during transition to EMI could be advanced. With more research on understanding the specific

difficulties and self-regulated learning encountered and adopted by students in EMI contexts, we can ultimately come up with effective ways to scaffold students to thrive and prosper in their learning of both English and content knowledge in EMI HE, during the transition period, and in the long run.

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Appendix A Appendices for Chapter 3

Appendix 3. 1. English version of the questionnaire battery

Survey of Listening in English-Medium-Instruction (EMI) Classes

ID:

Gender: male ☐ female☐

Age: ____ First language: Chinese☐ Others (please specify):

Major:

EAP class level: Foundation ☐ Standard ☐ High level ☐

Medium of Instruction for High School: Chinese ☐ English ☐ Others (please specify):

Years of English learning: < 3 years ☐ 3-6 years ☐ 6-9 years ☐ > 9 years ☐

Living/studying abroad experience: No ☐ Yes ☐ If yes, please specify where & for how long:

Section 1: Difficulties in listening to EMI classes This section asks about the challenges or difficulties you encounter in listening to EMI classes of [LAN001/LAN003/MAN001]. Please choose the answer most appropriate to your situation.	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
1. It is difficult to understand teachers' accents in EMI classes.	6	5	4	3	2	1
2. I miss the next part of teachers' talk when thinking about the meaning.	6	5	4	3	2	1
3. When listening to EMI classes, specialist vocabulary is challenging for me.	6	5	4	3	2	1
4. I have difficulty taking notes in EMI classes.	6	5	4	3	2	1
5. I find words or expressions in EMI classes unfamiliar.	6	5	4	3	2	1
6. I cannot form a mental representation of what teachers talk about in EMI classes.	6	5	4	3	2	1
7. The information in EMI lectures is presented too quickly that it hinders my understanding.	6	5	4	3	2	1
8. I am confused about the key ideas of the EMI lectures.	6	5	4	3	2	1
9. I find it difficult to follow teachers' line of thought in EMI classes.	6	5	4	3	2	1
10. Sometimes I do not recognise words I know while listening to EMI classes.	6	5	4	3	2	1
11. It is difficult to understand the organisation (structure) of the EMI lectures.	6	5	4	3	2	1
12. I cannot recognise the linking sounds between words when listening to EMI classes.	6	5	4	3	2	1

Section 2: Metacognitive awareness of listening strategies Please read the following statements on the listening processes and choose the answer most appropriate to what you do in EMI classes [LAN001/LAN003/MAN001].	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
13. Before I start to listen, I have a plan in my head for how I am going to listen.	6	5	4	3	2	1
14. I focus harder on what the teacher talks when I have trouble understanding.	6	5	4	3	2	1
15. I find listening in English is easier than reading, speaking or writing in English.	6	5	4	3	2	1
16. I translate in my head as I listen to EMI classes.	6	5	4	3	2	1
17. I use the words I understand to guess the meaning of the words I don't understand.	6	5	4	3	2	1
18. When my mind wanders in EMI classes, I recover my concentration right away.	6	5	4	3	2	1
19. As I listen to EMI classes, I compare what I understand with what I know about the topic.	6	5	4	3	2	1
20. I feel that listening to EMI classes is easy for me.	6	5	4	3	2	1
21. I use my experience and knowledge to help me understand.	6	5	4	3	2	1
22. Before I listen to EMI classes, I think of similar topics I have listened to.	6	5	4	3	2	1
23. I translate key words as I listen.	6	5	4	3	2	1
24. I try to get back on track when I lose concentration.	6	5	4	3	2	1
25. As I listen to EMI classes, I quickly adjust my interpretation if I realise that it is not correct.	6	5	4	3	2	1
26. After listening, I think back to how I listened and what I might do differently next time.	6	5	4	3	2	1
27. I don't feel nervous when I listen to EMI lectures.	6	5	4	3	2	1
28. When I have difficulty understanding what I hear, I give up and stop listening.	6	5	4	3	2	1
29. I use the general idea of the lesson to help me guess the words I don't understand.	6	5	4	3	2	1
30. I translate word by word as I listen to EMI classes.	6	5	4	3	2	1
31. When I guess the meaning of the word, I think back to what I have heard to see if my guess makes sense.	6	5	4	3	2	1
32. As I listen to EMI classes, I periodically ask myself if I am satisfied with my level of comprehension.	6	5	4	3	2	1
33. I have a goal in mind as I listen to EMI classes.	6	5	4	3	2	1

Section 3: Self-efficacy in listening to EMI classes

In this section, please assess how confident you are in terms of listening to EMI classes [LAN001/LAN003/MAN001] and rate your confidence using the scale below after each statement.

0——110——20——30——40——50——60——70——80——90——100

cannot do at all moderately can do highly certain can do

34. I can work out the meaning of unknown words in teachers' talk in EMI classes.	( )	
35. I am good at listening to subject knowledge taught in English.	( )	
36. I am capable of using listening skills to enhance my understanding in EMI classes.	( )	
37. I can understand the general idea of EMI lectures.	( )	
38. I can learn to improve my listening skills for EMI classes in my own way.	( )	
39. I can understand the knowledge details in EMI classes.	( )	
40. I can use strategies to improve my listening skills for EMI classes.	( )	
41. I can understand teachers' talk in EMI classes better than other students.	( )	
42. I can learn English effectively to improve my English listening skills.	( )	
43. I can learn to improve my English listening skills more creatively than other students.	( )	

Section 4: Motivation for learning EMI courses

Please read the statements about your motivation for learning EMI classes [LAN001/LAN003/MAN001] and choose the answer most appropriate to your situation.

	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
44. As I listen in EMI classes, I prefer content that really challenges me so I can learn new things.	6	5	4	3	2	1
45. In an EMI class, I prefer topic that arouses my curiosity, even if it is difficult to understand.	6	5	4	3	2	1
46. The most satisfying thing for me is trying to understand the content as thoroughly as possible.	6	5	4	3	2	1
47. When I have the opportunity in EMI classes, I choose course assignments that I can learn from even if they don't guarantee a good grade.	6	5	4	3	2	1
48. Getting a good grade in EMI classes is the most satisfying thing for me right now.	6	5	4	3	2	1
49. The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade.	6	5	4	3	2	1
50. If I can, I want to get better grades in EMI classes than most of the other students.	6	5	4	3	2	1
51. I want to do well in EMI classes because it is important to show my ability to my family, friends, employer, or others.	6	5	4	3	2	1
52. I think I will be able to use what I learn in EMI course in other courses.	6	5	4	3	2	1
53. It is important for me to learn subject knowledge through English.	6	5	4	3	2	1
54. I am very interested in learning subject content through English.	6	5	4	3	2	1
55. I think learning subject knowledge through English is useful for me.	6	5	4	3	2	1

56. I like the subject matter of EMI courses.	6	5	4	3	2	1
57. Understanding the subject matter of EMI courses is very important to me.	6	5	4	3	2	1

Section 5: Deep processing listening strategies Please read the following statements on the listening processes and choose the answer most appropriate to what you do in EMI classes [LAN001/LAN003/MAN001].	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree
58. When I listen, I pull together information from different sources to help me understand, such as pre-reading materials, slides, etc.	6	5	4	3	2	1
59. When I listen, I try to relate ideas in this lesson to those in other lessons whenever possible.	6	5	4	3	2	1
60. When I listen, I try to relate what the teacher says to what I already know.	6	5	4	3	2	1
61. When I listen, I write brief summaries of the main ideas of what teacher talks.	6	5	4	3	2	1
62. When I listen, I try to understand the concepts in this class by making connections with what I read before the class.	6	5	4	3	2	1
63. I try to apply ideas I listened in the class in other class activities such as discussion.	6	5	4	3	2	1
64. As I listen, I outline key points to help me organise my thoughts.	6	5	4	3	2	1
65. After the class, I go through my class notes and try to find the most important ideas.	6	5	4	3	2	1
66. As I listen, I make simple charts, diagrams, or tables to help me organise what I hear in class.	6	5	4	3	2	1
67. After the class, I go over my class notes and make an outline of important concepts.	6	5	4	3	2	1
68. I often find myself questioning things I hear in this course to decide if I find them convincing.	6	5	4	3	2	1
69. When a theory, interpretation, or conclusion is presented in class, I try to decide if there is good supporting evidence.	6	5	4	3	2	1
70. I treat what I hear in class as a starting point and try to develop my own ideas about it.	6	5	4	3	2	1
71. I try to play around with ideas of my own related to what I hear from the teacher.	6	5	4	3	2	1
72. Whenever I hear an assertion or conclusion in this class, I think about possible alternatives.	6	5	4	3	2	1

Thank you for answering all the questions!

Would you like to participate in the follow-up interviews? If you participate, you will receive tailored learning advice from an educational researcher from Oxford university. Please fill in your contact details below if you'd like to participate.

Name: **Email:** **Tel/Wechat:**

Appendix 3. 2. Chinese version of the questionnaire battery

大学生英文授课项目的听力调研

学号:

性别: 男 ☐ 女☐ 年龄: ____ 母语: 中文☐ 其他 (请注明):

专业:

EAP 课程班级: Foundation ☐ Standard ☐ High level ☐

高中非英语学科（如：化学）授课语言: 中文 ☐ 英文 ☐ 其他 (请注明):

英语学习经验: 少于 3 年 ☐ 3-6 年 ☐ 6-9 年 ☐ 多于 9 年 ☐

国外学习/居住经历: 否 ☐ 是 ☐ 如果是，请注明多久: _____ 年 _____月

第一部分：英文授课的听课困难及挑战 本部分探讨你在英文授课课程[LAN001/LAN003/MAN001]上遇到的听力理解方面的挑战或困难。请阅读以下描述，根据你目前的实际情况选出合适的选项。	非常符合	符合	比较符合	比较不符	不符	非常不符
1. 听课时，我觉得听懂老师的口音有困难。	6	5	4	3	2	1
2. 我在想老师讲的是什么的时候，会错过接下来的内容。	6	5	4	3	2	1
3. 听课时，专业词汇对我来说有挑战。	6	5	4	3	2	1
4. 我在听课时做笔记有困难。	6	5	4	3	2	1
5. 我觉得课上老师使用的单词或表达有些陌生。	6	5	4	3	2	1
6. 听课时，我无法在脑海中描绘老师所讲的内容。	6	5	4	3	2	1
7. 老师在 Lecture 上传达的信息太快，这影响了我的理解。	6	5	4	3	2	1
8. 听 Lecture 时，我搞不清楚课上的关键点。	6	5	4	3	2	1
9. 听课时，我觉得跟上老师的思路有困难。	6	5	4	3	2	1
10. 听课时，我有时听不出来自己知道的单词。	6	5	4	3	2	1
11. 听课时，我觉得搞清楚 Lecture 的组织架构有困难。	6	5	4	3	2	1
12. 听课时，我听不出词与词之间的连读。	6	5	4	3	2	1
第二部分：英文授课的听课过程 (听力策略的元认知意识) 请阅读以下关于英文授课课程[LAN001/LAN003/MAN001]听课过程的描述，根据你目前的实际情况选出合适的选项。	非常符合	符合	比较符合	比较不符	不符	非常不符
13. 在听课之前，我在脑海中有一个怎样听课的计划。	6	5	4	3	2	1
14. 当我听不懂时，我更努力地集中精力听老师讲课。	6	5	4	3	2	1
15. 我觉得英语听力比英语阅读、口语和写作要简单。	6	5	4	3	2	1
16. 听课时，我边听边在脑海中翻译。	6	5	4	3	2	1
17. 当我遇到听不懂的单词时，我凭借听懂的内容猜测它的意思。	6	5	4	3	2	1
18. 听课走神时，我马上恢复并集中注意力。	6	5	4	3	2	1
19. 听课时，我把我理解的和我对此话题已知的知识作对比。	6	5	4	3	2	1
20. 我觉得听懂老师的讲课对我来说轻而易举。	6	5	4	3	2	1
21. 听课时，我利用我的相关经验和学科知识帮助我理解。	6	5	4	3	2	1
22. 在听课之前，我回想之前听过的类似话题或内容。	6	5	4	3	2	1
23. 听课时，我边听边翻译关键词。	6	5	4	3	2	1

24. 当我注意力不集中时，我努力让自己的注意力回到听课上来。	6	5	4	3	2	1
25. 听课时，如果我意识到自己的解读不正确，我马上调整自己的理解。	6	5	4	3	2	1
26. 听课后，我回想这节课我是怎样听的，以及下次听课应当如何调整。	6	5	4	3	2	1
27. 我在听课时并不感到紧张。	6	5	4	3	2	1
28. 当我听不懂老师在讲什么时，我放弃，不再继续听课。	6	5	4	3	2	1
29. 当遇到听不懂的单词时，我用这节课的整体大意来帮我猜测它的意思。	6	5	4	3	2	1
30. 我在听课时逐词翻译我听到的内容。	6	5	4	3	2	1
31. 当我猜测某个单词意思时，我回想之前听到的内容来判断自己的猜测是否正确。	6	5	4	3	2	1
32. 听课时，我时不时地问自己是否满意目前的理解程度。	6	5	4	3	2	1
33. 听课时，我心中有对这节课的听课期望或目标。	6	5	4	3	2	1

第三部分：对于英文授课课程的听课自信心（自我效能）

请评估你在英文授课项目[LAN001/LAN003/MAN001]中的英语听力能力的信心，并按照以下标尺打分。

0——10——20——30——40——50——60——70——80——90——100

完全不能　　适当能够　　完全能够

34. 在听老师讲课时，我能够猜出不知道的单词的意思。	(	)
35. 我擅长理解用英文教授的学科知识。	(	)
36. 我具备英语听力技巧，能够帮我理解课堂内容。	(	)
37. 我能够听懂英文授课课堂上的主要内容。	(	)
38. 我能够用自己的方法学习英语，来提升英语听力技巧。	(	)
39. 我能够听懂英文授课课堂上的知识细节。	(	)
40. 我能够使用策略来帮助我提升英语听力技巧。	(	)
41. 在上英文授课的课程时，我能够比其他同学理解得好。	(	)
42. 我能够有效地学习英语，来提升英语听力技巧。	(	)
43. 比起其他同学，我能够更有创意地学习英语来提升英语听力技巧。	(	)

第四部分：英文授课的学习动机

以下描述探讨你在英语授课课程[LAN001/LAN003/MAN001]中的学习目的及兴趣。请根据你目前的实际情况选出合适的选项。

	非常符合	符合	比较符合	比较不符	不符	非常不符
44. 听课时，我喜欢有挑战性的内容，这样我可以学习新的事物。	6	5	4	3	2	1
45. 听课时，我喜欢引发我兴趣的话题，即使这个话题理解起来较困难。	6	5	4	3	2	1
46. 上这节课最令我满足的事情是试着尽可能彻底地理解课堂内容。	6	5	4	3	2	1
47. 如果有机会，我选择能让我学到东西的课后作业，即使该作业不保证得高分。	6	5	4	3	2	1
48. 关于英文授课的课程，取得高分是目前最令我满意的事情。	6	5	4	3	2	1
49. 目前对我来说最重要的是提高整体成绩，所以我上这节课主要关心的能否取得高分。	6	5	4	3	2	1
50. 如果我能，我希望在这节课上取得比其他大多数学生更高的分数。	6	5	4	3	2	1
51. 我希望能在英文授课课程中表现优异，这样可以向我的家人、朋友等展示我的能力。	6	5	4	3	2	1
52. 我认为我可以把英文授课课程中所学到的知识应用到其他课程中。	6	5	4	3	2	1
53. 对我来说，用英语学习学科知识重要。	6	5	4	3	2	1

54. 我对用英语学习学科知识很感兴趣。	6	5	4	3	2	1
55. 我认为用英语学习学科知识对我来说有用。	6	5	4	3	2	1
56. 我喜欢英文授课课程的知识内容。	6	5	4	3	2	1
57. 理解英文授课课程的知识内容对我来说很重要。	6	5	4	3	2	1

第五部分：英文授课的听课方法（深度听力策略）

本部分探讨你在英文授课课程[LAN001/LAN003/MAN001]听课时使用的方法或策略。请阅读以下描述，根据你目前的实际情况选出合适的选项。

	非常符合	符合	比较符合	比较不符	不符	非常不符
58. 在听课时，我将不同来源的信息（如课前阅读、ppt 等）整合起来帮我理解。	6	5	4	3	2	1
59. 在听课时只要有可能，我就会试着将这节课的知识点与其他课联系起来。	6	5	4	3	2	1
60. 在听课时，我尝试将老师所讲的跟我已知的联系起来。	6	5	4	3	2	1
61. 在听课时，我简短地总结记录老师讲的主要观点。	6	5	4	3	2	1
62. 我尝试将课上听到的概念与课前读到的概念联系起来以帮助理解。	6	5	4	3	2	1
63. 我试着将我在这节课上听到的观点应用到其他课堂活动中，如小组讨论等。	6	5	4	3	2	1
64. 在听课时，我列出关键点来帮我组织想法。	6	5	4	3	2	1
65. 听课后，我回顾课堂笔记并试图找出最重要的知识点。	6	5	4	3	2	1
66. 我用简单的图表来帮我梳理课上听到的内容。	6	5	4	3	2	1
67. 听课后，我浏览课堂笔记并提炼出重要的概念。	6	5	4	3	2	1
68. 在听课时，我发现自己经常质疑听到的观点，以决定其是否令人信服。	6	5	4	3	2	1
69. 课堂上老师陈述某一理论、解读或结论时，我尝试找出其是否有证据作支撑。	6	5	4	3	2	1
70. 我把课堂上听到的知识作为出发点，尝试发展自己对它的观点。	6	5	4	3	2	1
71. 我结合课上老师讲的内容，灵活思考组织自己的相关观点。	6	5	4	3	2	1
72. 每当我在课上听到某个主张或结论时，我思考其他的可能性。	6	5	4	3	2	1

感谢你的回答！

本研究由牛津大学语言教育专家主持，若你愿意继续参加我们的访谈，请留下你的联系方式。我们的研究人员会与你联系，你将有机会和专家一对一交流英语学习/留学申请经验。我们期待你的参与！

姓名: **邮箱(email):** **电话/微信:**

Appendix 3. 3. Details of changes for the adapted questionnaires

Questionnaire of 'Metacognitive awareness of listening strategies'

Questionnaire 'Metacognitive awareness of listening strategies' used in this study	**Metacognitive Awareness Listening Questionnaire (MALQ) developed by Vandergrift et al. (2006)**
1. Before I start to listen, I have a plan in my head for how I am going to listen.	Before I start to listen, I have a plan in my head for how I am going to listen.
2. I focus harder on what the teacher talks when I have trouble understanding.	I focus harder on the text when I have trouble understanding.
3. I find listening in English is easier than reading, speaking or writing in English.	I find that listening in French is more difficult than reading, speaking, or writing in French.
4. I translate in my head as I listen to EMI classes.	I translate in my head as I listen.
5. I use the words I understand to guess the meaning of the words I don't understand.	I use the words I understand to guess the meaning of the words I don't understand.
6. When my mind wanders in EMI classes, I recover my concentration right away.	When my mind wanders, I recover my concentration right away.
7. As I listen to EMI classes, I compare what I understand with what I know about the topic.	As I listen, I compare what I understand with what I know about the topic.
8. I feel that listening to EMI classes is easy for me.	I feel that listening comprehension in French is a challenge for me.
9. I use my experience and knowledge to help me understand.	I use my experience and knowledge to help me understand.
10. Before I listen to EMI classes, I think of similar topics I have listened to.	Before listening, I think of similar texts that I may have listened to.
11. I translate key words as I listen.	I translate key words as I listen.
12. I try to get back on track when I lose concentration.	I try to get back on track when I lose concentration.
13. As I listen to EMI classes, I quickly adjust my interpretation if I realise that it is not correct.	As I listen, I quickly adjust my interpretation if I realise that it is not correct.
14. After listening, I think back to how I listened and what I might do differently next time.	After listening, I think back to how I listened and what I might do differently next time.
15. I don't feel nervous when I listen to EMI lectures.	I don't feel nervous when I listen to French.
16. When I have difficulty understanding what I hear, I give up and stop listening.	When I have difficulty understanding what I hear, I give up and stop listening.
17. I use the general idea of the lesson to help me guess the words I don't understand.	I use the general idea of the text to help me guess the meaning of the words that I don't understand.
18. I translate word by word as I listen to EMI classes.	I translate word by word, as I listen.
19. When I guess the meaning of the word, I think back to what I have heard to see if my guess makes sense.	When I guess the meaning of the word, I think back to everything else I have heard, to see if my guess makes sense.
20. As I listen to EMI classes, I periodically ask myself if I am satisfied with my level of comprehension.	As I listen, I periodically ask myself if I am satisfied with my level of comprehension.
21. I have a goal in mind as I listen to EMI classes.	I have a goal in mind as I listen.

Note. The questionnaire of 'Metacognitive awareness of listening strategies' used in this study was adapted from the Metacognitive Awareness Listening Questionnaire (MALQ) developed by Vandergrift et al. (2006).

Questionnaire of 'Deep processing listening strategies'

Questionnaire 'Deep processing listening strategies' used in this study	**Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich et al. (1991, 1993)**
	'Elaboration' subscale
1. When I listen, I pull together information from different sources to help me understand, such as pre-reading materials, slides, etc.	When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions.
2. When I listen, I try to relate ideas in this lesson to those in other lessons whenever possible.	I try to relate ideas in this subject to those in other courses whenever possible.
3. When I listen, I try to relate what the teacher says to what I already know.	When reading for this class, I try to relate the material to what I already know.
4. When I listen, I write brief summaries of the main ideas of what teacher talks.	When I study for this course, I write brief summaries of the main ideas from the readings and the concepts from the lectures.
5. When I listen, I try to understand the concepts in this class by making connections with what I read before the class.	I try to understand the material in this class by making connections between the readings and the concepts from the lectures.
6. I try to apply ideas I listened in the class in other class activities such as discussion.	I try to apply ideas from course readings in other class activities such as lecture and discussion.
	'Organisation' subscale
7. As I listen, I outline key points to help me organise my thoughts.	When I study the readings for this course, I outline the material to help me organize my thoughts.
8. After the class, I go through my class notes and try to find the most important ideas.	When I study for this course, I go through the readings and my class notes and try to find the most important ideas.
9. As I listen, I make simple charts, diagrams, or tables to help me organise what I hear in class.	I make simple charts, diagrams, or tables to help me organize course material.
10. After the class, I go over my class notes and make an outline of important concepts.	When I study for this course, I go over my class notes and make an outline of important concepts.
	'Critical thinking' subscale
11. I often find myself questioning things I hear in this course to decide if I find them convincing.	I often find myself questioning things I hear or read in this course to decide if I find them convincing.
12. When a theory, interpretation, or conclusion is presented in class, I try to decide if there is good supporting evidence.	When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.
13. I treat what I hear in class as a starting point and try to develop my own ideas about it.	I treat the course material as a starting point and try to develop my own ideas about it.
14. I try to play around with ideas of my own related to what I hear from the teacher.	I try to play around with ideas of my own related to what I am learning in this course.
15. Whenever I hear an assertion or conclusion in this class, I think about possible alternatives.	Whenever I read or hear an assertion or conclusion in this class, I think about possible alternatives.

Note. The questionnaire of 'Deep processing listening strategies' used in this study was adapted from the subscale 'Elaboration', 'Organisation' and 'Critical thinking' of the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich et al. (1991, 1993).

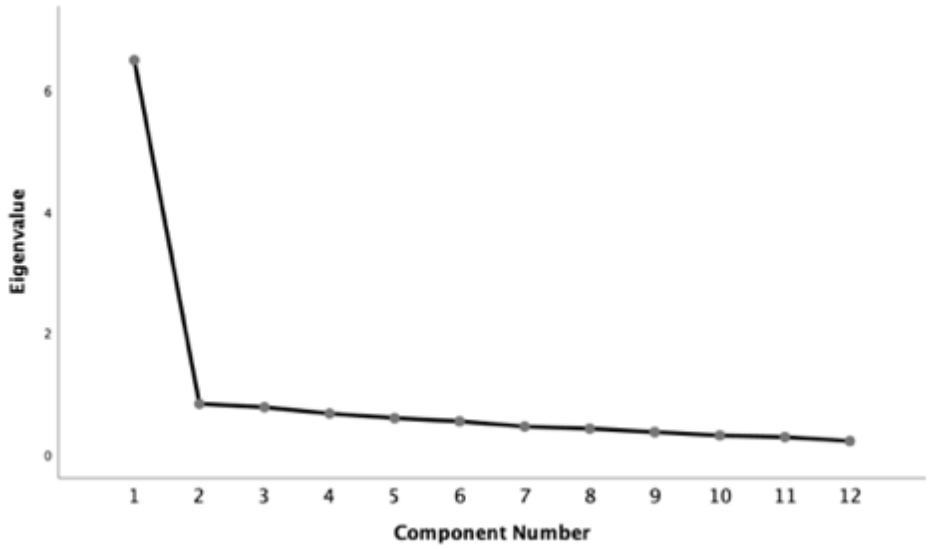
Questionnaire of 'Motivation in learning EMI courses'

Questionnaire of 'Motivation in learning EMI courses' used in this study	**Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich et al. (1991, 1993)**
	'Intrinsic goal orientation' subscale
1. As I listen in EMI classes, I prefer content that really challenges me so I can learn new things.	In a class like this, I prefer course material that really challenges me so I can learn new things.
2. In an EMI class, I prefer topic that arouses my curiosity, even if it is difficult to understand.	In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.
3. The most satisfying thing for me is trying to understand the content as thoroughly as possible.	The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.
4. When I have the opportunity in EMI classes, I choose course assignments that I can learn from even if they don't guarantee a good grade.	When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.
	'Extrinsic goal orientation' subscale
5. Getting a good grade in EMI classes is the most satisfying thing for me right now.	Getting a good grade in this class is the most satisfying thing for me right now.
6. The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade.	The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade.
7. If I can, I want to get better grades in EMI classes than most of the other students.	If I can, I want to get better grades in this class than most of the other students.
8. I want to do well in EMI classes because it is important to show my ability to my family, friends, employer, or others.	I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.
	'Task value' subscale
9. I think I will be able to use what I learn in EMI course in other courses.	I think I will be able to use what I learn in this course in other courses.
10. It is important for me to learn subject knowledge through English.	It is important for me to learn the course material in this class.
11. I am very interested in learning subject content through English.	I am very interested in the content area of this course.
12. I think learning subject knowledge through English is useful for me.	I think the course material in this class is useful for me to learn.
13. I like the subject matter of EMI courses.	I like the subject matter of this course.
14. Understanding the subject matter of EMI courses is very important to me.	Understanding the subject matter of this course is very important to me.

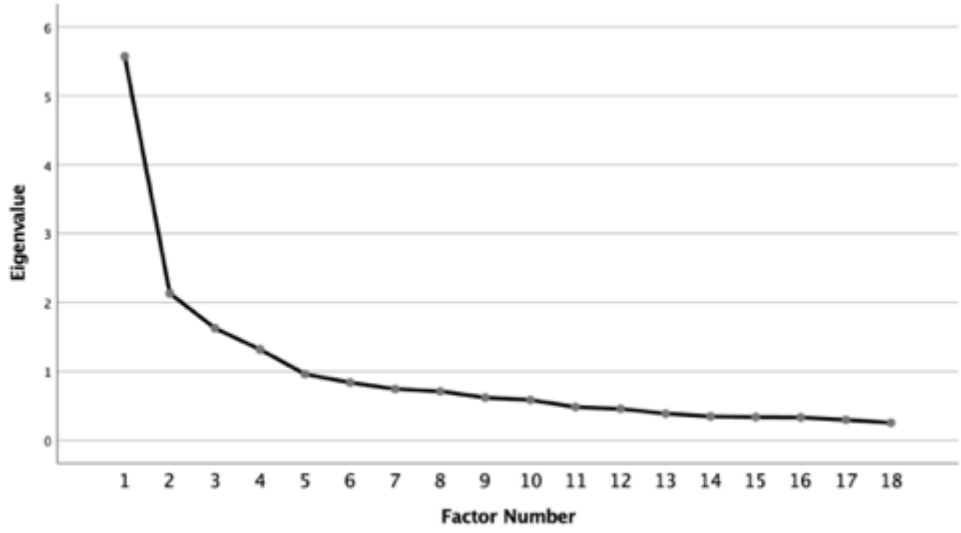
Note. The questionnaire of 'Motivation in learning EMI courses' used in this study was adapted from the subscale 'Intrinsic goal orientation', 'Extrinsic goal orientation' and 'Task value' of the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich et al. (1991, 1993).

Appendix 3. 4. Scree plots of the factor analysis for questionnaires

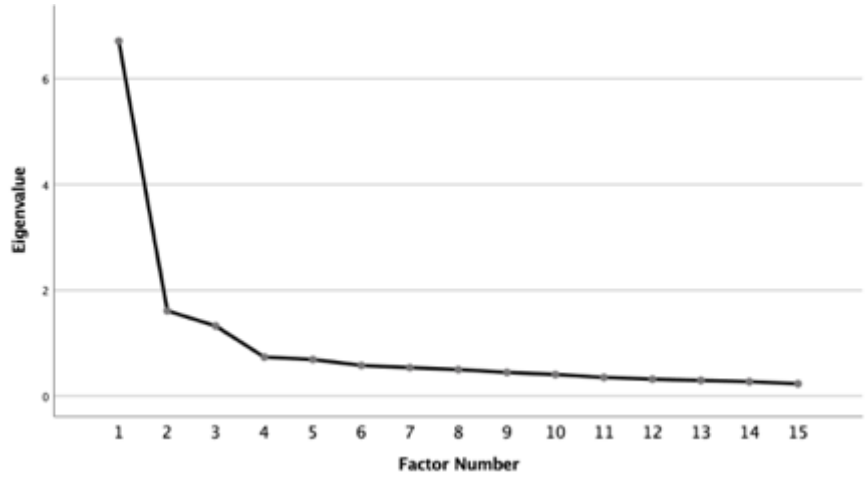
Scree plot for the questionnaire 'Perceived listening difficulties in EMI classes'



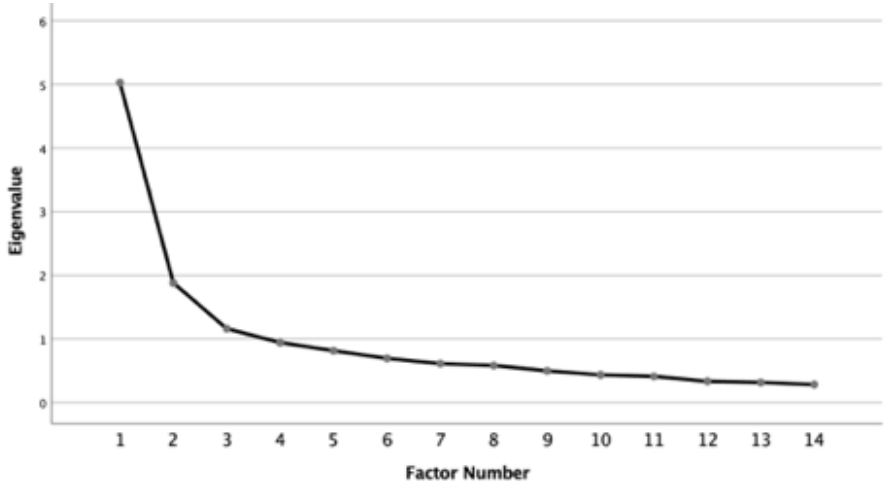
Scree plot for the questionnaire 'Metacognitive awareness of listening strategies'



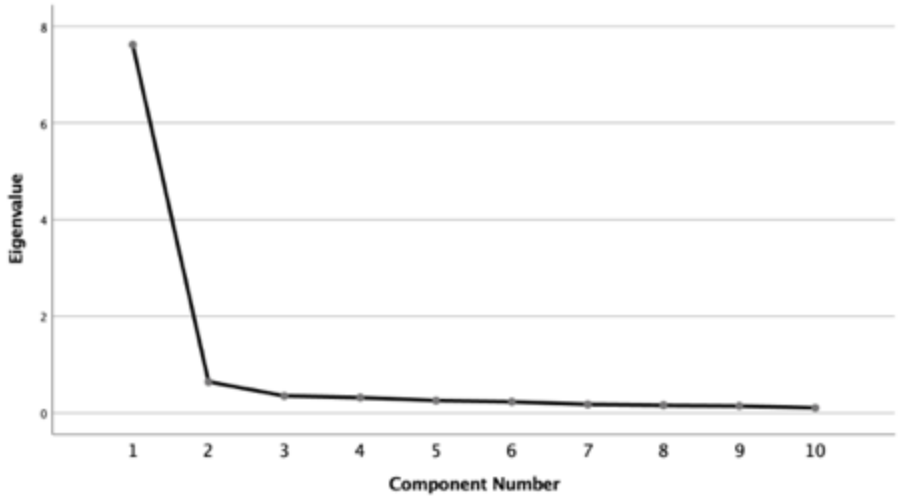
Appendix 3.4.3. Scree plot for the questionnaire ‘Deep processing listening strategies’



Appendix 3.4.4. Scree plot for the questionnaire ‘Motivation in learning EMI courses’



Appendix 3.4.5. Scree plot for the questionnaire ‘Self-efficacy in listening to EMI classes’



Appendix 3. 5. English version of the interview protocol

Questions	Probes
Prior English learning experience	
➢ Could you brief me about your previous experience of English learning?	
➢ Before coming to this university, have you learnt any sort of subject knowledge through English or participated in extra-curricular activities that used English to communicate?	
Perceived listening difficulties	
➢ What were the aspects that you found difficult in listening to EMI classes (today)?	• Perception: speech rate; segmenting speech; accent; attention • Parsing: memory; vocabulary; note taking • Utilisation: main idea/structure/details of lesson
SRL for enhancing listening in EMI classes	
Forethought phase	
➢ What listening expectations (goals), if any, did you set for yourself before listening to EMI classes?	• Why did you have these expectations (goals)? • What do you think of your willpower in achieving them?
➢ What plans, if any, did you make for achieving the expectations (goals)?	• What did you do before EMI classes? • Why did you do this before EMI classes?
Performance phase	
➢ How did you feel (emotionally) when you listened to EMI classes?	• Did you do anything about the feelings? If so, how?
➢ How did you feel about your attention while listening?	• Did you lose concentration sometimes? How did you deal with it? • How was your attention distributed while listening? • Were there aspects that you particularly attended to as you listen? Where were they and why?
➢ While listening to EMI classes, were you aware of any problems in your listening processes?	• What were they? • Did you do anything about them? If so, how?
Self-reflection phase	
➢ How did you feel/think about your experience after listening to EMI classes?	• Any thoughts on the listening outcomes, processes, methods?
➢ What would you like to do (change) for listening in EMI classes in the following weeks?	• Are there any changes to your listening processes/methods? Why?
SRL for listening practice in out-of-class contexts	
Forethought phase	
➢ What listening expectations (goals), if any, do you set yourself for listening practice?	• Why do you set these goals? • How do you feel about achieving these goals?
➢ What plans, if any, have you made for achieving the expectations (goals)?	• When and where do you practice? Why?

Performance phase	
➢ How have you implemented the plans? Could you describe your practice process in detail?	• What materials did you choose for listening? Why? • Could you describe how you listened in detail?
➢ How do you feel (motivationally/emotionally) when you practice listening?	• How do you feel about your willpower to persist practicing? • What challenges in terms of motivation and affect have you encountered when you practice? How have you dealt with them?
Self-reflection phase	
➢ What are the changes (progress), if any, have you made in listening (since our last interview)?	• How are you satisfied about the changes (progress)? • What factors do you think are accountable?
➢ How would you like to practice listening in the following weeks?	• What new goals/plans would you set yourself in the following weeks? • How do you feel about achieving the goals/plans?

Appendix 3. 6. Chinese version of the interview protocol

问题	提示
以往的英语学习经历	
➢ 可以简单概况一下你之前的英语学习经历吗？	
➢ 在来这所学校之前，你还参加过其他英文教授的学科课程，或者需要用英语进行沟通的活动吗？	
听课困难	
➢ 在(今天的)英文授课课程中，你遇到了哪些方面的听课困难？	• 感知：讲话速度；连读；口音；注意力 • 解析：记忆力；词汇；笔记 • 应用：对大意/细节的理解；内容的组织结构
与英文授课相关的自主学习	
筹划阶段	
➢ 你对自己听课有什么期待或者目标吗？	• 你为什么有这些期待或者目标？ • 你觉得自己实现这些期待或目标的意志如何？
➢ 有没有制定什么计划去实现这些期待或目标？	• 你在课前通常做什么(准备)？ • 为什么要在课前做这些(准备)？
实施阶段	
➢ 在听课过程中，你的情绪怎么样？	• 对于这些情绪你有什么反应/处理吗？
➢ 在听课时，你觉得自己的注意力怎么样？	• 你会走神吗？走神的时候怎么办？ • 在听课时你的注意力如何分配？ • 有什么你特别注意的事物吗？是什么？为什么？
➢ 在课堂上，你有没有意识到什么听课过程中的问题或者困难？	• 如果有，是哪些方面的问题或者困难？ • 对于这些问题/困难，你是怎么反应/应对的呢？
反思阶段	
➢ 在听课结束后，你对于听课的体验有什么感受或者思考吗？	• 比如听课效果、过程、方法方面？
➢ 在接下来的几周中，你希望在听课方面怎么做或有什么调整吗？	• 比如在听课过程或者方法方面有什么调整吗？为什么？
关于课外听力练习的自主学习	
筹划阶段	
➢ 你有给自己设定什么听力练习的目标或者期待吗？	• 你为什么制定这些目标？ • 你对于实现这些目标感觉如何？
➢ 你有制定什么计划去实现这些目标或期待吗？	• 你在何时、何地练习？为什么？
实施阶段	
➢ 你是如何进行听力练习的呢？	• 你用什么材料进行听力练习？为什么？ • 可以具体描述一下你的练习过程吗？
➢ 在练习听力的过程中，你在情绪和动力方面感受如何？	• 你对自己坚持练习的意志力感觉如何？ • 在练习时你有什么负面情绪或者丧失动力的时候吗？你是怎么应对的？
反思阶段	

➢ 自上次访谈以来，你觉得自己在听力方面有什么变化或者进步吗？	• 你对这些变化/进步满意吗？ • 你觉得是什么原因造成了这样的变化/进步？
➢ 在接下来的几周中，你希望怎样去练习听力？	• 在接下来的几周中，你想给自己设定什么新的目标或者计划吗？你对于实现这些目标或者计划感觉如何？

Appendix 3. 7. Codebook for the interview data from NVivo (coding framework)

Nodes	Description	Files	References
Perceived listening difficulties in EMI classes			
Perception-related difficulties	Issues and problems related to attending to or handling acoustic input and segmenting phonemes from the speech stream of teacher talk (e.g., segmenting speech, recognising words, perceiving accent).	45	86
Attention-related difficulties	Issues and problems related to maintaining, directing and distributing attention in listening to EMI classes (e.g., loss of attention, fixed attention).	45	98
Vocabulary- and syntax-related difficulties	Issues and problems related to processing meaning in listening at word- or sentence-level (e.g., understanding terminology, decoding sentences).	55	92
Utilisation-related difficulties	Issues and problems related to forming, processing and making personally meaningful of the information delivered in EMI classes (e.g., the role of topic-related prior knowledge, structuring knowledge, identifying key points, taking notes).	63	163
Self-efficacy in listening to EMI classes			
Self-efficacy in listening to EMI classes	Students' beliefs in their abilities to listen to and improve listening for EMI classes.	52	101
Motivation in learning EMI courses			
Goal orientation in learning EMI courses	Perceived drives and reasons that students engage in EMI courses. These drives could be **intrinsic**, where students participate in learning as an end all to itself (e.g., learn for challenge, curiosity, mastery). Alternatively, the drives could be **extrinsic**, where students participate in learning as a means for an external outcome (e.g., learn for grades, evaluation of others).	27	34
Task value in learning EMI courses	Students' evaluation of how interesting, how important, and how useful learning EMI courses is.	53	115
SRL in relation to listening in EMI classes			
Forethought phase		68	204
Goal setting	The goals, aims and expectations that students reportedly set for listening to EMI classes.	63	78
Strategic planning: Preview	Students' views and implementation of preview and other preparation activities before attending EMI classes.	63	126
Performance phase		67	475
Attention management	The reported strategies, methods or effort to control, direct, and distribute their attention in listening to EMI classes (e.g., controlling for the loss of attention, selectively attending to certain parts of teacher speech).	67	311
Deep processing of content	The reported strategies, methods or effort to process subject content in an in-depth and meaningful way while listening to	30	60

Nodes	Description	Files	References
	EMI classes (e.g., using elaboration, structuring knowledge, reasoning or critically thinking about knowledge).		
Note taking and monitoring	The reported strategies, methods or effort to take notes, monitor or notice the cognitive and affective processes in listening.	61	135
Problem solving	The reported strategies, methods or effort to deal with comprehension difficulties in class (e.g., searching dictionaries for new words, inferring meaning for unfamiliar expressions, seeking help from others).	55	104
Self-reflection phase		68	363
Review and remedy	Students' views and implementation of review and other activities after attending EMI classes to remedy their learning (e.g., reviewing slides, organizing class notes, seeking help from others).	64	132
Evaluation and causal attribution	Students' evaluation of the problems, process or performance of listening to EMI classes, and their perceived causes of certain problems or progress in listening.	57	178
Planned adaptations	Students' reported plans or attitudes regarding whether and how to adjust their future goals, methods, or processes for listening to EMI classes.	45	53
SRL for out-of-class listening practice			
Forethought phase		68	221
Goal setting	The goals, aims and expectations that students reportedly set for their listening practice in their spare time.	45	61
Strategic planning: Managing time and space	Students' comments regarding when, how frequently, for how long, and where they carry out listening practice.	65	160
Performance phase		38	65
Choosing listening materials and methods	The materials that students reportedly adopt for listening practice (e.g., BBC news, EAP audios, and films), and their description of the process or methods of their practice.	38	65
Sustaining motivation and affect	The reported strategies, methods or effort to deal with demotivation, satiation or negative affect in listening practice.	47	93
Reflection phase		65	307
Evaluation and causal attribution	Students' evaluation of the progress in listening ability in general and the perceived causes for the progress.	58	241
Planned adaptations	The reported plans or attitudes regarding whether and how to adjust the future listening practice.	45	66

Appendix 3. 8. Sample translation of the interview excerpt

（From MP10-H&S, T1）

研究人员: 你觉得注意力怎么样？

受访者: 我不能一节课保证完全集中。还是会尽量或者猜什么是重点。因为我知道不能像机器人那样精力集中一整节课，我要把我的注意力分布在真正重要，或者对我来说真正困难的。我听到老师加重语气或者重复几遍，老师沉默一下，我就觉得肯定是重要点。但是当老师陈述一个冗长的观点的时候，或者举一堆相似例子，我已经懂了我就不想听了。

Researcher: What do you think of your attention?

Interviewee: I can't guarantee for a lesson to remain totally concentrated. I would still try to [remain concentrated] or to guess what key points are. Because I know I can't remain focused like a robot for a whole lesson, I need to distribute my attention to the truly important or difficult parts. When I find the teacher stresses the tone, repeats several times, or pauses for a while, I feel this must be important. But when the teacher states a tedious opinion or gives similar examples, I might skip if I already get his point.

Appendix 3. 9. Electronic consent form for the online questionnaire battery survey

DEPARTMENT OF EDUCATION
15 Norham Gardens, Oxford, OX2 6PY United Kingdom

Researcher: Sihan Zhou (DPhil in Education)
+44 (0)7821172031
Sihan.zhou@education.ox.ac.uk

Purpose of Study: The study aims to investigate the difficulties you encounter in listening to English taught modules [LAN001/LAN003/MAN001] and learning experience related to listening during the first semester of your study at XJTLU. In participating in the research, you will be asked to

1. Complete an online survey at the beginning, middle and end of the first semester, each taking about 15 minutes. In return, at the end of the term, you will receive the quantitative analysis of your listening development during the term and suggestions on how to improve your listening.

2. Leave your contact information at the end of the survey if you wish to participate in the follow-up interviews. You will have the opportunity to discuss your learning experience with an educational expert Oxford University and have one-to-one consultancy session on Master application after the study.

Your data will be kept strictly confidential and anonymous. The study involves no sensitive data and you have the right to drop out from the research for any or no reasons at any time of the study. If you have questions about the study, please contact Sihan.zhou@education.ox.ac.uk.

☐ I have read the information above and agree to participate in the study

☐ I don't agree to participate in the study

Appendix 3. 10. Information sheet of the study

DEPARTMENT OF EDUCATION
15 Norham Gardens, Oxford, OX2 6PY United Kingdom

Researcher: Sihan Zhou (DPhil in Education)
+44 (0)7821172031
Sihan.zhou@education.ox.ac.uk

Students' self-regulated listening during a transition period in an English-medium university in China

PARTICIPANT INFORMATION SHEET

1. What is the purpose of this research?

In the era of globalisation, universities worldwide have raced to launch programmes that use English, recognised as a global language, to teach a range of disciplines. China Ministry of Education has been advocating courses instructed through English (referred to as 'English-medium-instruction' or 'EMI') since 2001. By 2006, 132 out of 136 universities across Mainland China had run EMI courses. Despite the rapid development of EMI practices, however, students are encountering greater challenges in understanding the subject knowledge taught through a second language, especially for those who move from a Chinese-medium-instruction secondary education to an EMI tertiary education. The study hopes to investigate the listening difficulties experienced by Chinese students who are enrolled in programmes taught through English, and their self-regulatory behaviours in the face of the difficulties.

2. Why have I been invited to take part?

You have been invited because you are Chinese first-year undergraduate students enrolled in EMI programmes. Your perceptions of the experience studying at EMI programmes will be valued for the study.

3. Do I have to take part?

No. You can ask questions about the research before deciding whether or not to participate. If you do agree to participate, you may withdraw yourself from the study at any time, without giving a reason, by advising the researchers of this decision.

4. What will happen to me if I take part in the research?

The study will take place from September to December 2019. If you are happy to take part in the research, you will be asked to fill in an online questionnaire in Week 2, 8, and 13 of the first academic semester. The questionnaire will take about 15 minutes each time to finish. The questionnaire asks about your experience and feelings of listening comprehension in the subject classes instructed through English. At the end of the questionnaire, you will be asked whether or not you would like to participate in the follow-up interviews regarding your learning experience for listening in EMI classes and listening practice out of the class. If you are interested, please fill in your contact details and you will be contacted by our researcher

shortly after you complete the questionnaire at the first time. You will be interviewed three times during the first semester and each interview will take approximately 30 minutes, arranged at your convenience.

5. Are there any potential risks in taking part?

Data collection would involve students' self-report data about experience for listening comprehension in EMI classes and therefore no risks to students, teachers or the school are envisioned.

6. Are there any benefits in taking part?

There will be no direct benefit to you from taking part in this research. However, the experience may help you reflect on the problems you encountered in listening comprehension in EMI classes, and help you think about strategies to handle them in the future.

7. What happens to the data provided?

The information you provide as part of the study is the research data. Any research data from which you can be identified (e.g., your name, contact details, date of birth), is known as personal data. It does not include data where the identity has been removed (anonymous data). We will minimise our use of personal data in the study as much as possible. Research data will be anonymised by replacing all personal data through a simple code before being processed. The research data will be stored confidentially using password-protected data files. Responses will be anonymised. This means no information will be shared that will allow anyone outside to research team to identify what you have said in the questionnaires, interviews or learning journals. Personal data will be stored confidentially in a locked filing cabinet or as password protected files on the researcher's encrypted personal computer. The researcher and the supervisor will have access to personal and research data. Responsible members of the University of Oxford may be given access to data for monitoring and/or audit of the study. All research data will be stored for at least 3 years after publication or public release of the work of the research. We may retain and store personal data for an additional period of time as necessary for the purposes of the study, and for further research.

8. Will the research be published?

The research will be written up as a thesis. On successful submission of the thesis, it will be deposited both in print and online in the University archives, to facilitate its use in future research. The thesis will be openly accessible. We also aim to publish our findings in scientific journals with open access.

9. Who is organising and funding the research?

The research is funded by Swire Scholarship at St Antony's College. The research project is organised by Sihan Zhou, Chinese citizen, who is a PhD student at Oxford University. Her research is supervised by Dr Heath Rose, Associate Professor at University of Oxford. This study has been reviewed by, and received ethics clearance through, the University of Oxford's Central University Research Ethics Committee.

10. Who has reviewed this study?

This study has been reviewed by, and received ethics clearance through, the University of Oxford Central University Research Ethics Committee.

11. Who do I contact if I have a concern about the study or I wish to complain?

If you have a concern about any aspect of this study, please speak to the relevant researcher Sihan Zhou (please see contact details below), who will do their best to answer your query. The researcher should acknowledge your concern within 10 working days and give you an indication of how they intend to deal with it. If you remain unhappy or wish to make a formal complaint, please contact the relevant chair of the Research Ethics Committee at the University of Oxford who will seek to resolve the matter in a reasonably expeditious manner: Chair, **Social Sciences & Humanities Inter-Divisional Research Ethics Committee**; Email: ethics@socsci.ox.ac.uk; Address: Research Services, University of Oxford, Wellington Square, Oxford OX1 2JD.

12. Data Protection

The University of Oxford is the data controller with respect to your personal data, and as such will determine how your personal data is used in the study. The University will process your personal data for the purpose of the research outlined above. Research is a task that we perform in the public interest.

Further information about your rights with respect to your personal data is available from http://www.admin.ox.ac.uk/councilsec/compliance/gdpr/individualrights/.

13. Further Information and Contact Details

If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact:

Sihan Zhou
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15 Norham Gardens Oxford, OX2 6PY, UK
+44 (0) 7821172031
sihan.zhou@education.ox.ac.uk
http://www.education.ox.ac.uk/people/sihan-zhou/

Appendix 3. 11. Paper consent form for the interviews

DEPARTMENT OF EDUCATION
15 Norham Gardens, Oxford, OX2 6PY United Kingdom

Researcher: Sihan Zhou (DPhil in Education)
+44 (0)7821172031
Sihan.zhou@education.ox.ac.uk

Purpose of Study: The study aims to investigate the difficulties you encounter in listening to English taught modules [LAN001/LAN003/MAN001] and learning experience related to listening during the first semester of your study at XJTLU. In participating in the research, you will be asked to

3. Complete an online survey at the beginning, middle and end of the first semester, each taking about 15 minutes. In return, at the end of the term, you will receive the quantitative analysis of your listening development during the term and suggestions on how to improve your listening.

4. Participate in the interviews at the beginning, middle and end of the first semester on your listening experience. The interviews will be audio-recorded and kept strictly confidential. The data will be used for research purpose only.

Your data will be kept strictly confidential and anonymous. You have the right to drop out from the research for any or no reasons at any time of the study.

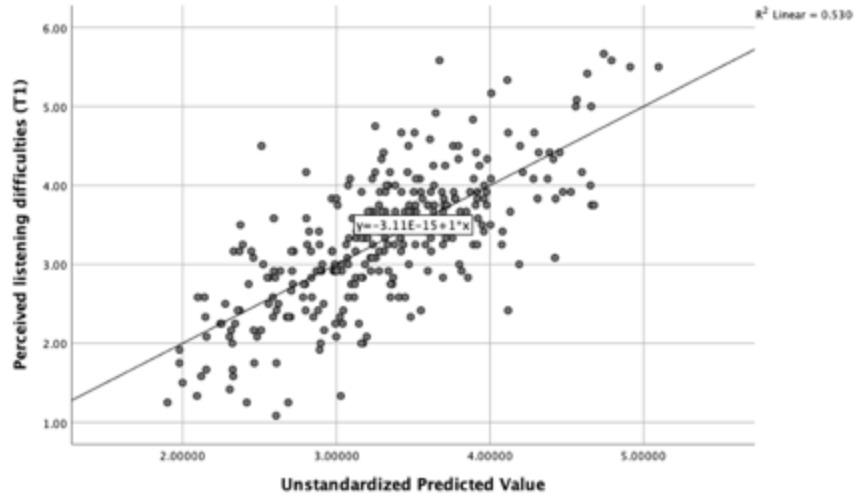
- I confirm that I have read and understand the information sheet version for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without any adverse consequences or academic penalty. ☐
- I understand that research data collected during the study may be looked at by designated individuals from the University of Oxford where it is relevant to my taking part in this study. I give permission for these individuals to access my data. ☐
- I understand that this project has been reviewed by, and received ethics clearance through, the University of Oxford Central University Research Ethics Committee. ☐
- I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project. ☐
- I understand how this research will be written up and published. ☐
- I understand how to raise a concern or make a complaint. ☐
- I consent to being audio recorded ☐
- I understand how audio recordings will be used in research outputs ☐
- I give permission to be quoted directly in the research publication against my name ☐
- I agree to take part in the study ☐

	dd / mm / yyyy	
Name of Participant	Date	Signature
Name of person taking consent	dd / mm / yyyy Date	Signature

Appendix B Appendices for Chapter 4

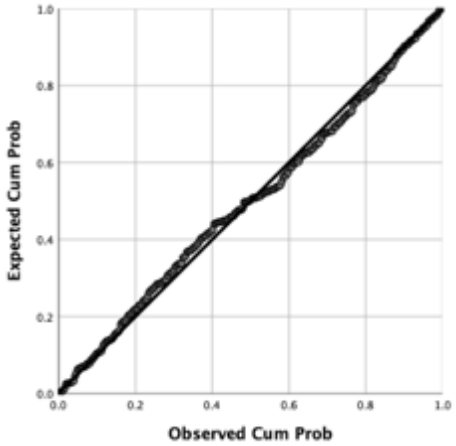
Appendix 4. 1. Assumptions for hierarchical multiple regression in Chapter 4 (Section 4.3.1)

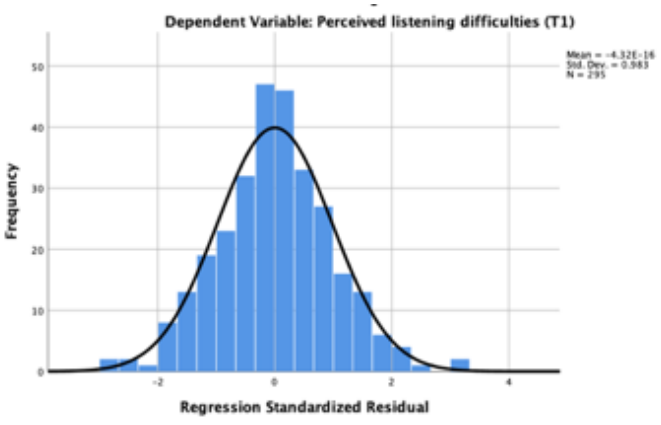
The assumption of linearity



Note. The scatterplot shows that there is a linear relationship between the outcome variable (perceived listening difficulties) and the predictor variables (demographic variables, BELP, self-efficacy and motivational variables) at T1.

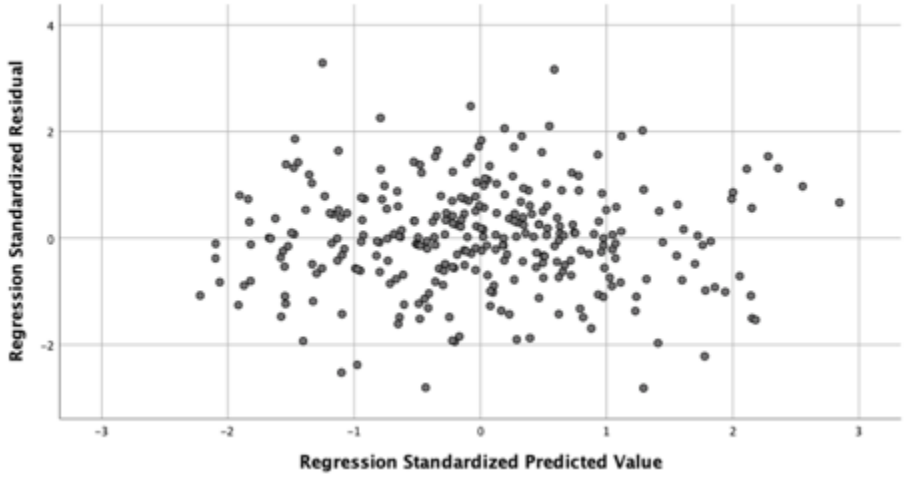
The assumption of normality of residuals





Note. The P-P plot and Histogram show that the regression standardized residuals are normally distributed at T1.

The assumption of homoscedasticity



Note. The scatterplot shows that variances of error terms are similar across predictor variables at T1.

The assumption of no multicollinearity

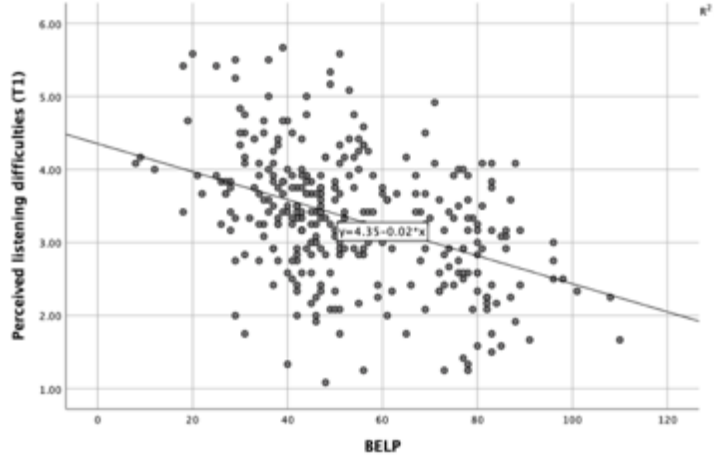
Predictor variable	Model 1		Model 2		Model 3	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
Gender	0.962	1.039	0.936	1.069	0.919	1.088
Major	0.954	1.049	0.943	1.060	0.913	1.096
SA exp. (yes vs. no)	0.974	1.026	0.968	1.033	0.960	1.041
EL exp. (6 vs. 3 years)	0.844	1.185	0.838	1.193	0.821	1.218
EL exp. (9 vs. 3 years)	0.840	1.191	0.801	1.248	0.772	1.295
BELP			0.922	1.085	0.744	1.345
Self-efficacy					0.575	1.741
Intrinsic goal					0.645	1.551
Extrinsic goal					0.841	1.189
Task value					0.536	1.865

Note. Predictor variables are not highly correlated to each other, indicated by the value of Variance Inflation Factor (VIF) of all predictor variables lower than 10.0 and the Tolerance value above 0.20.

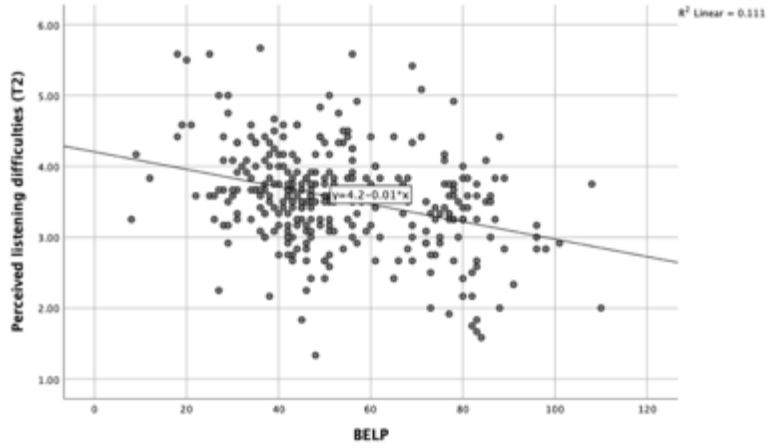
Appendix C Appendices for Chapter 5

Appendix 5. 1. Assumptions for multilevel modelling in Chapter 5 (Section 5.2)

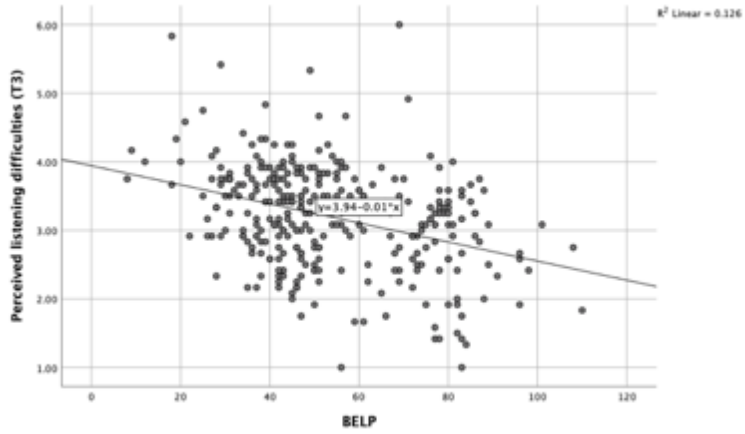
The assumption of linearity



T1



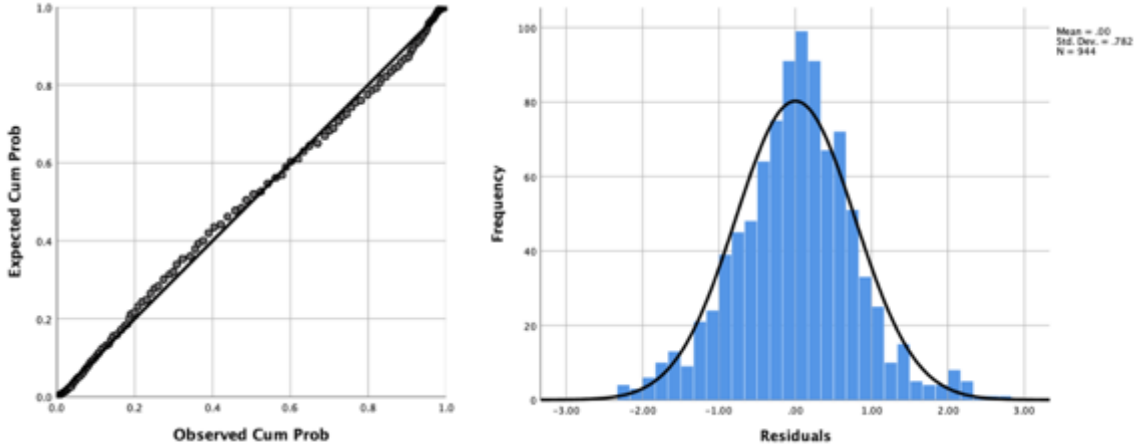
T2



T3

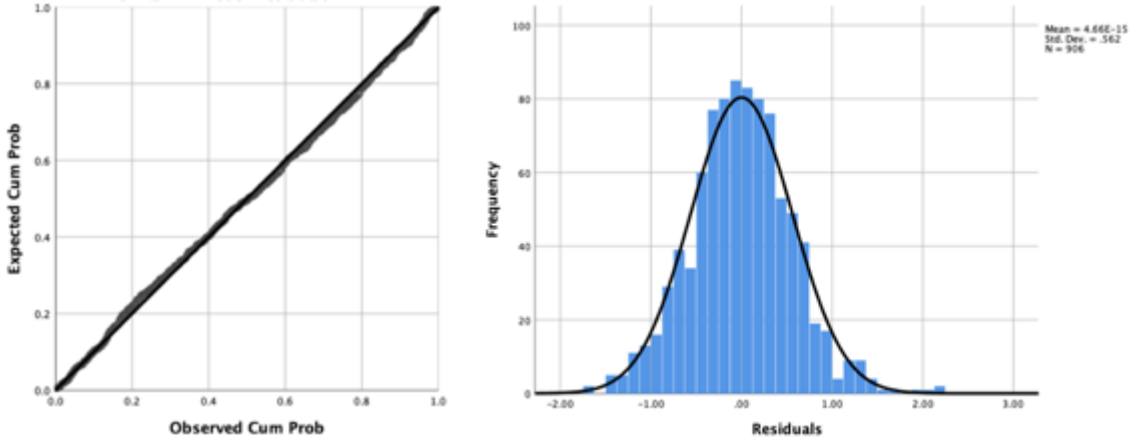
Note. The scatterplots show that there is a linear relationship between the predictor variable (BELP) and the outcome variable (perceived listening difficulties) at all time points.

The assumption of normality of random effect



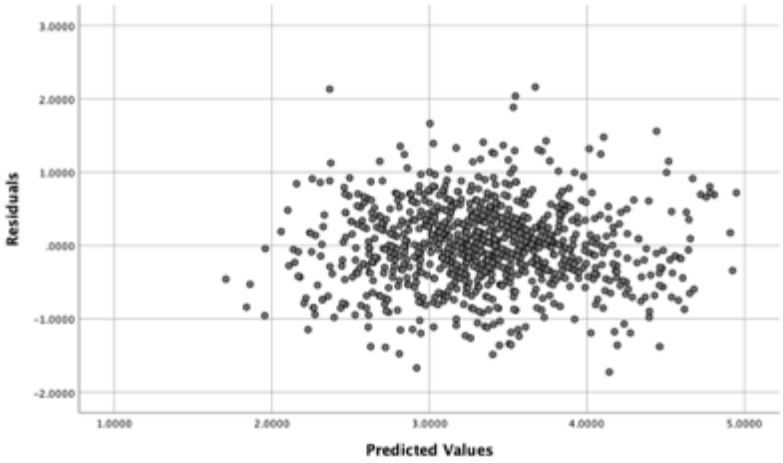
Note. The normality of random effect is checked via checking Level 1 residuals for normality.

The assumption of normality of the full model



Note. The normality of the full model is checked via checking residuals for normality at Level 2.

The assumption of homoscedasticity



Note. The scatterplot shows that variances of error terms are similar across predictor variables at Level 2.

Appendix 5. 2. Assumptions for paired sample t-tests in Chapter 5 (Section 5.2.1)

Assumption of normality of difference scores (T1 vs. T2)

Perceived listening difficulties	Difference score	SD	Skewness		Kurtosis	
			Statistic	SE	Statistic	SE
When listening to EMI classes, specialist vocabulary is challenging for me.	0.051	1.060	0.109	0.138	0.934	0.275
Sometimes I do not recognise words I know while listening to EMI classes.	0.144	1.182	0.259	0.138	0.676	0.275
I have difficulty taking notes in classes.	0.314	1.297	0.094	0.138	0.522	0.275
I miss the next part of teachers' talk when thinking about the meaning.	0.289	1.134	0.467	0.138	1.095	0.275
I find words or expressions used by teachers unfamiliar.	0.250	1.235	-0.249	0.138	0.237	0.275
It is difficult to understand the organisation (structure) of the EMI lectures.	0.138	1.215	-0.191	0.138	0.658	0.275
I cannot recognise the linking sounds between words.	0.058	1.101	-0.013	0.138	0.826	0.275
The information is presented so quickly that it hinders my understanding.	0.333	1.127	0.373	0.138	0.408	0.275
I am confused about the key ideas of the EMI lectures.	0.154	1.206	0.553	0.138	0.807	0.275
I find it difficult to follow teachers' line of thought in EMI classes.	0.189	1.128	-0.229	0.138	0.133	0.275
I cannot form a mental representation of what teachers talk about in EMI classes.	0.186	1.032	-0.026	0.138	0.553	0.275
It is difficult to understand teachers' accents in EMI classes.	0.519	1.260	-0.082	0.138	0.255	0.275

Note. The difference scores of difficulty items between T1and T2 are approximately normal with no heavy kurtosis (< 2.0) or skewness (< 0.8).
Dependent t-test is relatively robust to violations of normality, meaning that valid results could be provided even if the assumption is violated slightly.

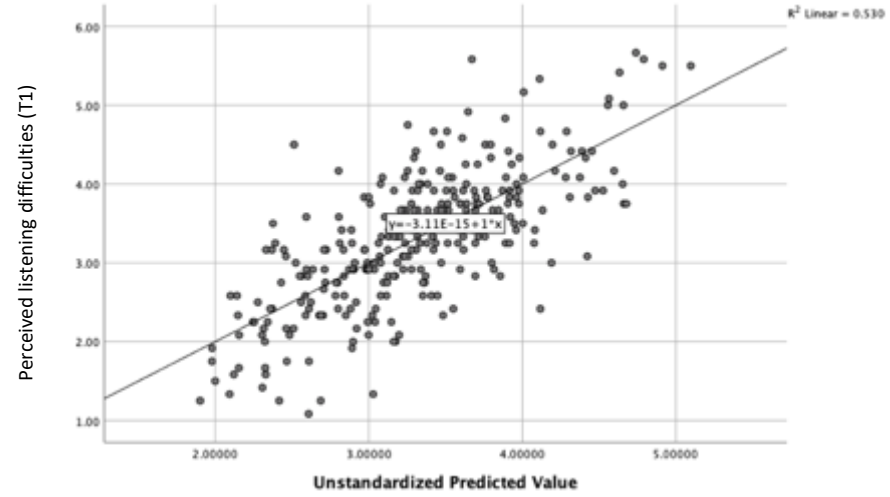
Assumption of normality of difference scores (T2 vs. T3)

Perceived listening difficulties	Difference score	SD	Skewness		Kurtosis	
			Statistic	SE	Statistic	SE
When listening to EMI classes, specialist vocabulary is challenging for me.	-0.484	1.111	-0.458	0.138	1.110	0.275
Sometimes I do not recognise words I know while listening to EMI classes.	-0.250	1.052	-0.035	0.138	0.542	0.275
I have difficulty taking notes while listening.	-0.410	1.262	-0.127	0.138	1.240	0.275
I miss the next part of teachers' talk when thinking about the meaning.	-0.462	1.113	-0.280	0.138	1.246	0.275
I find words or expressions used by teachers unfamiliar.	-0.349	1.095	0.151	0.138	0.929	0.275
It is difficult to understand the organisation (structure) of the EMI lectures.	-0.301	1.011	-0.233	0.138	0.919	0.275
I cannot recognise the linking sounds between words.	-0.192	0.996	-0.078	0.138	0.345	0.275
The information is presented so quickly that it hinders my understanding.	-0.490	1.027	-0.465	0.138	0.656	0.275
I am confused about the key ideas of the EMI lectures.	-0.215	1.141	0.010	0.138	0.941	0.275
I find it difficult to follow teachers' line of thought in EMI classes.	-0.279	0.993	-0.091	0.138	0.890	0.275
I cannot form a mental representation of what teachers talk about in EMI classes.	-0.266	0.997	-0.054	0.138	1.119	0.275
It is difficult to understand teachers' accents in EMI classes.	-0.503	1.151	-0.304	0.138	1.298	0.275

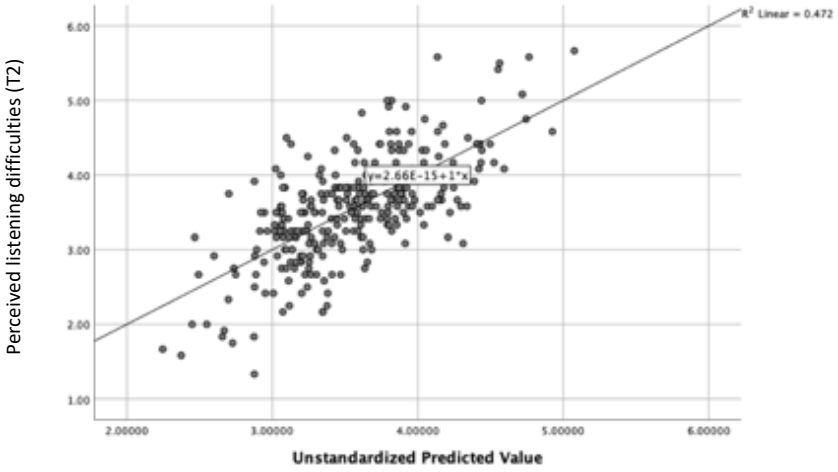
Note. The difference scores of difficulty items between T2 and T3 are approximately normal with no heavy kurtosis (< 2.0) or skewness (< 0.8).

Appendix 5. 3. Assumptions for simultaneous multiple regression in Chapter 5 (Section 5.3.2.1)

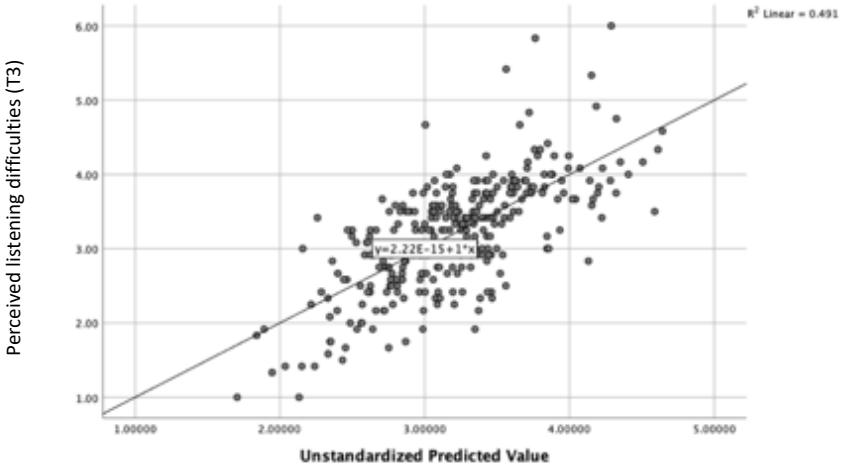
The assumption of linearity



T1



T2

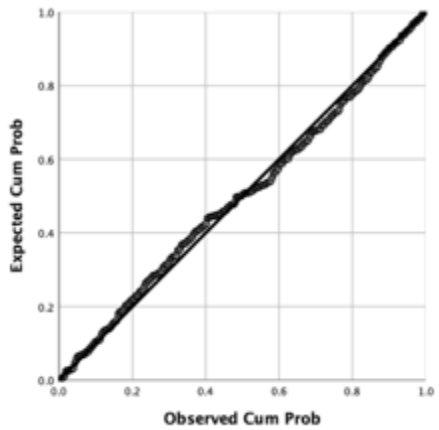


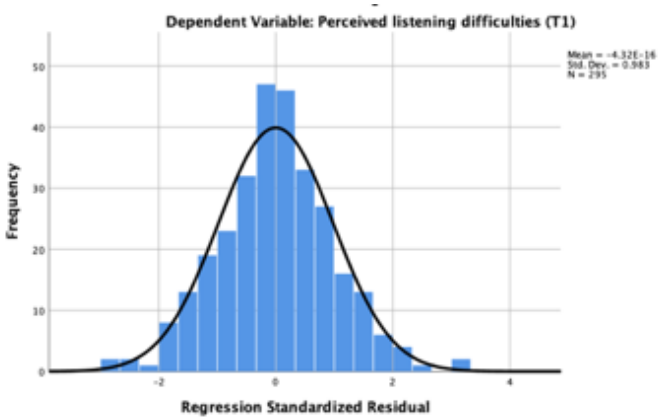
T3

Note. The scatterplots show that there is a linear relationship between the outcome variable (perceived listening difficulties) and the multiple predictor variables (demographic variables, BELP, self-efficacy and motivational variables) at T1, T2, and T3.

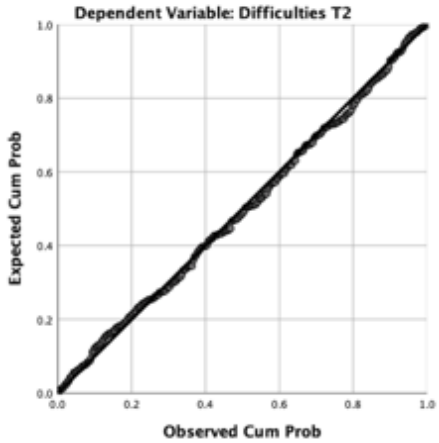
The assumption of normality of residuals

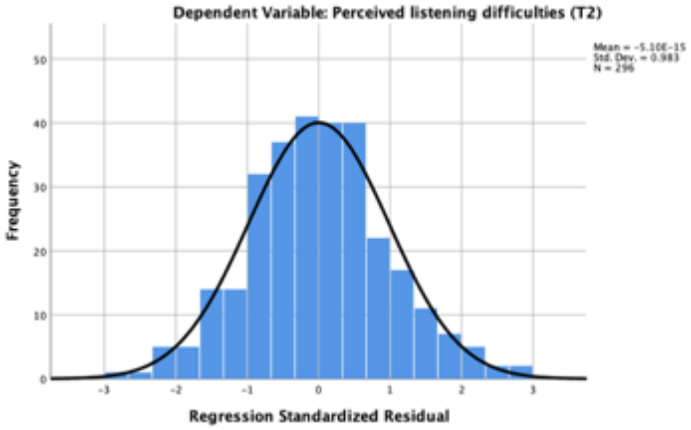
T1



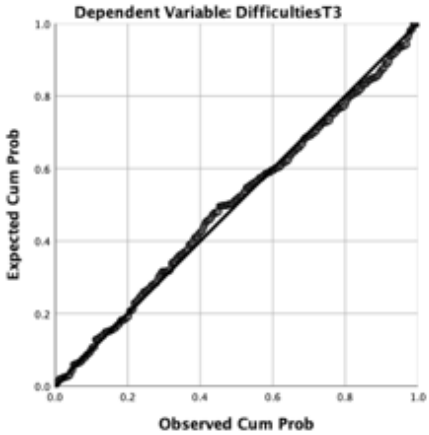


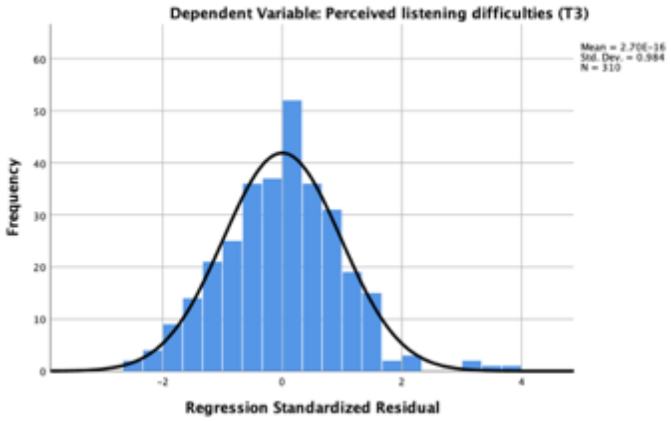
T2





T3

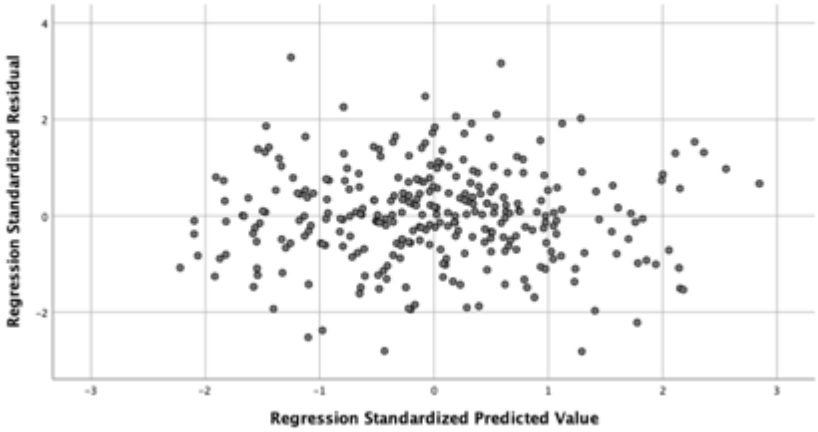




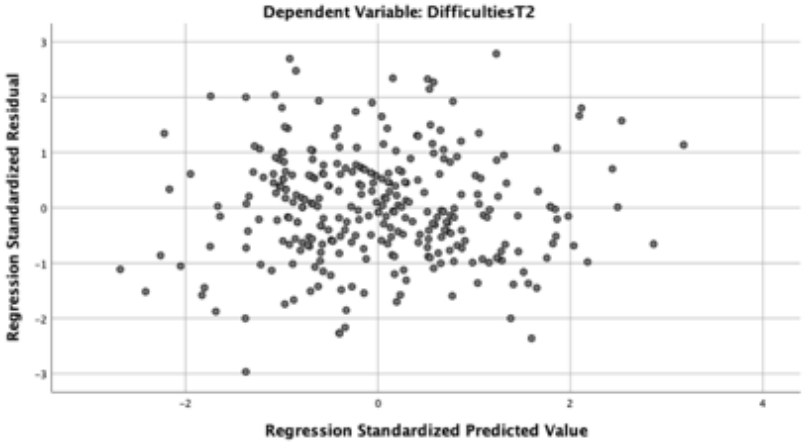
Note. The P-P plots and Histograms show that the regression standardized residuals are normally distributed at T1, T2 and T3.

The assumption of homoscedasticity

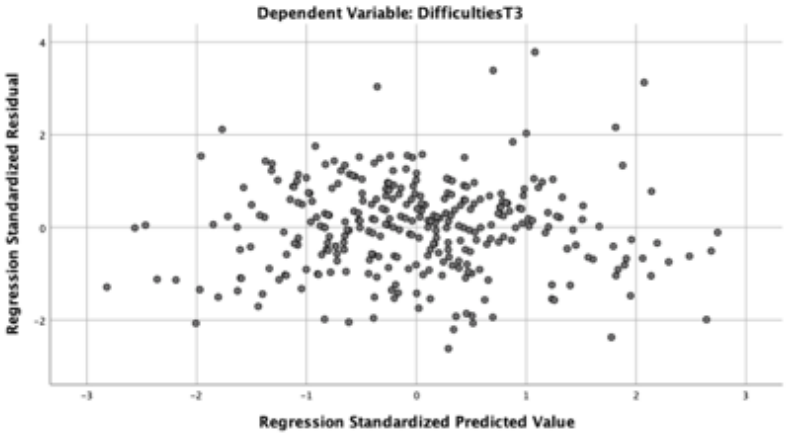
T1



T2



T3



Note. The scatterplots show that variances of error terms are similar across predictor variables at T1, T2, T3.

The assumption of no multicollinearity

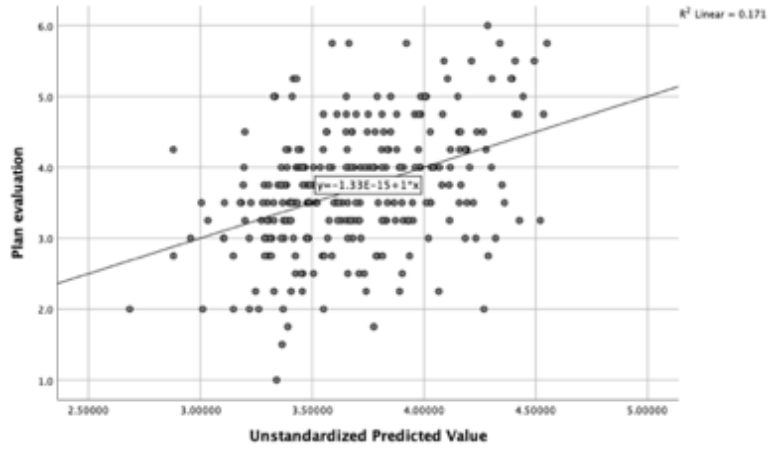
Predictor variables	T1		T2		T3	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
Gender	0.919	1.088	0.917	1.091	0.915	1.093
Major	0.913	1.096	0.942	1.061	0.891	1.122
SA exp. (yes vs. no)	0.960	1.041	0.937	1.067	0.955	1.047
EL exp. (6 vs. 3 years)	0.821	1.218	0.299	3.346	0.291	3.437
EL exp. (9 vs. 3 years)	0.772	1.295	0.291	3.436	0.288	3.470
BELP	0.744	1.345	0.811	1.233	0.812	1.232
Self-efficacy	0.575	1.741	0.676	1.479	0.683	1.465
Intrinsic goal	0.645	1.551	0.699	1.431	0.680	1.471
Extrinsic goal	0.841	1.189	0.826	1.210	0.792	1.263
Task value	0.536	1.865	0.614	1.629	0.596	1.679

Note. Predictor variables are not highly correlated to each other, indicated by the value of Variance Inflation Factor (VIF) of all predictor variables lower than 10.0 and the Tolerance value above 0.20.

Appendix D Appendices for Chapter 6

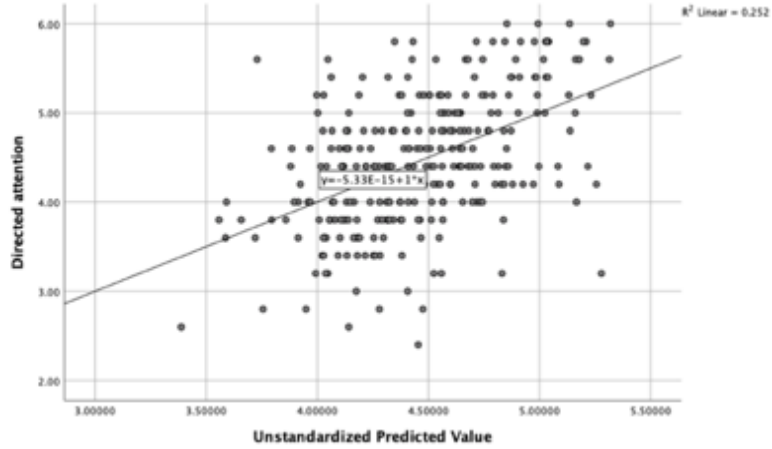
Appendix 6. 1. Assumptions for simultaneous multiple regression in Chapter 6 (Section 6.5.1)

The assumption of linearity



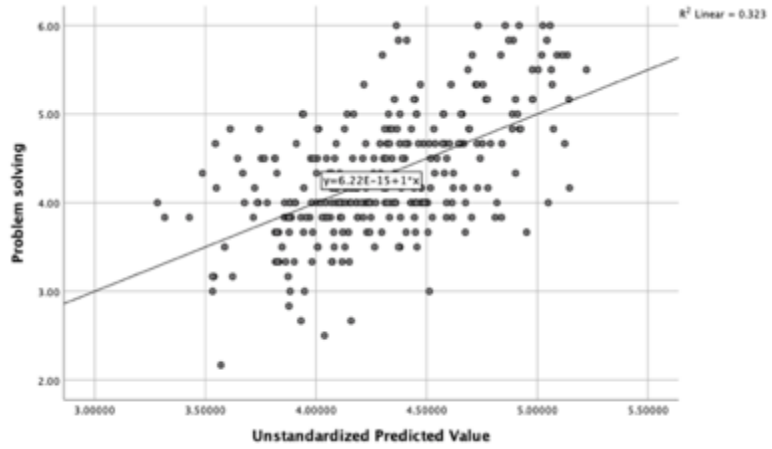
Outcome variable:

Plan-evaluation (T1)



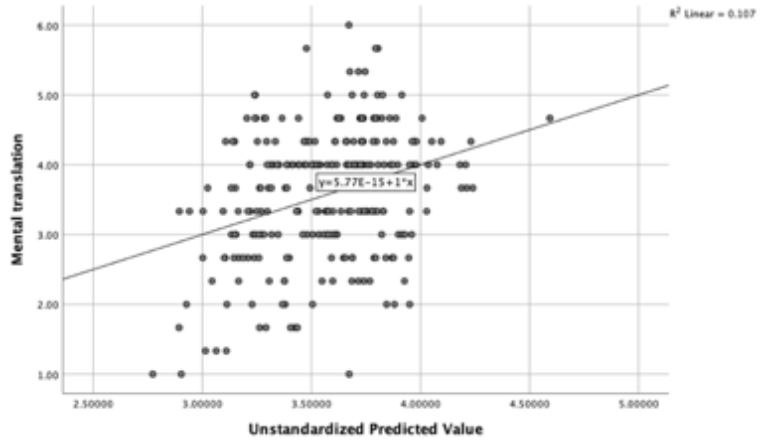
Outcome variable:

Directed attention (T1)



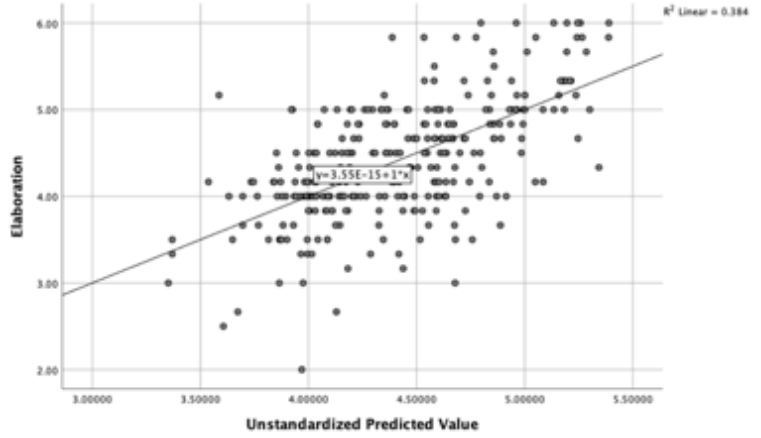
Outcome variable:

Problem solving (T1)



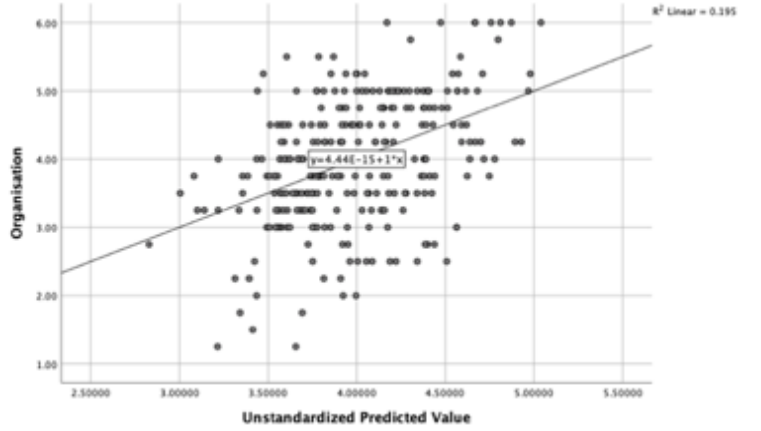
Outcome variable:

Mental translation (T1)



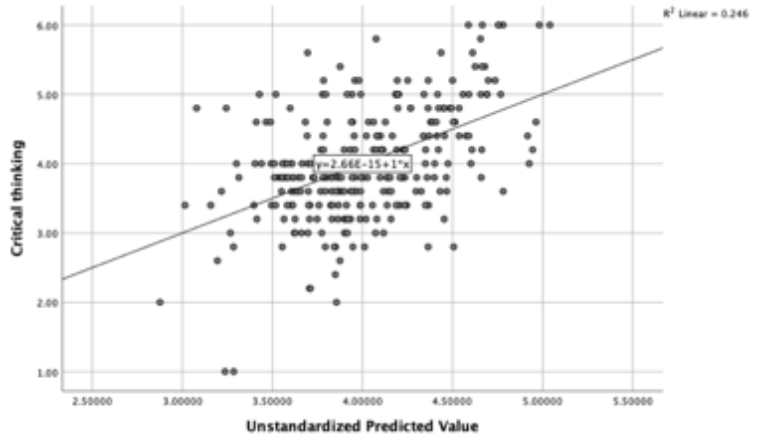
Outcome variable:

Elaboration (T1)



Outcome variable:

Organisation (T1)



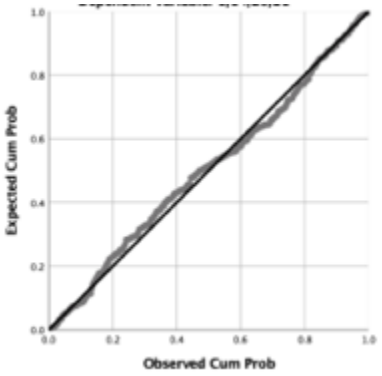
Outcome variable:

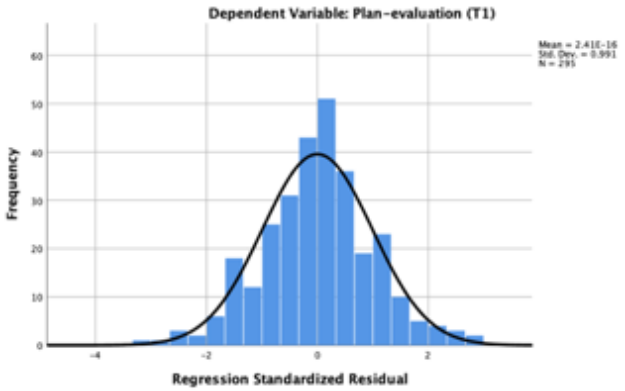
Critical thinking (T1)

Note. The scatterplots show that there is a linear relationship between each outcome variable and its corresponding predictor variables (BELP, self-efficacy and motivational variables) at T1.

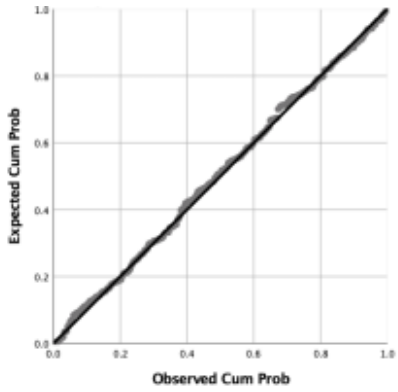
The assumption of normality of residuals

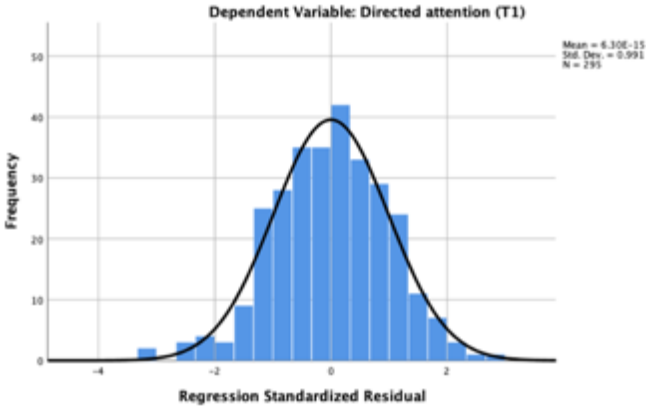
Outcome variable: Plan-evaluation



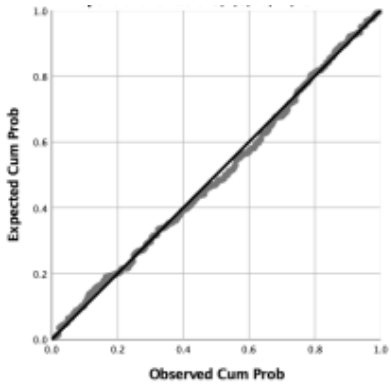


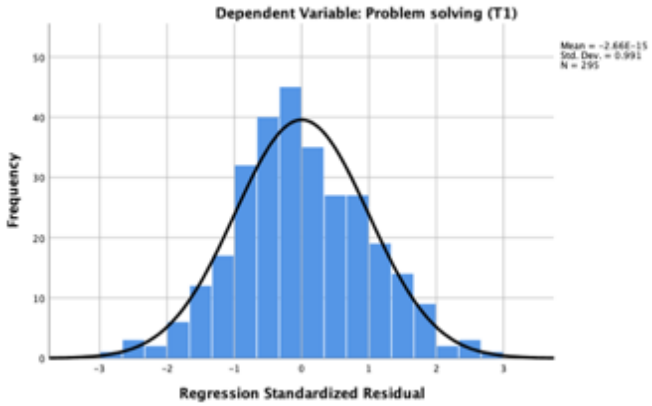
Outcome variable: Directed attention



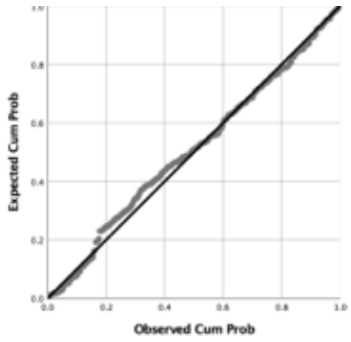


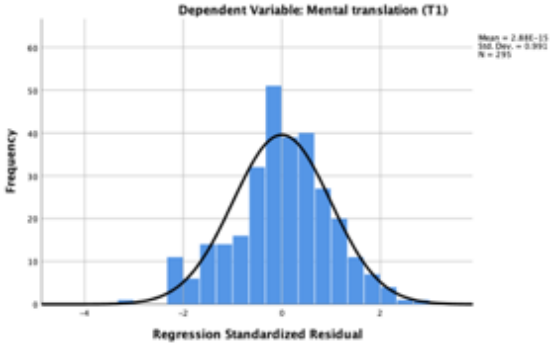
Outcome variable: Problem solving



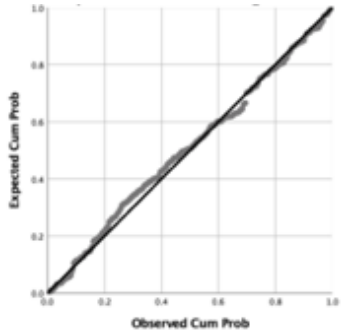


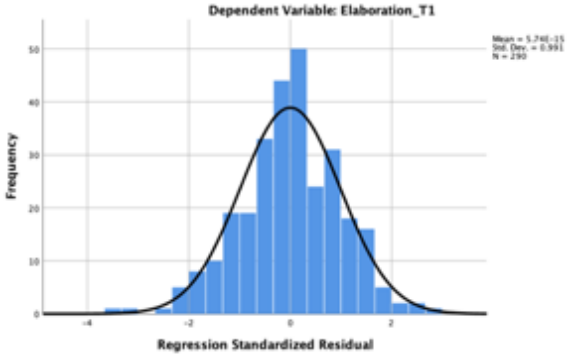
Outcome variable: Mental translation



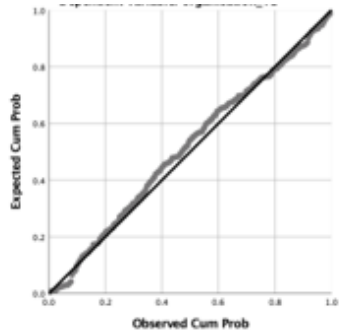


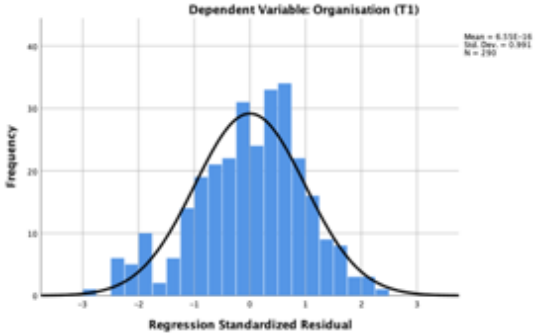
Outcome variable: Elaboration



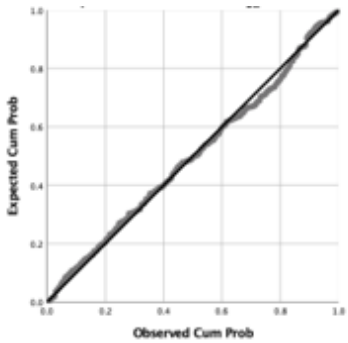


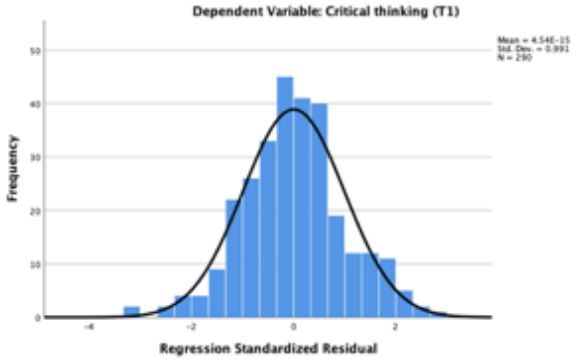
Outcome variable: Organisation





Outcome variable: Critical thinking

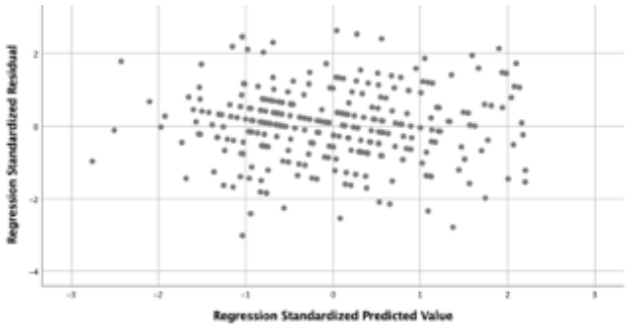




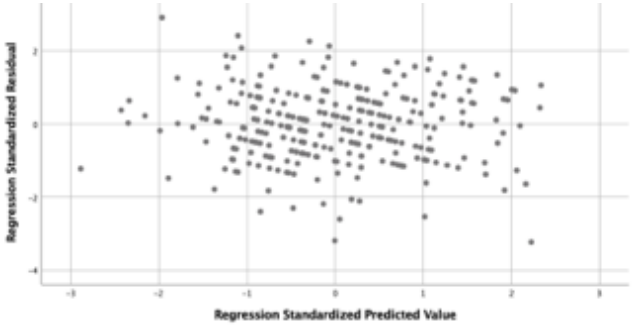
Note. The P-P plots and Histograms show that the residuals are normally distributed at T1.

The assumption of homoscedasticity

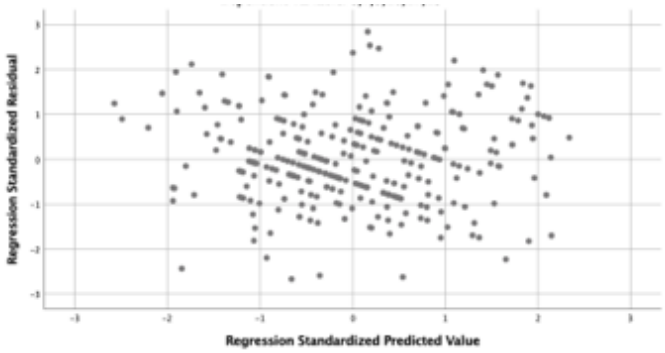
Outcome variable: Plan-evaluation



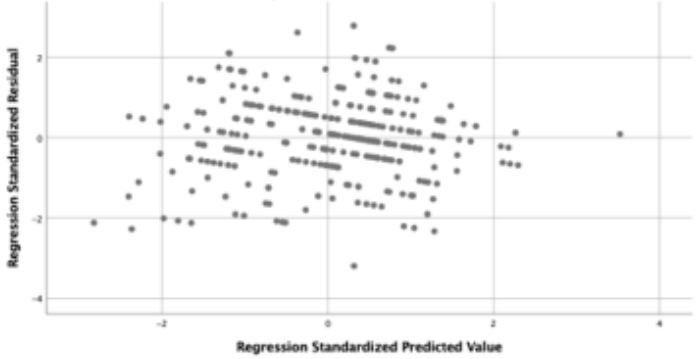
Outcome variable: Directed attention



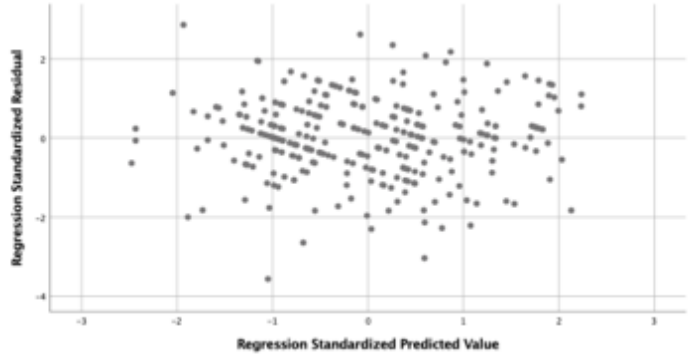
Outcome variable: Problem solving



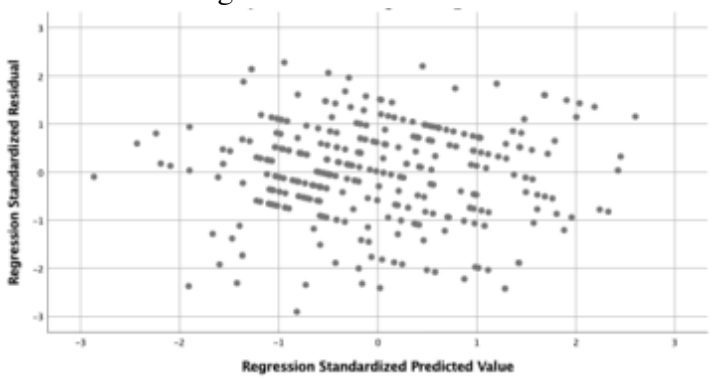
Outcome variable: Mental translation



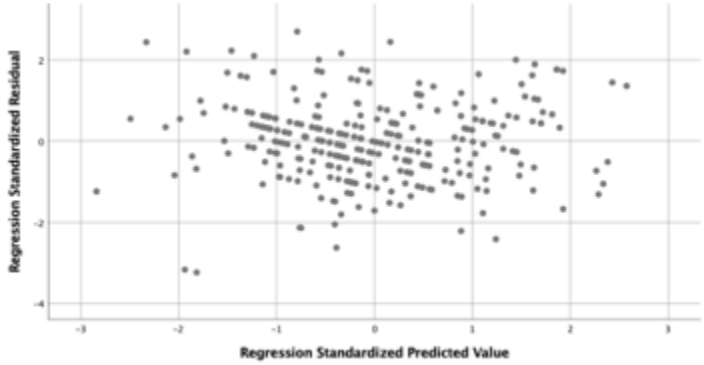
Outcome variable: Elaboration



Outcome variable: Organisation



Outcome variable: Critical thinking



Note. The scatterplots show that variances of error terms are similar across predictor variables (BELP, self-efficacy and motivational variables) at T1.

The assumption of no multicollinearity

Predictor variables	Plan-evaluation		Directed attention		Problem solving		Mental translation	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
BELP	0.779	1.283	0.779	1.283	0.779	1.283	0.779	1.283
Self-efficacy	0.599	1.668	0.599	1.668	0.599	1.668	0.599	1.668
Intrinsic goal	0.660	1.515	0.660	1.515	0.660	1.515	0.660	1.515
Extrinsic goal	0.866	1.154	0.866	1.154	0.866	1.154	0.866	1.154
Task value	0.556	1.798	0.556	1.798	0.556	1.798	0.556	1.798

Predictor variables	Elaboration		Organisation		Critical thinking	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
BELP	0.774	1.292	0.774	1.292	0.774	1.292
Self-efficacy	0.591	1.691	0.591	1.691	0.591	1.691
Intrinsic goal	0.667	1.500	0.667	1.500	0.667	1.500
Extrinsic goal	0.866	1.155	0.866	1.155	0.866	1.155
Task value	0.552	1.810	0.552	1.810	0.552	1.810

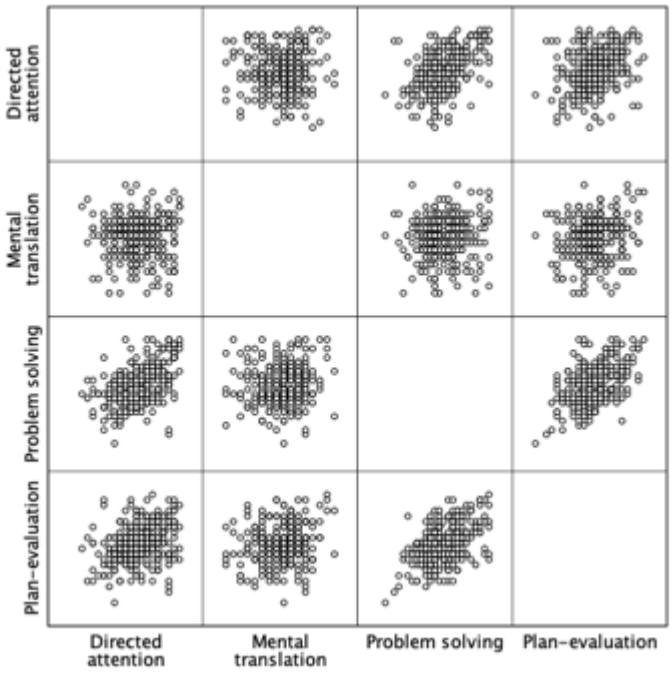
Note. Predictor variables are not highly correlated to each other, indicated by the value of Variance Inflation Factor (VIF) of all predictor variables lower than 10.0 and the Tolerance value above 0.20.

Appendix E Appendices for Chapter 7

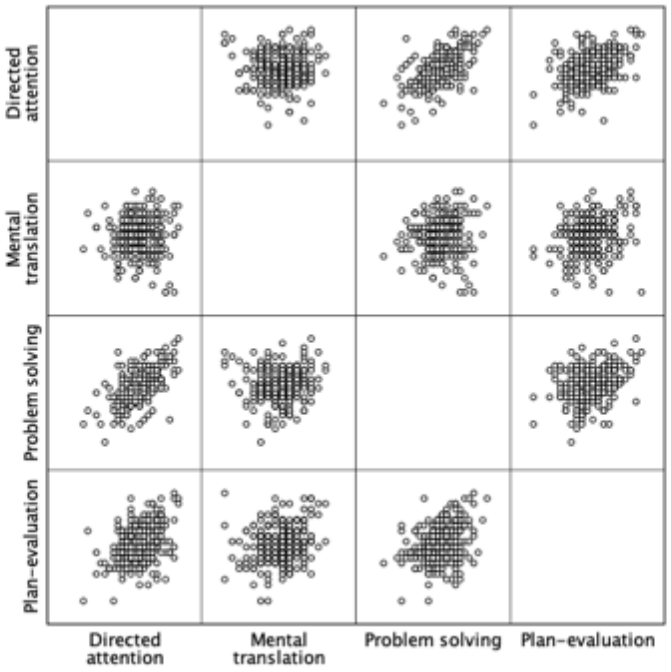
Appendix 7. 1. Assumptions for RM MANOVA in Chapter 7 (Section 7.2)

The assumption of linearity between dependent variables

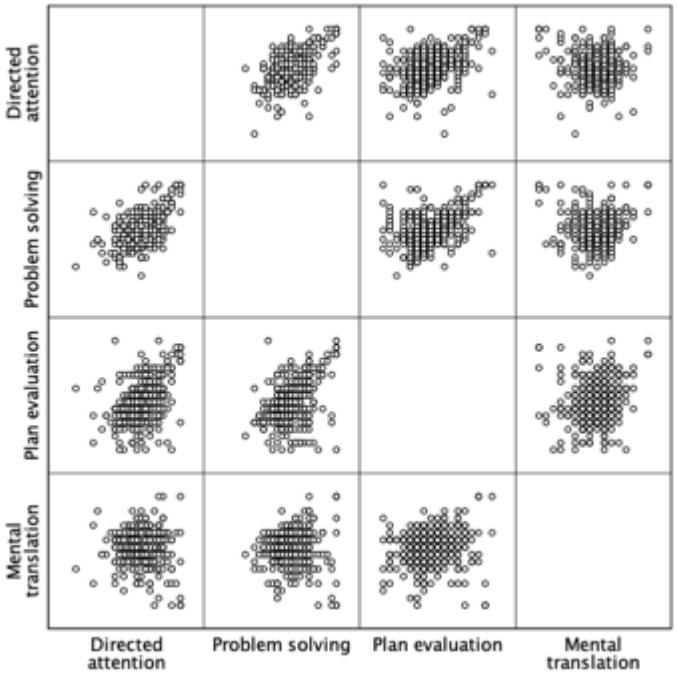
T1 Relationship between each pair of dependent variables (strategy) for 'metacognitive awareness of listening strategies'



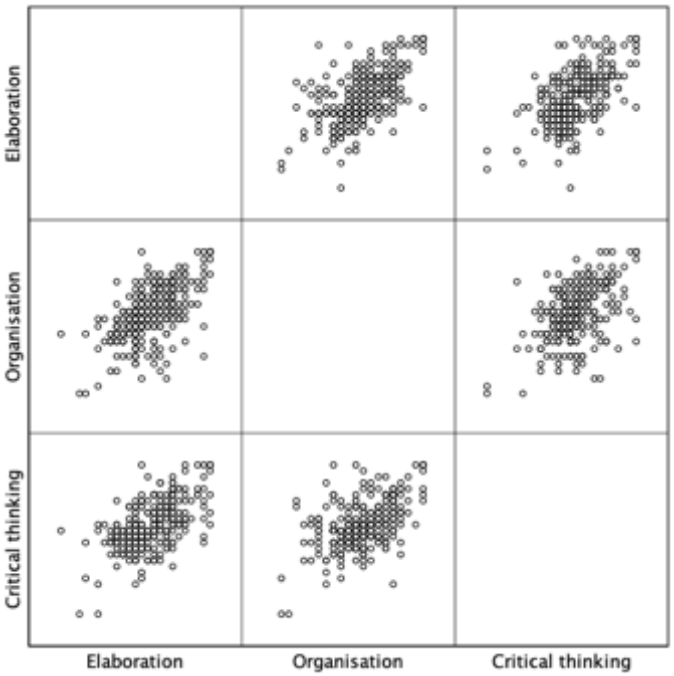
T2 Relationship between each pair of dependent variables (strategy) for 'metacognitive awareness of listening strategies'



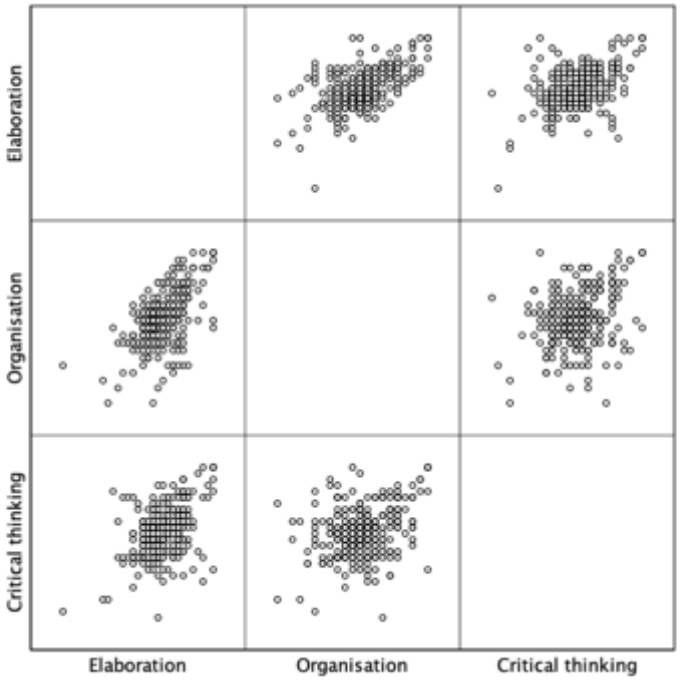
T3 Relationship between each pair of dependent variables (strategy) for ‘metacognitive awareness of listening strategies’



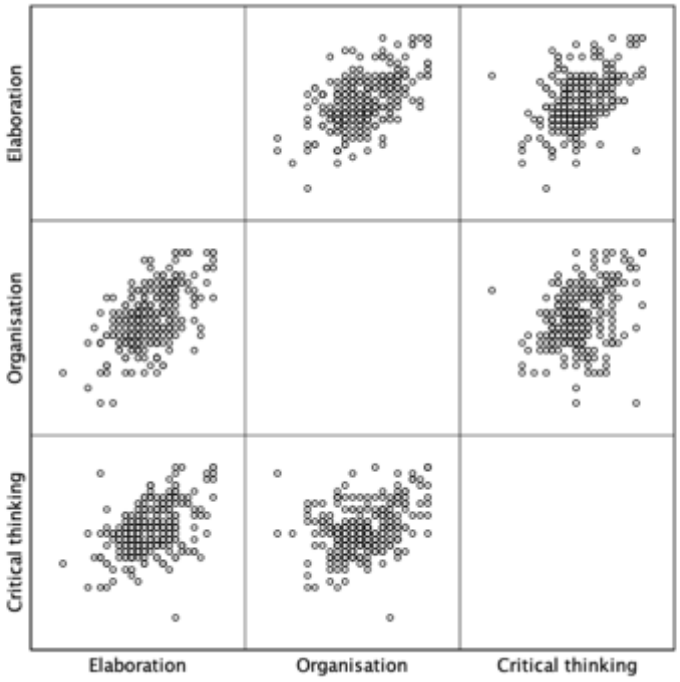
T1 Relationship between each pair of dependent variables (strategy) for ‘deep processing listening strategies’



T2 Relationship between each pair of dependent variables (strategy) for ‘deep processing listening strategies’



T3 Relationship between each pair of dependent variables (strategy) for ‘deep processing listening strategies’



Note. The scatterplot matrices show there is a linear relationship between each pair of dependent variables (strategy) for each related group of the independent variable (time point).

The assumption of no multicollinearity

T1 Spearman correlation between dependent variables (listening strategy)

	Critical thinking	Organisation	Elaboration	Mental translation	Problem solving	Plan-evaluation	Directed attention
Directed attention	.374**	.440**	.517**	.155**	.511**	.345**	1.000
Sig.	0.000	0.000	0.000	0.007	0.000	0.000	.
Plan-evaluation	.275**	.354**	.442**	0.010	.445**	1.000	
Sig.	0.000	0.000	0.000	0.860	0.000	.	
Problem solving	.435**	.324**	.560**	.129*	1.000		
Sig.	0.000	0.000	0.000	0.024	.		
Mental translation	.133*	0.102	.116*	1.000			
Sig.	0.023	0.081	0.048	.			
Elaboration	.554**	.610**	1.000				
Sig.	0.000	0.000	.				
Organisation	.476**	1.000					
Sig.	0.000	.					
Critical thinking	1.000						
Sig.	.						

Note. **, correlation is significant at the 0.01 level (2-tailed); *, correlation is significant at the 0.05 level (2-tailed); the correlations between variables do not exceed 0.70 at T1, indicating no multicollinearity.

T2 Spearman correlation between dependent variables (listening strategy)

	Critical thinking	Organisation	Elaboration	Mental translation	Problem solving	Plan-evaluation	Directed attention
Directed attention	.342**	.524**	.422**	.175**	.404**	.392**	1.000
Sig.	0.000	0.000	0.000	0.002	0.000	0.000	.
Plan-evaluation	.186**	.388**	.423**	-0.047	.475**	1.000	
Sig.	0.001	0.000	0.000	0.414	0.000	.	
Problem solving	.381**	.344**	.634**	0.102	1.000		
Sig.	0.000	0.000	0.000	0.078	.		
Mental translation	.115*	0.099	0.072	1.000			
Sig.	0.049	0.091	0.217	.			
Elaboration	.357**	.513**	1.000				
Sig.	0.000	0.000	.				
Organisation	.267**	1.000					
Sig.	0.000	.					
Critical thinking	1.000						
Sig.	.						

Note. **, correlation is significant at the 0.01 level (2-tailed); *, correlation is significant at the 0.05 level (2-tailed); the correlations between variables do not exceed 0.70 at T2, indicating no multicollinearity.

T3 Spearman correlation between dependent variables (listening strategy)

	Critical thinking	Organisation	Elaboration	Mental translation	Problem solving	Plan-evaluation	Directed attention
Directed attention	.491**	.523**	.520**	.164**	.453**	.428**	1.000
Sig.	0.000	0.000	0.000	0.004	0.000	0.000	.
Plan-evaluation	.266**	.426**	.515**	-0.044	.476**	1.000	
Sig.	0.000	0.000	0.000	0.437	0.000	.	
Problem solving	.394**	.368**	.674**	0.091	1.000		
Sig.	0.000	0.000	0.000	0.107	.		
Mental translation	0.065	0.097	0.027	1.000			
Sig.	0.254	0.086	0.635	.			
Elaboration	.405**	.537**	1.000				
Sig.	0.000	0.000	.				
Organisation	.325**	1.000					
Sig.	0.000	.					
Critical thinking	1.000						
Sig.	.						

Note. **, correlation is significant at the 0.01 level (2-tailed); *, correlation is significant at the 0.05 level (2-tailed); the correlations between variables do not exceed 0.70 at T3, indicating no multicollinearity.