

University of Southampton Research Repository

Copyright © and Moral Rights for this thesis and, where applicable, any accompanying data are retained by the author and/or other copyright owners. A copy can be downloaded for personal non-commercial research or study, without prior permission or charge. This thesis and the accompanying data cannot be reproduced or quoted extensively from without first obtaining permission in writing from the copyright holder/s. The content of the thesis and accompanying research data (where applicable) must not be changed in any way or sold commercially in any format or medium without the formal permission of the copyright holder/s.

When referring to this thesis and any accompanying data, full bibliographic details must be given, e.g.

Thesis: Author (Year of Submission) "Full thesis title", University of Southampton, name of the University Faculty or School or Department, PhD Thesis, pagination.

Data: Author (Year) Title. URI [dataset]

University of Southampton

Faculty of Arts and Humanities
Languages, Cultures and Linguistics

Knowledge Building in Academic Lectures: An LCT Analysis

by

Xiaowei Zhou

ORCID ID [0009-0005-9322-7902](https://orcid.org/0009-0005-9322-7902)

Thesis for the degree of Doctor of Philosophy

March 2025

University of Southampton

Abstract

Faculty of Arts and Humanities

Languages, Cultures and Linguistics

Thesis for the Doctor of Philosophy

Knowledge Building in Academic Lectures: An LCT Analysis

By

Xiaowei Zhou

This study examines the construction of disciplinary knowledge in English-Medium Instruction (EMI) academic lectures at a UK university, focusing on the learning experiences of Chinese postgraduate students. Drawing on Legitimation Code Theory (LCT), particularly its semantic dimension, the research explores how lecturers' use of semantic gravity and semantic density influences students' comprehension and engagement. Through a qualitative multiple-case study, data were collected via lecture recordings, student interviews, and lecturer interviews.

Findings indicate that knowledge construction in EMI lectures is shaped by semantic waves which feature oscillations between abstract theoretical content and concrete examples. While well-structured semantic waves facilitate cumulative knowledge-building, imbalanced transitions such as prolonged theoretical exposition without contextual anchoring or excessive reliance on concrete examples without theoretical reintegration impede students' comprehension. Moreover, multimodal scaffolding, including structured slides and visual aids, enhances understanding, whereas an overreliance on spoken discourse increases cognitive load.

The study also highlights the role of cultural and cognitive factors in shaping students' engagement with EMI lectures. Many Chinese students, accustomed to teacher-centred learning and rote memorization, struggle with the expectation to actively construct knowledge in a participatory academic environment. Linguistic challenges, including processing complex academic discourse in real-time, further compound comprehension difficulties. However, students employing strategies such as structured notetaking and peer discussions demonstrate improved engagement.

This research contributes to the fields of applied linguistics and higher education by integrating LCT with empirical insights into EMI pedagogy. The findings inform pedagogical practices aimed at enhancing lecture accessibility for international students, emphasizing the need for balanced semantic structuring, multimodal integration, and explicit academic support initiatives.

Table of Contents

Abstract.....	2
Table of Contents	3
Table of Figures	9
Table of Tables	10
Research Thesis: Declaration of Authorship.....	11
Acknowledgements.....	12
Chapter 1 Introduction	13
1.1. Background and Rationale for the Study.....	13
1.1.1. The Rise of EMI and Its Implications for International Students.....	14
1.1.2. Linguistic, Cognitive, and Pedagogical Barriers to Lecture Comprehension	15
1.1.3. The Need for a Knowledge-Based Approach to Lecture Comprehension	
Research	17
1.2. Research Aims and Questions	18
1.2.1. Research Aim	18
1.2.2. Research Questions	19
1.2.3. Significance of Addressing These Research Questions	21
1.2.4. Broader Contributions to the Field	23
1.3. Theoretical Framework: Legitimation Code Theory (LCT).....	24
1.4. Research Context and Methodology.....	25
1.4.1. Research Context: EMI and the Case of Chinese Postgraduate Students in the UK	25
1.4.2. Research Design: A Qualitative Multiple-Case Study Approach.....	27
1.4.3. Data Collection: Lecture Recordings, Student Interviews, and Lecturer Interviews.....	28
1.4.4. Data Analysis: Integrating Semantic and Thematic Analysis	30
1.4.5. Ethical Considerations	30
1.5. Structure of the Dissertation	31

Chapter 2 Academic Lectures, International Students, and Knowledge

Construction in EMI Contexts	34
2.1. Introduction.....	34
2.2. Academic Lectures in UK Higher Education	37
2.2.1. The Centrality of Knowledge in UK Higher Education	37
2.2.2. Historical Evolution and Pedagogical Functions of Academic Lectures.....	38
2.2.3. Mechanisms of Knowledge Construction in Higher Education.....	41
2.2.4. Academic Lectures as Platforms for Knowledge Construction	47
2.2.5. The Genre of Academic Lectures: A Genre-Based Approach	49
2.2.6. Different Lecture Styles and Their Impact on Knowledge Construction	51
2.2.7. Interaction Patterns in Academic Lectures: A Systemic Functional Linguistic Perspective.....	52
2.3. International Students in English Medium Instruction (EMI) Contexts	55
2.3.1. Conceptualizing EMI in Higher Education	55
2.3.2. A Critical Evaluation of the Term "EMI" in UK Higher Education Contexts	59
2.3.3. Adaptation Challenges Faced by International Students.....	61
2.3.4. Cognitive and Cultural Dimensions of Asian (Chinese) Students in UK EMI Contexts.....	65
2.3.5. Chinese Students' Learning Journeys in EMI Contexts	69
2.4. Listening Comprehension and Knowledge Construction	71
2.4.1. Understanding the Process of Lecture Comprehension	72
2.4.2. Key Factors Influencing L2 Academic Listening.....	86
2.4.3. Micro-skills for Effective Lecture Comprehension	96
2.4.4. Effective Listening Strategies in Academic Contexts.....	100
2.4.5. The Interplay Between Listening Comprehension and Knowledge Construction	104
2.4.6. Clarifying the Relationship Between Listening Comprehension and Knowledge Construction	109

2.4.7. Cultural Influences on Listening Comprehension and Knowledge Construction in EMI Contexts.....	110
2.4.8. Integrating Listening and Knowledge Building in Pedagogical Contexts	114
2.4.9. Advancing Knowledge Construction Beyond Listening Comprehension	114
2.5. Online Academic Lectures.....	116
2.5.1. The Role of Digital Interfaces in Online Lectures	116
2.5.2. Comparing Asynchronous and Synchronous Lectures: Prospects and Challenges	117
2.5.3. Cognitive Load Considerations in Online Lectures	119
2.5.4. Navigating Multimodal Challenges in Online Lectures	120
2.5.5. Implications for Second Language Learners in Online Lectures.....	121
2.6. Conclusion	122
Chapter 3 Legitimation Code Theory as an Analytical Framework for Knowledge Construction	126
3.1. Introduction.....	126
3.2. Semantic Dimensions in LCT	128
3.3. Exploring Semantic Gravity and Semantic Density in LCT	131
3.4. Defining and Applying Semantic Profiles	134
3.5. Empirical Applications of LCT Semantics in Classrooms	138
3.6. Using LCT Semantic Profiles: Study Methodology	147
3.7. Conclusion	152
Chapter 4 Research Design and Methodology	157
4.1. Introduction.....	157
4.2. The research context.....	159
4.3. The interpretivist paradigm.....	162
4.4. Rationale for taking qualitative research approach	164
4.5. Research design.....	167
4.6. Data collection	175

4.6.1. The Participants Sampling.....	175
4.6.2. The Participant Recruiting and Modules Selection.....	176
4.6.3. Module Selection and Data Collection.....	179
4.6.4. The Pilot: Semantic Profile Analysis of Academic Lectures	180
4.6.5. The pilot study: Interviews with L2 student participants	186
4.6.6. The interviews with academic staffs.....	189
4.6.7. The interview protocol.....	192
4.7. Data analysis and reduction	195
4.7.1. Semantic waves as an analytical framework.....	196
4.8. Demonstrating the trustworthiness of qualitative research.....	204
4.8.1. Credibility	205
4.8.2. Dependability	206
4.8.3. Transferability	207
4.8.4. Confirmability	207
4.9. Ethical considerations.....	208
4.10. Chapter summary.....	210
Chapter 5 Semantic Profiles and Their Role in Knowledge Construction	212
5.1. Chapter introduction.....	212
5.2. Analysing Knowledge Building in Academic Lectures through Semantic Profiles	213
5.2.1. Semantic Profile Analysis of Module A Lectures	215
5.2.2. Semantic Profile Analysis of Module B Lectures	251
5.2.3. Semantic Profile Analysis of Module C Lectures.....	263
5.3. Summary and Insights from Semantic Profile Analyses of Academic Lectures	303
5.4. The Influence of Downward Semantic Shifts on L2 Students' Understanding and Knowledge Construction	309
5.4.1. How Examples Enhance Comprehension for L2 Students.....	309

5.4.2. The Preference for Detailed Quotations and Illustrations in Enhancing Comprehension	311
5.4.3. Preference for Everyday L2 as a Clarification Language	312
5.5. The Influence of Upward Semantic Shifts on L2 Students' Understanding and Knowledge Construction	313
5.5.1. Comparing the Effectiveness of Oral and Written Summaries for L2 Students	313
5.5.2. Using High-Stakes Reading for After-Class Self-Reflection Activities	314
5.6. The Influence of Semantic Waves on L2 Students' Understanding and Knowledge Construction	315
5.7. Chapter conclusion.....	316
Chapter 6 Cultural and Cognitive Influences on Knowledge Construction in EMI Lectures	317
6.1. Introduction.....	317
6.2. Factors Influencing Knowledge Construction	318
6.2.1. Semantic Waves and Their Role in Knowledge Construction	318
6.2.2. Cultural Background and Knowledge Construction	320
6.3. Case Analysis	323
6.3.1. Individual Student Cases.....	323
6.3.2. Recurring Themes in Student Experiences	338
6.4. Multimodality and Note-Taking	341
6.4.1. Benefits and Challenges of Multimodality.....	341
6.4.2 Integrating Multimodality into Note-Taking Practices.....	343
6.5. Conclusion	346
Chapter 7 Discussion	349
7.2. Semantic Profiles and Pedagogical Strategies (RQ1)	351
7.2.1. Semantic Profiles Observed in Lectures (Modules A, B, C)	352
7.2.2. Connecting Findings to Theoretical Perspectives	355

7.3. Influence of Pedagogical Strategies on Students' Knowledge-building (RQ2)	357
7.3.1. Role of Multimodal Scaffolding	360
7.4. Cultural and Cognitive Mediation of Knowledge Construction (RQ3)	363
7.4.1. Cultural Factors	364
7.4.2. Cognitive Factors and Adaptation	367
7.5. Implications for Pedagogy and Policy	370
7.5.1. Pedagogical Recommendations	371
7.5.2. Culturally Responsive Teaching Practices	372
7.5.3. Institutional Policy Recommendations	373
7.5.4. Conclusion on Pedagogy and Policy	374
7.5. Conclusion	374
Chapter 8 Conclusion	377
8.1. Introduction	377
8.2. Key Findings	378
8.3. Principal Contributions	383
8.4. Limitations of the Study	387
8.5. Practical Implications	389
8.6. Suggestions for Future Research	393
8.7. Reflective Points	396
Appendix A Module B Session 2 (MBS2) Summary Table	402
Appendix B Module B Session 3 (MBS3) Summary Table	407
Appendix C Interview Guidance for Students Participants	411
Appendix D Staff Semi-structured Interview Questions	412
Appendix E Transcription Conventions	413
Appendix F Student Participant Interview Transcription Sample	414
Appendix G Student Participants' Note-Taking Samples	418
Appendix H Sample from the Researcher's Diary	422
List of References	424

Table of Figures

FIGURE 3.1 ILLUSTRATIVE SEMANTIC PROFILES AND SEMANTIC RANGES (MATON, 2013: 15)	135
FIGURE 3.2 A SEMANTIC WAVE	138
FIGURE 4.1 (A, B, C) THE SEMANTIC PROFILES OF THREE LECTURES; NUMBER (0, 3) REPRESENTS MINUTE	185
FIGURE 5.1 SEMANTIC PROFILE OF THE MODULE A SESSION 1	222
FIGURE 5.2 SEMANTIC PROFILE OF THE MODULE A SESSION 2	236
FIGURE 5.3 SEMANTIC PROFILE OF THE MODULE A SESSION 3	249
FIGURE 5.4 SEMANTIC PROFILE OF THE MODULE B SESSION 1	258
FIGURE 5.5 SEMANTIC PROFILE OF THE MODULE B SESSION 2	261
FIGURE 5.6 SEMANTIC PROFILE OF THE MODULE B SESSION 3	262
FIGURE 5.7 SEMANTIC PROFILE OF THE MODULE C SESSION 1	279
FIGURE 5.8 SEMANTIC PROFILE OF THE MODULE C SESSION 2.....	290
FIGURE 5.9 SEMANTIC PROFILE OF THE MODULE C SESSION 3.....	300
FIGURE 5.10 SEMANTIC PROFILES FOR THE KNOWLEDGE BUILDING PRACTICES IN NINE LECTURES (THE TOP-MODULE A; THE MIDDLE-MODULE B; THE BOTTOM-MODULE C).....	304

Table of Tables

TABLE 3.1 AN ILLUSTRATIVE TRANSLATION DEVICE FOR SEMANTIC GRAVITY AND SEMANTIC DENSITY	148
TABLE 4.1 OVERVIEW OF RESEARCH QUESTIONS, METHODS OF DATA GATHERING AND ANALYTICAL TOOLS	168
TABLE 4.2 STRENGTHS AND WEAKNESSES OF DIFFERENT TYPES OF INTERVIEWS	172
TABLE 4.3 THE PROFILES OF STUDENT PARTICIPANTS	178
TABLE 4.4 THE PROFILES OF LECTURER PARTICIPANTS	180
TABLE 4.5 TRANSLATION DEVICE SHOWING INDICATORS FOR DIFFERENT STRENGTHS OF SEMANTIC GRAVITY AND SEMANTIC DENSITY AND HOW THEY MANIFEST EMPIRICALLY IN THE DATASET	183
TABLE 4.6 A TRANSLATION DEVICE FOR VARIOUS LEVELS OF SEMANTICS	199
TABLE 4.7 A TRANSLATION DEVICE FOR SHIFTS IN SEMANTIC DENSITY (SD)	202
TABLE 5.1 SUMMARY DATA FOR MODULE A SESSION 1	216
TABLE 5.2 SUMMARY DATA FOR MODULE A SESSION 2	226
TABLE 5.3 SUMMARY DATA FOR MODULE A SESSION 3	241
TABLE 5.4 SUMMARY DATA FOR MODULE B SESSION 1	252
TABLE 5.7 SUMMARY DATA FOR MODULE C SESSION 1	264
TABLE 5.8 SUMMARY DATA FOR MODULE C SESSION 2	284
TABLE 5.9 SUMMARY DATA FOR MODULE C SESSION 3	293
TABLE 5.10 ENTRY POINTS AND EXIT POINTS OF THREE MODULES	305

Research Thesis: Declaration of Authorship

Print name: Xiaowei Zhou

Title of thesis: Knowledge Building in Academic Lectures: An LCT Analysis

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission

Signature: Date: 17 March 2025.....

Acknowledgements

Completing this PhD has been an incredibly challenging and rewarding journey, and it would not have been possible without the support, guidance, and encouragement of many people to whom I am deeply indebted.

First and foremost, I would like to express my deepest gratitude to my main supervisor, Professor Karin Zotzmann, whose invaluable expertise, patience, and unwavering support guided me through every step of this process. Your insightful feedback and dedication have been pivotal to the completion of this thesis, and I am incredibly fortunate to have had you as my mentor.

I am also profoundly grateful to my co-supervisor, Dr. Robert Baird, whose guidance and encouragement have been a constant source of inspiration. Your constructive criticism and belief in my work pushed me to refine my ideas and strive for excellence.

My heartfelt appreciation extends to my colleagues and fellow PhD students. Special thanks to Professor Alison Porter, Dr. Haimeng Ren, Professor Karl Maton, Professor Kirk Steve, Professor Lee Rusznyak, Dr. Lucy Watson, Professor Qiang Ning, Dr. Rugang Lu, Dr. Sonia Moran Panero, Professor Vicky Wright, Professor Will Baker, Zixuan Liu, for being a constant source of research support and encouragement.

A special thanks to the administrative and academic staff in the Faculty of Arts and Humanities for their assistance and for creating such a stimulating and supportive environment throughout my studies.

I am eternally grateful to my father Wei Zhou and my mother Shujuan Zhao, my elder sister, Xiaoyu Zhou, my niece, Xiao Yu, for their unwavering love and belief in me throughout these years. Thank you for your endless patience, both financial and emotional support, and for always reminding me to take care of myself. Your encouragement has meant the world to me.

To Tao, words cannot express how much your support, patience, and understanding have sustained me throughout this journey, especially the last period, carrying out the profound discussion and encouragement as well as the typesetting work. Thank you for being my rock and my greatest source of strength.

Finally, I also extend my gratitude to the participants who contributed to this research, without whom this work could not have been completed.

To everyone who has supported me in this endeavor, whether mentioned here or not, please know that I am deeply grateful for your contributions and belief in me. This thesis is as much yours as it is mine. Thank you all.

Chapter 1 Introduction

1.1. Background and Rationale for the Study

Higher education is fundamentally structured around the dissemination, construction, and negotiation of disciplinary knowledge, with academic lectures serving as one of the primary means through which students engage with complex academic concepts. As knowledge transmission is central to the university experience, lectures provide students with structured access to disciplinary expertise, facilitate intellectual development, and cultivate academic literacy and disciplinary enculturation (Hyland, 2009; Airey & Linder, 2006). These functions are especially critical in postgraduate education, where students are required not only to engage critically with theoretical frameworks but also to apply specialized knowledge to real-world problems, conduct independent research, and participate actively in academic discourse within their chosen fields (Teng, 2020).

However, achieving these learning goals is contingent upon students' ability to comprehend, process, and internalize lecture content effectively. Unlike other instructional methods such as seminars, tutorials, or workshops, which allow for real-time interaction and two-way communication, lectures typically require students to process large amounts of complex information independently and in real time. This makes lecture comprehension a cognitively demanding process, requiring students to integrate new disciplinary knowledge with their prior understanding, make inferences, and distinguish between central ideas and supporting details (Flowerdew & Miller, 1996). For international students studying in English-Medium Instruction (EMI) settings, the challenges associated

with lecture comprehension are further compounded by linguistic, cultural, and cognitive constraints, all of which influence their ability to construct and apply knowledge effectively.

1.1.1. The Rise of EMI and Its Implications for International Students

Over the past two decades, the rapid expansion of EMI programs has reshaped the landscape of global higher education. Many universities worldwide have introduced EMI programs as part of their internationalization strategies, aiming to attract international students, promote global knowledge exchange, and enhance graduates' employability in an English-dominant professional and academic environment (Doiz et al., 2013; Macaro et al., 2018). The growing prevalence of EMI is evident in both Anglophone countries, where universities continue to enrol increasing numbers of international students, and non-Anglophone countries, where institutions have adopted EMI to align themselves with global academic trends.

While EMI provides significant opportunities for international students, including access to global knowledge networks, increased mobility, and exposure to diverse academic traditions, it also presents substantial challenges. One of the most critical issues facing students in EMI settings is the dual cognitive burden of learning disciplinary content while simultaneously developing proficiency in academic English (Galloway et al., 2020). Unlike native speakers, who may focus solely on conceptual comprehension, L2 learners must allocate cognitive resources to deciphering language structures, decoding unfamiliar terminology, and processing discipline-specific discourse styles. This additional cognitive

load can significantly hinder their ability to follow lectures, retain information, and actively engage in knowledge construction.

1.1.2. Linguistic, Cognitive, and Pedagogical Barriers to Lecture Comprehension

Within EMI contexts, international students face a range of linguistic, cognitive, and pedagogical barriers that affect their ability to process and construct knowledge from lectures.

Linguistic Challenges

Lecture comprehension is largely dependent on students' listening proficiency, vocabulary knowledge, and familiarity with academic discourse (Field, 2018). Many EMI students struggle with fast speech rates, reduced forms, idiomatic expressions, and complex syntactic structures commonly found in academic lectures (Goh, 2008; Siegel, 2021). Furthermore, disciplinary lectures frequently contain technical jargon, dense conceptual frameworks, and abstract theoretical discussions, all of which require students to have a strong grasp of both general academic English and subject-specific terminology. Even when international students possess high levels of English proficiency, they may still experience difficulties with processing spoken input in real time, as they must simultaneously decode linguistic information while attempting to extract key ideas from the lecture content (Flowerdew & Miller, 2005).

Cognitive Processing Constraints

From a cognitive perspective, lecture comprehension places significant demands on students' working memory and cognitive processing abilities (Sweller et al., 2011). Unlike written texts, which allow for re-reading, pausing, and self-paced learning, lectures require students to process incoming information continuously. This makes it difficult for L2 students to engage in deep processing, as they often expend considerable cognitive effort on decoding language rather than engaging with content (Rost, 2011). Additionally, academic lectures frequently involve nonlinear structures, where instructors introduce multiple subtopics, incorporate digressions, and rely on implicit connections between ideas (Thompson, 2003). These factors create challenges in following the logical flow of a lecture, particularly for students unfamiliar with Western academic discourse norms.

Variability in Pedagogical Practices

Another significant factor influencing lecture comprehension is variation in pedagogical practices and lecture delivery styles. Some lecturers employ highly structured approaches, clearly signalling topic shifts, summarizing key points, and using visual aids to scaffold learning. Others, however, adopt more implicit teaching styles, requiring students to infer connections between theoretical concepts and practical applications on their own. The extent to which lecturers engage in explicit meaning-making strategies such as repeating key ideas, providing concrete examples, and integrating multimodal resources has a direct impact on students' ability to process and retain lecture content (Maringe & Jenkins, 2015).

For international students, especially those from Confucian heritage cultures, adjusting to new pedagogical approaches can be challenging. In Chinese educational settings, students are often accustomed to teacher-centred instruction, knowledge transmission through memorization, and minimal classroom interaction (Biggs & Tang, 2011). The transition to Western higher education systems, which emphasize critical thinking, student engagement, and active participation in meaning-making, can result in cultural dissonance and difficulties in adapting to different modes of knowledge construction (Gu & Schweisfurth, 2015).

1.1.3. The Need for a Knowledge-Based Approach to Lecture Comprehension Research

Despite extensive research on L2 listening comprehension, there remains a gap in understanding how knowledge is structured in lectures and how students engage with these structures. Most previous studies have focused on linguistic features (e.g., lexical frequency, discourse markers) or pedagogical interventions (e.g., explicit strategy instruction), with limited attention to the semantic structuring of knowledge in academic lectures. To fully understand how international students construct meaning from lectures, it is essential to examine how knowledge shifts between abstraction and concreteness, how lecturers scaffold knowledge, and how students navigate these shifts.

To address this gap, this study employs Legitimation Code Theory (LCT), specifically its Semantics dimension, as a framework for analysing knowledge structuring in EMI lectures. LCT provides a systematic approach to examining how semantic gravity and semantic density shape lecture discourse, revealing

the patterns of abstraction and contextualization that facilitate or hinder knowledge construction (Maton, 2014). Through semantic profiling, this study maps how lecturers move between abstract theoretical explanations and concrete applications, investigating the extent to which these shifts align with effective pedagogical strategies.

By focusing on Chinese postgraduate students in EMI contexts, this study also examines how cultural and cognitive factors influence students' engagement with semantic structuring in lectures. In doing so, it provides valuable insights into the relationship between knowledge-building practices, pedagogical strategies, and international student learning outcomes. The findings of this research will contribute to applied linguistics, EMI pedagogy, and higher education studies, offering empirical evidence for designing more inclusive and effective lecture-based teaching approaches in internationalized higher education.

1.2. Research Aims and Questions

1.2.1. Research Aim

The overarching aim of this study is to examine how knowledge is constructed in academic lectures within English-Medium Instruction (EMI) settings, with a particular focus on how semantic structuring, lecture discourse, and cultural and cognitive influences shape students' comprehension and engagement. As higher education institutions become increasingly internationalized, it is imperative to develop a deeper understanding of the mechanisms through which lecturers structure knowledge and how students process and internalize that

knowledge. This study explores the extent to which semantic patterns in lecture discourse influence the learning experiences of Chinese postgraduate students enrolled in UK-based EMI programs, identifying key pedagogical challenges and opportunities for enhancing knowledge construction.

Within this broad aim, the study seeks to achieve several key objectives. First, it aims to analyse how lecturers structure their teaching by mapping their semantic profiles, thereby identifying patterns of knowledge transmission in academic discourse. Second, it investigates how students engage with these structures, examining how linguistic, cognitive, and cultural factors mediate their comprehension. Third, it seeks to identify what pedagogical adjustments could be made to improve knowledge scaffolding and student comprehension in EMI lectures. By integrating these objectives, the study aims to provide theoretical, empirical, and pedagogical insights that contribute to the broader fields of applied linguistics, second language education, EMI research, and higher education pedagogy.

1.2.2. Research Questions

To achieve the above aim, the study is guided by the following three central research questions:

- 1. How is knowledge built in academic lectures in a UK MA program by instructors in terms of semantic profiles (i.e., semantic gravity and semantic density)?**
- 2. How do the semantic profiles of these lectures influence the comprehension and knowledge construction of L2 students?**
- 3. In what ways do the cultural and cognitive factors of Chinese**

**postgraduate students shape their approaches to knowledge
construction during academic lectures in the United Kingdom?**

Each of these research questions is designed to investigate a specific aspect of the lecture comprehension and knowledge-building process, ensuring a comprehensive understanding of the linguistic, pedagogical, and sociocultural dimensions of EMI learning.

The first research question focuses on the semantic structuring of knowledge in EMI lectures, examining how lecturers transition between abstract theoretical explanations and concrete applications. By applying Legitimation Code Theory (LCT) Semantics, this study seeks to analyse semantic gravity (context-dependence of knowledge) and semantic density (conceptual complexity of knowledge) within different modules. The findings from this analysis will reveal how knowledge moves between levels of abstraction and concreteness, shedding light on the extent to which lecturers employ effective knowledge-building strategies or whether certain pedagogical patterns pose challenges for student comprehension.

The second research question shifts the focus to the student perspective, investigating how these semantic profiles influence student comprehension and knowledge construction. Academic listening in EMI contexts is a multifaceted process, requiring students to not only decode linguistic input but also process the logical and semantic relationships between ideas. The study will explore whether certain patterns of semantic structuring facilitate or hinder student understanding and whether specific pedagogical strategies help students engage with disciplinary knowledge more effectively.

The third research question broadens the inquiry by incorporating cultural and cognitive factors into the discussion. Previous research suggests that Chinese postgraduate students encounter cultural dissonance when transitioning from a Confucian-heritage education system, which prioritizes rote learning, hierarchical teacher-student relationships, and passive knowledge reception, to a Western EMI context, which emphasizes student participation, critical thinking, and independent meaning-making. This study explores how these cultural and cognitive expectations shape students' engagement with knowledge construction, identifying areas where additional pedagogical support may be necessary.

1.2.3. Significance of Addressing These Research Questions

By addressing these research questions, this study aims to offer a detailed empirical account of knowledge transmission in EMI lectures, highlighting both the linguistic and pedagogical features that shape student comprehension.

While much of the existing literature on EMI has focused on language proficiency, note-taking strategies, or general academic adaptation, relatively few studies have systematically examined how knowledge is structured in lectures and how students navigate these structures in real time. By applying semantic profiling techniques within an LCT framework, this study provides an innovative approach to understanding how disciplinary knowledge is built, transmitted, and internalized in EMI contexts.

The study's findings have implications for multiple stakeholders, including lecturers, curriculum designers, educational policymakers, and international students themselves. From a pedagogical perspective, the study identifies

teaching strategies that enhance student comprehension, offering recommendations on how lecturers can optimize their knowledge structuring techniques to make academic content more accessible to L2 learners. This may involve modifying the frequency and depth of semantic shifts, integrating multimodal resources, and making abstract concepts more explicitly connected to concrete applications.

From a theoretical perspective, this study contributes to the growing body of research on EMI pedagogy, applied linguistics, and second language acquisition by integrating insights from semantic discourse analysis, higher education research, and intercultural communication studies. It also extends the application of Legitimation Code Theory (LCT) to real-world lecture contexts, providing empirical data on how semantic waves shape student engagement and learning outcomes.

From a policy perspective, the study offers insights that can inform institutional strategies for supporting international students in EMI settings. Universities that attract large cohorts of international students must ensure that teaching practices align with the linguistic and cognitive needs of diverse learners. This study identifies areas where additional academic support may be needed, such as pre-sessional academic literacy training, in-class scaffolding techniques, and professional development programs for EMI lecturers.

Additionally, the study has practical implications for students, helping them develop metacognitive awareness of how knowledge is structured in lectures and equipping them with effective strategies for navigating semantic waves. As Chinese postgraduate students adapt to Western academic norms,

understanding how semantic gravity and semantic density operate in lectures can help them develop more effective notetaking, active listening, and knowledge integration skills.

1.2.4. Broader Contributions to the Field

This study contributes to ongoing discussions in applied linguistics, higher education studies, and EMI research, offering evidence-based recommendations for improving lecture comprehension and knowledge-building strategies. While previous studies on EMI have largely focused on linguistic challenges, this research provides a broader epistemological and pedagogical perspective, examining how knowledge itself is constructed and communicated in EMI classrooms.

By examining the intersection of linguistic, cognitive, and cultural factors in lecture comprehension, this study offers a holistic framework for understanding knowledge transmission in internationalized higher education. It extends the existing literature by shifting the focus from language proficiency as the sole determinant of success in EMI settings to a more nuanced exploration of pedagogical strategies, discourse structuring, and student adaptation processes.

Ultimately, this research aims to contribute to the development of more inclusive, effective, and student-centred pedagogical approaches in EMI higher education. By identifying key challenges, solutions, and areas for improvement, it provides a blueprint for enhancing international students' academic

experiences, ensuring that they can fully engage with disciplinary knowledge, develop critical thinking skills, and succeed in their academic pursuits.

1.3. Theoretical Framework: Legitimation Code Theory (LCT)

This study is grounded in Legitimation Code Theory (LCT), a sociological framework developed by Karl Maton to analyse knowledge structures in education. LCT builds on the work of Basil Bernstein (2000) and provides a means to investigate how knowledge is constructed, transmitted, and acquired across different educational contexts. The Semantics dimension of LCT, which is the focus of this study, provides conceptual tools to examine how knowledge is structured in academic lectures and how students engage with semantic shifts in meaning.

The Semantics dimension consists of two key constructs: semantic gravity (SG) and semantic density (SD). Semantic gravity refers to the extent to which meaning is context-dependent, with strong semantic gravity (SG+) indicating knowledge that is closely tied to a specific context, such as real-world examples or case studies, and weak semantic gravity (SG-) indicating knowledge that is more abstract and decontextualized. Semantic density, on the other hand, refers to the complexity and condensation of meaning, with strong semantic density (SD+) indicating conceptually rich and condensed knowledge, while weak semantic density (SD-) refers to knowledge that is more explicit and simplified.

A central focus of this study is the role of semantic waves, patterns of movement between abstraction and concreteness that shape how knowledge is presented in lectures. Effective pedagogy involves oscillating between abstract and

concrete knowledge, ensuring that students first understand complex concepts in practical terms before being guided back into abstraction to facilitate cumulative learning. However, if a lecture consists mainly of downward semantic shifts (moving from abstract to concrete without repacking into abstraction) or if shifts occur too rapidly, students may struggle to develop a coherent understanding of the material.

This study applies LCT Semantics to analyse lecture discourse, map the semantic profiles of different lectures, and explore how students engage with semantic waves. By doing so, it provides an empirical basis for understanding how knowledge construction varies across disciplines and teaching styles and how these variations impact students' ability to process, retain, and apply knowledge.

1.4. Research Context and Methodology

1.4.1. Research Context: EMI and the Case of Chinese Postgraduate Students in the UK

This study is situated within a UK-based master's program in Teaching English to Speakers of Other Languages (TESOL), where academic lectures serve as the primary instructional mode. It focuses on postgraduate students engaged in disciplinary knowledge-building within an English-Medium Instruction (EMI) environment. With the rapid internationalization of higher education, increasing numbers of students from non-English-speaking countries, particularly China, enrol in EMI programs at UK universities. As a result, the effectiveness of lecture-based knowledge transmission has become a subject of significant academic

and pedagogical concern. Given that Chinese students constitute one of the largest international student cohorts in the UK, understanding their learning experiences, challenges, and strategies for constructing knowledge is an important area of inquiry.

Many of these students come from Confucian-heritage education systems, which are characterized by teacher-centred instruction, content-focused learning, and an emphasis on rote memorization. Within such educational traditions, knowledge transmission is often hierarchical, and students are expected to acquire and reproduce established knowledge rather than actively construct new understanding. Consequently, when transitioning to a Western higher education system, where interactive learning, student autonomy, critical thinking, and engagement with abstract theoretical concepts are emphasized, these students may encounter significant difficulties in adjusting to new modes of knowledge construction.

The shift from a predominantly passive learning approach to one that requires independent engagement with academic discourse presents challenges in several key areas. First, students must develop the ability to follow complex, often non-linear, lecture structures that require them to process large amounts of information in real time. Second, they need to navigate shifts between abstract theoretical discussions and concrete applications, a process that can be cognitively demanding. Third, they must acquire effective strategies for notetaking, academic listening, and meaning making, all while adapting to the linguistic demands of an EMI setting. These challenges necessitate an investigation into how knowledge is structured in EMI lectures, how students

engage with these structures, and how cultural and cognitive factors mediate their learning processes.

The research takes place within an MA TESOL program at a UK university, offering an ideal setting for examining lecture discourse and student comprehension. Since EMI settings vary widely in terms of instructional approaches, institutional expectations, and student demographics, selecting a specific case study allows for an in-depth exploration of the factors that shape knowledge transmission and learning outcomes. By adopting a qualitative approach, the study seeks to provide a comprehensive understanding of how disciplinary knowledge is presented in lectures and how students respond to different forms of knowledge structuring.

1.4.2. Research Design: A Qualitative Multiple-Case Study Approach

To investigate these issues, this study employs a qualitative multiple-case study approach, which facilitates an in-depth exploration of lecture discourse, student experiences, and pedagogical implications. A case study methodology is particularly well suited to this research, as it enables a detailed examination of real-world educational practices, capturing the complexities of knowledge construction in EMI settings. By adopting a multiple-case study design, this research makes it possible to compare different lecture contexts, providing a nuanced understanding of students' learning experiences across a variety of instructional settings.

The study is conducted across three different modules within the MA TESOL program, ensuring that the findings reflect a broad range of teaching

approaches, knowledge transmission patterns, and student adaptation strategies. The selection of multiple modules allows for the identification of common themes and variations in lecture comprehension, making it possible to account for both shared challenges and module-specific influences on knowledge construction. By focusing on multiple cases rather than a single module or lecture, the research strengthens its analytical validity by avoiding overgeneralization from a single instructional context.

Qualitative methods, including lecture analysis, student interviews, and lecturer interviews, provide a rich dataset for examining the structure of knowledge transmission and students' engagement with disciplinary content. Since academic knowledge is dynamic and context-dependent, a qualitative approach offers the flexibility to explore how knowledge construction varies across different modules, instructors, and student learning styles.

1.4.3. Data Collection: Lecture Recordings, Student Interviews, and Lecturer Interviews

The study employs three primary data collection methods: lecture recordings and semantic profiling, student interviews, and lecturer interviews. The use of multiple data sources ensures a comprehensive understanding of knowledge construction by integrating perspectives from both instructors and students.

The first stage of data collection involves the recording and transcription of nine academic lectures from three different modules in the MA TESOL program. These lectures are analysed using Legitimation Code Theory (LCT) Semantics to construct semantic profiles that map patterns of knowledge movement in

lecture discourse. The analysis examines how knowledge shifts between abstraction and concreteness, focusing on semantic gravity and semantic density. The results of this analysis provide empirical insights into the pedagogical strategies employed in EMI lectures, highlighting whether particular knowledge structuring techniques facilitate or hinder student learning.

The second stage involves conducting semi-structured interviews with nine Chinese postgraduate students enrolled in the MA TESOL program. These interviews explore students' comprehension difficulties, perceptions of lecture structuring, and meaning-making processes. They also examine students' cultural and cognitive expectations regarding knowledge transmission and the strategies they use to adapt to EMI lectures. Since student experiences are subjective and influenced by multiple factors, including prior educational background and language proficiency, a qualitative interview approach allows participants to articulate their perspectives in detail.

The third stage consists of semi-structured interviews with four EMI lecturers who teach in the MA TESOL program. These interviews investigate how lecturers perceive knowledge transmission in EMI lectures, the challenges they observe among international students, and the pedagogical strategies they employ to scaffold knowledge effectively. By integrating lecturer perspectives, the study ensures that both the structural features of lecture discourse and the pedagogical reasoning behind instructional choices are accounted for.

1.4.4. Data Analysis: Integrating Semantic and Thematic Analysis

The data analysis process involves a combination of semantic analysis and thematic analysis, ensuring a systematic examination of knowledge structuring and student engagement. Lecture transcripts are coded using LCT Semantics, focusing on semantic gravity and semantic density to identify patterns of knowledge construction. This analysis maps the frequency and depth of semantic waves, identifying whether knowledge is sufficiently scaffolded to support student comprehension.

Thematic analysis is applied to student and lecturer interview data to uncover recurring patterns in experiences and perspectives. This process identifies common comprehension challenges among students, as well as cultural and cognitive influences on their engagement with lecture content. Additionally, the analysis of lecturer interviews provides insights into effective and ineffective pedagogical strategies in EMI settings. By integrating these two forms of analysis, the study ensures a comprehensive understanding of both the linguistic and sociocultural dimensions of knowledge construction.

1.4.5. Ethical Considerations

Ethical considerations are a fundamental aspect of the research process, ensuring that participants' rights and confidentiality are safeguarded throughout the study. Informed consent is obtained from all participants, who are provided with detailed explanations of the study's objectives, data collection procedures, and their rights to withdraw at any stage. The research adheres to institutional

ethical guidelines, obtaining formal approval from the university's ethics committee before data collection begins.

To maintain participant confidentiality, all personal information is anonymized, and pseudonyms are used in interview transcripts and research reports. The study follows best practices in qualitative research by ensuring transparency in data collection, reflexivity in researcher interpretations, and rigor in analytical procedures. Throughout the research process, efforts are made to minimize potential biases by maintaining an awareness of the researcher's positionality and its influence on data interpretation.

1.5. Structure of the Dissertation

This dissertation is divided into seven chapters, each of which contributes to the overall investigation of knowledge construction in EMI lectures from semantic, cognitive, and cultural perspectives. The structure of the dissertation is designed to progressively build the theoretical, methodological, and empirical foundation of the study, culminating in a discussion of the findings and their pedagogical implications.

Chapter 2 presents a comprehensive review of the existing literature on academic lectures, EMI contexts, knowledge construction, and L2 listening comprehension. It critically examines key studies on disciplinary discourse, pedagogical strategies, and semantic structuring in higher education lectures. Additionally, the chapter explores the cultural and cognitive challenges faced by international students, highlighting gaps in the literature that the present study seeks to address.

Chapter 3 outlines the theoretical framework of the study, focusing on Legitimation Code Theory (LCT) Semantics. It provides an in-depth discussion of the concepts of semantic gravity and semantic density, explaining how these constructs are used to analyse knowledge transmission in academic lectures. The chapter also discusses previous empirical applications of LCT in education research, situating this study within the broader theoretical landscape.

Chapter 4 details the research methodology and design, including the rationale for adopting a qualitative multiple-case study approach. It describes the data collection methods, including lecture recordings, student interviews, and lecturer interviews, and explains how semantic profiling and thematic analysis are used to analyse the data. The chapter also addresses ethical considerations and issues of research trustworthiness, ensuring methodological rigor.

Chapter 5 presents the findings related to semantic profiles in academic lectures, addressing the first two research questions. It analyses how knowledge is built in EMI lectures through semantic waves, identifying patterns of abstraction and concretization. The findings reveal how different lecturers structure knowledge and how these structures impact student comprehension and engagement.

Chapter 6 focuses on the role of cultural and cognitive factors in shaping students' knowledge construction processes, addressing the third research question. Drawing on interview data from Chinese postgraduate students, it explores how prior educational experiences, linguistic challenges, and cultural expectations influence their engagement with EMI lectures. The chapter also examines the impact of multimodal resources, note-taking practices, and

adaptation strategies on students' ability to process and internalize lecture content.

Chapter 7 synthesizes the study's key findings, examining how UK lecturers construct knowledge through semantic profiles and how these influence Chinese postgraduate students' learning in EMI contexts. Using Legitimation Code Theory (LCT), the chapter highlights an imbalance in semantic waves, where frequent downward shifts simplify content but lack upward repacking, limiting students' conceptual integration. It also explores the role of multimodal scaffolding, cognitive load, and cultural factors in shaping students' engagement. The chapter concludes with pedagogical and institutional recommendations, advocating for balanced semantic transitions, culturally responsive teaching, and enhanced support for international students in UK higher education.

Chapter 8 concludes the study by synthesizing key findings on knowledge construction in EMI lectures, highlighting imbalanced semantic waves, cognitive overload, and cultural-linguistic challenges faced by Chinese postgraduate students. It integrates Legitimation Code Theory (LCT) with cognitive and multimodal frameworks, offering insights into EMI pedagogy. The chapter advocates for structured teaching strategies, lecturer training, and institutional support while identifying limitations and future research directions. Finally, it calls for more inclusive and structured approaches to knowledge-building in international higher education.

Chapter 2 Academic Lectures, International Students, and Knowledge Construction in EMI Contexts

2.1. Introduction

Academic lectures have long been central to higher education, serving as a primary vehicle for knowledge dissemination, critical inquiry, and disciplinary socialization. Their significance extends beyond mere content transmission, shaping the intellectual engagement of students and fostering higher-order thinking skills. In the context of English Medium Instruction (EMI), where academic content is delivered in English to linguistically diverse cohorts, lectures function as both cognitive and linguistic challenges. While they offer international students access to global academic discourse, they simultaneously pose difficulties related to language proficiency, cultural adaptation, and disciplinary enculturation. Understanding the complexities of academic lectures and their role in knowledge construction is therefore critical for both educators and researchers in higher education studies and applied linguistics.

This chapter provides a comprehensive examination of academic lectures within UK higher education, with a particular focus on their impact on international students and knowledge construction in EMI contexts. It begins by situating academic lectures within the broader landscape of UK higher education, exploring their historical evolution, pedagogical functions, and theoretical foundations. The discussion then extends to the genre-based analysis of lectures, drawing on Swales' (1990) work on genre theory to elucidate their macro-structural organization, communicative purposes, and discourse

strategies. Additionally, variations in lecture styles, ranging from monologic, lecturer-dominated formats to interactive, dialogic approaches are analysed to highlight their differing impacts on student engagement and knowledge construction.

One of the key dimensions explored in this chapter is the interactive nature of lectures, particularly how lecturers facilitate student comprehension and engagement through discourse strategies. Halliday's (1994) Systemic Functional Linguistics (SFL) provides a useful framework for analysing how knowledge is structured and transmitted in lecture discourse. The chapter also considers Christie's (2002) research on pedagogical discourse, examining how lecturers employ different discursive moves to scaffold student understanding. These linguistic perspectives illuminate the ways in which academic lectures are structured not only to convey disciplinary knowledge but also to facilitate students' gradual internalization of academic discourse norms.

Given the increasing diversity of student populations in UK higher education, the challenges faced by international students in adapting to EMI lectures are a central focus of this chapter. While EMI offers access to high-quality education in a global lingua franca, it also creates barriers for students who must navigate complex academic discourse in a second language. The adaptation difficulties faced by international students, particularly those from Confucian heritage cultures such as China are explored through the lens of cultural and cognitive adaptation theories. Specific attention is given to how international students develop coping strategies, including note-taking techniques, peer collaboration, and self-regulated learning approaches, to mitigate linguistic and cognitive burdens in lecture comprehension.

A critical aspect of academic lectures is their role in knowledge construction, a process that extends beyond passive listening to encompass cognitive integration, meaning-making, and disciplinary engagement. This chapter differentiates between lecture comprehension as a cognitive process and knowledge construction as an epistemological endeavour. Drawing on Vandergrift's (2007) cognitive models of listening comprehension, it examines the mechanisms through which students process spoken input and how these processes contribute or fail to contribute to deep learning. Additionally, sociocultural perspectives on knowledge construction (e.g., Vygotsky, 1978; Scardamalia & Bereiter, 1994) are integrated to highlight the collaborative and dialogic dimensions of knowledge building in lectures.

In response to technological advancements, online academic lectures have emerged as a significant alternative to traditional face-to-face formats. The chapter includes an in-depth comparison of asynchronous and synchronous lectures, analysing how each format influences knowledge construction, student engagement, and cognitive load. Cognitive Load Theory (Sweller et al., 2011) is applied to assess whether online lectures impose additional processing demands on students, particularly in EMI contexts where linguistic challenges may exacerbate cognitive strain. The discussion also considers the affordances of multimodal resources in online lectures, evaluating their potential to enhance or hinder learning for international students.

By synthesizing theoretical insights from applied linguistics, higher education studies, and cognitive psychology, this chapter aims to provide a nuanced understanding of the role of academic lectures in knowledge construction. It highlights both the affordances and constraints of lectures as pedagogical tools,

emphasizing the need for inclusive and adaptive teaching practices that accommodate diverse student populations. The subsequent sections will explore these themes in greater detail, offering critical reflections on the evolving nature of lectures in EMI settings and their implications for pedagogical practice and policy in internationalized higher education.

2.2. Academic Lectures in UK Higher Education

2.2.1. The Centrality of Knowledge in UK Higher Education

The notion of "knowledge" has historically served as a pivotal subject within the realm of higher education research, incorporating a wide array of interpretations that vary across different disciplines, institutions, and cultural contexts. Within the context of higher education in the United Kingdom, knowledge is understood not simply as a fixed repository of facts or information. Rather, it is regarded as a dynamic and evolving construct that encompasses theoretical understanding, practical application, and critical inquiry. Biggs and Tang (2011) contend that knowledge within the realm of higher education extends beyond mere surface learning of content. It underscores the importance of cultivating deeper learning strategies, which empower students to interact with abstract concepts and effectively apply them to intricate, real-world challenges.

Informed by Bernstein's (2000) theoretical framework, the concept of knowledge within the context of higher education can be comprehensively analysed through two fundamental dimensions: knowledge structures and knowledge practices. Knowledge structures pertain to the epistemological underpinnings of academic disciplines, delineating a distinction between hierarchical disciplines,

exemplified by the sciences, which prioritize cumulative knowledge development, and horizontal disciplines, represented by the humanities, which underscore segmented and contextually specific interpretations. Conversely, knowledge practices encompass the methodologies through which knowledge is constructed, disseminated, and utilized in both academic and professional settings (Maton, 2014).

Moreover, knowledge is progressively perceived as a social construct that is influenced by various cultural, institutional, and pedagogical factors. Constructivist theories underscore the significance of dialogue and interaction in the process of knowledge construction. They assert that knowledge is co-constructed through collaborative efforts between students and educators, as articulated by Vygotsky in 1978. The perspectives are consistent with the ongoing internationalization of higher education in the United Kingdom. In this context, the presence of diverse student populations contributes a range of epistemological frameworks, thereby enhancing the collective comprehension of knowledge and its practical applications.

2.2.2. Historical Evolution and Pedagogical Functions of Academic Lectures

Academic lectures have been a cornerstone of higher education for centuries, serving as a primary means of knowledge dissemination and intellectual engagement. This section explores the historical evolution of lectures as a pedagogical method, examines their variations across cultural and temporal contexts, and highlights their unique role within the British higher education system.

The origins of academic lectures can be traced back to medieval universities in Europe, where the term "lecture" derived from the Latin word *lectura*, meaning "a reading." During this period, lectures were primarily oral recitations of texts by scholars, aimed at transmitting knowledge to students in a didactic manner (Haskins, 2017). The scarcity of written materials and the limited literacy rates of the time rendered lectures a practical and efficient way to educate large groups of learners.

By the Enlightenment era, lectures had evolved into more structured presentations, emphasizing critical reasoning and scientific inquiry. This period saw the emergence of lecture-based curricula that aimed to foster intellectual independence, moving beyond rote learning to encourage analytical thinking (Ashwin, 2005). In the 19th century, the rise of research-oriented universities, particularly in Germany, reinforced the role of lectures as a medium for disseminating cutting-edge research findings. Influential figures such as Humboldt advocated for the integration of research and teaching, a philosophy that has shaped modern higher education practices worldwide (Perkin, 2014).

The format and pedagogical approach of lectures have varied significantly across cultures and time periods. In Western contexts, lectures traditionally emphasized the authority of the lecturer as the primary source of knowledge. This model often positioned students as passive recipients of information, reflecting hierarchical educational structures (Biggs & Tang, 2011). In contrast, Eastern educational traditions, particularly Confucian models prevalent in China, emphasized memorization and moral instruction, often delivered in lecture-style settings (Ryan & Louie, 2007). These traditions prioritized the

transmission of cultural values alongside academic content, highlighting the diverse purposes served by lectures in different societies.

The 20th century brought significant shifts in lecturing practices, influenced by advancements in educational psychology and the rise of constructivist theories. Vygotsky's (1978) sociocultural theory underscored the importance of interaction and dialogue in learning, prompting educators to incorporate more participatory elements into lectures. This period also saw the proliferation of large-scale lecture halls, a trend driven by the massification of higher education. While this expansion democratized access to education, it also raised questions about the effectiveness of lectures in fostering deep learning and engagement.

In the context of British higher education, lectures hold a distinct position as both a pedagogical tool and a cultural tradition. The British model of higher education places a strong emphasis on critical thinking and independent study, with lectures serving as a foundation for subsequent self-directed learning (Hyland, 2009). Unlike systems that rely heavily on continuous assessment, UK universities often design lectures to introduce complex theoretical frameworks, which students are expected to explore further through seminars, tutorials, and independent research.

Moreover, the internationalization of UK higher education has reshaped the role of lectures, requiring lecturers to address the diverse linguistic and cultural needs of international students (Hyland, 2016). This shift has led to the adoption of inclusive pedagogical practices, such as the use of multimodal resources and interactive technologies, to enhance accessibility and engagement. The British tradition of blending theoretical depth with practical application is particularly

evident in fields such as TESOL and STEM, where lectures serve as a bridge between academic concepts and real-world challenges.

Understanding the historical and cultural dimensions of lectures is crucial for reimagining their role in contemporary education. While lectures remain a vital component of higher education, their effectiveness depends on adapting to the needs of diverse student populations and incorporating interactive elements that foster active engagement. As the digital era continues to transform educational delivery, the integration of technology into lectures presents opportunities to enhance their pedagogical impact while preserving their rich historical legacy.

2.2.3. Mechanisms of Knowledge Construction in Higher Education

The notion of Knowledge Building (KB), which was introduced by Canadian scholars Scardamalia and Bereiter during the 1990s, underscores the importance of collaborative efforts in the creation and enhancement of knowledge among learners. This theoretical framework, which is rooted in social constructivism, posits that knowledge is not merely passively received; rather, it is actively constructed through the dynamics of social interactions, as articulated by Vygotsky in 1978. In this framework, learning is conceptualized as a collective pursuit in which individuals participate in dialogue and collaboration to deepen mutual comprehension, thereby situating learners as proactive participants in the knowledge community.

According to Scardamalia and Bereiter (1994), knowledge building is characterized as "the continual improvement of ideas that have value to a

community." This definition underscores the dynamic and collaborative nature of knowledge development within a communal context. This definition highlights the iterative character of learning, emphasizing its role as a process that encompasses both individual and collective dimensions. Learners should be viewed not solely as consumers of information; rather, they occupy a pivotal role in the generation of knowledge that extends beyond their personal cognitive limitations. This discourse highlights the pivotal role of transforming understanding via discussion, critique, and synthesis, all within the context of a collaborative community of practice.

The fundamental principles that form the foundation of knowledge building encompass collective cognitive responsibility, progressive problem solving, and a profound comprehension of knowledge. Collective cognitive responsibility denotes the mutual obligation that exists among learners to further the intellectual objectives of their community. This principle calls into question the conventional hierarchies that exist within educational environments by promoting the concepts of distributed leadership and collaborative engagement among all stakeholders involved. Progressive problem solving, by contrast, entails the ongoing identification and resolution of progressively intricate questions, thereby advancing the collective knowledge of the community. Ultimately, a profound grasp of knowledge transcends mere superficial understanding, delving into the essential characteristics and interrelations of concepts, thereby fostering advanced cognitive processes.

The concepts underscore the dynamic and social characteristics inherent in the process of knowledge construction. However, their implementation within the context of higher education, especially in the United Kingdom, warrants a more

thorough examination. Within the context of the United Kingdom, the conceptualization of knowledge in higher education is often delineated by disciplinary boundaries. This framing is indicative of both the prevailing epistemological traditions and the objectives set forth by educational institutions, as noted by Barnett (2000). For example, the function of higher education encompasses not only the acquisition of knowledge but also the cultivation of critical inquiry, the enhancement of independent thought, and the fostering of collaborative problem-solving abilities. Consequently, the process of knowledge building is in harmony with the overarching objectives of promoting intellectual independence and facilitating progress within society.

Nonetheless, the implementation of knowledge-based practices within higher education institutions in the United Kingdom encounters several challenges. Although the concepts of collective cognitive responsibility and progressive problem solving align closely with constructivist pedagogies, the competitive and outcome-oriented characteristics of modern higher education could potentially restrict opportunities for authentic collaboration. For example, the pressures exerted by institutions, including performance metrics and funding priorities, may limit the opportunities available for students to participate in the exploratory and iterative processes of knowledge construction that are championed by Scardamalia and Bereiter. Moreover, the hierarchical frameworks that are characteristic of numerous institutions in the UK may serve to obstruct the egalitarian principles that are essential for fostering a sense of collective responsibility, especially within expansive and varied educational settings.

The focus on generating knowledge that holds communal significance inevitably prompts an examination of issues related to inclusivity and accessibility. Who is responsible for establishing the "value" of knowledge, and in what ways might the power dynamics present within educational institutions influence this process of determination? Although KB aims to democratize the process of knowledge creation, the existing structural inequalities within higher education may serve to perpetuate disparities regarding the recognition and validation of contributions made by individuals. Consequently, although the theoretical foundations of Knowledge Building present an engaging perspective on learning, the effective application of these principles requires thorough examination and modification to overcome the contextual and systemic challenges present in higher education within the United Kingdom.

Theories of knowledge construction are fundamental in influencing pedagogical approaches in higher education. They provide valuable insights into the optimization of learning environments, thereby enhancing student engagement, and promoting a deeper comprehension of the subject matter. The primary objective of higher education extends beyond the mere transmission of established knowledge; it also encompasses the development of students' critical thinking and innovative skills. This dual focus equips learners to effectively apply and generate knowledge within an increasingly dynamic and complex global landscape (Biggs, 2003). Nonetheless, non-native English-speaking students frequently encounter substantial obstacles to effective knowledge construction during academic lectures due to language barriers and cultural differences, which jeopardizes their overall learning outcomes.

Research indicates that language barriers significantly hinder the capacity of non-native English-speaking students to understand course material, engage in discussions, and express their viewpoints. This, in turn, has a detrimental impact on their overall academic performance, as evidenced by the findings of Flowerdew and Miller (1995). The failure to comprehensively understand intricate academic discourse can result in a superficial approach to learning, as opposed to fostering the profound comprehension necessary for the effective application and synthesis of knowledge. Moreover, cultural differences may lead to a divergence in expectations between students and educators concerning teaching methodologies and learning approaches, thereby intensifying these challenges (Ryan, 2009). For example, students originating from collectivist cultures may encounter difficulties in adjusting to the predominantly individualistic and discussion-oriented pedagogical approaches that characterize Western educational systems. This challenge may, in turn, impede their active engagement in the learning process.

To tackle these challenges, Gibbs and Coffey (2004) recommend the implementation of interactive teaching strategies alongside the provision of customized language support. This approach aims to enrich students' learning experiences and promote effective knowledge construction. Interactive teaching practices, including class discussions, group work, and project-based learning, have demonstrated the capacity to enhance engagement with course material and facilitate collaborative knowledge construction, as evidenced by the work of Vygotsky (1978). The methods promote an active engagement among students in the construction of knowledge, facilitated through social interactions. This approach effectively bridges the divide between theoretical concepts and their practical applications.

Additionally, the provision of targeted language support holds significant importance in equipping non-native English speakers with the essential linguistic tools required for achieving academic success. Such initiatives may encompass specialized academic English courses or individualized tutoring sessions that concentrate on the linguistic requirements pertinent to their respective fields of study (Hyland, 2011). This form of support serves a dual purpose: it assists students in manoeuvring through the intricacies of academic discourse while simultaneously fostering their confidence to engage actively in classroom discussions and interact with both peers and instructors.

Furthermore, the integration of culturally responsive teaching practices, alongside language support, can markedly improve students' capacity to acclimatize to novel learning environments. This process entails acknowledging and appreciating the varied cultural backgrounds of students, as well as incorporating these elements into pedagogical approaches (Gay, 2010). For instance, educators may consider implementing a more inclusive approach by incorporating culturally diverse examples, promoting alternative perspectives, and modifying pedagogical methods to better align with the prior educational experiences of their students.

Although these strategies exhibit potential, it is imperative to conduct a thorough evaluation of their implementation processes. For example, the efficacy of interactive teaching methods may be contingent upon the extent of students' prior familiarity with these pedagogical approaches. In the absence of sufficient preparation and appropriate scaffolding, students may perceive these methods as overwhelming instead of empowering. In a similar vein, the provision of language support necessitates considerable institutional resources, which may

not consistently be accessible. Furthermore, the implementation of culturally responsive teaching requires ongoing professional development for educators, enabling them to adeptly manage the intricacies of cultural dynamics. This endeavour is often characterized by its time-consuming and demanding nature.

In summary, the promotion of effective knowledge construction within the realm of higher education requires a comprehensive strategy that considers language barriers, cultural variances, and pedagogical methodologies. The strategies articulated by Gibbs and Coffey (2004) and other scholars provide significant insights; however, their effective application necessitates a thorough examination of contextual variables and a dedication to continuous adaptation and enhancement. Through this approach, educators have the capacity to establish an inclusive and supportive learning environment, thereby empowering all students to participate meaningfully in the process of knowledge construction.

2.2.4. Academic Lectures as Platforms for Knowledge Construction

Academic lectures serve as a cornerstone of higher education, especially within the context of postgraduate studies, where their principal objective transcends the simple conveyance of information. Lectures serve a dual purpose: they offer organized opportunities for the dissemination of disciplinary knowledge and simultaneously cultivate students' capacity to formulate and critically engage with novel concepts. The dual purpose of this phenomenon holds particular importance within the context of EMI, where students frequently encounter the challenges associated with acquiring knowledge in a second language (L2). For second language learners, lectures function as both a cognitive endeavour and a

linguistic and cultural obstacle. These students must concurrently interpret linguistic input, analyse multimodal information, and interact with abstract theoretical ideas.

Hyland (2009) posits that lectures serve as a platform for the in-depth exploration of abstract theoretical constructs. These constructs are frequently elucidated through real-world applications, thereby assisting students in bridging the divide between conceptual knowledge and practical understanding. The duality inherent in lectures renders them especially effective for postgraduate education, as they promote not only the comprehension of disciplinary concepts but also the contextualization and reframing of these concepts within more expansive theoretical frameworks.

Nevertheless, for second language learners in EMI contexts, the achievement of these objectives is further complicated by the supplementary challenges associated with language processing. According to Macaro (2018), lectures conducted in EMI settings often employ complex academic English characterized by dense terminology, abstract conceptualization, and formal discourse structures. For second language learners, comprehending such linguistic constructs necessitates considerable cognitive engagement, particularly in cases where lectures lack explicit scaffolding, clear conceptual transitions, or adequate examples to contextualize abstract notions. Without sufficient support, students may struggle to extract and integrate knowledge effectively.

A prominent illustration can be observed within the framework of MA TESOL programs, wherein lectures frequently alternate between the exploration of

theoretical frameworks and the examination of their practical implications. Although students who are native speakers may easily discern the relationships between these two domains, learners of a second language often necessitate supplementary instructional assistance to facilitate this understanding. This support may include the incorporation of visual aids or the provision of explicit cues that emphasize critical points of transition.

2.2.5. The Genre of Academic Lectures: A Genre-Based Approach

A deeper understanding of academic lectures as a genre provides a useful perspective for analysing their structure, communicative functions, and pedagogical effectiveness. Swales (1990) defines genre as a class of communicative events with shared communicative purposes and characteristic linguistic and structural features. Academic lectures, as a well-established genre within higher education, exhibit a relatively stable macrostructure while allowing for variation across disciplines and pedagogical traditions.

The Structural Organization of Academic Lectures

Academic lectures generally follow a macrostructure consisting of three main phases (Swales, 1990; Morell, 2004). The introduction phase serves to establish the context of the lecture, outline its objectives, and provide an overview of key topics. In this section, lecturers often employ metadiscourse markers, such as “Today, we will explore...” or “Let’s begin by looking at...”, which function as signposts to guide student comprehension (Thompson, 2003). The body of the lecture constitutes the core knowledge delivery, during which theoretical concepts, empirical findings, and illustrative examples are presented. This

section may include elaborative discourse strategies such as exemplification, analogy, and contrast, which facilitate knowledge construction. Finally, the conclusion phase provides a summary of key points, implications of the lecture content, and possible directions for further inquiry.

Despite this broadly recognizable structure, significant disciplinary variations exist. In STEM disciplines, lectures often emphasize procedural knowledge, where knowledge transmission follows a logical progression from foundational principles to practical applications (Hyland, 2009). In contrast, humanities and social sciences lectures tend to incorporate more interpretative elements, where discussions of theoretical perspectives and critical debates take precedence. Regardless of discipline, the organization of academic lectures reflects pedagogical priorities, which in turn influence students' knowledge construction processes.

Linguistic and Discourse Features of Academic Lectures

Academic lectures are characterized by distinctive linguistic features that facilitate knowledge transmission and engagement. Lexical density is a defining characteristic of lecture discourse, with frequent use of discipline-specific terminology and abstract conceptualization (Hyland, 2009). The use of metadiscourse markers plays a crucial role in structuring information and guiding students through the lecture content. These markers serve cognitive and affective functions, signalling topic transitions, reinforcing key points, and enhancing coherence. Additionally, nominalization and passive structures contribute to the formal and authoritative tone of lectures, which may present challenges for second language learners in EMI contexts (Flowerdew & Miller,

1997). Another common linguistic feature is repetition and paraphrasing, which function as scaffolding strategies to reinforce student comprehension, particularly in content-dense lectures (Thompson, 2003).

2.2.6. Different Lecture Styles and Their Impact on Knowledge Construction

The effectiveness of lectures in knowledge construction is also influenced by the mode of delivery, which can range from highly monologic to highly interactive formats. The pedagogical orientation of a lecture affects the extent to which students engage with the content and contribute to the construction of disciplinary knowledge.

Monologic Lectures and Knowledge Transmission

Monologic lectures are traditionally lecturer-dominated and characterized by one-way transmission of information. In this mode, lecturers function as the primary source of knowledge, while students assume a passive listening role. This approach is frequently adopted in large lecture halls where logistical constraints limit interaction. Monologic lectures are advantageous in that they enable efficient content delivery, particularly for introductory or concept-heavy subjects. However, research suggests that passive reception of information may lead to surface learning, where students retain factual knowledge without deeper conceptual engagement (Biggs & Tang, 2011). As a result, this mode of lecturing may not always be conducive to fostering higher-order cognitive skills such as analysis, synthesis, and critical evaluation.

Dialogic Lectures and Interactive Knowledge Construction

In contrast to monologic lectures, dialogic lectures incorporate interactive elements that encourage student participation, such as Socratic questioning, real-time discussions, and problem-based learning activities. Interaction during lectures has been found to enhance engagement and knowledge retention by promoting active learning (Chi, 2009). Research also indicates that students in interactive lectures develop stronger conceptual understanding, as they are encouraged to articulate their thoughts, challenge assumptions, and co-construct knowledge with peers (Laurillard, 2002).

Despite its advantages, the implementation of dialogic lectures is often constrained by class size, time limitations, and students' varying levels of willingness to participate, particularly in EMI settings where language proficiency may affect engagement. For instance, international students in EMI contexts may experience difficulties in formulating spontaneous responses, leading to reduced participation in classroom discussions (Tatzl, 2011). Lecturers in such environments must therefore employ additional scaffolding strategies, such as providing structured discussion prompts or integrating collaborative learning activities, to support student engagement.

2.2.7. Interaction Patterns in Academic Lectures: A Systemic Functional Linguistic Perspective

Halliday's (1994) Systemic Functional Linguistics (SFL) provides a valuable framework for analysing how language is used in academic lectures to construct knowledge. According to Halliday, language operates through three

metafunctions: ideational, interpersonal, and textual, each of which plays a crucial role in shaping lecture discourse.

The Ideational Metafunction: Knowledge Representation in Lectures

The ideational metafunction refers to how lecturers encode complex disciplinary knowledge through linguistic choices. In academic lectures, this is often achieved using technical language, nominalization, and logical relations that express abstract theoretical concepts. For example, the statement “Global warming is exacerbated by anthropogenic factors” condenses multiple layers of meaning into a single nominal phrase. Such linguistic density presents a challenge for second language learners, as it requires decontextualized interpretation skills (Flowerdew & Miller, 1997).

The Interpersonal Metafunction: Lecturer-Student Interaction

The interpersonal metafunction pertains to the way lecturers engage with students through interactional strategies. Effective lecturers use direct address, rhetorical questions, and humour to foster engagement and sustain student attention. For instance, statements like “You might recall from last week’s discussion...” or “What do you think would happen if we removed X from the equation?” encourage active participation and promote cognitive processing. These strategies create a more dynamic and inclusive learning environment, particularly in dialogic lectures.

The Textual Metafunction: Cohesion and Coherence in Lectures

The textual meta function governs how lecturers structure their discourse to ensure cohesion and coherence. Effective lectures maintain textual cohesion through lexical chains, discourse markers, and repetition that signal logical progression. A well-structured lecture may begin with an overview of key themes, followed by a clear sequence of topic developments, and conclude with a synthesis of key arguments. For second language learners, explicit discourse markers such as “Now, let’s move on to...” or “To summarize...” provide essential scaffolding for comprehension.

Building on Halliday’s framework, Christie (2002) further explores the pedagogical structuring of discourse in academic lectures. She identifies several discourse moves that lecturers use to scaffold student understanding:

- **Clarification moves**, in which lecturers restate complex ideas in simpler terms.
- **Expansion moves**, where additional examples or real-world applications are introduced to reinforce concepts.
- **Elaborative moves**, which connect new content to students’ prior knowledge, facilitating deeper engagement.

The interplay of these moves within a lecture enhances students’ ability to process, retain, and integrate disciplinary knowledge. Understanding these interactional dynamics is particularly relevant in EMI contexts, where linguistic and cultural factors may influence student comprehension.

This section has demonstrated that academic lectures, as a genre, exhibit

distinctive discourse structures, linguistic characteristics, and interactive patterns that influence how knowledge is constructed and transmitted. Swales' (1990) genre analysis highlights the macrostructure and communicative functions of lectures, while Halliday (1994) and Christie (2002) provide insights into the linguistic mechanisms through which knowledge is scaffolded. For international students in EMI settings, these findings highlight the importance of explicit scaffolding, interaction strategies, and linguistic support to facilitate knowledge construction. Lecturers must be cognizant of the linguistic and cognitive demands of academic lectures and implement inclusive pedagogical practices that promote deeper engagement.

2.3. International Students in English Medium Instruction (EMI) Contexts

2.3.1. Conceptualizing EMI in Higher Education

EMI has been characterized in multiple ways within the scholarly literature, illustrating the varied implementations and objectives it encompasses across different contexts. According to Taguchi (2014), EMI programs are characterized as curricula that employ the English language for teaching across a spectrum of courses, ranging from foundational to advanced levels. The primary objective of these programs is to improve students' proficiency in academic English (p. 89). This conceptualization is in strong alignment with Content and Language Integrated Learning (CLIL), which is an educational methodology that employs an additional language to facilitate the concurrent acquisition of both content and language skills (Coyle, Hood, and Marsh, 2010:1). In the interim, researchers such as Humphreys (2017), Jenkins (2019), and Pecoraro and Malmström (2018) promote an expanded understanding of EMI, suggesting its applicability to

English-speaking nations, including the United States, the United Kingdom, and Australia. This perspective is informed by the increasing number of L2 English speakers, a phenomenon attributed to international migration and the heightened mobility of students across borders.

The increasing trend of international student enrolments in higher education highlights the significance of EMI. Both English-speaking and non-English-speaking nations have experienced considerable expansion in multilingual educational settings that embody the principles of EMI. Scholars including Baker and Hüttner (2016) as well as Jenkins (2019) argue that the growing number of international students has resulted in linguistically diverse classrooms within countries that have historically been English-speaking. The environments in question, which are defined by a collective engagement with the English language for educational purposes among students hailing from diverse linguistic backgrounds, are progressively taking on characteristics akin to EMI settings. This evolution serves to expand the conventional interpretation of EMI.

From a complementary perspective, Dafouz and Smit (2016, 2017, 2020) have introduced the concept of English as a Medium of Education (EME), highlighting the diverse functions of English that extend beyond mere instruction to encompass wider academic and administrative domains. EME encompasses the utilization of the English language across various domains, including teaching, learning, research, and institutional administration. This framework underscores the significance of English as the lingua franca within the global academic community, as articulated by Dafouz and Smit (2016:399). This terminology expands the scope of EMI, framing English not only as an academic language but also as a medium for facilitating international communication.

A recurring theme in the definitions of EMI is the acknowledgement of contextual diversity, alongside a clear differentiation between EMI and the teaching of English as a subject. Courses such as English for General Purposes (EGP), English for Academic Purposes (EAP), and English for Specific Purposes (ESP) are primarily concerned with the enhancement of language skills. In contrast, EMI tends to emphasize the acquisition of content knowledge over language development. In the context of EMI, language learning frequently occurs in a manner that is minimal, implicit, or incidental, as noted by Pecorari and Malmström (2018). In contrast to Content and Language Integrated Learning (CLIL) or Content-Based Instruction (CBI), which purposefully combine the teaching of content with language instruction, EMI generally involves the immersion of students in academic content delivered in English, while not emphasising formal language teaching practices (Costa, 2012; Jiang, Zhang, and May, 2019).

While language acquisition may not serve as the central objective of EMI, it is universally acknowledged as a significant ancillary benefit. Galloway et al. (2017, 2020) observe that a considerable number of students choose to enrol in EMI programs with the specific objective of enhancing their proficiency in the English language. Advocates contend that EMI provides a dual benefit, allowing students to improve their proficiency in the English language while concurrently deepening their understanding of subject-specific content (Rose and Galloway, 2019). Nevertheless, the evidence pertaining to the effectiveness of EMI in fostering language development remains inconclusive and varied. Although certain studies indicate favourable results in language proficiency, other research underscores significant challenges, including the lack of explicit language instruction and the diverse levels of English proficiency present among

students. These factors can impede their ability to engage effectively with academic content.

From an institutional standpoint, the implementation of EMI necessitates considerable backing in relation to both policy frameworks and resource allocation. The success of effective EMI programs is contingent upon a strong institutional commitment to the professional development of instructors, the establishment of comprehensive student support mechanisms, and the implementation of robust frameworks for the assessment of both language and content learning outcomes. Researchers, including Maraco et al. (2018), underscore the significance of ensuring that EMI policies are in harmony with pedagogical goals, as well as the necessity of supplying sufficient resources to guarantee the sustainability of such programs. In the absence of institutional support, the potential advantages of EMI may not be fully actualized.

The emergence of EMI carries substantial ramifications for the landscape of global higher education. The growing prevalence of EMI programs has led to a heightened demand for the establishment of international standards and guidelines aimed at guaranteeing the quality and consistency of these programs. The qualifications of instructors in EMI, the processes of accreditation, and the equilibrium between content delivery and language acquisition are pivotal topics within these discussions. Maraco (2020) emphasizes the importance of adopting a nuanced and context-sensitive approach to the implementation of EMI. This approach must consider the varied educational, cultural, and linguistic realities that exist across different institutions.

In conclusion, EMI pertains to the practice of utilizing the English language to convey academic content in environments where English does not serve as the primary language. The primary objective of EMI programs is to facilitate content learning; however, these programs also serve a wider array of academic and administrative functions. This dual role underscores the significance of English as a global academic language. The ongoing internationalization of higher education serves as a significant impetus for the adoption of EMI. This trend underscores the importance of meticulously examining various pedagogical, institutional, and policy-related factors to guarantee the successful implementation of such programs. Future research endeavours ought to focus on elucidating the existing gaps in comprehending the intricate relationship between the objectives of EMI and its resultant outcomes, with particular emphasis on diverse educational contexts.

2.3.2. A Critical Evaluation of the Term "EMI" in UK Higher Education

Contexts

While the term EMI is widely utilized across global higher education contexts, its applicability within Anglophone settings, particularly the UK, requires careful critical consideration. EMI, as defined by Dearden and Macaro (2016), refers explicitly to educational contexts in which instruction is delivered in English, despite English not being the first language of the majority of students or faculty. This definition assumes a clear linguistic and pedagogical separation between local languages and English as an instructional medium, which does not straightforwardly apply to UK universities, where English is both the local language and the default instructional medium.

Trenkic et al. (2019) problematize the direct application of the EMI label to Anglophone contexts, arguing that doing so obscures significant pedagogical and linguistic complexities unique to international students' experiences in these environments. Rather than issues of linguistic medium per se, the primary challenges encountered by international students in the UK often relate to their academic language skills, disciplinary literacy, and understanding of implicit pedagogical expectations. Thus, framing UK higher education contexts as "EMI" might inadvertently divert attention from these deeper issues of academic and linguistic integration.

Moreover, categorizing UK higher education simply as EMI risks overlooking the cultural and epistemological dimensions that profoundly shape international students' educational experiences. This issue is particularly salient for students from Confucian educational backgrounds, whose adaptation involves significant epistemological adjustments (Li & Wegerif, 2014). Bond (2020) further supports this perspective by advocating for a focus on explicitly addressing implicit cultural and pedagogical assumptions rather than emphasizing language alone as the central barrier.

Consequently, it is beneficial for research on international students' experiences in the UK to adopt a more nuanced framing that foregrounds linguistic, cognitive, and cultural adaptation processes, rather than relying on the somewhat problematic categorization of EMI. Such an approach allows educators and researchers to address the multifaceted nature of international students' experiences more holistically and inclusively, ultimately contributing to more effective pedagogical interventions and academic support mechanisms.

2.3.3. Adaptation Challenges Faced by International Students

The existing body of literature suggests that the International English Language Testing System (IELTS) may function as an effective tool for predicting academic success within an EMI context. Nevertheless, the extent of its predictive accuracy may vary based on the academic discipline in question. Consequently, it is imperative for academic institutions that employ IELTS as a benchmark for admission to recognize its limitations and consider supplementary elements in their decision-making processes regarding admissions. Although the IELTS serves as a standardized assessment of English language proficiency, it fails to capture the full spectrum of skills essential for achieving academic success in various EMI environments. These skills include critical thinking, specialized subject knowledge, and the ability to adapt to diverse cultural contexts.

Students encounter considerable difficulties when engaging in academic studies conducted in English at the higher education level. The challenges encountered encompass a spectrum of issues, including difficulties associated with spontaneous speech production, as highlighted by Suzuki et al. (2017), as well as obstacles in comprehending lecturers who present with varying accents, as noted by Evans and Morrison (2011). Tatzl (2011) noted that Austrian university students encountered an increased workload alongside a reduction in content coverage when the medium of instruction was altered to English. A frequently cited challenge pertains to the level of English proficiency exhibited by students, their peers, and their instructors (Airey, 2011; Airey & Linder, 2006; Tsuneyoshi, 2005; Wilkinson & Yasuda, 2013). The inadequacy of English language proficiency can adversely affect students' educational experiences, impeding their capacity to understand lectures and course materials. This limitation may

lead to a superficial understanding of the subject matter, and in certain instances, it could result in students lagging or withdrawing from their studies (Doiz et al., 2013).

Although the implementation of EMI policies posits that extended engagement with the English language within these educational frameworks enhances students' proficiency, the empirical evidence substantiating this assertion remains scarce. Pessoa et al. (2014) undertook a longitudinal investigation that involved the monitoring of 86 high school students as they transitioned to an EMI college in Qatar. The results indicated that students encountered significant challenges in reading comprehension, which can be attributed to a deficiency in background knowledge, a restricted vocabulary, and inadequate reading endurance. Additionally, these challenges were compounded by difficulties in academic writing. The challenges identified, which are essential for the success of higher education, demonstrated notable improvement following the instruction of targeted strategies to students. This underscores the significance of providing practical support in the educational process. The research highlights the importance of incorporating language support mechanisms into EMI programs. This integration is essential for promoting students' academic advancement and addressing the challenges associated with language proficiency.

In their 2018 study, Evans and Morrison investigated the various challenges encountered by first-year university students in Hong Kong who are instructed in English as a Medium of Instruction (EMI). The investigation involving a cohort of 828 students, who were educated under various high school mediums of instruction (Mol), revealed that individuals who received their education in their

mother tongue (CMI) encountered considerable difficulties in transitioning to EMI at the university level. This transition adversely affected both their linguistic capabilities and academic performance. In their 2006 study, Taguchi and Naguma observed comparable results among Japanese students, who expressed a sense of unpreparedness for the linguistic requirements of EMI, attributing this inadequacy to a lack of sufficient preparation during their high school education. The findings from these studies underscore the essential function of pre-university education in preparing students with the requisite language competencies for effective engagement in EMI. This indicates a pressing necessity for enhanced language training within the secondary education framework.

The challenges encountered exhibit considerable variation depending on the specific context in which they arise. In Northern Europe, it has been observed that students typically navigate EMI effectively; however, they tend to require additional study time, exhibit lower levels of class participation, and frequently encounter challenges related to comprehension (Airey et al., 2017). In contrast, within the context of the United Arab Emirates, where EMI is associated with a deficiency of resources in the students' first language, it was observed that learners encountered fewer difficulties (Belhiah & Elhami, 2015). Airey and Linder (2006) identified that Swedish students enrolled in EMI programs encountered challenges related to comprehension. In response to these difficulties, they allocated additional time to the reading of course materials, thereby illustrating the heightened workload that accompanies participation in EMI programs. Nonetheless, the elevated level of English proficiency among Swedish students facilitated their ability to engage with academic materials with a considerable degree of ease (Shaw & McMillion, 2008). It is essential to

consider both macro-level contexts, such as those pertaining to entire countries, and micro-level contexts, which focus on the dynamics within individual classrooms, when implementing EMI programs. Cultural differences, the availability of resources, and the presence of institutional support systems can play a crucial role in shaping students' experiences and outcomes within EMI environments.

Macaro et al. (2018) emphasized the numerous challenges encountered by students in EMI higher education, pointing out the insufficient research addressing difficulties faced by this demographic. In the context of China, Rose et al. (2019) elucidated various challenges encountered in the domains of speaking and writing. These challenges include the necessity of employing an appropriate academic style as well as the comprehension of intricate vocabulary. In the context of Turkey, Soruc and Griffith (2018) identified and classified the challenges encountered into several distinct categories, namely those pertaining to speaking and listening, instructor and course-related factors, vocabulary usage, as well as affective and cognitive issues. The challenges identified encompass the articulation of ideas, engagement with peers, and emotional obstacles such as feelings of boredom, embarrassment, and diminished self-confidence, as noted by Soruc and Griffith (2018) and Thompson et al. (2019). The findings indicate that EMI programs should implement a comprehensive strategy that encompasses not only the development of linguistic competencies but also the emotional and cognitive dimensions necessary for effectively supporting students in their learning journey.

Gaining insight into students' perspectives regarding their cognitive challenges encountered during academic lectures is crucial for the development of tailored

pedagogical strategies. The participants who were recruited according to their IELTS scores will offer valuable insights into the challenges outlined in Chapter 4, which focusses on the methodology employed in this study.

2.3.4. Cognitive and Cultural Dimensions of Asian (Chinese) Students in UK EMI

Contexts

Understanding international students' academic experiences within English-Medium Instruction (EMI) contexts requires careful consideration of not only linguistic proficiency but also cognitive and cultural dimensions. Recent scholarship highlights that students from Asian, particularly Chinese backgrounds, encounter distinct challenges in adapting to the pedagogical and epistemological expectations of UK universities (Bond, 2020; Li & Wegerif, 2014; Trenkic & Warmington, 2019).

Bee Bond's (2020) research specifically addresses the implicit challenges faced by international students in Anglophone EMI settings. Bond argues that implicit academic and disciplinary expectations, such as the nature of lecturer-student interactions, classroom communication norms, and disciplinary conventions, often remain unarticulated, creating substantial barriers for international learners who may lack prior familiarity with these practices. Bond's analysis underscores that linguistic challenges are intertwined with broader issues of disciplinary acculturation, suggesting that international students are frequently disadvantaged not merely by linguistic factors but by unfamiliarity with the pedagogical and epistemological frameworks underlying EMI contexts. This insight provides significant implications for the present study by foregrounding

the necessity of explicit pedagogical practices that clarify implicit expectations and foster inclusive educational environments for international students.

Further empirical support for this perspective is provided by Trenkic and Warmington (2019), whose research highlights critical differences in language and academic literacy skills between international and home students in UK universities. Their findings demonstrate pronounced gaps in the ability of international students to engage critically and effectively with academic reading materials and tasks, primarily due to language proficiency disparities. Crucially, these disparities were found to be strongly predictive of academic outcomes, suggesting that mere attainment of institutional language proficiency standards (e.g., IELTS entry scores) does not sufficiently prepare students for the linguistic demands of higher education. For Chinese students in particular, this research underscores the importance of targeted academic support designed to bridge gaps in disciplinary literacy and language proficiency, thus directly aligning with the concerns of the current study. Trenkic and Warmington's findings reinforce the need for pedagogical interventions that explicitly support the development of academic literacy rather than presuming proficiency based solely on standardized language entry tests.

Complementing these linguistic and literacy perspectives, Li and Wegerif (2014) critically examine the cognitive and epistemological tensions experienced by Chinese students transitioning from Confucian to Western educational contexts. Their study reveals that Confucian educational traditions emphasize rote memorization, textual authority, teacher-centered classrooms, and hierarchical lecturer-student relationships. These deeply ingrained cultural frameworks often conflict with the interactive, critical, and learner-centered approaches dominant

in Western higher education institutions. Li and Wegerif argue that this clash leads to cognitive dissonance, where students initially struggle to reconcile new pedagogical expectations with their prior educational experiences.

Consequently, students may find it challenging to actively participate in knowledge construction processes, which typically require higher-order cognitive engagement, critical thinking, and independent questioning, skills less frequently encouraged within their previous educational settings. These insights are particularly relevant to the present study as they illuminate the complexity of international students' adjustment beyond language proficiency alone, highlighting the necessity of pedagogical strategies sensitive to these cognitive and cultural transitions.

Expanding this critical discussion, Wu (2015) challenges stereotypes surrounding Chinese students as passive or rote learners in UK universities. Her findings illustrate that Chinese students actively adapt to the unfamiliar educational expectations they encounter, often by strategically modifying their learning styles and approaches. Wu's research thus problematizes essentialist perceptions of Chinese students, revealing their cognitive flexibility and capacity for adaptation. Similarly, Heng (2018) provides an important critique of prevailing deficit-based narratives about Chinese international students in Anglophone contexts, emphasizing that differences in learning behaviors or classroom participation do not indicate deficiencies but reflect diverse culturally-informed approaches to learning. Heng highlights the necessity of recognizing and valuing these diverse cognitive and cultural strategies rather than positioning them as inherently inferior.

Additionally, Montgomery (2010) explores the broader socio-cultural dimensions

influencing international student integration in the UK, underscoring how institutional assumptions about learner autonomy, critical engagement, and classroom interaction may inadvertently marginalize students from Confucian educational backgrounds. Montgomery argues that many international students, including those from China, experience significant initial disorientation due to implicit and often unspoken academic norms, reinforcing Bond's (2020) argument on the necessity of making academic expectations explicit. Further emphasizing the complexity of international student experiences, Gu and Schweisfurth (2015) highlight that the cultural and cognitive adaptation of Chinese students in UK higher education contexts extends beyond immediate academic performance. Their longitudinal study demonstrates how students' educational experiences abroad reshape their identities and intercultural competencies in ways that persist after returning home, underscoring the long-term cognitive and cultural impact of EMI study abroad experiences.

Integrating these perspectives provides a more comprehensive theoretical foundation for this thesis, emphasizing that international students' academic experiences in EMI contexts are shaped by a complex interplay of linguistic, cognitive, and cultural factors. Acknowledging and addressing these interconnected challenges can inform the development of pedagogically informed interventions, aimed at supporting effective knowledge construction practices among diverse student populations. Ultimately, this multidimensional understanding enhances the potential for educational practices that are both inclusive and effective, contributing to improved academic outcomes for international students navigating disciplinary content in a second language.

2.3.5. Chinese Students' Learning Journeys in EMI Contexts

Academic lectures have historically been a predominant pedagogical approach in higher education, valued for their capacity to convey complex knowledge to diverse student cohorts. For Chinese postgraduate students pursuing studies in the United Kingdom, academic lectures present both opportunities and challenges. These students often come from educational environments characterized by high power distance and teacher-centred instruction, where the focus is on rote memorization and knowledge reproduction (Hofstede, 1986; Ryan & Louie, 2007). In contrast, UK higher education emphasizes student autonomy, critical thinking, and active participation in discussions, which can initially be disorienting for many Chinese learners (Gu & Schweinfurt, 2015). The shift from passive learning to active engagement requires substantial adaptation, not only in academic practices but also in ingrained cultural perceptions of authority and knowledge. Maton and Chen (2016) highlight that Chinese students' cultural and linguistic backgrounds can lead to clashes with the expectations of UK academic environments. These conflicts often manifest in lectures, where students are required to interpret abstract concepts, navigate multimodal content, and engage in critical discussions, all while contending with linguistic barriers. The tension between their previous educational experiences and the expectations in EMI contexts underscores the need for culturally responsive pedagogies.

To adapt to these challenges, Chinese students often develop a range of learning strategies that help them navigate the demands of their new academic environment. One key strategy involves note-taking, which becomes a vital tool for bridging the gap between linguistic comprehension and knowledge

construction. Effective notetaking enables students to review and synthesize key concepts after the lecture, thereby consolidating their understanding of complex materials (Flowerdew, 1994). Another important strategy is the use of collaborative learning, where students form study groups to discuss lecture content, clarify misunderstandings, and practice language skills. This approach fosters a sense of community and shared learning, which can alleviate feelings of isolation. Additionally, Chinese students benefit from engaging with visual aids and multimodal resources commonly used in UK lectures. PowerPoint slides, diagrams, and other visual materials provide contextual cues that help students process information and mitigate the cognitive load associated with real-time listening in a second language. Gradually, these learners also work to develop critical thinking skills, which often require explicit guidance and scaffolding. Through activities such as reflective writing, structured debates, and case study analysis, Chinese students incrementally build their ability to connect theoretical concepts with practical applications, aligning their learning approaches with the expectations of UK academia.

The experiences of Chinese students in adapting to UK higher education reveal significant insights into the intersection of cultural dynamics and knowledge construction. As they navigate the dual challenges of linguistic proficiency and cultural adaptation, their learning trajectories often reflect a gradual shift from surface-level understanding to deeper critical engagement with content. However, this process is not without obstacles, particularly in terms of participation and interaction. Spencer-Oatey and Dauber (2017) observe that cultural norms around classroom participation often discourage Chinese students from actively contributing to discussions. This hesitancy, combined with language barriers, can create a sense of invisibility in the classroom,

potentially impacting their confidence and academic performance. Educators, therefore, need to adopt inclusive teaching practices that explicitly encourage participation from all students, regardless of their cultural or linguistic backgrounds.

Addressing these challenges requires a multifaceted approach. Lecturers should receive cultural sensitivity training to recognize and accommodate the diverse needs of their students. Such training might include strategies for using clear and structured language, providing explicit explanations of academic expectations, and creating opportunities for meaningful interaction. Universities could also offer pre-arrival courses to familiarize international students with the academic culture, pedagogical practices, and critical thinking skills expected in UK higher education. Within lectures, incorporating structured discussion sessions and group activities can further help Chinese students overcome cultural barriers to participation and foster greater engagement. By implementing these measures, educators can create a more inclusive and supportive environment, enabling all students to thrive academically and integrate successfully into the academic community.

2.4. Listening Comprehension and Knowledge Construction

Academic lectures are a cornerstone of higher education, serving as a primary medium for the dissemination of knowledge and the development of skills essential for students' future careers. Despite their critical role, many students find it challenging to fully understand the content delivered during lectures (e.g., Ali, 2020; Rahimirad & Moini, 2015). This section aims to provide a comprehensive review of the literature on academic lectures, with a focus on the

lecture comprehension process, the essential characteristics of effective academic lectures, the specific challenges faced by L2 listeners, the strategies they employ to overcome these challenges, and the various factors influencing lecture comprehension.

2.4.1. Understanding the Process of Lecture Comprehension

Studying lecture comprehension is significant in applied linguistics as it helps identify effective strategies to promote listening skills among second language learners, contributing to ESL teaching methodologies and learner strategy training. Insights into lecture comprehension can also assist content lecturers in delivering material to optimize understanding.

2.4.1.1. General Comprehension

Listening comprehension has been a critical component of language instruction since the era of audio-lingualism. However, as Lund (1991) noted, second language research has focused on reading comprehension. Despite this focus, comprehension principles for reading can also be extended to listening (Lund, 1991; Osada, 2004). The listening comprehension process draws heavily from reading research, with phonological dimensions specifically applicable to listening. This transference of research methodologies underscores the intricate and interconnected nature of language comprehension across different modalities.

Listening comprehension is a multifaceted cognitive process that underpins effective participation in academic lectures. While traditionally viewed through

the lens of linguistic decoding, recent research highlights its role in facilitating knowledge construction (Buck, 1992). Schema theory (Anderson, 1985) further emphasizes how listeners integrate prior knowledge to anticipate and interpret lecture content. For L2 learners, this dual demand of linguistic comprehension and knowledge integration requires targeted pedagogical support, particularly in EMI contexts.

From a linguistic perspective, listening comprehension involves at least five types of knowledge: phonological, lexical, syntactic, semantic, and pragmatic. Cognitive science suggests these knowledge domains influence and reinforce each other reciprocally (Anderson, 1983; Lynch, 1996). Practical knowledge, such as understanding the world and linguistic context, can impact phonological processing, helping predict lecture content. This interplay of different knowledge types illustrates the complexity of listening comprehension, where successful understanding is contingent upon the seamless integration of multiple cognitive and linguistic factors.

Comprehension theorists often view the processes involved in comprehension hierarchically. Historically, comprehension was seen as sequential, starting with lower-level language decoding (bottom-up model), and progressing to higher-level contextual interpretation (Liberman et al., 1967). This approach was initially grounded in the belief that comprehension could be broken down into a linear progression of skills, from decoding sounds to constructing meaning. Later researchers proposed that higher-level processes (top-down model) could initiate comprehension, with lower-level linguistic data processed as needed (Sperber and Wilson, 1986). This shift highlighted the role of prior knowledge and expectations in shaping comprehension, suggesting that listeners often use

contextual clues to make sense of linguistic input, especially in ambiguous or noisy environments.

The bottom-up model suggests language is processed step-by-step, starting with phonetic and grammatical aspects, and moving to larger speech units and meaning. Sensory input and linguistic cues are critical in this model, with factors like attention and memory influencing processing. For instance, Sörqvist et al. (2021) found that individuals with higher attentional control exhibit enhanced speech comprehension. This finding underscores the importance of cognitive resources such as attention in the bottom-up processing of spoken language, where detailed analysis of the auditory signal is crucial for understanding.

Conversely, the top-down model posits that prior knowledge, and expectations shape the interpretation of sensory input. Cognitive processes like memory and attention are crucial, with factors such as contextual information and cognitive load affecting processing. Van Engen et al. (2020) found that contextual information enhances speech recognition in noisy environments by providing a cognitive framework for interpreting sensory input. This model emphasizes the proactive role of the listener in using background knowledge to facilitate comprehension, particularly when the auditory signal is degraded or unclear.

Despite these models, the terms "top-down" and "bottom-up" may be misleading. The distinction between "higher" and "lower" levels is unclear. Scholars generally agree that comprehension is a complex process involving multiple interacting factors, though the exact nature of these interactions is uncertain (Clark and Clark, 1977; Anderson, 1983, 1985). This consensus is reflected in prominent L2 listening comprehension textbooks (Ur, 1984;

Anderson and Lynch, 1988; Brown, 1990; Rost, 1990). These works advocate for a holistic understanding of listening comprehension, recognizing that both bottom-up and top-down processes are essential and often operate concurrently.

There is ongoing debate regarding the empirical validity of distinguishing between higher- and lower-level skills. However, some second language learning theorists conceptualize comprehension as a two-step process: initial linguistic processing followed by applying this processing to background knowledge and context (Buck, 1992). For non-native speakers listening to lectures in their second language, it is assumed they have already achieved high proficiency in the initial stages. Therefore, training typically focuses on developing advanced skills for the second stage. This bifurcated approach to teaching listening comprehension aims to equip learners with the ability to not only decode linguistic input but also integrate it with their existing knowledge base to construct meaningful interpretations.

Schema theory is crucial in understanding comprehension. Anderson (1983, 1985) suggests schemata are fundamental structures organizing text in memory and forming hypotheses about text interpretations. They significantly impact high-level text analysis. While most research on schemata in comprehension focuses on reading (Carrell, Devine, and Eskey, 1988), Buck (1992) argues schemata play an equally significant role in listening (Long, 1989). Schemata help listeners to anticipate and predict information, thereby facilitating more efficient processing of auditory input. This predictive function of schemata is particularly valuable in listening, where the transient nature of spoken language requires rapid and continuous processing.

Moreover, the integration of schemata in listening comprehension underscores the dynamic interaction between top-down and bottom-up processes. Listeners actively construct meaning based on their expectations and prior knowledge while simultaneously decoding the linguistic input they receive. This dual engagement highlights the cognitive complexity of listening comprehension, where success depends on the effective orchestration of various cognitive and linguistic resources.

In summary, listening comprehension is a multifaceted process that draws on extensive linguistic and cognitive resources. Both bottom-up and top-down models offer valuable insights into the mechanisms of listening comprehension, though the distinction between them is not always clear-cut. Schemata play a critical role in facilitating comprehension by providing a framework for organizing and interpreting auditory input. Understanding these intricate processes is essential for developing effective strategies for teaching and enhancing listening comprehension in second language learners. As research continues to evolve, it is likely that our understanding of these processes will become more refined, leading to more effective pedagogical approaches that can better support learners in developing their listening comprehension skills.

2.4.1.2. Distinctive Features of Listening Comprehension

In recent years, there has been a growing recognition of the distinct skill set required for listening comprehension in a second language, despite the strong correlation between reading and listening abilities. Pioneering researchers such as Rost (1990), Lund (1991), and Buck (1991, 1992) have identified two main components essential for effective listening comprehension: real-time

processing and the understanding of phonological and lexico-grammatical features.

Real-time Processing

From an academic standpoint, listening comprehension is experienced in the dimension of time rather than space, highlighting its transient nature. Unlike written text, which can be revisited and analysed at the reader's convenience, spoken text requires immediate perception as it unfolds. This temporal aspect of listening necessitates a high level of cognitive flexibility and memory retention. Listeners must hold information in their short-term memory while simultaneously processing incoming data, creating a dynamic and often challenging task.

Spoken discourse often includes redundancy, potentially more so than written text, allowing listeners to revise their understanding based on new information. Repetitions, paraphrasing, and contextual clues embedded in spoken language provide listeners with opportunities to confirm or adjust their interpretations. However, listeners lack the same control over the text as readers, who can re-read, skip, or backtrack at will. This lack of control means that listeners must develop strategies to manage misunderstandings and missing information in real-time, which can include making educated guesses, relying on contextual clues, or recognizing patterns in the speaker's language use.

Phonological and Lexico-grammatical Features

The sound system of a language presents significant challenges to

comprehension. Cognates that appear similar in writing may sound different, complicating accurate perception. Phonological aspects such as stress patterns, intonation, and rhythm play a crucial role in conveying meaning and structure in spoken language. Listeners must rely on these phonological cues to discern word boundaries, which are clearly marked in written text. Additionally, they must navigate irregular pauses, false starts, hesitations, and varying patterns of stress and intonation. These features can significantly alter the listener's ability to accurately parse and understand spoken language.

Moreover, Brown (1990) notes that these characteristics pose specific difficulties for non-native speakers who have primarily learned English in formal or written contexts, thus lacking exposure to the nuances of rapid, informal conversation. Such learners might find it challenging to adjust to the speed and variability of natural speech, which often includes slurred words, elisions, and reduced forms that are rarely encountered in written texts.

Furthermore, spoken text exhibits unique lexico-grammatical features that require listeners to apply specific sets of knowledge (Biber, 1988). These features include contractions, colloquialisms, and less formal grammatical structures, which are often absent in written language. For example, spoken English frequently employs informal contractions like "gonna" or "wanna," as well as idiomatic expressions and slang that may not be familiar to non-native speakers. Non-native listeners must therefore adapt their understanding to accommodate these spoken-specific elements, which can involve a steep learning curve and extensive exposure to varied spoken contexts.

In addition to these challenges, the prosodic elements of speech, such as

intonation, stress, and rhythm, add layers of meaning that are not present in written text. These elements can indicate questions, emphasis, emotion, and other nuances that require keen listening skills to interpret correctly. For instance, the intonation pattern of a sentence can change its meaning entirely, turning a statement into a question or indicating sarcasm or surprise.

In summary, listening comprehension in a second language involves complex skills distinct from those required for reading comprehension. Effective listening requires real-time processing abilities and a nuanced understanding of phonological and lexico-grammatical features. This complexity underscores the need for targeted teaching approaches to enhance these skills in second language learners. Educators should focus on providing extensive listening practice in varied contexts, teaching strategies for real-time comprehension, and increasing exposure to the phonological and lexico-grammatical intricacies of spoken language. Such an approach can help learners become more adept at navigating the unique challenges of listening comprehension in a second language, leading to improved overall language proficiency.

2.4.1.3. Distinctive Features of Lecture Comprehension

Richards (1983) was among the first to distinguish the listening skills required for casual conversation from those necessary for academic listening. The variations between conversational and academic listening are both qualitative and quantitative.

A key distinction lies in the degree of background knowledge needed. Lectures demand a solid understanding of the specific subject matter, whereas casual

conversations typically require a broader, more general knowledge base. This distinction is critical because the specificity of academic content necessitates that listeners engage with specialized terminology and concepts. Without prior knowledge in the subject area, students may struggle to follow the lecture's progression and grasp its key points. On the other hand, casual conversations rely on shared cultural and contextual knowledge, allowing participants to navigate the discussion with a more general understanding.

Additionally, the ability to differentiate between pertinent and extraneous information is crucial for comprehension. This skill is especially vital in lectures, where focusing on the main purpose is imperative (Grice, 1975; Sperber & Wilson, 1986), though it may be less critical in casual conversations. In an academic context, students must identify and retain core arguments, key evidence, and significant conclusions, filtering out less relevant details. This process is compounded by the often dense and structured nature of academic discourse, which requires listeners to parse through complex information and retain essential elements for further study and application.

Another significant difference pertains to turn-taking conventions. In conversational settings, turn-taking is fundamental. This dynamic interaction allows participants to engage in real-time clarification, adjustment, and response, facilitating mutual understanding and rapport building. However, in academic lectures, turn-taking is only relevant if the lecturer invites questions or facilitates discussion. The lecturer typically dominates the floor, delivering extended monologues that students must follow passively. This passive reception demands a distinct set of skills, including sustained attention and the

ability to process information continuously without the immediate opportunity for interaction.

Furthermore, the degree of implied meaning or indirect speech acts varies; lectures focus on conveying propositional content, while casual conversations emphasize interpersonal or illocutionary meaning (Brown & Yule, 1983). Lectures aim to transfer knowledge clearly and unambiguously, minimizing the use of indirect language to avoid misunderstandings. In contrast, casual conversations often rely on context, non-verbal cues, and shared experiences to convey meaning, which can lead to more flexible and nuanced exchanges.

In terms of qualitative differences, specific skills are associated with academic listening. One such skill is the ability to concentrate and comprehend extended discourse without the opportunity for interactive engagement, such as seeking clarification or using repair strategies. This sustained concentration is challenging, as it requires listeners to maintain focus and cognitive engagement over extended periods. Note-taking is a critical component of lecture comprehension. According to James (1977), this involves a five-stage process: decoding information, comprehending it, identifying main points, determining when to record them, and writing quickly and clearly. Effective notetaking serves as an external memory aid, allowing students to review and consolidate information after the lecture. Chaudron, Hansen, and King (1994, cited in Flowerdew, 1994) also underscore the significance of notetaking, highlighting its role in supporting academic success.

Another essential skill in academic settings is integrating information from various sources, including lectures and other media. Academic lectures often

incorporate handouts, textbooks, and visual aids such as blackboards or overhead projectors to enhance learning (Flowerdew, 1994). This multimodal approach requires students to synthesize information presented in different formats, creating a cohesive understanding of the subject matter. The ability to cross-reference and integrate these sources is crucial for developing a comprehensive grasp of the content and for succeeding in academic assessments that evaluate such integrative knowledge.

Moreover, the formal structure of academic lectures often follows a predictable pattern, including introductions, body sections, and conclusions. This structured format aids listeners in organizing information mentally, but it also requires them to recognize and adapt to these organizational cues to follow the lecture effectively. Understanding the rhetorical structure of academic discourse can help students anticipate the progression of the lecture and better allocate their cognitive resources.

In summary, while both conversational and academic listening require discernment and comprehension, the latter demands a higher degree of specialized knowledge, focused attention, and the ability to synthesize information from multiple sources. These distinctions highlight the unique challenges of lecture comprehension and underscore the importance of developing tailored listening strategies for academic success. Developing these skills involves practice and familiarity with academic conventions, as well as the strategic use of notetaking and information integration techniques. As such, academic listening is a multifaceted skill set that is essential for thriving in educational environments.

2.4.1.4. Characteristics of the Academic Texts

Understanding the characteristics of academic texts and lectures is crucial for improving L2 academic listening comprehension. This review examines several key factors: lexical difficulty, grammatical complexity, discourse structure, and the use of visual aids, drawing on research by Chen and Ge (2007), Liu and Littlewood (1997), and Vandergrift and Tafaghodtari (2010). By exploring these dimensions, we aim to elucidate how they impact L2 learners' ability to construct knowledge and comprehend academic lectures.

Lexical Difficulty

The lexical difficulty of academic listening materials significantly influences comprehension. Research indicates that academic texts typically have a higher lexical difficulty compared to everyday spoken language (Hu & Nation, 2000; Laufer, 2003). This heightened complexity can pose substantial challenges for L2 listeners, who may struggle with unfamiliar vocabulary and complex terminologies frequently used in academic contexts.

Grammatical Complexity

Grammatical complexity also plays a critical role in listening comprehension. Field (2008) emphasizes that long sentences and embedded clauses common in academic lectures can overwhelm L2 listeners, making it difficult for them to follow the main ideas. The syntactic complexity inherent in academic discourse requires listeners to process information at a higher cognitive load, which can hinder comprehension and retention of information.

Discourse Structure

Discourse structure is another vital aspect of academic listening. The ability to recognize and follow the structure of a lecture is essential for understanding the content. Bligh (1998) categorizes lecture structures into three major styles: conversational, elicitation-task-based, and expository. Each style presents unique challenges and benefits for L2 learners. For instance, conversational styles may be more engaging but can be harder to follow, while expository styles are straightforward but may lack interaction that aids comprehension.

Cook (1975, cited in Fortuño & Gómez, 2005) distinguishes between macro and microstructural patterns in lectures. The macrostructure involves the overall organization of the lecture, including expositions and episodes, while the microstructure focuses on the specific moves within these episodes. Understanding these structures helps learners to follow the logical flow of the lecture, enhancing their ability to grasp the main points and arguments (Chaudron & Richards, 1986; Young, 1994).

Visual Aids

The use of visual aids, such as video clips and diagrams, can significantly enhance L2 learners' comprehension of academic lectures. Visual aids provide contextual clues that support understanding and retention of information (Mayer, 2009). They can help bridge gaps in linguistic knowledge by providing visual representations of complex concepts, making the content more accessible to L2 listeners.

Importance of Recognizing Macrostructure

Olsen and Huckin (1990) highlight the importance of recognizing the macrostructure of lectures. Their study on the comprehension of an engineering lecture by non-native students revealed that even when students understood individual words, they often failed to grasp the main points and logical arguments due to a lack of macrostructural knowledge. This finding underscores the need for teaching students to listen strategically and rhetorically, enabling them to identify key points and structures within a lecture.

Discipline-Specific Structures

Research indicates that lecture structures can vary significantly across disciplines. Dudley-Evans and Johns (1998) and Stodt-Lopez (1991) note that while certain structural frameworks may aid comprehension in one field, they may not be applicable in another. For example, the hierarchical structuring found in engineering lectures may differ from the more fluid structures in humanities and social sciences lectures. Understanding these variations can help educators tailor their teaching strategies to the specific needs of their students.

Phases of University Lectures

Young (1994) identifies prominent macrostructures in university lectures, distinguishing between metadiscoursal strands that comment on the discourse itself and content-specific phases. These phases, including introductions, summaries, and evaluations, recur throughout lectures and provide a framework

for students to follow the progression of the lecture. Recognizing these phases can facilitate information processing and enhance comprehension.

Domizio (2008) emphasizes the importance of structuring lectures with clear beginnings, middles, and ends. This structure helps students follow the lecture more easily and provides a clear framework for preparing lecture slides. By outlining learning objectives and summarizing key points, lecturers can help students track their progress and understand the lecture's main ideas. This structured approach also signals to students when the lecture is concluding and prepares them for discussion sessions.

In conclusion, lexical difficulty, grammatical complexity, discourse structure, and the use of visual aids are critical factors affecting L2 academic listening comprehension. Understanding these elements can help educators develop effective teaching strategies that enhance L2 learners' ability to understand and retain academic content. By focusing on these areas, we can support L2 students in building their academic listening skills and improving their overall academic performance.

2.4.2. Key Factors Influencing L2 Academic Listening

There are two potential methods to assist individuals who are not native speakers in comprehending lectures delivered in a second language. One way to enhance understanding and proficiency in the target language is by continuously expanding one's knowledge and skills. Another approach is to consider modifying the format of the lectures to provide a more diverse range of information, making them more accessible and understandable (Flowerdew,

1994). Studying the impact of input variables is not only valuable for teachers and course designers who can use this information to create effective teaching materials, but also for content lecturers who can integrate these modifications into their lectures for second language students, making the content more understandable. L2 academic listening is a complex process that involves the interaction of a range of factors. In this section, I will explore the varied factors that affect L2 academic listening, including learner factors, speaker factors, text factors, and instructional factors.

2.4.2.1. Learner Factors

Learner factors refer to the intrinsic characteristics of learners that may significantly influence their ability to comprehend academic lectures, particularly in a second language context. Extensive research has identified a variety of factors that play crucial roles in L2 academic listening, including L2 proficiency, vocabulary knowledge, prior knowledge of the topic, working memory capacity, and motivation (Chen & Ge, 2007; Goh, 2000; Vandergrift & Goh, 2012).

Language proficiency has been repeatedly recognized as a critical determinant of success in L2 academic listening. Higher levels of proficiency enable learners to better navigate the complexities of academic discourse, resulting in improved performance on listening tasks (Vandergrift & Tafaghodtari, 2010; Siegel & Siegel, 2014). This proficiency encompasses not only grammatical and syntactic knowledge but also the ability to decode and interpret academic vocabulary and specialized terminologies that are often prevalent in academic settings.

Prior knowledge of the lecture topic is another essential factor contributing to lecture comprehension. Empirical studies have consistently shown that students with substantial prior knowledge are more adept at understanding and retaining lecture content (van den Broek et al., 2018). This effect is further amplified when learners activate relevant prior knowledge before the lecture, a strategy that has been demonstrated to enhance both comprehension and retention (Kuo et al., 2020). However, the impact of prior knowledge is not uniform and can be moderated by variables such as the lecturer's expertise and the inherent complexity of the lecture material (Mayer et al., 2021).

Cognitive factors, notably working memory capacity and attention control, play pivotal roles in L2 academic listening. Working memory capacity, which involves the ability to process and temporarily store information, is crucial for the real-time demands of academic listening (Zhang & Goh, 2006). Learners with higher working memory capacities are better equipped to process and integrate the extensive and sometimes dense information presented during lectures (Just et al., 2020). Similarly, attention control is essential as it enables learners to maintain focus amidst potential distractions. Research indicates that attentional processes are integral to lecture comprehension, with disruptions potentially leading to significant impairments in understanding and retention (Mackey & Gass, 2012; Thornton & Lee, 2021). Despite these findings, the relationship between working memory, attention, and lecture comprehension is intricate and context-dependent, warranting further investigation to fully elucidate these dynamics.

Cultural factors also significantly influence L2 academic listening, extending beyond mere linguistic challenges. Discourse conventions, or the culturally

specific ways in which language is used to convey meaning, can vary dramatically between the target language culture and the learner's native culture. This variation can pose significant challenges for L2 learners, who may struggle to identify main ideas, follow the organizational structure of lectures, or grasp the speaker's argumentative nuances. The disparity in discourse conventions can lead to misunderstandings and frustration, impacting academic performance.

Nonverbal communication differences further complicate L2 academic listening. Nonverbal cues such as eye contact, facial expressions, and gestures play varying roles in communication across cultures. L2 learners unfamiliar with the nonverbal communication norms of the target language culture may misinterpret the speaker's intentions or miss crucial cues, thereby hindering their comprehension.

Finally, learner motivation and anxiety are pivotal affective factors that influence L2 academic listening. Motivated learners exhibit higher levels of engagement and a greater propensity to comprehend lecture content effectively (Segalowitz & Segalowitz, 1993). Conversely, anxiety can severely detract from listening performance, creating cognitive and emotional barriers that impede comprehension (MacIntyre & Gardner, 1994). The interplay between motivation, anxiety, and academic listening proficiency underscores the need for supportive learning environments that foster positive affective states and mitigate anxiety.

In summary, the ability of L2 learners to comprehend academic lectures is influenced by a multifaceted array of factors, including language proficiency, prior knowledge, cognitive capacities, cultural conventions, and affective states.

Understanding these factors and their interactions can inform pedagogical strategies aimed at enhancing L2 academic listening skills, thereby improving overall academic outcomes for L2 learners.

2.4.2.2. Speaker Factors

Speaker factors refer to the characteristics of the speaker that can influence L2 academic listening. The clarity of speech, accent, speed of delivery, and the use of nonverbal cues are significant factors that affect how well L2 learners can comprehend spoken academic content. This section delves into these factors in greater detail, providing a comprehensive understanding of their impact on L2 academic listening.

Clarity of speech is a fundamental aspect of effective communication, especially for L2 learners. Unclear articulation can lead to misunderstandings and missed information, hindering the learning process. According to Munro and Derwing (1995), speakers who articulate clearly and use pauses effectively can enhance L2 learners' understanding. This clarity allows learners to process linguistic information more efficiently, reducing cognitive load and facilitating better retention of the material presented. Therefore, educators should be mindful of their articulation and strive to maintain a clear and consistent speech pattern.

The accent of the speaker is another critical factor influencing L2 academic listening. L2 learners often find it challenging to understand accents that differ from the standard variety they are accustomed to (Kang et al., 2010). This difficulty arises because unfamiliar accents can obscure phonetic and prosodic

cues that are essential for comprehension. Familiarity with the speaker's accent can significantly improve understanding, as it reduces the cognitive effort required to decode the speech. Conversely, unfamiliar accents can pose additional hurdles, necessitating greater concentration and potentially leading to comprehension breakdowns. Thus, exposure to a variety of accents during language training can be beneficial for L2 learners, preparing them for the diversity of spoken English they may encounter in academic settings.

The speed of delivery is another crucial factor in L2 academic listening. Rapid speech can overwhelm L2 learners' processing capacities, leading to decreased comprehension (Griffiths, 1990). When speech is delivered too quickly, learners may struggle to keep up, resulting in missed information and fragmented understanding. On the other hand, excessively slow speech may not necessarily aid comprehension and can sometimes lead to disengagement. It is essential to find an optimal speech rate that allows for clear and comprehensible delivery while maintaining listener engagement. This balance ensures that L2 learners can follow the lecture's content without feeling rushed or bored.

Nonverbal cues, such as gestures, facial expressions, and eye contact, play a significant role in aiding comprehension. These cues provide additional context and emphasis, helping L2 learners better follow the structure of the lecture and grasp the speaker's intentions (Sueyoshi & Hardison, 2005). For instance, gestures can highlight key points or illustrate complex concepts, while facial expressions can convey emotions and attitudes that enrich the spoken message. Eye contact can also enhance engagement and signal the importance of certain information. The integration of nonverbal cues in academic lectures

can thus create a more dynamic and supportive learning environment for L2 learners.

In conclusion, the clarity of speech, accent, speed of delivery, and use of nonverbal cues are pivotal factors that influence L2 academic listening. Clear articulation and effective pausing enhance understanding by reducing cognitive load. Familiarity with the speaker's accent can improve comprehension, while unfamiliar accents require additional effort. An optimal speech rate is crucial for maintaining engagement and ensuring comprehensibility. Finally, nonverbal cues provide essential context and support, enriching the spoken content and aiding comprehension. Educators should consider these factors to facilitate better academic listening experiences for L2 learners.

2.4.2.3. Text Factors

Text factors refer to the characteristics of the lecture content that can significantly influence L2 (second language) academic listening. The complexity of the language used, the organization of the content, and the utilization of visual aids are critical aspects that affect comprehension.

The complexity of the language employed in academic lectures can pose substantial challenges for L2 learners. This includes the use of technical terms, complex sentence structures, and idiomatic expressions, all of which can hinder understanding. Field (2004) emphasizes that simplifying language without compromising the integrity of the content can enhance comprehension. For instance, breaking down complex ideas into simpler, more digestible parts,

avoiding jargon where possible, and explaining technical terms in context can make the lecture content more accessible to L2 learners.

Moreover, the organization of lecture content plays a pivotal role in aiding comprehension. Lectures that are well-structured, featuring clear introductions, logical progression of ideas, and concise summaries, are more likely to be understood and retained by L2 learners. Young (1994) suggests that providing outlines and highlighting key points throughout the lecture can significantly aid in better understanding and recall. Structured content helps learners to anticipate and follow the flow of information, making it easier to process and store in memory.

Visual aids constitute another essential factor that can enhance comprehension. Tools such as slides, diagrams, and charts provide visual representations of the information being discussed, which can be particularly beneficial for L2 learners. Paivio's Dual Coding Theory (1986) supports the idea that visual aids can enhance learning by providing an additional cognitive channel through which information can be processed. These aids not only help in explaining complex concepts but also serve to maintain the learners' attention, thus facilitating a more engaging and comprehensible lecture experience.

Incorporating these text factors thoughtfully into academic lectures can create a more inclusive and effective learning environment for L2 learners. By addressing the complexity of language, ensuring well-organized content, and utilizing visual aids, educators can significantly improve the comprehensibility of their lectures, thereby enhancing the overall learning experience for L2 students.

2.4.2.4. Instructional Factors

Instructional factors refer to the methods and approaches used by instructors to teach L2 academic listening. These factors significantly influence the effectiveness of listening instruction and affect learners' comprehension and retention. Key instructional factors include the teaching approach, the use of authentic materials, and the provision of listening strategies.

Explicit instruction on listening strategies, such as note-taking and predicting content, has been shown to benefit learners significantly. Chang and Read (2006) emphasize that teaching these strategies explicitly helps learners become more adept at processing and understanding spoken academic content. Note-taking, for example, enables learners to organize and retain information, while predicting content helps them set expectations and focus on relevant information during listening.

The use of authentic materials, such as actual lectures or academic texts, is another critical factor in L2 academic listening instruction. According to Brown (2008), exposure to real-life academic listening situations prepares learners for the types of listening they will encounter in their academic pursuits. Authentic materials provide contextually rich and varied linguistic input, which can enhance learners' ability to comprehend and respond to spoken academic discourse.

Teaching approaches also play a crucial role in L2 academic listening instruction. Vandergrift (2004) suggests that an interactive and communicative approach to teaching listening is particularly effective. This approach involves

engaging learners in activities that require active listening and immediate response, such as discussions, debates, and role-plays. These interactive activities promote deeper processing of spoken input and encourage learners to apply their listening skills in communicative contexts.

Lecture format is another instructional factor that can impact comprehension. Chuang and colleagues (2020) found that students who received lectures with pre-organized outlines demonstrated better comprehension than those who received lectures without outlines. Pre-organized outlines help learners follow the structure of the lecture and identify key points. Similarly, Martinez and colleagues (2021) found that integrating questions into lectures enhances comprehension. Questions prompt learners to think critically about the content and engage more actively with the lecture material.

The use of technology in L2 academic listening instruction has also garnered significant attention. Computer-assisted language learning (CALL) tools offer a range of benefits for developing listening skills. Lee and Huang (2018) highlight that CALL programs provide learners with exposure to diverse voices, accents, and speech styles. Additionally, these programs often include features such as feedback and self-assessment tools, which support autonomous and self-directed learning.

Metacognitive strategies are increasingly recognized as vital components of L2 academic listening instruction. Vandergrift and Tafaghodtari (2010) emphasize the importance of teaching learners how to plan, monitor, and evaluate their listening processes. Metacognitive strategies enable learners to regulate their listening activities, leading to improved comprehension and retention. Explicit

instruction and practice in these strategies can enhance learners' awareness of their listening processes, fostering more effective and independent listening skills.

In conclusion, L2 academic listening is influenced by a multitude of factors encompassing learner characteristics, speaker attributes, text features, and instructional methods. Understanding these factors is essential for educators and course designers to develop effective teaching strategies and materials. The interplay between linguistic proficiency, cognitive abilities, cultural background, and instructional approaches makes L2 academic listening a complex and multifaceted process. Further research is needed to explore the mechanisms underlying these factors and to identify best practices for L2 academic listening instruction.

The integration of explicit listening strategies, authentic materials, interactive teaching approaches, well-organized lectures, technological tools, and metacognitive strategies creates a comprehensive framework for enhancing L2 academic listening skills. Educators must remain cognizant of the diverse needs of learners and continuously adapt their instructional methods to foster an inclusive and effective learning environment.

2.4.3. Micro-skills for Effective Lecture Comprehension

The comprehension of L2 lectures involves a nuanced set of skills that academic researchers have extensively explored. These micro-skills are essential for facilitating coherent understanding and have significantly influenced the development of second language curricula (Munby, 1978; Weir, 1990). This

literature review aims to delineate the categorization and implications of these micro-skills, drawing insights from comprehension theory, lecturer inputs, and student feedback.

2.4.3.1. Micro-Skills in L2 Lecture Comprehension

Research on L2 comprehension has identified various micro-skills necessary for understanding lectures in a second language. Richards (1983, cited in Flowerdew, 1994:12) provides a foundational taxonomy of listening skills, specifically for academic contexts, distinct from conversational listening. These skills include:

- Identifying the purpose and scope of the lecture.
- Recognizing the topic and following its development.
- Understanding the role of discourse markers in structuring the lecture.
- Recognizing key lexical items related to the subject/topic.
- Deducing meanings of words from context.
- Interpreting intonation to signal information structure (e.g., pitch, volume, pace, key).

These skills form the basis for effective lecture comprehension, emphasizing both the linguistic and cognitive demands placed on L2 listeners.

2.4.3.2. Faculty Perspectives on Micro-Skills

Powers (1986) surveyed 144 U.S. faculty members to identify critical micro-skills for academic performance. Nine skills emerged as particularly important:

- Identifying major themes or ideas.

- Recognizing relationships among major ideas.
- Identifying the lecture topic.
- Retaining information through notetaking.
- Retrieving information from notes.
- Inferring relationships between information.
- Comprehending key vocabulary.
- Following the spoken mode of lectures.
- Identifying supporting ideas and examples.

These skills reflect faculty expectations and highlight areas where non-native students may struggle compared to native speakers, such as dealing with varying lecture speeds and understanding key vocabulary.

2.4.3.3. Student Perspectives and Strategies

Non-native listeners' perspectives provide another valuable source of information on necessary skills. Flowerdew and Miller (1992) conducted a longitudinal study involving questionnaires, diary studies, and interviews with first-year Hong Kong Chinese undergraduates. The students reported challenges like the speed of delivery, terminology load, and concentration difficulties. To enhance comprehension, they employed strategies such as pre- and post-reading of texts, seeking peer and tutor help, highlighting relevant sections, taking notes, and increasing concentration efforts.

Benson (1989) used an ethnographic approach to study an Arabic-speaking student's listening activities in a U.S. academic course. The findings revealed processes such as reducing linguistic data, making connections with familiar

concepts, and identifying with the teacher's viewpoints. These insights suggest that content-based listening classes could be beneficial in ESL preparatory programs.

2.4.3.4. The Role of Notetaking

Note-taking is consistently highlighted as a crucial micro-skill for lecture comprehension (Powers, 1986; Peverly et al., 2007; Pin-Hwa, 2013; Murphy et al., 2018). The extent of its use depends on available support materials, such as handouts or highlighting techniques. For example, Flowerdew and Miller (1992) observed that first-year Hong Kong Chinese students relied heavily on marking texts rather than taking notes in TESL methods courses. Research has also explored the impact of note quantity and quality on academic performance. Pin-Hwa (2013) found that the quality of lecture notes among Taiwanese psychology students was suboptimal, highlighting the need for improved note-taking skills.

2.4.3.5. Implications for Teaching and Learning

The identification of micro-skills for L2 lecture comprehension has significant implications for language teaching and learning. Instructors can design materials and activities targeting specific micro-skills, such as recognizing academic vocabulary or using context to infer meaning. Furthermore, fostering metacognitive awareness through activities like listening diaries, goal setting, and performance monitoring can enhance students' listening skills.

Language learners can also develop personal strategies for lecture comprehension, such as note-taking, summarizing, predicting, and asking

questions, along with using technology to support listening. By adopting these strategies, learners can become more effective and autonomous listeners.

To conclude, effective L2 lecture comprehension requires a range of micro-skills, encompassing both bottom-up and top-down processes. Recent theoretical studies have identified specific micro-skills and metacognitive strategies that contribute to successful L2 lecture comprehension. By focusing on these areas, language instructors can help students develop into more effective and autonomous learners.

2.4.4. Effective Listening Strategies in Academic Contexts

Academic lectures present significant challenges for L2 listeners due to their length, complexity, and fast-paced delivery. To overcome these difficulties, L2 learners employ various listening strategies to enhance their comprehension. This section examines the research on L2 listening strategies in academic contexts, focusing on cognitive, metacognitive, and social/affective strategies.

Cognitive strategies play a crucial role in listeners' comprehension of spoken language. Oxford (1990) categorizes listening strategies into three main types: metacognitive, cognitive, and social/affective. Metacognitive strategies involve learners' awareness and regulation of their cognitive processes, including planning, monitoring, and evaluating their understanding. Cognitive strategies encompass mental processes used to manipulate incoming information, such as attending to key details, making inferences, and elaborating on received information. Social/affective strategies, by contrast, pertain to the use of social

and emotional cues to support comprehension, such as seeking clarification, engaging in cooperative listening, and managing anxiety.

Oxford's taxonomy provides a structured framework for understanding how L2 listeners actively engage in comprehension processes. Metacognitive strategies enable learners to regulate their listening, maintain focus, and assess their level of understanding throughout a lecture. Cognitive strategies facilitate the active processing of auditory input, helping listeners establish connections, bridge gaps in comprehension, and form a coherent mental representation of the discourse. Meanwhile, social/affective strategies highlight the role of interpersonal and emotional factors in supporting comprehension, emphasizing interaction with peers and instructors to enhance understanding.

This framework is particularly relevant to research on L2 learners' comprehension of academic lectures, including studies that apply Legitimation Code Theory (LCT), which is the theoretical lens of the current study and will be introduced in the next Chapter, to analyse semantic dimensions in lecture discourse. Investigating the specific cognitive strategies that learners frequently employ can provide valuable insights into their comprehension patterns and knowledge construction processes in academic settings. Similarly, examining how metacognitive strategies are utilised can shed light on learners' self-regulation and awareness during listening tasks.

Aligning this study with Oxford's taxonomy offers a robust theoretical foundation, linking empirical findings to established frameworks in language learning and cognitive psychology. This approach enhances the scholarly rigor of

the research while contributing to a more comprehensive understanding of how L2 students navigate the challenges of academic listening.

Oxford's categorization also aligns with Willing's (1988:7) definition of learning strategies as "specific mental procedures for gathering, processing, associating, categorizing, rehearsing, and retrieving information or patterned skills." These strategies are fundamental to language acquisition, particularly in the context of listening comprehension, where students must engage in various cognitive processes to decode and interpret spoken input.

Richards (2005) underscores the importance of integrating strategy training into listening instruction to improve students' ability to employ effective learning strategies. O'Malley et al. (1985) categorize these strategies into three broad domains: metacognitive (involving planning, monitoring, and evaluating learning), cognitive (related to processing and acquiring language knowledge), and social/affective (influencing motivation, attitudes, and cooperation). Vandergrift's (1997, cited in Richards, 2005) taxonomy further expands on these categories, offering a systematic framework for helping learners manage their listening processes more effectively.

Existing research on listening comprehension strategies among second and foreign language learners highlights several key areas. First, studies have focused on learners from diverse linguistic backgrounds, including French, Spanish, Russian, and Italian speakers, investigating how different first-language influences shape the use of listening strategies in L2 contexts.

Additionally, research has explored how learners of varying proficiency levels

employ different strategies when engaging with auditory input, such as lectures, multimedia, and interactive discussions. These variations underscore the need for tailored instructional approaches that address the specific listening needs of learners at various stages of proficiency.

Recent studies have increasingly emphasized interactive listening strategies within the domain of second language acquisition (Rost, 2013). These strategies promote active engagement with spoken input and foster deeper comprehension by encouraging interaction with both the material and other interlocutors.

A particularly relevant area of inquiry concerns the prominence of cognitive and metacognitive strategies over social and affective strategies in academic contexts. Given the cognitively demanding nature of lecture comprehension, these strategies play a pivotal role in enabling learners to process, structure, and retain academic content. This focus aligns with the present study's investigation into the impact of semantic profiles on lecture comprehension among L2 students.

In this study, the exploration of semantic dimensions through LCT aims to uncover how variations in semantic structures influence L2 students' comprehension strategies during academic lectures. By examining the cognitive mechanisms underpinning this process, the research contributes to a deeper understanding of how learners construct meaning and engage with knowledge in academic settings.

2.4.5. The Interplay Between Listening Comprehension and Knowledge Construction

The relationship between listening comprehension and knowledge construction is pivotal in understanding how academic lectures function as pedagogical tools. Listening comprehension is primarily rooted in cognitive processes, emphasizing the decoding, interpretation, and retention of auditory input. Knowledge construction, on the other hand, is framed within an epistemological perspective, focusing on the synthesis, integration, and application of information within a broader intellectual and social context. While these two processes are closely linked, they operate at different levels of cognitive engagement. A clear distinction between them is essential to fully comprehend how students engage with and learn from academic lectures.

Listening comprehension, as a cognitive process, involves a series of mental operations that allow individuals to extract meaning from spoken discourse. Vandergrift (2007) conceptualizes listening as a hierarchical process involving perception, parsing, and utilization. Perception refers to the recognition of phonetic and prosodic features, parsing involves the segmentation of auditory input into meaningful units, and utilization enables listeners to integrate new information with prior knowledge. These stages reflect the complexity of real-time auditory processing, highlighting the cognitive demands placed on students during lectures. Anderson (1995) and Flowerdew and Miller (2005) further emphasize that listening comprehension relies on both bottom-up and top-down processing. Bottom-up processing involves the decoding of linguistic elements such as phonemes, syntax, and discourse markers, while top-down processing depends on the listener's prior knowledge, expectations, and contextual cues to

construct meaning. For second-language learners, challenges such as unfamiliar vocabulary, rapid speech rates, varied accents, and reduced redundancy in lecture discourse can impede comprehension, making real-time processing particularly demanding.

To overcome these challenges, learners employ a variety of cognitive strategies that facilitate comprehension. Schema activation plays a crucial role, allowing students to draw upon existing knowledge to anticipate and interpret lecture content. Selective attention enables students to filter out extraneous details and focus on the most salient aspects of the lecture. Notetaking further supports comprehension by externalizing key points and structuring information in a retrievable format. Despite the effectiveness of these strategies in improving listening comprehension, they primarily address the immediate demands of processing auditory input. They do not fully account for the broader processes involved in integrating this information into disciplinary knowledge frameworks, which is essential for deep learning.

In contrast, knowledge construction extends beyond the cognitive act of listening to involve higher-order thinking processes that facilitate the synthesis, contextualization, and application of new information. Drawing on Vygotsky's (1978) sociocultural theory, knowledge construction is not merely an individual cognitive act but a socially mediated process that involves interaction, collaboration, and contextualization. This perspective suggests that knowledge is actively built through engagement with both content and peers, rather than passively received through listening alone. In this sense, while effective listening is a prerequisite for learning in lecture settings, it does not guarantee meaningful knowledge construction.

The process of constructing knowledge entails integrating new information with existing conceptual frameworks, critically evaluating its relevance and validity, and applying it to theoretical or practical contexts. During an academic lecture, students are expected not only to comprehend the presented content but also to establish meaningful connections between new and prior knowledge. This integration allows students to position the lecture material within a broader academic discourse, thereby deepening their understanding of the subject matter. Moreover, knowledge construction often requires students to engage in reflective thinking, questioning assumptions, and generating new perspectives on the topic at hand. Unlike listening comprehension, which operates largely in real-time, knowledge construction is an iterative and reflective process that unfolds over extended periods.

Despite their interdependence, listening comprehension and knowledge construction differ in both cognitive and social dimensions. While listening comprehension is largely an individual effort, focusing on the accurate decoding and retention of spoken information, knowledge construction frequently involves collaborative engagement with peers and instructors, as well as the integration of multiple sources of information such as textbooks, research articles, and discussion forums. Listening comprehension is primarily concerned with understanding the immediate input of the lecture, whereas knowledge construction extends beyond this initial stage to include the development of critical insights, the synthesis of diverse perspectives, and the application of acquired knowledge to new problems or contexts.

One of the key distinctions between these two processes lies in the depth of cognitive engagement they require. Listening comprehension, even at an

advanced level, does not necessarily equate to deep learning. A student may successfully understand and recall key points from a lecture but fail to integrate them into a coherent disciplinary framework. For instance, a student in an engineering lecture might comprehend the steps involved in solving a complex mathematical problem but struggle to apply these principles in a different problem-solving context. Similarly, in a humanities lecture, a student may understand the theoretical underpinnings of a particular argument but may not be able to critically evaluate or extend the discussion in a meaningful way. This discrepancy highlights the limitations of listening comprehension as a sole indicator of learning success and underscores the importance of active knowledge construction.

Another crucial distinction is the role of metacognition in both processes. Listening comprehension relies on moment-to-moment adjustments in attentional focus and inferencing, while knowledge construction necessitates a more deliberate and strategic approach to learning. Students engaged in knowledge construction must be able to monitor their own understanding, identify gaps in their knowledge, and seek clarification through further study, discussion, or application. Without these metacognitive strategies, students risk remaining at the level of surface learning, where knowledge is retained in isolated fragments rather than integrated into a meaningful whole.

Given these distinctions, it is important for educators to design instructional approaches that facilitate both listening comprehension and knowledge construction. Strategies such as explicit discourse structuring, the use of multimodal resources, and interactive pedagogical techniques can support students in bridging the gap between comprehension and deeper learning. For

example, lecturers can employ signposting language to highlight key arguments, provide opportunities for students to articulate their understanding through discussions or written reflections, and encourage the application of new knowledge through problem-solving activities and case studies.

The distinction between listening comprehension and knowledge construction has significant implications for EMI students, who may face additional linguistic and cognitive challenges in lecture settings. While efforts to enhance lecture comprehension, such as providing transcripts, using visual aids, and slowing down speech rate are beneficial, they must be complemented by pedagogical strategies that actively engage students in knowledge construction. Without such strategies, students may develop strong listening skills but struggle to effectively integrate and apply what they have learned.

In summary, listening comprehension and knowledge construction, while interconnected, represent distinct cognitive and epistemological processes. Listening comprehension serves as a foundational skill that enables students to access lecture content, but it does not ensure meaningful learning. Knowledge construction requires students to actively engage with, analyse, and apply information, often extending beyond the lecture itself into discussions, assignments, and independent inquiry. Recognizing this distinction is essential for understanding how academic lectures contribute to student learning and for developing pedagogical practices that effectively support both comprehension and deep knowledge engagement.

2.4.6. Clarifying the Relationship Between Listening Comprehension and Knowledge Construction

While listening comprehension is an essential skill underpinning successful engagement with academic lectures, it should be clearly distinguished from the broader, epistemologically oriented process of knowledge construction.

Listening comprehension, as conceptualized by Vandergrift (2007) and Buck (2001), primarily involves the cognitive decoding and interpretation of auditory input. It is fundamentally concerned with processing language at various linguistic levels (phonological, lexical, grammatical) and is typically measured through immediate recall or short-term understanding of spoken information. In contrast, knowledge construction extends beyond immediate linguistic comprehension, involving deeper cognitive, social, and epistemological engagement with lecture content. Knowledge construction entails the active integration of new information into pre-existing cognitive structures (schemas), critical analysis of concepts, and reflective participation in disciplinary discourse (Scardamalia & Bereiter, 1994). Whereas listening comprehension can be considered a prerequisite skill, knowledge construction represents the ultimate pedagogical aim of academic lectures, encompassing processes such as meaning-making, critical reflection, and disciplinary socialization.

This distinction is particularly crucial when considering the challenges faced by international students. For these students, linguistic barriers significantly complicate the initial stage of lecture comprehension, potentially restricting their ability to move beyond basic understanding to active knowledge construction. Studies by Flowerdew and Miller (1995) have demonstrated that insufficient language proficiency often leads to superficial engagement with

content, limiting students' ability to engage in higher-order cognitive processes necessary for true knowledge construction.

Thus, while pedagogical interventions aimed at supporting listening comprehension, such as explicit linguistic scaffolding, clarification strategies, and multimodal resources are undoubtedly valuable, they should be clearly understood as means to an end. Effective knowledge construction ultimately requires educational strategies that support deeper cognitive engagement, critical thinking, and meaningful disciplinary participation. Recognizing this distinction allows educators to provide targeted support, ensuring that international students are not merely comprehending linguistic input but are also genuinely participating in the broader epistemological and social practices central to higher education.

2.4.7. Cultural Influences on Listening Comprehension and Knowledge Construction in EMI Contexts

The distinction between listening comprehension and knowledge construction becomes particularly complex when considering the role of culture. As Maton and Chen (2016) highlight, Chinese international students in EMI (English Medium Instruction) settings must navigate both linguistic and cultural barriers while engaging with abstract academic content. Their prior educational experiences significantly shape their ability to process and construct knowledge in new academic environments.

2.4.7.1. Cultural Learning Expectations and Academic Norms

Chinese students typically come from an educational background that emphasizes teacher-centred instruction, where knowledge is transmitted from authoritative figures and students are expected to absorb and reproduce information rather than challenge or critically engage with it. In contrast, EMI lectures in Western universities, particularly in the UK often adopt a student-centred approach, encouraging critical thinking, questioning, and discussion as integral components of learning.

This shift in academic norms can present challenges in knowledge construction. For example, students may struggle with the expectation to actively engage in discussions or question the lecturer's points, perceiving such interactions as inappropriate or unnecessary. Maton and Chen (2016) suggest that this cultural difference can create barriers to deeper knowledge engagement, as students may focus on accurately capturing lecture content rather than analysing or synthesizing it in real time.

2.4.7.2. Participation and Interaction in Academic Settings

Listening comprehension alone is insufficient for academic success in EMI contexts; knowledge construction requires active participation and engagement with ideas. However, participation norms in UK lectures often contrast with the expectations of Chinese students. Many students initially hesitate to ask questions or contribute to discussions due to concerns about face, fear of making mistakes in front of peers, or a perception that lecturers prefer not to be interrupted. This reluctance can result in a passive learning approach, where

students rely on lecture slides, post-lecture review, or peer discussions to reconstruct meaning instead of engaging with ideas dynamically during the lecture.

Moreover, EMI lectures frequently employ dialogic teaching methods, in which lecturers pose open-ended questions or facilitate debates to stimulate critical thinking. For Chinese students unfamiliar with these formats, such practices can be intimidating, as they require spontaneous responses and independent reasoning rather than memorization of established knowledge. Maton and Chen (2016) highlight that the transition from a knowledge-reproduction model to a knowledge-building model requires not only linguistic adaptation but also a shift in epistemological orientation, how students perceive and engage with knowledge itself.

2.4.7.3. Adaptation and Strategies for Bridging Cultural Gaps

Over time, many Chinese students develop strategies to navigate these cultural differences. One common approach is an increased reliance on written materials, such as lecture slides, transcripts, and supplementary readings, to compensate for challenges in processing spoken content in real time. Additionally, peer collaboration, especially with other international students, becoming an important mechanism for clarifying difficult concepts and reconstructing meaning after lectures.

Maton and Chen (2016) also emphasize the role of multimodal resources in mitigating comprehension difficulties. In one example, a Chinese postgraduate student attending a lecture on research methodology struggled with the concept

of "epistemological paradigms" due to unfamiliar terminology and rapid speech. However, by reviewing lecture slides, engaging in peer discussions, and accessing supplementary readings, the student was able to reconstruct meaning and develop a deeper understanding of the topic. This case illustrates how multimodal scaffolding can support both comprehension and knowledge construction, helping students bridge the gap between linguistic challenges and conceptual understanding.

Additionally, as Chinese students become more accustomed to the interactive nature of EMI lectures, their willingness to participate often increases. Exposure to Western academic norms, feedback from lecturers, and observing native-speaking peers can encourage greater engagement. Some students gradually shift their perspective on participation, recognizing that asking questions and expressing opinions are valued aspects of academic discourse rather than signs of incompetence.

The interplay between listening comprehension and knowledge construction in EMI contexts cannot be fully understood without considering cultural factors. Maton and Chen (2016) highlight that Chinese international students face both linguistic and epistemological challenges when adapting to interactive and discursive lecture formats. While initial difficulties in participation may limit knowledge construction, gradual adaptation through exposure, peer support, and multimodal scaffolding can help students bridge these gaps. From a pedagogical perspective, integrating culturally responsive strategies into EMI lectures can optimize learning experiences, ensuring that lectures serve not only as platforms for comprehension but also as catalysts for deeper knowledge engagement.

2.4.8. Integrating Listening and Knowledge Building in Pedagogical Contexts

To better support L2 learners in academic lectures, pedagogical practices must address the dual challenges of linguistic comprehension and cognitive integration. For instance, lecturers can provide pre-lecture materials, such as glossaries of key terms and guiding questions, to scaffold students' comprehension. During the lecture, strategies like clear signalling of transitions, repetition of key points, and integration of visual aids can help students focus on critical content. Post-lecture activities, such as guided discussions or collaborative note reviews, encourage students to synthesize information and bridge the gap between listening and knowledge construction.

These strategies not only enhance listening comprehension but also foster a deeper engagement with knowledge-building practices. By incorporating cultural awareness into their teaching methods, lecturers can create a more inclusive learning environment that accommodates diverse linguistic and cultural backgrounds. For example, encouraging small group discussions can provide a low-stakes platform for international students to articulate their understanding, share perspectives, and build confidence in academic discourse.

2.4.9. Advancing Knowledge Construction Beyond Listening Comprehension

Listening comprehension serves as an essential foundational step; however, the process of knowledge construction embodies a more advanced cognitive operation that converts unrefined information into significant and applicable knowledge. Within the realm of postgraduate education, the process of knowledge construction necessitates the synthesis of lecture material with

previously acquired knowledge, alongside the application of novel concepts to research endeavours and problem-solving activities. The process encompasses analysis, synthesis, and critical evaluation, each of which plays a crucial role in achieving the learning outcomes expected at the postgraduate level.

In contrast to listening comprehension, which is a receptive process, knowledge construction is characterized by its active and iterative nature. Students are necessitated to establish connections between newly acquired information and their pre-existing knowledge frameworks, critically examine prevailing assumptions, and investigate alternative interpretations. Chinese students, who are typically familiar with a teacher-centred instructional model that prioritizes rote memorization, may find the shift to a more student-centred and inquiry-based educational framework in the United Kingdom to be a significant challenge. The process of developing the capacity to critically assess lecture content and independently construct knowledge is frequently gradual, necessitating explicit support and guidance, as noted by Ryan and Carroll (2005).

In summary, the relationship between listening comprehension and knowledge construction is multifaceted and context dependent. Academic lectures serve as a critical site where these processes converge, particularly for L2 learners in EMI settings. By acknowledging and addressing the specific challenges faced by these students, educators can enhance their ability to navigate the complex interplay of linguistic and cognitive demands, supporting their academic success.

2.5. Online Academic Lectures

2.5.1. The Role of Digital Interfaces in Online Lectures

The transition to online academic lectures has significantly altered traditional knowledge transmission and reception, offering both opportunities and challenges for students, particularly second language learners in EMI settings. Digital interfaces such as pre-recorded videos, virtual whiteboards, and multimodal resources have facilitated greater accessibility to educational materials. However, these same technologies have also introduced additional complexities in knowledge comprehension and engagement. Online lectures frequently amplify pre-existing linguistic and cognitive challenges, as learners must simultaneously navigate technological platforms, process auditory and visual information, and manage self-directed study requirements.

The cognitive demands imposed by digital lectures are heavily influenced by the design of multimedia resources. Mayer (2020) underscores the importance of applying multimedia learning principles to minimize extraneous cognitive load and improve comprehension. For instance, aligning verbal explanations with corresponding visual aids, such as PowerPoint slides or illustrative diagrams, can help students process information more effectively. Similarly, minimizing redundant or visually overwhelming content prevents cognitive overload and enables learners to focus on essential lecture material. However, poorly designed digital lectures that feature excessive text, rapid transitions, or inconsistent formatting can overwhelm students' working memory, particularly for second language learners who already face linguistic barriers. Sweller et al. (2011) asserts that ineffective multimedia design can exacerbate cognitive

strain, especially when students must simultaneously process auditory input while interpreting textual or graphical representations.

Given these challenges, strategic instructional design is critical for facilitating comprehension in online lecture formats. Dividing lectures into thematically cohesive segments, rather than lengthy uninterrupted recordings, can help alleviate cognitive load and promote better knowledge retention. Additionally, providing students with advance access to lecture outlines or key terminology lists allows them to prepare more effectively, reducing the processing burden during the lecture itself. While digital interfaces hold the potential to enhance learning, their effectiveness ultimately depends on how well they are structured to support student engagement and knowledge construction.

2.5.2. Comparing Asynchronous and Synchronous Lectures: Prospects and Challenges

Online academic lectures can generally be categorized into two primary formats: asynchronous and synchronous. Each format offers distinct advantages and challenges for students, particularly for those engaged in EMI contexts.

Asynchronous lectures, which include pre-recorded videos and self-paced learning modules, grant students greater flexibility and autonomy over their learning process. The ability to pause, rewind, and rewatch lecture content is particularly beneficial for second language learners, as it allows them to revisit complex material at their own pace. Guo et al. (2014) argue that these affordances help students regulate their cognitive load more effectively, particularly in situations that demand extensive linguistic processing.

Despite these benefits, asynchronous lectures also present notable limitations. The absence of real-time engagement with instructors and peers can hinder immediate clarification of misunderstandings. When second language learners encounter unfamiliar terminology or abstract concepts, they may struggle to resolve these difficulties independently. Without access to direct feedback, students risk misinterpreting key information, leading to gaps in their knowledge construction process. Additionally, asynchronous learning places greater responsibility on students to manage their own academic progress, which may be particularly challenging for those unfamiliar with self-directed study practices.

Synchronous lectures, delivered in real time via video conferencing platforms such as Zoom or Microsoft Teams, provide an interactive alternative to asynchronous formats. These lectures offer students the opportunity to engage in live discussions, pose questions, and receive immediate clarification, which can be especially valuable for second language learners who require additional linguistic support. Real-time interaction facilitates deeper comprehension by allowing students to address uncertainties as they arise, thereby preventing misconceptions from solidifying. Furthermore, synchronous lectures enable collaborative knowledge construction, as peer discussions and group activities promote active learning and knowledge negotiation.

However, synchronous lectures also pose certain challenges. Technical difficulties, such as unstable internet connections, audio lag, and inconsistent video quality, can disrupt the flow of instruction and impede students' ability to follow the lecture effectively. The real-time nature of these lectures also limits students' ability to revisit material, making it more difficult for second language

learners to process complex information at their own pace. To mitigate these challenges, educators can provide supplementary resources such as lecture transcripts, real-time captions, and post-lecture recordings, allowing students to reinforce their understanding through multiple modalities.

2.5.3. Cognitive Load Considerations in Online Lectures

Cognitive Load Theory (CLT) provides a useful framework for evaluating the effectiveness of online lecture formats, particularly in terms of how they impact knowledge construction. According to Sweller (2011), cognitive load can be categorized into three types: intrinsic, extraneous, and germane. Intrinsic cognitive load refers to the inherent complexity of the subject matter, which is often discipline-specific. For second language learners, this load is further intensified by the linguistic demands of EMI lectures, as they must simultaneously decode complex academic discourse while engaging with disciplinary content.

Extraneous cognitive load arises from poorly designed instructional materials or learning environments. In online lectures, this type of load is exacerbated when students must navigate multiple sources of information simultaneously. For instance, the requirement to process auditory explanations, follow PowerPoint slides, and engage with embedded chat discussions can overwhelm working memory, leading to cognitive fatigue. Research by Chandler and Sweller (1991) suggests that reducing extraneous load by simplifying instructional design can enhance learners' ability to focus on meaningful knowledge construction. Germane cognitive load, on the other hand, refers to the cognitive resources allocated to deeper learning and schema development. Well-structured online

lectures should optimize germane load by integrating strategies that promote knowledge organization and retention. For instance, providing concept maps, pre-lecture summaries, and guided reflection prompts can help students process information more effectively. Additionally, multimodal support, such as synchronized captions and visual annotations, can scaffold comprehension by reinforcing key concepts through multiple sensory channels.

The impact of cognitive load differs between asynchronous and synchronous lecture formats. Asynchronous lectures allow students to regulate their cognitive load by controlling the pace of content consumption. However, without real-time feedback, students may struggle to assess their comprehension accurately, leading to fragmented understanding. In contrast, synchronous lectures offer immediate clarification but impose higher demands on real-time processing, which can be overwhelming for second language learners. Balancing these cognitive demands requires a thoughtful approach to instructional design, ensuring that both formats are structured to support effective learning.

2.5.4. Navigating Multimodal Challenges in Online Lectures

Multimodal communication is a defining characteristic of online academic lectures, combining auditory, visual, and textual elements to enhance comprehension. While multimodal resources have the potential to facilitate learning by offering multiple channels for processing information, they also introduce additional cognitive challenges, particularly for second language learners. The simultaneous need to process spoken explanations, interpret on-screen text, and analyse visual aids can lead to cognitive overload, particularly if these elements are not well integrated.

Mayer (2020) emphasizes the importance of coherence and alignment in multimedia learning. When auditory and visual elements are closely synchronized such as when a lecturer's verbal explanation directly corresponds to the key points displayed on a slide, students are better able to integrate information across modalities. Conversely, poorly designed multimedia materials, such as slides overloaded with text or misaligned graphics, can divert students' attention and reduce overall comprehension. The challenges faced by second language learners are further compounded by the need to decode linguistic input while simultaneously interpreting visual and textual cues.

To optimize the use of multimodal resources in online lectures, educators should prioritize clarity and simplicity in instructional design. Presentation slides should highlight only essential information in a clear and visually accessible format, reducing unnecessary distractions. Supplementary materials, such as glossaries, transcripts, and guided worksheets, can further support comprehension by providing additional scaffolding. Integrating interactive elements, such as embedded comprehension checks or reflection prompts, can also help students actively engage with the material rather than passively consuming content.

2.5.5. Implications for Second Language Learners in Online Lectures

The emergence of online academic lectures has significant implications for second language learners, offering both advantages and challenges that require careful pedagogical consideration. Digital interfaces and asynchronous formats provide increased flexibility, allowing students to review content at their own

pace. However, these benefits must be weighed against the cognitive demands of self-regulated learning and the absence of real-time support. Similarly, while synchronous lectures foster engagement through interactive discussions, they also introduce challenges related to processing speed and real-time comprehension.

Given these complexities, educators must adopt instructional approaches that cater to the diverse needs of second language learners. Designing linguistically accessible lectures, incorporating cognitive load management strategies, and providing multimodal scaffolding are essential for ensuring that online lectures effectively support knowledge construction. By addressing these factors, lecturers can enhance student engagement and learning outcomes, enabling second language learners to navigate the challenges of EMI academic environments with greater success.

2.6. Conclusion

This chapter has explored the role of academic lectures in UK higher education, particularly within EMI contexts, where international students engage with disciplinary knowledge through complex linguistic and cognitive processes. It has examined the historical evolution and pedagogical functions of academic lectures, highlighting their centrality in knowledge transmission and disciplinary socialization. The analysis of lecture genres, drawing on Swales' (1990) genre theory, has demonstrated that lectures serve not only as information delivery mechanisms but also as structured discursive events that shape students' engagement with academic knowledge. The discussion of lecture styles, ranging from monologic to dialogic formats, has further emphasized that variations in

pedagogical approaches significantly impact students' comprehension and learning outcomes.

A critical distinction has been drawn between listening comprehension and knowledge construction, underscoring that the ability to understand lecture content does not automatically equate to deep learning or disciplinary integration. Drawing on Vandergrift's (2007) cognitive listening models, this chapter has demonstrated that lecture comprehension involves both bottom-up and top-down processing strategies, which are further complicated for second language learners in EMI settings. However, knowledge construction extends beyond real-time comprehension to include cognitive integration, meaning making, and the ability to apply learned concepts within academic and professional contexts. This epistemological distinction is particularly significant in understanding the challenges faced by international students, as they must navigate not only linguistic barriers but also cultural and pedagogical differences in academic discourse.

Furthermore, the shift towards online academic lectures has introduced new dynamics in knowledge transmission, necessitating an evaluation of how asynchronous and synchronous formats influence students' cognitive engagement. The discussion has drawn on Cognitive Load Theory (Sweller, 2011) to illustrate how online lectures may either mitigate or exacerbate cognitive burdens, depending on their design and delivery. While asynchronous lectures offer flexibility and allow for self-paced learning, they often lack the immediate interaction necessary for clarifying complex concepts. In contrast, synchronous lectures facilitate real-time engagement but can be cognitively demanding, particularly for second-language learners who require additional processing

time. The integration of multimodal resources in online lectures presents both opportunities and challenges, as visual, textual, and auditory inputs must be carefully aligned to support rather than overwhelm learners.

While this chapter has provided a detailed discussion of the pedagogical, cognitive, and linguistic dimensions of academic lectures, a deeper theoretical framework is required to systematically analyse how knowledge is structured and constructed in lecture discourse. Academic lectures are not neutral conduits of information; they are structured in ways that reflect disciplinary knowledge practices, epistemic hierarchies, and pedagogical intentions. To fully understand how students engage with and construct knowledge in EMI settings, a theoretical lens is necessary to examine the underlying mechanisms that govern knowledge organization, meaning-making, and cognitive shifts within academic lectures.

Legitimation Code Theory (LCT) provides such a framework. Developed by Maton (2014), LCT offers a systematic approach to analysing how knowledge is structured, transmitted, and acquired within educational contexts. By focusing on semantic gravity and semantic density, LCT enables an exploration of how lecturers shift between abstract theoretical principles and concrete examples to facilitate knowledge construction. The theory provides a means of understanding how different knowledge structures affect student learning, particularly in relation to the cognitive demands of lecture discourse. Thus, the next chapter introduces LCT as the primary analytical framework for this study, offering insights into how academic lectures function as structured knowledge-building environments. By applying LCT's conceptual tools, the analysis will move beyond a surface-level understanding of lecture

comprehension to a deeper examination of how students navigate disciplinary knowledge in EMI contexts. Through this lens, the study aims to bridge the gap between lecture structure, cognitive engagement, and knowledge construction, contributing to a more comprehensive understanding of how international students learn in higher education.

Chapter 3 Legitimation Code Theory as an Analytical Framework for Knowledge Construction

3.1. Introduction

In the previous chapter, the discussion centred on the role of academic lectures in knowledge construction, particularly within the context of EMI in UK higher education. Academic lectures serve as critical platforms where disciplinary knowledge is disseminated, negotiated, and transformed through interaction between lecturers and students. However, for international students, especially those from non-English speaking backgrounds, the process of extracting and internalizing knowledge from lectures presents significant challenges. As discussed in Chapter 2, these challenges stem from linguistic barriers, cultural differences in learning practices, and the complex nature of academic discourse. Effective knowledge construction in lectures requires students to navigate the dynamic interplay between listening comprehension, cognitive engagement, and disciplinary knowledge-building practices.

Given these complexities, a robust analytical framework is needed to systematically examine how knowledge is structured and communicated in academic lectures. Legitimation Code Theory (LCT), developed by Maton (2014), offers a powerful theoretical lens to analyse the ways in which knowledge is built, shifted, and made accessible to students in EMI settings. LCT provides conceptual tools to explore how lecturers structure knowledge, how students engage with it, and how academic discourse can either facilitate or hinder learning. Among the various dimensions of LCT, the Semantics dimension, which focuses on semantic gravity (context-dependence of knowledge) and semantic

density (complexity and condensation of meaning), is particularly relevant for analysing academic lectures. This dimension helps to illuminate how knowledge moves between abstract and concrete forms, shaping students' ability to comprehend, retain, and apply lecture content.

This chapter introduces Legitimation Code Theory (LCT) as the analytical framework for this study, with a particular focus on Semantics as a tool for understanding the knowledge construction process in academic lectures. The chapter begins with an overview of LCT, outlining its theoretical foundations and its relationship to other sociological and educational frameworks. It then explores the Semantic dimension of LCT, detailing the concepts of semantic gravity, semantic density, and semantic waves, the key analytical tools that reveal how knowledge shifts between abstract and context-dependent forms during lectures. Following this, the chapter reviews empirical studies that have applied LCT Semantics in educational contexts, highlighting how these concepts have been used to analyse curriculum design, classroom discourse, and pedagogical practices. Finally, the chapter outlines the methodological application of LCT Semantics in the present study, illustrating how it will be used to analyse lecture data and interview transcripts to uncover patterns of knowledge construction in EMI settings.

By integrating Legitimation Code Theory into the analysis, this study aims to provide deeper insights into how international students engage with academic lectures, how knowledge is scaffolded through discourse, and how pedagogical strategies can be refined to enhance lecture comprehension and knowledge-building. This theoretical lens allows for a nuanced exploration of the challenges and opportunities inherent in EMI lectures, contributing to a more

comprehensive understanding of the mechanisms underpinning knowledge transmission and student learning in multilingual and multicultural academic environments.

3.2. Semantic Dimensions in LCT

According to Maton (2013, 2014), the term ‘Semantics’ in Legitimation Code Theory (LCT) and that of Systemic Functional Linguistics (SFL) are distinct and not inherently similar. However, there are instances where they can complement each other in a compensatory manner. The dimension of Semantics explores the context-dependence and complexity of practices, dispositions and contexts. The key concepts are the organizing principles of *semantic gravity* (context-dependence) and *semantic density* (complexity). These can be enacted either separately or together to explore *semantic codes*.

Semantics is having significant impact in revealing how different forms of knowledge (such as theory and practice or academic and everyday understandings) are woven together through *semantic waves* to build knowledge over time. These ideas are being widely enacted both in research projects as an explanatory framework and in practice as a means of designing curriculum, pedagogy and assessment. They are used extensively in academic development and student learning support. For example, analyses of exemplary student work using semantic gravity and semantic density reveal the specific kinds of semantic waves underlying achievement in that assignment, which can then be taught to students. In turn, students can enact the ideas to understand and plan their work.

To be more specific, semantic gravity refers to the extent to which meaning relates to its context. Stronger semantic gravity means that the meaning is more context-dependent, while weaker semantic gravity indicates that the meaning is more abstract and less tied to specific contexts. Semantic density, on the other hand, refers to the degree of condensation of meaning within sociocultural practices. Stronger semantic density signifies that meanings are more complex and condensed, while weaker semantic density indicates simpler and more straightforward meanings.

These two concepts serve as crucial pillars in the field of research, shaping the way scholars approach and analyse various phenomena. According to Maton (2013), they conceptualize one set of organizing principles underlying knowledge-making practices. Semantic profiles and semantic waves can be used to analyse pedagogical practices, which will be explained further in the following sections.

The key focus lies in determining their relative continuum strengths. Practices are evaluated based on the comparative strengths of semantic gravity and semantic density, which indicate specific semantic codes. By examining these semantic codes, researchers can gain insights into the nature of knowledge practices and how they are constructed and communicated within different contexts. This approach allows for a deeper understanding of how meanings are made, shared, and transformed across various sociocultural settings.

In further detail, semantic gravity and semantic density are not static but dynamic, shifting along a continuum. For example, in educational contexts, a lesson may begin with strong semantic gravity, where the content is highly

context-dependent and closely linked to tangible, everyday experiences. As the lesson progresses, the semantic gravity may weaken, moving towards more abstract concepts and theories that are less context dependent. This progression creates what is known as a semantic wave, where the strength of semantic gravity oscillates to facilitate both contextual understanding and abstract theorization. Such waves are essential in effective teaching, as they help bridge concrete experiences and abstract knowledge, making learning more accessible and comprehensive.

Similarly, semantic density also changes. A simple explanation with weak semantic density might be followed by a more complex, dense synthesis of ideas, thus creating another type of semantic wave. These waves help to scaffold learning by gradually increasing the complexity of the content, ensuring that learners are not overwhelmed by dense information all at once but are instead guided through a gradual build-up of complexity.

The interplay between semantic gravity and semantic density provides a framework for analysing knowledge practices. For instance, in academic writing, the introduction may present a broad overview with relatively weaker semantic gravity and weaker semantic density. As the paper progresses into the literature review and theoretical framework, both semantic gravity and density might increase, presenting highly specific, context-dependent, and conceptually dense information. The discussion and conclusion sections might then see a reduction in both, summarizing findings in a more accessible manner.

Moreover, this analytical lens extends beyond educational contexts to other sociocultural practices. In professional settings, such as law or medicine,

understanding the shifts in semantic gravity and density can reveal how practitioners move between practical, context-specific knowledge and abstract, generalized principles. This understanding can inform better training and professional development practices by highlighting the need for balanced semantic waves that integrate theory and practice effectively.

Overall, the concepts of semantic gravity and semantic density, as articulated by Maton, offer a powerful tool for understanding the complexities of meaning-making across various fields. They allow researchers to dissect and interpret the dynamic nature of knowledge construction and dissemination, providing deeper insights into how we communicate and understand meaning in diverse sociocultural landscapes.

3.3. Exploring Semantic Gravity and Semantic Density in LCT

Maton (2016) defines the level of meaning compactness within practices as "semantic density." A stronger semantic density indicates that a given practice contains a greater number of condensed meanings, whereas a weaker semantic density indicates fewer condensed meanings. The notation SD+ denotes a stronger level of semantic density, and SD- signifies a weaker level of semantic density. Some meanings have stronger semantic density in specific contexts, while in others, they have weaker semantic density.

Semantic density is not inherently powerful; it depends on the associated semantic structure. The semantic density of a term is inversely proportional to the number of connections it has to other meanings, but it increases as the number of connections grows. As concepts move from simple symbols or

techniques to more complex ones, semantic density increases (SD↑). Conversely, simplifying a complicated topic reduces semantic density (SD↓). For instance, the term "sustainability" in environmental science encapsulates numerous interconnected ideas such as ecological balance, resource management, and intergenerational equity, thereby exhibiting strong semantic density. When these interconnected ideas are broken down into more specific, less integrated concepts, the semantic density is diminished.

Semantic gravity refers to the extent to which meaning is connected to its context. A weaker level of semantic gravity (SG-) suggests that the meaning is less dependent on its context, while a stronger level (SG+) indicates greater context dependency. For instance, the phrase "subtraction operation" has weak semantic gravity when abstracted from its usual context. Teaching mathematics with examples like $100 - 30 = 70$ can make the abstract concept of "subtraction operation" more tangible for students, demonstrating strong semantic gravity (SG+). When a concept moves from a specific instance to a general condition, semantic gravity decreases (SG↓), but it increases (SG↑) when moving from stronger abstraction to weaker specificity.

In summary, strong semantic gravity (SG+) means knowledge is firmly grounded in a specific context, such as everyday life examples. Weak semantic gravity (SG-) indicates more abstract, context-free knowledge. Strong semantic density (SD+) denotes ideas, concepts, texts, or visuals packed with meaning, often technical and requiring unpacking for non-experts. Weak semantic density (SD-) indicates less complex, more transparent meanings that do not need unpacking.

In Legitimation Code Theory (LCT) studies, it is inappropriate to directly assign data codes or categories based on theoretical constructs. It is crucial to establish a "translation device" (Maton & Chen, 2016) to connect LCT ideas with emerging data categories. This device bridges the theoretical framework of LCT and the practical application of categorizing data. Translation devices can be generic or tailored to specific datasets. A basic translation device for Semantics analysis can be a table with three columns: LCT concepts (semantic gravity or density), indicators for identifying specific examples, and extracts from the data. This structured approach ensures a rigorous and systematic connection between theory and empirical data, facilitating nuanced analysis and interpretation.

Analysing semantic gravity and density can be done independently or together, represented graphically using two axes to identify four distinct semantic codes. This preliminary investigation focuses on the independent coding of semantic gravity and density, observing their variations over the sessions rather than examining their interaction to identify distinct codes. Measuring semantic density and gravity as distinct variables illustrates their temporal evolution during teaching and learning events. Some combinations of these values are more pedagogically effective, both within specific topics and across broader curriculum content. Changes in semantic gravity and density over time create semantic profiles. Maton (2013) states that conceptualizing processes of strengthening and weakening semantic gravity and density ($SG\uparrow\downarrow$, $SD\uparrow\downarrow$) allows researchers to trace the semantic profiles of practices over time. This method can be used to analyse knowledge-making practices in lessons, such as exchanges, teaching phases or stages, or entire lessons.

The importance of understanding and applying semantic gravity and density extends beyond theoretical interest; it holds practical implications for curriculum design and pedagogy. By mapping the semantic profiles of various educational practices, educators can design instructional strategies that optimize the balance between abstract principles and concrete examples, thus enhancing students' comprehension and retention of complex concepts. Furthermore, this approach can inform the development of assessment tools that more accurately measure students' depth of understanding across different contexts and content areas. In essence, the dynamic interplay of semantic gravity and density provides a robust framework for analysing and improving educational practices, ultimately contributing to more effective and meaningful learning experiences.

3.4. Defining and Applying Semantic Profiles

To visualize the relative strength of SG and SD over time, Maton has developed an analytical method of *semantic profiling*. This indicates how the strengths of SG and SD vary over time. He defines the semantic range as the range of the SG and SD between their strongest and weakest strengths (Maton, 2013). Figure 3.1 is Maton's illustration of three distinct profiles. The respective strengths of SG and SD are represented on the y-axis and time on the x-axis. It is important to note that the grain size of the analysis may vary in time (in other words, it may cover a short classroom episode, a student task, an entire lecture, or a whole curriculum). Figure 3.1 shows a 'high semantic flatline' (A), a 'low semantic flatline(B), and a 'semantic wave' (C). The semantic range is indicated on the right-hand side; A and B have weaker semantic ranges than C (Key: +=stronger; -=weaker).

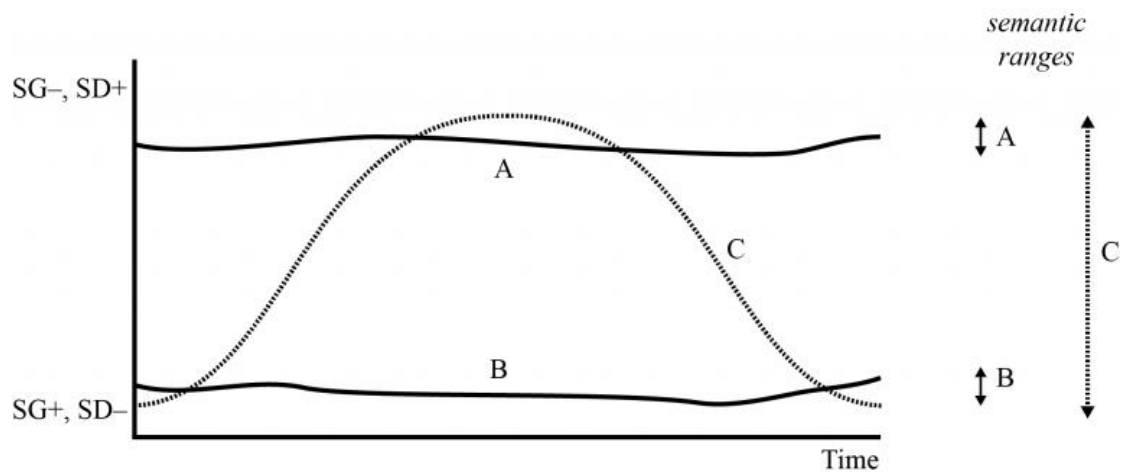


Figure 3.1 Illustrative semantic profiles and semantic ranges (Maton, 2013: 15)

Maton defines semantic waves as “recurrent shifts in context-dependence and condensation of meaning” (2014c: 181). He argues that this ongoing “strengthening” and “weakening” of semantic gravity (SG) and semantic density (SD) is crucial for cumulative learning (Maton, 2011: 66). “Research suggests that key characteristics of knowledge-building and achievement are semantic waves” (Maton, 2014c: 181). The dynamic interplay between SG and SD underpins the construction of robust knowledge structures, facilitating the ability to both decontextualize and recontextualize knowledge as needed.

Maton’s analysis of classroom practices identifies a particular profile, comprising a series of downward semantic shifts, where the teacher repeatedly “unpacks” and simplifies technical concepts and relates these to everyday examples. He terms this a “down escalator” profile because the teacher never models the process of shifting upward, through condensing meaning into technical terms or relating concrete, everyday examples to abstract theoretical ideas (Maton, 2013: 17). This approach, while making content accessible, risks leaving students without the tools to navigate back to more abstract and

generalized knowledge structures. In contrast, Shay and Steyn (2015) describe the opposite phenomenon, where theorizing is emphasized, and applications are used to build towards theory; they refer to this as “upshifting.” This method focuses on moving from specific instances to broader theoretical constructs, fostering a deeper understanding of underlying principles.

Maton argues that “not only the downshifting but also the upshifting from plain, contextualized meanings towards more condensed, decontextualized meanings” (Maton, 2014c: 192) is key for cumulative learning. He also asserts that pedagogical practice should entail both “downshifting” and “upshifting” in “unpacking” and “repacking” the concepts. This dual approach ensures that students can both understand complex ideas in simpler terms and relate these simplified ideas back to the more complex concepts. Moreover, it should relate “technical” concepts to “everyday examples” and condense meaning within abstract theoretical ideas (Maton, 2013: 17; Maton, 2014c: 192). This holistic approach to teaching and learning helps in building bridges between everyday understanding and specialized academic knowledge.

Maton highlights the specialized nature of semantic waves and emphasizes the importance of having accurate discipline knowledge for both downshifting and upshifting. He refers to this as the semantic threshold (Maton, 2013: 25). Therefore, a thorough understanding of semantic waves in educational practices necessitates expertise in the discipline. This concept underscores the necessity for educators to be deeply knowledgeable in their subject matter to effectively guide students through the nuances of semantic waves.

Semantic waves model recurrent shifts between unpacking and repacking,

which are key to “cumulative knowledge-building” (Maton, 2013: 8) (see Figure 3.2). However, semantic waves are rarely observed in classrooms: teachers mainly engage in “unpacking” (downward shifts) without attempts to “repack” (upward shifts) (Maton, 2013). This imbalance may result in a fragmented understanding of the subject matter, where students can relate to concrete examples but struggle to grasp overarching concepts. Additionally, teachers often unpack and repack knowledge “orally,” without guiding students through high-stakes reading or writing (Martin, 2013). This oral emphasis can limit students' ability to engage with written academic discourse, which is crucial for their success in higher education and beyond. This practice may vary across different disciplines (e.g., hard and soft sciences) and can even differ within the same module over time.

To address these challenges, it is essential for educators to consciously incorporate both downshifting and upshifting in their teaching strategies. By doing so, they can help students develop a more versatile and robust understanding of the subject matter, capable of navigating between concrete examples and abstract concepts. This balanced approach not only enhances comprehension but also prepares students for the complexities of academic and professional environments where they must continually adapt and apply their knowledge in various contexts.

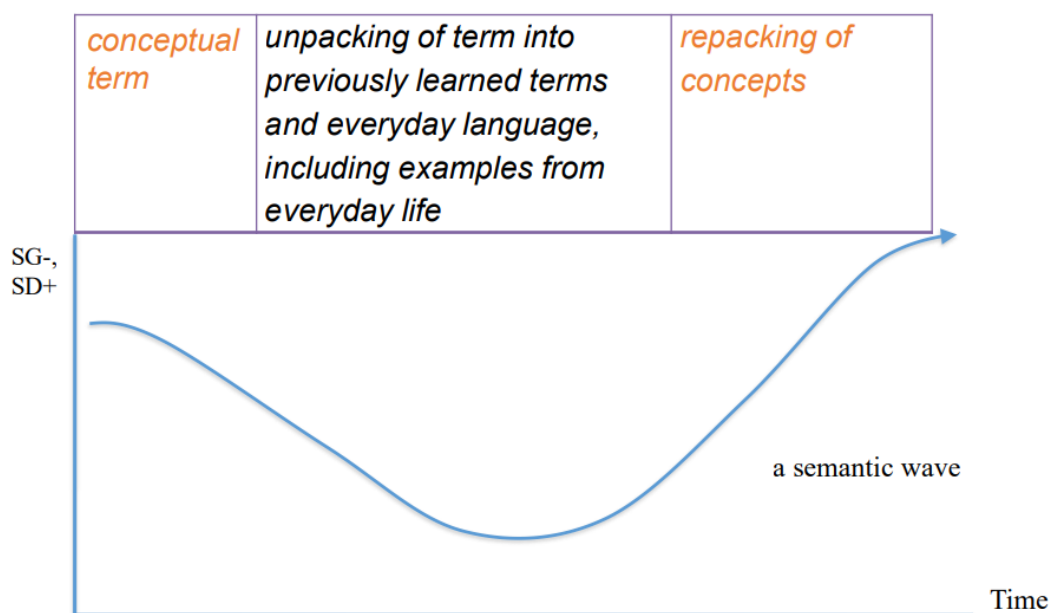


Figure 3.2 a semantic wave

3.5. Empirical Applications of LCT Semantics in Classrooms

Legitimation Code Theory (LCT) Semantics has been employed as an analytical tool in various fields of study, providing insights into teaching and learning practices (e.g., Matruglio, Maton, and Martin, 2013; Martin, 2013; Maton, 2013; Kilpert and Shay, 2013; Blackie, 2014; Clarence, 2016; Conana, Marshalla, and Case, 2016; Kirk, 2017; Hassan, 2017; Subethra and Vivienne, 2019; Cowley-Haselden, 2020). This review will examine key studies that utilize LCT Semantics, exploring their methodologies, findings, and relevance to the current study.

Matruglio, Maton, and Martin (2013) explored the role of temporality in facilitating knowledge-building within classroom discourse, particularly through the concept of semantic waves as articulated by Legitimation Code Theory (LCT). The research integrates Systemic Functional Linguistics (SFL) with LCT to analyse how temporal shifts within classroom pedagogy, specifically in the

teaching of history, can create semantic waves, thereby aiding students in navigating between abstract, context-independent knowledge and more concrete, context-dependent knowledge. The paper emphasizes how teachers manipulate temporal dimensions, such as shifting from past to present tense, to help students bridge the gap between historical events and their present-day understanding, thus enabling cumulative learning.

Kilpert and Shay (2013) investigated how curriculum design in a vocational field, specifically Journalism, influences the development of cumulative learning, a concept rooted in Karl Maton's Legitimation Code Theory (LCT). The authors explore the degree of context-dependency in students' learning, using the concept of "semantic gravity" to analyse whether the curriculum fosters cumulative knowledge that can be applied in various contexts beyond the classroom. The study finds that the curriculum often constrains cumulative learning by emphasizing context-bound knowledge, leading to segmented rather than cumulative learning. This limitation is further exacerbated by assessment practices that reward weaker-level, context-dependent knowledge rather than higher-order, context-independent knowledge. This research is highly relevant to my study, as it provides empirical insights into how semantic gravity affects the ability of students to build and transfer knowledge across different contexts.

Blackie (2014) discussed how Legitimation Code Theory (LCT), particularly the concepts of semantic gravity and semantic density, can be applied to enhance the teaching of chemistry. The study emphasizes that chemistry, being an abstract and complex subject, presents significant challenges for students, primarily due to the high levels of abstraction and specialized vocabulary involved. The author argues that by using the concept of "semantic waves", the

deliberate oscillation between abstract, complex ideas and more concrete, simpler explanations, educators can make the subject more accessible and improve students' understanding. The paper provides practical examples from chemistry, such as the Grignard reaction, to illustrate how semantic waves can be implemented in teaching to gradually build up students' knowledge from basic concepts to more sophisticated understanding.

This paper is particularly relevant to my study as it offers a concrete example of how LCT's semantic tools can be applied in a scientific discipline to facilitate knowledge building. The insights gained from applying semantic waves in chemistry education can inform similar approaches in academic lectures, especially in terms of managing the balance between abstraction and contextualization to enhance comprehension. By applying these strategies, lectures can be structured to better support students in constructing and internalizing complex academic knowledge, making this framework invaluable for analysing and improving lecture-based teaching methods in higher education.

Clarence (2016) examined how the Semantics dimension of Legitimation Code Theory (LCT) can be used as a framework to analyse and improve teaching and learning practices in higher education, with a specific focus on Political Science. The paper argues that understanding the relationship between semantic gravity (the degree to which meaning is context-dependent) and semantic density (the complexity and abstraction of meaning) is crucial for fostering cumulative knowledge-building in students. By applying semantic waves, i.e. oscillations between abstract theoretical concepts and concrete contextual applications, educators can better support students in developing a deep, integrated

understanding of disciplinary knowledge. The study also highlights the importance of engaging academic staff in conversations about their disciplines' knowledge structures to enhance their teaching practices and students' learning experiences. This document is highly relevant to my research as the insights into how semantic gravity and density influence student understanding can inform my analysis of academic lectures, offering a framework to assess how effectively lectures facilitate the movement between abstract and applied knowledge.

Conana, Marshalla, and Case (2016) utilized Legitimation Code Theory (LCT) tools to examine pedagogical practices and student learning within undergraduate Physics courses at the University of the Western Cape in South Africa. They specifically focused on problem-solving and collected data from video recordings of lectures, student tasks, and interviews with both students and instructors. Their findings indicated that when pedagogy emphasized the explicit teaching of discourse features and representations in problem-solving, students' disciplinary fluency significantly improved. This study underscores the importance of making the features of disciplinary discourse explicit, a point particularly relevant to the current research as it suggests potential strategies for enhancing lecture comprehension for second language (L2) learners. By making the language and symbols of the discipline more transparent, educators can help students grasp complex concepts more effectively, thereby fostering a deeper understanding and better application of the material.

Kirk (2018) explored how EAP curricula are enacted at the local level, particularly within an UK university pre-sessional programme. The study employs Legitimation Code Theory (LCT) to analyse the structuring principles underlying both curriculum design and classroom practice. By focusing on the concepts of

Specialization and Semantics within LCT, Kirk explored how curriculum materials and classroom practices embody certain educational values and how these, in turn, influence the academic outcomes for international students. The study reveals that a curriculum with a wide semantic range, which moves between abstract concepts and practical applications, can enhance students' ability to transfer learning to new academic contexts. However, it is argued that the variability in how teachers enact these materials can lead to discrepancies in student learning experiences.

This study is highly relevant to mine because it provides a detailed examination of how LCT's semantic concepts can be applied to analyse the effectiveness of academic instruction. The insights into the interaction between curriculum design and classroom enactment offer a valuable framework for assessing how academic lectures facilitate or hinder knowledge construction. The study underscores the importance of understanding the semantic profiles of educational materials and their enactment in the classroom, which is directly applicable to analysing and improving the knowledge-building processes in academic lectures.

Subethra and Vivienne (2019) investigated the use of semantic waves by peer tutors in a Bachelor of Oral Health (BOH) program. The study focuses on how these tutors, often unconsciously, employ semantic waves to help students grasp challenging concepts in oral health by moving between abstract ideas and concrete examples. The findings indicate that while tutors effectively used semantic waves to enhance students' understanding by contextualizing abstract concepts, they struggled to move knowledge back up the semantic wave to facilitate critical thinking and cumulative knowledge-building. This gap in

teaching effectiveness led to the restructuring of tutor training to include a more explicit focus on using semantic waves as a pedagogical tool.

This study is significant for my study because it highlights the practical challenges and benefits of using semantic waves in teaching complex material. The case study underscores the importance of not only unpacking knowledge for students but also repacking it to ensure that they can build cumulative, transferable understanding. These insights are directly applicable to my analysis of academic lectures, where the balance between abstraction and contextualization is crucial for effective knowledge-building. Understanding these dynamics can help refine strategies for structuring lectures to better support student learning and comprehension.

Cowley-Haselden (2020) examined how academic reading, particularly in the context of English for Academic Purposes (EAP), can serve as a tool for knowledge building. The study focuses on the concept of "theory knowledgeability," which involves not only understanding how to apply theories in academic practice but also gaining a deep knowledge of the theories themselves. Through the use of Academic Reading Circles (ARC), the study examines how postgraduate students, particularly those from non-native English-speaking backgrounds, can overcome the challenges of academic reading and build cumulative knowledge that supports their success in higher education. The findings suggest that engaging students in structured, collaborative reading practices helps ease the "troublesomeness" of academic texts, allowing them to develop a more legitimate academic identity within the UK higher education context.

Kirk focused on the progression from understanding theory to applying it mirrors the semantic waves concept in Legitimation Code Theory (LCT), where knowledge is unpacked and repacked to aid comprehension. The insights gained from this study can inform my analysis of how academic lectures might be structured to better support students in building and applying knowledge, particularly in contexts where students must engage with complex theoretical content.

Blackie et al. (2022) explored how collaborative teaching strategies can be used to enhance the scientific discourse skills of first-year Biology students, particularly those from previously disadvantaged backgrounds. The study employs Legitimation Code Theory (LCT), specifically focusing on the concept of semantic density, to analyse the complexity of scientific language and its impact on students' ability to engage with academic content. By integrating collaborative pedagogy, where subject-specific and academic literacy lecturers work together, the project aims to help students bridge the gap between their high school and university science education. The findings reveal that while some students effectively developed their scientific vocabulary and discourse, others struggled, highlighting the need for continued and targeted support to ensure all students can successfully engage with complex scientific texts and concepts.

This document is highly relevant to my study as it demonstrates the practical application of LCT's semantic tools in a educational context. The focus on semantic density and the challenges students face in mastering complex academic language directly informs my analysis of how academic lectures can be structured to support knowledge building. Understanding how students

navigate and internalize complex scientific concepts through discourse can provide valuable insights into how lecturers might better facilitate cumulative knowledge-building in their lectures.

Dai and Liu (2023) investigated the instructional strategies used in a Civil Engineering English MOOC in China, utilizing Legitimation Code Theory (LCT) to analyse the complexity and effectiveness of teacher talk. The study focuses on how the instructor manages semantic density and Specialization to facilitate learning in a highly technical and specialized subject. The findings reveal that while the teacher effectively employs "unpacking" strategies to simplify complex technical language and concepts, there are notable deficiencies, such as fractured semantic waves and a lack of contextualization that hinders the students' ability to fully grasp the content. The paper suggests improvements, including more cohesive semantic waves and better integration of cross-cultural communication elements to enhance the learning experience.

This study is particularly relevant to my study as it provides a detailed example of how LCT can be applied to analyse and improve the effectiveness of teacher talk in highly specialized academic settings. The study's emphasis on semantic waves and the challenges of maintaining coherence in instructional language offers valuable insights into how academic lectures might be structured to better support cumulative knowledge-building.

Morton (2024) examined the application of Legitimation Code Theory (LCT) in analysing knowledge-building practices within EMI in higher education. The study highlights the utility of LCT's dimensions, particularly Semantics and Autonomy, in investigating how knowledge is constructed and communicated in

both online and face-to-face teaching environments where English is not the native language. Morton discusses the methodological challenges involved in applying LCT in interdisciplinary research, particularly when integrating it with other frameworks such as Systemic Functional Linguistics (SFL) and multimodal conversation analysis. The study emphasizes the importance of developing "translation devices" to bridge the gap between LCT's theoretical concepts and empirical data, thereby enabling a more nuanced understanding of knowledge-building practices in EMI contexts.

This paper is directly relevant to my research as it offers valuable insights into the methodological complexities and innovations associated with using LCT to analyse academic teaching. The study's focus on the practical application of LCT's semantic tools to understand how knowledge is constructed and communicated in EMI contexts provides a robust framework for analysing the effectiveness of academic lectures.

The collective research summarized above highlights the diverse applications of Legitimation Code Theory (LCT), particularly its Semantics dimension, across various educational contexts, from vocational training and science education to EMI in higher education. Central to these studies is the concept of semantic waves, which describe the oscillation between abstract, context-independent knowledge and more concrete, context-dependent understanding, as a key mechanism for facilitating cumulative knowledge-building. The research demonstrates how the strategic manipulation of semantic gravity and semantic density in pedagogy, whether through curriculum design, teacher talk, or collaborative teaching strategies, can significantly influence students' ability to internalize and apply complex academic concepts. Furthermore, the

methodological challenges and innovations discussed, particularly the integration of LCT with other analytical frameworks such as Systemic Functional Linguistics (SFL) and multimodal conversation analysis, underscore the importance of developing robust translation devices to accurately map theoretical constructs onto empirical data.

3.6. Using LCT Semantic Profiles: Study Methodology

Maton, on the Legitimation Code Theory (LCT) platform, posited that there is no universal measure for any LCT concepts. Instead, researchers develop translation devices tailored to their specific analyses and research questions. In alignment with this perspective, this study aims to utilize an adapted version of the translation devices developed by Lambrinos and Maton (2015), Clarence (2017), and Kirk (2018) to examine the process of knowledge construction in academic listening contexts. This translation device, also referred to as the 'language of description' (e.g., Georgiou et al., 2014), serves as a crucial methodological tool in bridging theoretical constructs with empirical data (Maton and Chen, 2020, p. 41).

Table 3.1 below presents a translation device to apply the concepts of Semantic Gravity (SG) and Semantic Density (SD) to empirical data from the context of academic lecture. This translation device delineates the LCT Semantics concepts, their various forms, and corresponding manifestations of stronger or weaker relations. Additionally, it provides illustrative examples from the data to demonstrate these gradations.

Table 3.1 An illustrative translation device for semantic gravity and semantic density

Semantic Gravity (SG)		Indicator	Illustrative Examples
Weaker   Stronger	SG-	Theory/concepts: use of key terminology or key concepts relating to the planned content and activities	
	SG+	Real world examples or personal experience, usually accompanying specific and concrete details	

Semantic Density (SD)		Indicator	Illustrative Examples
Stronger   Weaker	SD+	Includes technical vocabulary and complex nominal groups or clauses which need high level processing in non-experts	
	SD-	Technical vocabulary not widely used but easy to recognize on the part of non-technical professionals	

By employing this translation device, the study aims to uncover patterns and variations in how knowledge is delivered and constructed in academic lectures, and their influence on L2 students' comprehension, i.e. how L2 students engage with and comprehend lecture content, thereby informing strategies to enhance educational outcomes. Through the systematic application of LCT Semantics, the study seeks to reveal the underlying mechanisms that drive effective knowledge transmission in academic settings, particularly for L2 students. Below are recaps of this section.

Semantic Waves and Classroom Strategies

Semantic waves describe the movement between strong and weak semantic gravity (SG) and semantic density (SD) within a lecture. Strong SG refers to context-dependent knowledge, while weak SG refers to more abstract and generalized knowledge. Similarly, strong SD indicates complex and densely packed information, whereas weak SD indicates simpler and more straightforward information.

In this study, the use of semantic waves will help to illustrate how teachers unpack complex academic concepts into more accessible language for L2 students and then repack these concepts to reinforce understanding. For instance, teachers might use everyday life examples to unpack dense content (weakening SG and SD) and then provide oral or written summaries to repack this information (increasing SG and SD). This pedagogical manoeuvring is crucial in TESOL settings where the linguistic challenges faced by L2 students necessitate a careful balancing act by the educators.

Effective teaching strategies in this context might include using visual aids, interactive activities, and scaffolding techniques that gradually build up students' understanding. By documenting and analysing these semantic waves, this study seeks to uncover patterns that can inform best practices in TESOL instruction. The dynamic interplay between abstract theory and practical application within lectures can significantly impact L2 students' learning outcomes.

The Exclusion of the Semantic Plane

It is important to note that I have omitted the term "semantic plane" after my third progression review. The semantic plane, consisting of different levels of SG and SD, can be categorized into four main modalities. For example, rhizomatic codes represent a combination of weak semantic gravity and strong semantic density, characterized by context-independent and complex stances (Maton, 2019:64). This exclusion is based on the nature of the semantic plane, which is more suited for comparative analysis across different disciplines.

Researchers can use the plane to visualize the time duration of different strengths of SG and SD, with larger bubbles representing longer time in a quadrant, as demonstrated by Kirk (2018). However, for the purposes of this study, which focuses specifically on TESOL MA lessons, the semantic profiling approach is more aligned with the research objectives. This approach will facilitate a more focused analysis of the dynamics between teaching strategies and L2 student engagement and comprehension in the context of English-medium instruction.

The decision to exclude the semantic plane from this study's framework does not diminish its potential value in broader comparative studies. Instead, it ensures that the focus remains tightly aligned with the specific context of TESOL MA lessons, where the nuances of language instruction and student interaction are paramount. This targeted approach allows for a deeper investigation into how semantic waves are employed and their direct impact on L2 students' academic experiences.

Implications for TESOL MA Lessons

In the context of TESOL MA lessons, understanding the use of semantic waves is crucial for several reasons. First, it helps in identifying the pedagogical techniques that most effectively bridge the gap between students' existing knowledge and new academic content. Teachers who are adept at manipulating semantic gravity and density can facilitate a more inclusive and comprehensible learning environment, catering to the diverse linguistic backgrounds of L2 students.

Second, the insights gained from analysing semantic profiles can inform teacher training programs. By highlighting the importance of semantic waves, teacher educators can develop training modules that emphasize the strategic use of language and examples in the classroom. This can enhance the overall quality of instruction in English-medium settings, ultimately leading to better educational outcomes for L2 students.

Methodology and Future Directions

Further details on this process will be discussed in the methodology section of Chapter 4. This section will provide illustrations using a translation device, detailing the selected session topic, excerpt topic, prior knowledge or teaching, and annotated shifts with strategies adopted for unpacking and repacking information. By documenting these shifts, the study aims to identify effective teaching strategies that enhance L2 student comprehension and engagement.

The methodological approach will include qualitative observations and analyses of classroom interactions, supplemented by interviews with both teachers and students. This mixed-methods approach will allow for a comprehensive examination of how semantic waves are utilized in practice and their perceived effectiveness from multiple perspectives. Additionally, video recordings of lectures may be analysed to capture the dynamic nature of semantic shifts in real-time.

3.7. Conclusion

This chapter examines Legitimation Code Theory (LCT) as an analytical framework for comprehending knowledge construction in academic lectures, specifically emphasizing the Semantics dimension. Considering the linguistic, cognitive, and pedagogical intricacies inherent in EMI environments, LCT offers a methodical and theoretically informed framework for examining the organization, transformation, and accessibility of knowledge for students. The analysis has underscored the significance of semantic gravity (SG) and semantic density (SD) as fundamental organizing principles in

knowledge-building practices. It has elucidated how fluctuations in these dimensions affect students' capacity to understand, retain, and utilize disciplinary knowledge. The chapter commences with an introduction to LCT as a sociological framework for the analysis of knowledge practices, situating it within the context of broader educational and linguistic theories. The analysis elucidates the connection between LCT and various knowledge-based theories, thereby illustrating the significance of LCT Semantics as a valuable and context-sensitive framework for examining the communication and transformation of knowledge in EMI lectures. The examination of semantic gravity and semantic density establishes a robust conceptual framework for comprehending the oscillation of knowledge between abstract and context-dependent forms. This dynamic creates semantic waves that can either enhance or obstruct students' learning experiences. The chapter critically examined these concepts, asserting that the efficacy of pedagogical practices hinges not solely on the quality of instructional materials or linguistic accessibility, but also on the semantic structuring and sequencing of knowledge within classroom discourse.

This discussion highlights the significance of semantic waves in the process of cumulative knowledge-building. This chapter critically examines the interplay between scaffolding, cognitive load, and multimodal support in EMI pedagogy, arguing that these elements should be contextualized within a comprehensive epistemological framework. Such a framework is essential for understanding the processes of knowledge unpacking and repacking across varying levels of abstraction and contextualization. The analysis of semantic profiles and semantic waves indicates that successful knowledge construction is contingent upon lecturers' capacity to navigate both downward and upward transitions. This balance is crucial for enabling students to interact with disciplinary content in both contextualized and decontextualized formats. Empirical studies indicate that numerous EMI lecturers often prioritize downward

semantic shifts, focusing on deconstructing theoretical concepts into concrete examples. This approach frequently lacks adequate repacking, resulting in students acquiring fragmented rather than cohesive understandings. This observation highlights significant pedagogical issues regarding the strategies lecturers may employ to effectively utilize semantic waves, thereby fostering deeper learning and facilitating knowledge transfer.

This chapter critically analyzes empirical applications of LCT Semantics across diverse educational contexts, encompassing science education, vocational training, English for Academic Purposes (EAP), and English as a Medium of Instruction (EMI) classrooms. The reviewed studies illustrate the impact of semantic gravity and semantic density on student engagement with disciplinary knowledge, affecting their capacity to integrate abstract theoretical concepts with practical applications. The studies offer significant methodological insights, demonstrating the mapping and analysis of semantic profiles across various educational contexts. The discussion highlighted the practical implications of LCT Semantics for curriculum design, pedagogy, and academic literacy support. It reinforced the argument that teaching strategies should be explicitly structured to promote cumulative learning instead of merely reinforcing knowledge segmentation.

This chapter makes a notable methodological contribution by discussing translation devices that connect LCT theory with empirical data analysis. The implementation of a systematic approach for coding and analyzing semantic gravity and semantic density allows researchers to effectively track the movement of knowledge across varying levels of abstraction and complexity within EMI lectures. The chapter delineates a translation device specifically designed for this study, explicating its application in the analysis of lecture transcripts and student interactions to identify patterns in semantic structuring

and pedagogical effectiveness. This methodological approach is essential for comprehending the engagement of international students in EMI contexts with disciplinary knowledge, as well as identifying pedagogical strategies that can improve their academic success.

The ramifications of this theoretical framework reach far beyond the immediate context of EMI. The capacity to navigate various levels of abstraction and context-dependence is pertinent not only to lecture-based learning but also to academic writing, curriculum development, and professional communication within specialized fields. This indicates that the concepts of semantic gravity and semantic density may be relevant to wider educational settings, encompassing the development of assessment tasks, reading materials, and digital learning resources aimed at facilitating the academic growth of international students.

This chapter has demonstrated that LCT Semantics serves as an effective instrument for the analysis of knowledge construction within EMI lectures. It offers both theoretical rigor and methodological precision, facilitating a comprehensive investigation into the structuring, communication, and comprehension of knowledge in higher education settings. This study aims to provide a systematic and empirically grounded evaluation of the effectiveness of EMI pedagogy through the integration of semantic profiling and translation devices. The findings will enhance current discourse in applied linguistics, educational sociology, and EMI research, providing actionable recommendations aimed at refining lecture-based instruction and assisting international students in effectively engaging with intricate academic discourse.

The forthcoming chapter will delineate the research methodology, specifying the design of the study, the processes for data collection and analysis, and the application of LCT

Semantics to examine semantic patterns within academic lectures and student learning experiences. The methodological approach outlined in this chapter, grounded in the established theoretical framework, will facilitate a rigorous and data-driven analysis of the construction and mediation of knowledge within EMI contexts.

Chapter 4 Research Design and Methodology

4.1. Introduction

The purpose of this study is to explore how disciplinary knowledge is constructed in academic lectures from a Legitimation Code Theory (LCT) perspective in the context of a UK university program (TESOL) at the MA level. By examining this process, the study aims to contribute to academic knowledge, particularly in understanding how semantic profiles, including semantic gravity and semantic density, shape the construction of knowledge in higher education. This understanding will enable lecturers to design and deliver courses with a more informed perspective, thereby enhancing teaching efficacy. Simultaneously, students will benefit by becoming more active and efficient participants in knowledge building through a deeper understanding of these processes.

To achieve this, the study seeks to address the following research questions:

- 1. How is knowledge built in academic lectures in an UK MA major by instructors in terms of semantic profiles (i.e., semantic gravity and semantic density)?**
- 2. How do the semantic profiles of those lectures influence the understanding and knowledge construction of L2 students?**

3. In what ways do the cultural and cognitive factors of Chinese postgraduate students shape their approaches to knowledge construction during academic lectures in the United Kingdom ?

This chapter details the study's research methodology and focuses on the following areas: a rationale for the qualitative research design, a description of the research participants and the research context, then moving on to the research design, data collection methods, data analysis and synthesis, ethical considerations, and issues of trustworthiness. Below are brief introductions of each section followed by detailed illustrations.

The rationale for the qualitative research design is grounded in the study's aim to explore complex, context-dependent processes of knowledge construction. A qualitative approach allows for an in-depth examination of the semantic profiles of academic lectures and their effects on student learning.

Research participants will include both instructors and students in a UK MA TESOL program, providing a comprehensive view of the teaching and learning process. The research setting is a specific university known for its TESOL program, ensuring relevant and context-specific insights.

The research design involves a detailed analysis of academic lectures using Legitimation Code Theory to identify patterns of semantic gravity and semantic density. Data collection methods will include lecture observations, interviews with instructors and students, and analysis of course materials (e.g. PowerPoint slides), and some students' note-taking. Data analysis and synthesis will focus

on identifying how semantic profiles are constructed and their impact on student learning.

Ethical considerations will be paramount, with informed consent obtained from all participants and confidentiality maintained throughout the study. Issues of trustworthiness will be addressed through triangulation, member checking, and transparency in the research process.

4.2. The research context

The COVID-19 pandemic in 2020 catalysed a significant shift from traditional face-to-face education to online classes, a transformation that directly impacts the focus of this study on the construction of disciplinary knowledge in academic lectures. This shift has necessitated a comprehensive investigation into effective online education delivery methods. The move to online education has introduced new dynamics in teaching and learning, influencing how knowledge is conveyed and absorbed, which is critical to understanding the challenges faced by L2 students in adapting to this new format.

Web-based lecture technologies (WBLTs), including recorded lectures and lecture notes, have become increasingly popular as institutions transitioned to online learning. These technologies offer significant advantages, such as visual stimulation and media-rich audio (Bajak, 2014), which can be particularly beneficial for L2 students who may rely on visual and auditory cues to enhance their comprehension. Additionally, recorded lectures enable students to tailor their learning by adjusting playback speed, repeating content, or directly accessing relevant material for assessments (Gupta and Saks, 2013), facilitating

a self-paced learning environment (Islam, Kim, and Kwon, 2020). This flexibility is especially pertinent for L2 students, who might require additional time to process and understand the material.

Online lectures are delivered in either synchronous or asynchronous formats. Synchronous lectures occur in real-time using platforms like Microsoft Teams or Zoom, allowing for immediate interaction and feedback, which can be crucial for L2 students in clarifying misunderstandings. Asynchronous lectures, pre-recorded and uploaded to teaching platforms, include recordings of live lectures or PowerPoint slides with audio commentary, offering L2 students the opportunity to revisit complex content at their own pace. However, the varying levels of teacher presence in asynchronous formats may affect the level of engagement and support that L2 students receive.

The continuous spread of COVID-19 has prompted institutions to explore blended or purely online formats for course delivery, student engagement, and assessments. This shift has led to significant developments in online learning systems, which are designed to distribute, track, and manage courses over the internet (Keis et al., 2017). These systems also facilitate two-way communication between students and faculty through features like chat rooms, polls, quizzes, and discussion forums (Thanji and Vasantha, 2016, cited in Mukhtar et al., 2020), which can be particularly beneficial in providing L2 students with additional opportunities to engage with the peers and instructors outside of traditional classroom settings.

Online learning has made remote education more manageable, providing convenient access to teachers and materials while reducing travel costs and

other expenses. It has also encouraged student-centred learning as students, including L2 students, become more self-directed in their educational journeys (Mukhtar et al., 2020). However, challenges remain, particularly in practical subjects that require hands-on experience, such as clinical training, which cannot be effectively taught online. Additionally, L2 students have reported difficulties with maintaining attention spans and managing the resource-intensive nature of online learning. The lack of immediate feedback in online environments further complicates teachers' ability to assess L2 students' understanding effectively.

To enhance the effectiveness of online learning, especially for L2 students, it is recommended to reduce cognitive load and increase interactivity. Factors influencing lecture attendance, such as lecturer preparedness, vocal delivery, and subject matter knowledge (Gupta and Saks, 2013), also play critical roles in the success of L2 students. Many students use recorded lectures to supplement live sessions, finding WBLTs particularly useful for understanding difficult concepts through repetition at a user-controlled pace.

Both live and recorded lectures are crucial for student learning, with most students using online recordings to complement live lectures and improve their understanding of challenging concepts. For L2 students, these recordings are invaluable, as they enable personalized note-taking and self-paced learning, which may not be feasible during live lectures. While some students view social interaction as beneficial for peer learning, others find it distracting. This study explores international students' experiences of online academic lectures in terms of understanding and knowledge construction in a UK university, aiming to provide practical recommendations for future blended and online learning

environments, contributing to more effective and engaging online learning experiences tailored to the needs of L2 students.

4.3. The interpretivist paradigm

The interpretivist perspective in social research represents a significant departure from traditional positivist methodologies, emphasizing the understanding of human experiences within their specific contextual settings. Unlike positivism, which seeks to quantify phenomena and establish universal laws through objective measurement, interpretivism acknowledges the inherently subjective nature of human understanding. This paradigm recognizes the diversity of human experiences and perspectives, prioritizing qualitative methods that allow for a rich, in-depth exploration of the complexities inherent in social phenomena.

One of the fundamental strengths of interpretivism is its focus on engaging actively with participants' subjective viewpoints. Researchers adopting this paradigm aim to unravel the meanings individuals attribute to their experiences, which is particularly relevant in studying the lecture comprehension of second language (L2) students. Rather than merely measuring comprehension levels, interpretivist research seeks to understand students' perceptions, interpretations, and experiences during lectures, providing deeper insights into how these students construct knowledge.

However, while the interpretivist paradigm offers valuable insights, it is not without limitations. One of the primary challenges associated with interpretivism is the issue of researcher bias. Unlike positivist researchers, who

strive for objectivity and detachment, interpretivists often engage with participants in a more interactive and subjective manner. This interaction can blur the boundaries between the researcher and the participant, raising questions about the impartiality of the research process and the validity of its findings. Researchers may inadvertently project their own perspectives onto the participants, leading to potential misinterpretations or skewed understandings of the data. To address this, it is crucial for interpretivist researchers to remain vigilant and critically reflect on their own biases and assumptions throughout the research process. Strategies such as reflexivity, where researchers continuously reflect on their influence on the research, and triangulation, where multiple methods or sources are used to cross-verify findings, can help mitigate these biases.

Moreover, the interpretivist paradigm can be critiqued for its limited generalizability. Since interpretivist research often focuses on specific contexts and subjective experiences, the findings may not be easily applicable to broader populations or different settings. This contrasts with the positivist approach, which aims for findings that can be generalized across contexts. However, the strength of interpretivism lies in its ability to provide deep, contextualized insights rather than broad generalizations. By embracing the complexity and uniqueness of individual cases, interpretivism offers a nuanced understanding of social phenomena that other paradigms may overlook.

In this study, the choice of an interpretivist approach is justified by the nature of the research questions, which seek to explore how L2 students construct knowledge during lectures within a specific educational context. The interpretivist paradigm is particularly well-suited to capturing the intricate,

context-dependent processes involved in language learning and comprehension. However, to address its limitations, this study will employ strategies such as reflexivity, triangulation, and member checking to enhance the credibility and trustworthiness of the findings.

In contrast to other paradigms, such as positivism or post-positivism, which focus on objectivity, measurement, and the testing of hypotheses, interpretivism allows for a deeper engagement with the nuanced and varied ways in which individuals make sense of their world. For researchers investigating L2 students' lecture comprehension, this approach not only highlights the complexities of disciplinary knowledge learning but also emphasizes the significance of understanding students' individual experiences and the meanings they derive from their educational encounters.

In conclusion, while the interpretivist approach in social research presents certain challenges, particularly regarding researcher bias and limited generalizability, it provides a profound understanding of human experiences by recognizing the importance of context and subjectivity. This study will leverage the strengths of interpretivism while carefully addressing its limitations to offer valuable insights into the lecture comprehension of L2 students in a higher education setting.

4.4. Rationale for taking qualitative research approach

The rationale for adopting a qualitative research approach in this study is rooted in the nature and chief purpose of the investigation. As reviewed in section 4.1, the study aimed to explore the complex and dynamic process of disciplinary

knowledge building in academic lectures. The focus was on gaining an in-depth understanding of both instructors' ways of presenting knowledge and students' methods of constructing knowledge based on these lectures: what they did, how they did so, and why. As Corbin and Strauss (2008) stated, "Qualitative research allows researchers to get at the inner experience of participants, to determine how meanings are formed through and in culture, and to discover rather than test variables" (p.12). The goal of this study was not to pursue the generalizability advocated by quantitative research but to elicit thick, rich data that address the study's purpose. Therefore, a constructivist philosophical stance was adopted, aiming to gain a holistic, detailed understanding of participants' experiences by immersing in their world and attending fully to their individual thoughts.

The choice of a qualitative case study design, specifically a multi-case study, is particularly well-suited to this investigation for several reasons. The multi-case study approach allows for a comprehensive examination of the research questions, which focus on the complex interactions between instructors and students in the process of knowledge construction. This design is especially effective in capturing the nuances of these interactions across different contexts, thereby enhancing the robustness of the findings. As Merriam (1998) points out, a case study design is employed to gain an in-depth understanding of the situation and the meaning for those involved. The focus is on process rather than outcomes, context rather than a specific variable, and discovery rather than confirmation. This aligns well with the study's aim to explore the dynamic processes of knowledge building in a changing educational context.

The decision to employ a multi-case study design, rather than a single-case study, is driven by the need to compare and contrast different instances of the phenomena under investigation. According to Gomm, Hammersley, and Foster (2000), case studies can reveal causal processes in context, allowing researchers to select the most suitable theoretical perspectives to examine and interpret the phenomenon under study. In this study, the multi-case approach enables the exploration of how different instructors and students engage in the process of knowledge construction across various modules within a UK MA TESOL program. By examining multiple cases, the research can identify patterns and variations in these interactions, providing a more nuanced understanding of the factors that influence disciplinary knowledge building.

Moreover, the use of a multi-case study design is particularly aligned with the theoretical framework of Legitimation Code Theory (LCT). LCT focuses on the principles underlying knowledge practices, including the concepts of semantic gravity and semantic density, which are central to this study. A multi-case approach allows for the application of LCT across different teaching contexts, thereby enabling the researcher to explore how these theoretical constructs manifest in various academic settings. By comparing the nine single cases, the study can refine and revise the conceptual framework model, offering deeper insights into the knowledge-building processes that LCT seeks to elucidate.

In addition to its alignment with LCT, the multi-case study approach provides several practical advantages. It allows for the collection and analysis of a wide variety of evidence, including module documents, interviews, and observations. This diversity of data sources enhances the validity of the findings and increases their transferability to other educational contexts. Furthermore, Yin (1984) notes

that a multi-case design, though complex, can induce rich and reliable models. By comparing multiple cases, the study can develop a more comprehensive understanding of the interactions between instructors and students, leading to insights that can inform both educational practice and future research.

In conclusion, the qualitative multi-case study approach is exceptionally well-suited for this investigation. It provides a comprehensive, contextual, and process-oriented understanding of disciplinary knowledge building in academic lectures. This approach enables the researcher to capture the nuanced and dynamic interactions between instructors and students, offering insights that are crucial for advancing both theoretical understanding and practical applications in the field of education.

4.5. Research design

Maxwell (1998) defines research methods in terms of the following questions: 1. What will you actually do in conducting this study? 2. What approaches and techniques will you use to collect and analyse your data, and how do these constitute an integrated strategy? Therefore, the following section provides an overview of the data-gathering activities as well as details of how the data are analysed.

Research questions 1, 2, and 3 necessitated particular methods for collecting and analysing data. Table 3.2 below gives an overview of the research questions, as well as the methods of data collection and analysis used to address them. Further information regarding the data collection and analysis can be found in the section following the table.

Table 4.1 Overview of research questions, methods of data gathering and analytical tools

Research question	Data gathering	Analytical tools
1. How is knowledge built in academic lectures in a UK MA TESOL program in terms of semantic profiles (i.e., semantic gravity and semantic density)?	Video data of the selected lectures-three sessions from the beginning, middle, and the end of each module; a total of <u>9</u> recorded lectures. Interview with the academic staffs	● Develop a translation device to carry out a SG and SD analysis in the context of academic lectures listening comprehension pedagogical practices. ● Analyse the lecturing practices in terms of the translation device. ● Summary of analysis in the form of a <i>semantic profile</i> embedded in academic lectures.
2. How do the semantic profiles influence the comprehension and knowledge building of L2 students?	Interviews with the L2 students	Thematic coding and analysis: ● To explore how L2 students engage in lecture comprehension and knowledge building process. ● To analyse how do cultural and cognitive factors influencing knowledge building of L2 students through individual case narratives and cross case studies.
3. In what ways do the cultural and cognitive factors of Chinese postgraduate students shape their approaches to knowledge construction during academic lectures in the United Kingdom?	Interview with the academic staffs Analysing students' note-taking	

The research was interpretive in nature using a qualitative, multi-case study approach, and the research findings are illustrated in a qualitative manner, relying on classroom observations and in-depth interviews instead of numerical data. This type of research generates results that come from real-world settings where the phenomenon of interest naturally occurs (Golafshani, 2003). Patton (1980) provided a detailed summary of the four different types of interviews widely used, i.e., informal conversation interview, guide-based interview; standardized open-ended interview, and closed quantitative interviews (see Table 4.1).

To answer the research questions, I decided to carry out semi-structured stimulated recall interviews after thoroughly comparing characteristics of different types of interviews (Bryman, 2012; Dornyei, 2007). Semi-structured interviews are used because (a) it enable an access to the mental representation of the students while they are performing the task, giving insight into their cognitive processes (Harding, 2013), (b) instead of a strict set of questions, it allows me to ask follow-up questions (e.g. use probes to ask for more information, examples, details, or clarification from the respondents) to elicit more data as needed during the interview (Dornyei, 2007; Richards, 2003). A detailed interview process is illustrated in section 4.8.

Stimulus for recall

The stimulus aims to help remember and explain cognitive processes by activating or improving memory. Research stimuli can include various types such as auditory or visual recordings, textual materials, or computer-generated data. Using a widely supported stimulus comes with several limitations that

reduce its effectiveness. It is important to be cautious when faced with claims of high levels of help and remember that people's reactions to the situation can differ, as suggested by Gass and Mackey (2000).

It is suggested to promptly conduct stimulated recall after the main activity and provide participants with strong stimuli like videos, captions, and images.

Ericsson and Simon (1996) suggest that using this approach will help extract more precise and valuable information. This study allows students to use their own lecture notes along with the provided transcripts during their lectures.

The recall method's complexity depends on the nature of the research issue. Participants are less likely to be influenced by the researcher if their memories are not prompted or focused in any way. Furthermore, allowing students to select their own stimulus episodes, participate in the selection process, and trigger their own memories can decrease the chances of researcher interference with the data. It is crucial to balance the stimulus provided with the need to avoid over-guiding participants' recollections, ensuring that the recall process remains as natural and unbiased as possible.

Languages used for the interview

To ensure the interview process is effective and legitimate, it is best to let the interviewee choose the language with which they are comfortable. Interviewing someone in their native language can significantly enhance their comfort and confidence, particularly when discussing complex topics such as the difficulties students may encounter in understanding academic lectures. Communicating

in one's native language allows for a more detailed and profound expression of emotions and experiences, leading to a better understanding of them.

Interviews conducted in a foreign language can be hindered by cultural differences and language barriers. If the interviewee speaks a different language than the interviewer, they may feel uncomfortable or ashamed, which can make it difficult for them to share their personal experiences. Even if the interviewees are skilled in foreign languages, they might still face challenges in articulating their feelings and experiences as effectively as they would in their native language. This can impact the reliability of the interview results.

For accurate and reliable interview outcomes, it is crucial to let interviewees choose between their native language and a non-native language. Enhancing interviewees' comfort and self-assurance can help mitigate the effects of cultural and linguistic differences on the interview process, thereby ensuring more authentic and insightful responses.

Table 4.2 Strengths and weaknesses of different types of interviews

<i>Type of interview</i>	<i>Characteristics</i>	<i>Strengths</i>	<i>Weaknesses</i>
1. Informal conversational interview	Questions emerge from the immediate context and are asked in the natural course of things; there is no predetermination of questions topics or wording.	Increases the salience and relevance of questions; interviews are built on and emerge from observations; the interview can be matched to individuals and circumstances.	Different information collected from different people with different questions. Less systematic and comprehensive if certain questions do not arise ‘naturally’. Data organization and analysis can be quite difficult.
2. Guide-based interview	Topics and issues to be covered are specified in advance, in outline form; interviewer decides sequence and working if questions during the interview.	The outline increases the comprehensiveness of the data and makes data collection somewhat systematic for each respondent. Logical gaps in data can be anticipated and closed. Interviews remain fairly conversational and situational.	Important and salient topics may be inadvertently omitted. Interviewer flexibility in sequencing and wording questions can result in substantial responses, thus reducing the comparability of responses.

3. Standardized open-ended interview	The exact wording and sequences of questions are determined in advance. All interviewees are asked the same basic questions in the same order.	Respondents answer the same questions, thus increase comparability of responses; data are complete for each person on the topics addressed in the interview. Reduces interviewer effects and bias when several interviewers are used. Permits decision makers to see and review the instrumentation used in the evaluation. Facilitates organization and analysis of the data.	Little flexibility in relating the interview to particular individuals and circumstances; standardized wording of questions may constrain and limit naturalness and relevance of questions and answers.
4. Closed quantitative interviews	Questions and response categories are determined in advance. Responses are fixed; respondent chooses from among these fixed responses.	Data analysis is simple; responses can be directly compared and easily aggregated; many short questions can be asked in a short time.	Respondents must fit their experiences and feelings into the researcher's categories; may be perceived as impersonal, irrelevant and mechanistic. Can distort what respondents really mean or experienced by so completely limiting their response choices.
Source: Patton (1980:206)			

Interviews can vary from structured research interviews to casual chats over coffee. Structured interviews follow a pre-set agenda where specific questions are asked and recorded with their corresponding answers. In casual interviews, the interviewer has more freedom to change the order, rephrase, elaborate on, and add to questions. Instead of using a predetermined questionnaire, a conversational interview could include the interviewer asking a few key questions. Based on research by Cannell and Kahn (1968: 527, as mentioned in Cohen et al., 2018), a research interview is described as a conversation between two people, aimed at collecting data to describe, predict, or explain a particular system. The current method of collecting data involves asking participants to provide verbal answers to predetermined questions, as opposed to using a questionnaire. However, some argue that online scripted interviews have mostly eliminated these distinctions (Cohen et al., 2018).

Comparing interviews and self-administered questionnaires is a common practice because of the similarities between these two research methods. Every entity has its own distinct advantages when compared to the others. Having the questionnaire be anonymous helps to make it more trustworthy because it encourages people to be more honest when answering the questions. Moreover, it is important to highlight that this method not only saves money and time but also provides a competitive edge compared to the standard interview procedure. Suitable for sending through the mail. On the other hand, the speed at which the reaction occurs is not ideal, which poses a restriction.

Unlike a questionnaire, the interviewer can provide a large amount of data and clear up any confusion the interviewee may have during the interview process by clarification strategy. When compared to questionnaires, interviews usually

result in a higher response rate because interviewees tend to be more engaged and motivated during the process (Oppenheim, 1992). Therefore, interviews are considered to align better with my research purposes.

4.6. Data collection

4.6.1. The Participants Sampling

The participants for this study were selected using a purposeful sampling procedure, a method commonly employed in case studies to ensure that the participants are representative of the phenomenon under investigation (Patton, 1990; Silverman, 2010; Silverman & Marvasti, 2008). Purposeful sampling was chosen to gather rich, diverse data that would allow for a comprehensive understanding of how disciplinary knowledge is constructed in academic lectures. The selection focused on participants from a UK university where I completed my master's studies in 2019, ensuring familiarity with the context and relevance to the research questions.

To address the research questions, two distinct groups of participants were included in the study. The first group comprised nine postgraduate students enrolled in an MA TESOL program, all of whom were studying English as a second language. The second group consisted of three academic tutors who were responsible for teaching the selected lectures. The student participants were interviewed three times over twelve months, at the start, middle, and end of three different modules, spanning two academic years. This longitudinal approach was adopted to explore potential developments or changes in students' knowledge construction and comprehension over time. The three

tutors, who taught the selected modules, were each interviewed once. Initially, interviews with academic staff were not part of the research plan; the rationale for their inclusion is explained in section 4.6.3.

4.6.2. The Participant Recruiting and Modules Selection

The recruitment of student participants occurred at three key points: before the start of the 2023 academic year, halfway through the 2023 academic year, and before the beginning of the 2024 academic year. The selection criteria were intentionally designed to include a diverse range of language proficiencies to examine how these differences might impact academic experiences and outcomes. Two students, referred to as S2 and S3, who had achieved an IELTS score of 5.5, were required to take a 6-week pre-session course to elevate their language proficiency to an IELTS equivalent of 6.5 before commencing their master's programs. The remaining students met the language requirements and were admitted directly into the Master of Arts program without the need for additional language training.

The deliberate decision to recruit students from a single academic department was aimed at creating a homogeneous group of participants, thereby reducing the variability that could arise from diverse academic backgrounds and lecture experiences. By focusing on one department, the study aims to enhance the internal validity of the findings, ensuring that differences in student perceptions are more likely to be attributed to the specific variables under study, rather than extraneous factors.

The inclusion of students with varying IELTS scores was a strategic choice

intended to explore the impact of language proficiency on academic experiences. This approach enables the study to analyse the role of language proficiency in academic success and student perceptions more comprehensively. For example, students who underwent the pre-session course provide insights into how additional language training affects their integration into the master's program and their subsequent academic performance. This inclusivity not only strengthens the reliability and validity of the research but also enhances the generalizability of the findings, reflecting the diverse language backgrounds of the broader student population.

While the sampling strategy was designed to provide a broad spectrum of insights, potential limitations must be acknowledged. One such limitation is the relatively small sample size, which might not fully capture the entire range of experiences in the MA TESOL program. To mitigate this, the study incorporates multiple interviews over an extended period, allowing for a deeper exploration of the participants' experiences and minimizing the impact of this limitation. Additionally, the focus on a single department, while enhancing internal validity, may limit the generalizability of the findings to other departments or disciplines. However, the rich, contextual data obtained from this focused approach are invaluable for understanding the specific dynamics of knowledge construction within the chosen setting.

Table 4.3 The profiles of student participants

Item Pseudonyms	Age	Gender	Bachelor Major	Nationality	IETLS listening Score & Overall Score	Enrolled module(M)
Michael	22	Male	Education	Chinese	6.5/6.5	M1 & M2
Nancy	21	Female	English literature	Chinese	5.5/6	M1 & M2
Flora	23	Female	English translation	Chinese	6/6	M1 & M2
Tiffany	22	Female	English translation	Chinese	7/7	M1 & M2
Mary	22	Female	Education	Chinese	6.5/6.5	M3
Lily	21	Female	English translation	Chinese	6/6.5	M3
Jay	22	Male	Business English	Chinese	6.5/6.5	M3
Fu	21	Male	Business English	Chinese	7.5/6.5	M1
Snow	21	Female	English literature	Chinese	7/6.5	M1

4.6.3. Module Selection and Data Collection

In selecting the modules for this study, I first explored the University's official website to gather detailed information about the MA TESOL program, paying particular attention to the modules that combine theoretical and practical aspects. These modules were chosen to maximize the richness of the data and to observe any patterns in semantic profiles over time. Three sessions were selected at the start, middle, and end of each of the three modules across both semesters of the academic year. This 12-month observation period was chosen to capture potential changes and developments in teaching styles, content delivery, and student engagement throughout the academic year.

After selecting the modules, I contacted the module leaders via email to request access to relevant materials, such as online lectures, PowerPoint presentations, handouts, and designated readings. Following this, I initiated the recruitment process by sending a comprehensive email to the students who had enrolled in the selected modules. This email outlined the research project, provided all necessary details, and sought their permission to participate. Additionally, I reached out to six lecturers and tutors involved in teaching these modules, three of whom responded positively and agreed to be interviewed. The profile of each participating tutor is summarized in Table 4.4, providing detailed demographic and academic information that supports the analysis and interpretation of the study's findings.

Table 4.4 The profiles of lecturer participants

Item Pseudonyms	Gender	Age	Education Background	Length of time in EGP teaching (years)	Length of time in EAP teaching (years)
Luke	Male	55	PhD's degree ELT/TESOL	30	18
Marina	Female	32	PhD's degree Interpretation	8	4
Gary	Male	50	PhD's degree ELT/TESOL	28	20

By carefully selecting and categorizing participants, and by considering potential limitations and implementing strategies to mitigate them, the study aims to deliver robust and credible insights into the academic experiences of students within the

4.6.4. The Pilot: Semantic Profile Analysis of Academic Lectures

In the pilot study, I differentiated between the two strengths of semantic gravity and semantic density, key concepts from Legitimation Code Theory (LCT). I created a translation device that connects these strengths with indicators of their manifestation in the empirical dataset (Maton and Chen, 2016). This device illustrates how different strengths are demonstrated in the dataset, including examples of the teacher's techniques for building knowledge during lectures. Although it is unlikely that a single approach can meet all needs due to the

unique characteristics of disciplines and educational objectives, explicitly presenting the strategies used may shed light on the lecturing sequences. Using the translation device (Table 4.3), I assigned a strength of semantic gravity and semantic density to each unit of analysis. For example, Lecture A begins with a relatively abstract concept or theory that is unfamiliar to the students. At this point, the semantic gravity is relatively weak (SG-) because there are usually no specific contexts provided. The semantic density is strong (SD+) when the meaning is condensed and closely linked to other meaning units, presenting as a constellation. For instance, the teacher might start with the definition of a linguistic concept such as "morphology" by explaining its role in language structure without yet providing tangible examples.

The teachers would then introduce a specific example, providing students with a concrete situation and using everyday L2 language to paraphrase or explain the terminology. This makes the semantic profile move downward, reaching a point featuring stronger semantic gravity (SG+) and weaker semantic density (SD-). For example, the teacher could illustrate morphology by breaking down a complex word into its morphemes, showing how prefixes and suffixes modify meaning.

However, this is not the end of the semantic shift. The teacher, sometimes but not always, managed to move upwards by summarizing orally and completing a semantic wave. An example of this upward movement might be the teacher summarizing how the specific examples illustrate the broader concept, thus integrating the concrete examples back into the abstract framework.

There was only very limited "repacking," mainly through oral summaries of previous discussions instead of high-stakes reading or writing. For instance,

after discussing specific examples of morphology, the teacher might summarize by reiterating the general principles of how morphemes function within the language. This observation aligns with Maton's (2013) argument that semantic waves are rarely observed in classrooms, with teachers mainly focusing on unpacking (downward shifts) without frequent attempts to repack (upward shifts).

Table 4.5 Translation device showing indicators for different strengths of semantic gravity and semantic density and how they manifest empirically in the dataset

Semantic Gravity (SG)			Indicator	Examples from data/Strategies adopted
Weaker  Stronger	Beyond space and time (i.e. not limited to a specific context or time period)	SG-	General features, actions, principles or results not contextualized in the here and now; Principles; Theory/concepts: use of key terminology or key concepts relating to the planned content and activities	“T: We are gonna to look at the communicative principles...”/ introducing abstract terminology
			Real world and local context actions or elements slightly detached from the most	“T: This is a reminder of the communicative principles. And when we look at the videos, I'm just gonna show you a very quick part of each video. And what I'd like you to do is just

	Fixed in space and time	SG+	concrete or physical here and now; Examples from elsewhere (e.g. instructor's individual examples or general daily examples);	to think, um, to think about these, or we're going to evaluate them together, thinking, okay, what do I think is being achieved here? And what is the room to develop if this were a communicative class?" /visuals
Semantic Density (SD)			Indicator	Examples from data
Stronger   Weaker	More complexity inwards or onwards	SD+	Includes technical vocabulary and complex nominal groups or clauses which need high level processing in non-experts; Precise actions within a network of meaning-a constellation of related meanings	"T: So I don't know the context entirely. An interesting point there reduced teacher role."
	Less complexity	SD-	Technical vocabulary not widely used but easy to recognize on the part of non-technical professionals;	"T: ...and the knowledge is much more the teachers' knowledge than the students."

Based on the analysis of the selected recorded lectures, the semantic profiles can be illustrated as below.

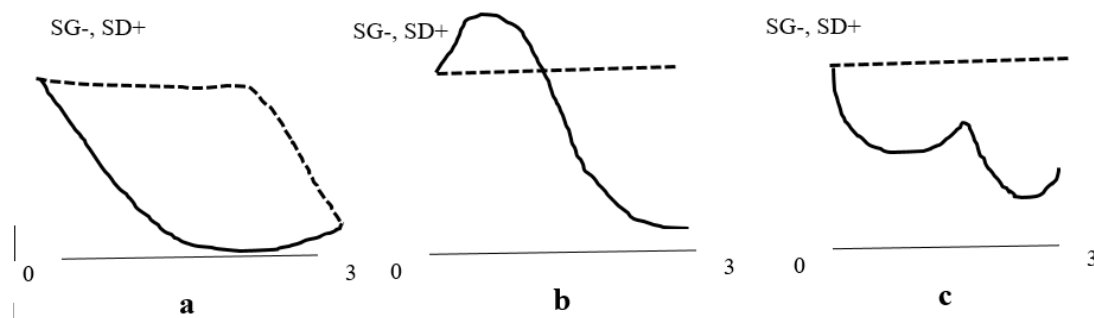


Figure 4.1 (a, b, c) The semantic profiles of three lectures; number (0, 3) represents minute

These pilot study findings informed several key revisions to the main study. Instead of segmenting the lectures based on time, I chose to divide them according to meaning units, although I still set 5-minute slots as a reference since the average lecture duration is 50 minutes. This approach aims to improve the analysis efficiency and accuracy of semantic profiles, making comparisons among lectures more straightforward.

Additionally, the pilot study highlighted variations in each lecturer's teaching style. Some instructors reviewed previous material before introducing new content, while others jumped directly into new topics. Some educators also incorporated video links into their lectures. These variations made it challenging to rely solely on duration or slide number as criteria for dividing content units, as some previous research did (e.g., Mouton, 2020). Therefore, I decided to analyse each lecture based on units of meaning rather than a standardized division criterion. Furthermore, I revised the translation device by adding a "Linking" component (see section 4.6.1) to enhance the understanding of the knowledge-building process concerning semantic gravity and semantic density. The linking

bridges the concrete and abstract levels, providing a more comprehensive analysis of the lectures.

4.6.5. The pilot study: Interviews with L2 student participants

Although pilot studies are not considered as essential in qualitative research as they are in quantitative research, where data collection tools need to be carefully examined to ensure their accuracy, they still play a vital role in helping the researcher evaluate the usefulness of the research instruments. Thus, I conducted an interview pilot to monitor participants' responses to interview questions, identify any misconceptions or ambiguities in the interview instructions, and make necessary revisions to ensure the practicality of the interview method. Simply put, conducting pilot interviews with the students allows me to reflect on and refine the process of interviewing L2 students.

Data collection began in October 2022, aligning with the start of the autumn term for the 2022-2023 academic year. Prior to this, I tested the tools used to collect data with a group of students who started in the fall semester of the 2021-2022 academic year in the MA programme. The pilot study included five non-native student participants.

One main issue identified in the initial interviews was the importance of making some questions easier to understand for the student participants. After the first interview, it became clear that L2 students might struggle to understand long and complex questions, even if they have performed well on language proficiency tests such as IELTS or the Duolingo English Test. On the other hand, concise and direct questions focusing on one specific aspect were proven to be

more effective (Cohen et al., 2018). It is crucial to ensure that interview questions are clear and easy to understand, as different students may interpret the same question in various ways.

Another issue was the need to confirm what students meant during the interviews. This was necessary because sometimes they mispronounced words, used them incorrectly, or their responses did not make sense. I found it difficult to fully understand the live interview when listening to the recorded material later. Sánchez and Grimshaw (2019) suggest that interviewers should use validating or echoing statements after participant responses to reduce transcription challenges that may occur when L2 respondents have strong accents. Although I avoided using this approach every time, I received feedback from participants because it could hinder cognitive processes, I did use it when I thought there might be future challenges in understanding a specific term or phrase. If I did not understand what the participant was saying, I might repeat the term or rephrase the statement if it was unclear. For example:

Extract from pilot interview 1:

Student 1: I will select to read the core if time is not enough.

The Researcher: Select?

Student 1: Yes, I mean I will not read them all.

Timing may have a significant impact on how well the interview was recalled. Using the stimulated recall interview, I employed a retrospective methodology to prompt participants to recall their cognitive processes during a task or event. This approach suggests that using specific cues like visual or aural prompts can

help trigger cognitive processes related to a past event, making it easier to remember the event more clearly and accurately. After two weeks of lectures, a pilot interview was conducted. One participant mentioned having trouble remembering their thoughts at certain times during the lecture. The basic idea behind the stimulated recall approach is the importance of accurate recall. Bloom (1954, cited in Gass and Mackey, 2000) documented classroom events and then asked participants to recall an incident right after the recording. He found that the promptness of recall significantly impacted the accuracy of the recollection. More precisely, if the recall happened shortly after the event, usually within 48 hours, the recollection was accurate up to 95% of the time. Therefore, to reduce the impact of memory decay, it is crucial to conduct the stimulated recall interview promptly during the initial investigation, preferably within the same week or at the latest, within 48 hours.

It is important to avoid unintentionally influencing L2 student participants with leading or eliciting words. If a participant says, "I do not remember," it is crucial to acknowledge this response and act accordingly. This statement might indicate either that they have forgotten or that their recollection has changed over time. It is essential to inquire about their cognitive processes at that moment to capture genuine and current thoughts, rather than those predetermined or influenced by the passage of time since the event.

Cohen et al. suggest that students' cultural backgrounds might play a significant role. For instance, within the Confucian cultural framework, Chinese students often view their instructors as authoritative figures and may consider asking questions a form of opposition, which is typically discouraged. To address these concerns, I clearly explained the purpose of my research to the participants,

emphasizing that there are no right or wrong answers and that their responses would not lead to any negative outcomes or perceptions from their instructors. This approach aligns with the ethical considerations outlined in section 4.9.

As a result, I made several adjustments following the initial interviews: a) Reframed Questions: I reframed any questions that were unclear to the participants to enhance clarity and understanding. b) Research Diaries: I created a file of research diaries to remind myself to be cautious of participants providing responses that align with the researcher's expectations or societal norms, and to document any unexpected occurrences or changes. c) Complementary Stimuli: Lecture transcripts and the notes taken by participants during their first viewing of the lecture are used as complementary stimuli to support their recollections.

4.6.6. The interviews with academic staffs

The inclusion of academic staff interviews was not initially part of the current study since my research primarily focuses on L2 students' knowledge construction and comprehension while listening to academic lectures. However, after conducting more than 20 interviews with participating students, I decided to also interview academic faculty.

There are two main reasons for this decision. First, recent studies focusing on academic listening comprehension (e.g., in sociolinguistics and psycholinguistics) have highlighted the importance of contextual factors, discourse organization, and domain-specific knowledge in academic listening (Flowerdew and Miller, 2015; Levis and Pickering, 2017). These studies

underscore the complexity of academic listening and the various elements that influence comprehension. Despite this, the lecturer's perspective has been largely overlooked, even though it could provide valuable insights into the design, delivery, and interaction of lectures with international students. Previous research often overlooks the teacher's role, almost implying that the lesson itself takes on the responsibilities of the teacher. The focus tends to be on observing students' actions and learning without considering the teacher's role in planning, organizing, and directing learning activities (Langsford and Rusznyak, 2024).

Second, interviewing participant teachers allows for triangulation with the data obtained from student interviews and recorded lectures. By understanding teachers' intentions before and after class, and observing their actual actions in class, we can gain a more comprehensive view of the teaching and learning process. It is crucial to consider the perspectives of academic tutors to understand the challenges that international students face when trying to comprehend academic lectures. Recognizing teachers' efforts is a learned skill (Star, Lynch, and Perova, 2011: 118). By including the viewpoints of both students and academic staff, we can achieve a more nuanced understanding of academic listening, which can inform more effective teaching practices and support for international students.

Including teacher interviews in this study serves several important purposes:

1. **Comprehensive Understanding:** Teachers play a critical role in the educational process, especially in how they design, deliver, and interact during lectures. Understanding their perspectives can provide deeper insights into the

factors affecting academic listening comprehension that go beyond what can be observed from students alone.

2. Contextual Factors: Teachers can provide information on the contextual factors, such as the organization of discourse and domain-specific knowledge, which are crucial for academic listening comprehension. This helps in identifying specific areas where students might struggle and why.

3. Validation and Triangulation: Teacher interviews can help validate and triangulate the data collected from student interviews and recorded lectures. This ensures that the findings are robust and well-rounded, providing a clearer picture of the academic listening challenges faced by international students.

4. Pedagogical Insights: By understanding the teacher's intentions and actions, the study can reveal insights into effective pedagogical strategies and areas for improvement. This can lead to better support systems for international students, helping them to succeed in their academic endeavours.

5. Addressing Research Gaps: Previous studies have often neglected the lecturer's perspective, focusing instead on the student's actions and learning. Including teacher interviews addresses this gap, ensuring that the study considers both sides of the educational process and acknowledges the teacher's crucial role in facilitating learning.

By integrating these perspectives, the study aims to provide a more holistic understanding of academic listening and contribute to the development of

strategies that can enhance the educational experiences of students.

4.6.7. The interview protocol

To gather data effectively using the stimulated recall methodology, Gass and Mackey (2000) suggest that researchers create a detailed research protocol. In this context, "protocol" refers to a comprehensive set of instructions and details necessary for successfully carrying out an experimental procedure. A detailed protocol is essential for researchers to anticipate and address potential issues, serving as a checklist for all the factors that need to be considered and coordinated during the procedure. It is crucial to thoroughly test all procedures outlined in the instructions given to the student, paying close attention to how the instructions affect the procedure. Pilot testing can help improve the protocol, reducing costs and saving time during data collection. Conducting pilot testing carefully can help prevent the loss of valuable data that may not be reproducible.

Standardizing instructions for stimulated recall procedures is common practice. For example, data can be captured using audio recording technology, and sometimes people repeat written text word for word. Standardizing instructions ensures that participants are aware of the specific time frame they need to recall. A participant's memory can be greatly affected by simply changing one word's tense and choice. Asking participants to express their thoughts and provide explanations could increase cognitive load, affecting memory and recall (Ericsson & Simon, 1996).

It is crucial for interview instructions for participants to be very specific. The instructions for the stimulated recall interview in this study were developed after pilot studies with student and academic staff participants. The guidelines for student participants are in the Appendix.

Even with carefully developed and thoroughly tested guidelines, research participants may still struggle to be interviewed and respond accordingly. For example, at times, participants talked over the video during the study, mixing their comments with the lecture video, even though they were told to use the pause function before the interview. The researcher should be able to build a good relationship with participants, making them feel that the tasks are not too difficult or artificial. Moreover, the researcher must help participants remember events without affecting their existing beliefs or influencing them too much.

Introspection can be challenging for L2 students, particularly those from specific cultural backgrounds, as highlighted by Baker (2019) and Zhu (2011). In many cultural settings, the person in the role of teacher or native speaker is often seen as the main authority figure, and challenging this authority is usually not allowed, as seen in China. Since all students in this study are Chinese students at a British university, some may hesitate to share their true thoughts about understanding academic lectures when asked to reflect. I tried to assure the student participants that their comments would not be evaluated, and that the collected information would be kept anonymous and confidential.

Adjusting the interview tools involves refining both the instructions and the procedures based on the feedback from pilot tests. Below are the steps and reasons for adjusting the interview tool for the current study:

1. Refining Instructions: Based on pilot test feedback, instructions should be clear, concise, and unambiguous. Adjustments might include simplifying language, providing examples, and emphasizing the importance of pausing the video before commenting. Clearer instructions help participants understand the task better, reducing anxiety and improving the quality of their responses.

2. Standardizing Procedures: Ensure that all participants receive the same instructions and follow the same procedures. This includes using consistent terminology and providing a standardized script for interviewers to follow. Standardization minimizes variability in the data collection process, making the data more reliable and comparable across participants.

3. Improving Recording Methods: Use high-quality audio and video recording equipment to capture participants' comments accurately. Ensure that the recording setup is unobtrusive and does not distract participants. High-quality recordings are essential for accurately capturing participants' responses and analysing them later.

4. Cultural Sensitivity awareness: Researchers should be culturally sensitive and aware of the specific challenges faced by L2 students from different backgrounds. This helps in building rapport with participants and making them feel comfortable during the interview process. Culturally sensitive approaches can encourage participants to share their thoughts more openly and honestly.

5. Enhancing Participant Comfort: Create a supportive and non-judgmental interview environment. Researchers should reassure participants that their responses are confidential and will not be evaluated. Providing a comfortable

setting can reduce participants' anxiety and improve the quality of their introspective comments.

6. Monitoring Cognitive Load: Be mindful of the cognitive load placed on participants during the interview. Avoid overly complex or abstract questions and provide breaks if needed. Reducing cognitive load helps participants recall information more accurately and provides more meaningful insights.

By implementing these adjustments, I can enhance the effectiveness of the stimulated recall methodology, ensuring that the data collected is reliable, valid, and reflective of participants' true experiences and thoughts.

4.7. Data analysis and reduction

Data reduction refers to the process of transforming and simplifying complex data into a more manageable and understandable form without losing its essential meaning. This is achieved through various techniques such as summarization, categorization, and abstraction. In this context, the process of data reduction is first described, followed by a description of how the concepts of Semantic Gravity (SG) and Semantic Density (SD) are operationalized through the development of the translation device to answer research question 1.

Semantic Gravity refers to the degree to which meaning relates to its context, while Semantic Density pertains to the complexity and condensation of meaning within a given text or discourse. The translation device is developed to systematically apply these concepts, facilitating the analysis of data in relation to SG and SD. Subsequently, I will introduce the thematic analysis coding used to address research questions 2 and 3. This involves identifying, analysing, and

reporting patterns or themes within the data, allowing for a detailed and nuanced understanding of the research questions. Through thematic analysis, key themes are extracted, providing insights into the phenomena under investigation and helping to answer the research questions comprehensively.

4.7.1. Semantic waves as an analytical framework

As noted above, data was gathered from observations of pedagogical practices employed in the selected lectures in the MA TESOL's three modules, as well as from interviews with L2 students and academic staff. The former data was in the form of video recordings. In analysing this data, I transcribed all the recordings including the verbal and audio data as well as the visual data (PowerPoint content, online videos, etc.). As a form of 'data reduction' (Miles & Huberman, 1994:10), which involves the process of selecting, focusing, simplifying, abstracting, and transforming the data that appear in written-up field notes or transcriptions, I then prepared summaries of the transcriptions.

This involved summarizing the way in which the lecture proceeded; in other words, which concepts or theories were introduced, when, and how these were dealt with, including examples used during the lecture, as well as strategies employed by the instructor. For analytical purposes, I then broke up each lecture summary into parts, based on how the knowledge was being dealt with, in other words, when a new sub-topic was introduced or when the lecturer seemed to shift between abstract theoretical concepts and concrete examples. The summaries also include some verbatim extracts from lecturers' speeches, as well as content on the PowerPoint (e.g., diagrams, quotations, symbols, etc.). Finally, I developed summary tables, which contain details of what occurred

during each part of the lecture and what was shown on the PowerPoint, as well as my coding comments.

This systematic approach to data reduction not only helped in managing and organizing the vast amount of data collected but also facilitated the identification of key themes and patterns in the pedagogical practices observed. By condensing the data, I was able to focus on the most significant aspects of the lectures, ensuring a more efficient and insightful analysis.

In order to analyse my data in terms of SG and SD, I needed to operationalize these constructs for the academic lecture context of my study, developing a suitable translation device that would enable me to relate the theoretical concepts of SG and SD to my data. This process involved data reduction, which refers to the transformation of raw data into a summarized and manageable form. By focusing on the most relevant information, data reduction helps in drawing meaningful conclusions and making the analysis more efficient. Below is the revised one based on the pilot. In developing a translation device, I drew on some previous studies in education contexts. As noted in Chapter 3, Lindstrøm (2010) and Georgiou (2012) have presented a way of coding the relative strengths of SG on several levels, they have termed these coding characteristics abstract, intermediate (or linking), and concrete. They use abstract to refer to statements of general principles or laws, which are used to justify reasoning; concrete denotes description of characteristics of objects; and intermediate/linking refers to instances where abstract and concrete constructs are linked. Lindstrøm (2010) used these levels to characterize the semantic shifts in a lecture on Momentum; Georgiou (2012) used these to analyse students' responses to a physical thermodynamics task.

Data reduction was crucial in this context to systematically categorize and condense the information from the lectures, allowing for a clearer depiction of semantic profiles. Table 4.6 below describes the translation device for SG and SD that was used in my main study to characterize the semantic profiles of the selected lectures. One of my research aims is to illustrate how knowledge is built in academic lectures in terms of semantic gravity and semantic density, so making the semantic shifts process with explicit strategies employed may shed light on the EMI teachers' instruction and course design.

By employing data reduction techniques, I could effectively filter out extraneous information and focus on the core elements that demonstrate the semantic shifts. This not only streamlined the analysis but also ensured that the findings were directly relevant to understanding the pedagogical strategies used in lectures. This approach provided a structured way to explore how academic knowledge is constructed and communicated, revealing the underlying mechanisms that facilitate learning in an educational context.

Table 4.6 A translation device for various levels of semantics

Strength	SG		SD	Strength
SG-  SG+	New theory/concepts: use of key terminology or key concepts relating to the planned content and activities. Real world and concrete context actions or situations; concrete cases	Abstract (A) Concrete (C)	Technical vocabulary and complex nominal groups or clauses which need high level processing in non-experts. The meanings condensed within socio-cultural practices are explicitly unpacked and fleshed out; Linking representations to concrete situations	SD+  SD-

The strengths of SG and SD were characterized as either *Concrete* or *Linking* or *Abstract*, depending on the lecturer's actions and his/her way of unfolding the concepts. In terms of **semantic gravity**, strong SG was described as *Concrete*; here, the lecturer was referring to disciplinary concepts or principles in terms of using a real world and concrete context actions or situations in class; weak SG was described as *Abstract*, if the lecturer was using new concepts, theories or principles; SG was described as *Linking*, if the lecturer was building on familiar or previous concepts or principles in a linking way, between Concrete and Abstract.

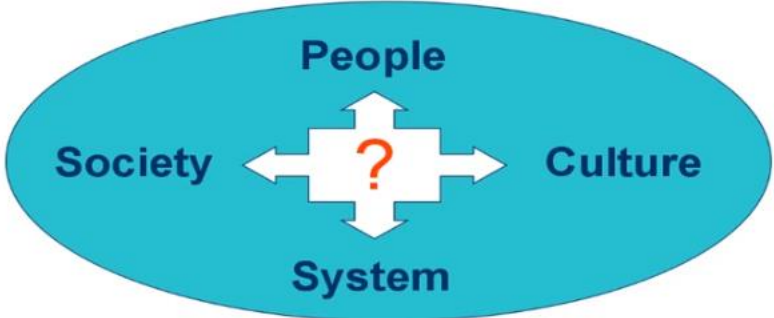
As noted above, **semantic density** (SD) in academic lectures is characterized by the extent of the condensation of meaning within representations (verbal, pictorial, diagrams, quotations, etc.). Some presentations can have meaning more densely than others. For instance, a verbal representation of two concepts could be regarded as less dense than a diagram with arrows on the PowerPoint showing the relationship of the two concepts. This is not to suggest which form of representation are more important than others. How a constellation of representation work depends on the real context and situation as well as the teaching and learning purposes.

For this study, weak SD corresponded to the *Concrete* level, if the technical vocabulary not widely used but easy to recognize on the part of non-technical professionals or elaborated actions were carried out; *Linking* was relevant if a dense representation was being unpacked or repacked into its constituent parts or meanings (e.g. using an online video to explain a principle); and *Abstract* was applicable, if precise actions were carried out within a network of meaning (constellation), or the lecturer included technical vocabulary and complex

nominal groups or clauses which need high level processing in non-experts. (The black and grey arrows indicate the strength in various moves/shifts from either *Abstract* to *Linking* and to *Concrete* or vice versa).

As an illustration of this coding, Table 4.7 below gives an example of operationalizing the translation device for shifts in SD. The examples used are from a lecture on intercultural communication and identity.

Table 4.7 A translation device for shifts in semantic density (SD)

	(SD+ to SD-) Weakening SD (Moving from <i>Abstract</i> to <i>Linking</i>)	(SD- to SD+) Strengthening SD (Moving from <i>Linking</i> to <i>Abstract</i>)
Example	The lecturer <i>unpacks</i> the technical term culture into its constituent parts or characteristics:	The lecturer condenses four concepts -people, society, system, and culture- into a symbolic representation:
Data extract	The lecturer put some key features of culture from Week 1 on the PowerPoint slide, e.g., culture is a <i>verb</i> ; culture is <i>shared</i> , etc.	The lecturer asked what is the relationship among the four concepts and trying to explain with written notes (see the screenshot below)  A soceity is a system of interrelationships which connects peop while culture is the way how the system of interrelationships fu

As previously discussed, the concepts of SG and SD from LCT (Maton, 2009) are valuable tools for describing and analysing the teaching and learning situations in this study. Maton (2009) modified the coding scheme for assessing the relative strengths of SG based on Allen's (1995) frameworks for categorizing students' reflective essay writing. He aligns SG with Allen's framework in the following way:

‘Reproductive description’ (e.g. direct quotation from the cases) embodies the strongest semantic gravity – meanings are locked into the context of the case from which the quote is taken. ‘Abstraction’ embodies the weakest semantic gravity: meanings are decontextualized from the specific case to create abstract principles for use in other potential contexts (Maton, 2009: p. 49).

In journalism studies, Kilpert and Shay adapted Maton’s (2009) research with Bloom’s revised taxonomy to create a continuum for measuring semantic gravity in student assessments (Kilpert & Shay, 2013: p. 8). The changes to Bloom’s taxonomy were tailored to journalism, considering both theory and practical elements, and organized based on semantic gravity from strongest to weakest (Kilpert & Shay, 2013: p. 8).

In order for L2 students to watch/listen to online academic lectures effectively, they shall be able to switch between different types of representations/modalities, such as oral speech, written text, still and dynamic pictures, website videos/apps, and diagram representations. One of my research interests is how L2 students respond to the transition between

different forms of representation to connect abstract and concrete explanations in academic lectures.

4.8. Demonstrating the trustworthiness of qualitative research

Quantitative research evaluation hinges on two key concepts: reliability and validity. Reliability is about how study outcomes stay consistent regardless of the circumstances in which they were produced and accurately measure a specific phenomenon. Validity refers to how accurately a concept is measured and the ability of other researchers to replicate the research and achieve similar results (Dornyei, 2007). These two ideas are important signs of how trustworthy and reliable quantitative research is.

However, it is not practical to use the same criteria to evaluate the reliability of qualitative research. Replicating a set of semi-structured interviews is not as feasible as replicating a scientific experiment. The interpretation from an interview is influenced by the interaction between the interviewer and the interviewee, according to Seidman (2006). This phenomenon occurs due to the mutual exchange of information during an interview, where both the interviewer and interviewee shape the interpretation and importance of the data. Qualitative researchers' interpretivist epistemology and subjectivist ontology mean that their values will impact their research approach, data collection, analysis methods, and interpretation of results and conclusions (Dornyei, 2007). Researchers who follow both positivist and interpretivist paradigms may face this issue. Therefore, it is crucial for the researcher to demonstrate that the study was conducted using the best methods and to consider how their personal beliefs, biases, and decisions impacted the research project. According to

Lincoln and Guba (1985), evaluating qualitative research should focus on trustworthiness, which includes credibility, transferability, dependability, and confirmability, instead of solely relying on reliability and validity. You can find a detailed analysis of each concept and an explanation of how this investigation aimed to meet these standards in the following sections.

4.8.1. Credibility

Credibility mirrors the researcher's, the participants' and the readers' confidence about the research findings. Their criterion is a key component of the research design (Creswell, 2009; Marshall & Rossman, 2011; Maxwell, 2005; Merriam, 2009), which is not to verify conclusions, but to test the validity of conclusion (Mason, 1996).

Methodological validity concerns the logic consistency between the research questions, the research method and the explanation the researcher is trying to develop. Therefore, it is essential to consider the interrelationship between the research purpose, the research questions, the conceptual framework, and the research method. Interpretive validity concerns the validity of data, data analysis and data interpretation. Compared with the methodological validity, it goes further and focus on the quality and rigor with which the researcher interprets and analyses data based on the research design (Mason, 2002).

In this study to enhance the methodological validity, I triangulated the data source and data collection methods. The data collected from various sources by multiple methods generated a rich picture of the phenomenon under investigation. Simultaneously, I adopted various strategies to enhance the

interpretive validity. I clarified my assumptions at the outset of the study and detailed the steps through which interpretations were made by memo writing. To seek instances that might contradict my expectations and the emergent findings of the study, I employed participatory and collaborative modes of research, including search for discrepant evidence and peer view (Lincoln and Guba, 1985). To adequately reflect the participants' reality, I also asked my doctoral colleague to review and comment the findings of my study.

4.8.2. Dependability

Different from reliability of qualitative research, qualitative research does not pursue the degree of replication of similar studies. Dependability is an important issue in qualitative research trustworthiness in that it concerns whether the study findings are consistent and dependable with the raw data (Lincoln and Guba, 1985). Therefore, it is vital that researchers document well the procedure and demonstrate that coding schemes and categories have been used consistently.

I used several techniques to establish dependability of this research. First, I adopted the code-recode procedure on my data to evaluate the consistency throughout the data analysis. Second, I asked a Chinese professor to code parts of each interview transcript to establish inter-rater reliability (Miles & Huberman, 1994). When there was any inconsistency between the invited rater and me, I would review the data and discuss with him about how the inferences could be fully supported by the data. Third, I maintained a research audit trail (Lincoln & Guba, 1985) that detailed the rationale for how the data were analysed and interpreted.

4.8.3. Transferability

Patton (1990, p.491) proposed “context-bound extrapolations”, which he further explained as “speculations on the likely applicability of findings to other situations under similar, but not identical conditions” (p.489). The key issue of this present study was transferability (Lincoln & Cuba, 1985) that is, the degree to which the findings of qualitative research can be applied in similar contexts or settings. As a qualitative multi-case study, this study did not seek generalizability which quantitative study pursued. In this study I employed several strategies to establish transferability including thick description of the participants and their setting, and accurately using and interpreting the concepts and theories used.

4.8.4. Confirmability

The notion objectivity is the key criteria that the quantitative research measures the quality of a research. As an equivalent of objectivity in quantitative research confirmability excludes the outcome of the biases and subjectivity in qualitative research. This study does not seek to achieve objectivity, but to employ strategies to enhance its confirmability. The strategies adopted in the present study includes ongoing documenting the procedures of checking and rechecking the data, searching for the negative instances that contradict the prior interviews and reflecting by way of memo and field noting.

4.9. Ethical considerations

The protection of participants' rights and welfare are of vital concern (Berg, 2004; Marshall & Rossman, 2011; Merriam, 2009). Before collecting data, ethical approval was obtained from the university's review system due to the participation of human subjects in the study. The research project faced two significant ethical issues: privacy and confidentiality, which involve protecting participants' anonymity and not revealing their data under their real names, and deception and consent, which necessitate voluntary participation and a full understanding of the project's purpose (Cohen et al., 2018). To protect the subjects' confidentiality, several measures were put in place to ensure their anonymity. The names of the modules have been coded, and all interviewees have been given pseudonyms. Participant descriptions have been broadly summarized to prevent specific identification.

To protect the privacy of study participants, all electronic data, such as audio and video files, are stored securely in a university electronic network accessible only to the researcher. Furthermore, all paper documents are kept in a secure location that only the researcher can access. Before the first interviews, participants received a document explaining the research project. The document detailed outlined the research's goal, the procedures to be followed, and the possible risks or advantages of taking part. Later, the participants provided clear consent by signing a consent form. The documentation, including the information sheet and consent form, clearly informed the participants that their participation in the study was voluntary and explained their right to withdraw at any time.

Another ethical issue involves the emotional well-being and overall health of the participants. One of the main research questions is about finding out if student participants faced any comprehension difficulties during academic lectures. Admitting difficulty understanding certain information can be tough, as it might make you feel inferior. Student participants may feel anxious about sharing their true thoughts, worrying that their instructors might not approve of their responses and causing them to give socially acceptable answers (Cohen et al., 2018). To address this issue, I will provide assistance or explanations on the topic as needed.

The main ethical dilemma in this investigation is the complex interaction of power dynamics. This study focuses on two different but connected power dynamics: the first is the hierarchy between the researcher and student participants, and the second is the power dynamics between the researcher and academic staff participants. While conducting interviews, I have some control over the study process, which could potentially impact the students' responses. Therefore, I tried to create equality by fostering a stress-free environment with no judgement, while also maintaining a voluntary atmosphere. During interviews with academic personnel, it is important for researchers to maintain their professional standards. Interview questions should focus on gathering the interviewees' perspectives on the challenges faced by L2 students, without criticizing their teaching methods or behaviour.

To conclude, in this study I took every step to inform and protect the participants. The first and foremost principle in this study was that the participants' participation of any activity was on a voluntary basis. I presented the Informed Consent to the participant at the very outset of the study. The

participants were kept informed about the purposes of all research activities involved in this study. Second, I spared no efforts to keep the participants' identity and characteristics of their organization confidential by using pseudonyms and codes. Additionally, nobody other than I had access to the research materials. Third, the participants have been informed that they had the right to reject any activity they considered improper and even withdraw from the study so that their well-being could be sufficiently protected.

4.10. Chapter summary

This chapter introduces the research design and methodology employed to explore how disciplinary knowledge is constructed in MA TESOL academic lectures at a UK university. The study aims to enhance academic knowledge by understanding how semantic profiles, particularly semantic gravity and semantic density, shape knowledge construction. The ultimate goal is to improve teaching efficacy and student engagement in knowledge building.

The chapter begins by justifying the use of a qualitative multi-case study approach, which is deemed suitable for examining the complex and context-dependent processes of knowledge construction. This approach allows for an in-depth analysis of academic lectures and their impact on student learning. The study focuses on a specific university known for its TESOL program, involving both instructors and students to provide comprehensive insights into the teaching and learning process.

The research design includes detailed analysis using Legitimation Code Theory (LCT) to identify patterns of semantic gravity and semantic density. Data

collection methods encompass lecture observations, interviews with instructors and students, and analysis of course materials. This methodology aims to capture the dynamic interactions in lectures and their effects on student comprehension and knowledge building.

Ethical considerations are thoroughly addressed, with informed consent obtained from all participants and confidentiality maintained. The study employs triangulation, member checking, and transparency to ensure trustworthiness. Data analysis involves thematic coding and the development of a translation device to systematically apply the concepts of semantic gravity and semantic density, facilitating a rigorous examination of the data.

In summary, Chapter 4 provides a detailed account of the research methodology, highlighting the qualitative approach and multi-case study design as effective means to explore and understand the construction of disciplinary knowledge in academic lectures. This comprehensive methodological framework aims to produce valuable insights that can inform educational practices and support both instructors and students in higher education settings. The research findings and discussions will be illustrated in Chapter 5 (findings of RQ1&RQ2), Chapter 6 (findings of RQ3) and Chapter 7 (discussions).

Chapter 5 Semantic Profiles and Their Role in Knowledge Construction

5.1. Chapter introduction

This chapter presents the analysis of the data relating to the first two research questions:

Research Question 1: *How is knowledge built in academic lectures in an UK MA major by instructors in terms of semantic profiles (i.e., semantic gravity and semantic density)?*

Research Question 2: *How do the semantic profiles of those lectures influence the understanding and knowledge construction of L2 students?*

As established in the Methodology chapter, this analysis draws on classroom observations from nine recorded academic lectures across three distinct modules. These lectures were recorded at the beginning, middle, and end of each course to capture a comprehensive trajectory of how knowledge construction evolves over time, particularly in relation to the varying contexts of synchronous and asynchronous online lectures.

To situate this chapter within the broader context of the thesis, it is crucial to reiterate the findings from earlier chapters. Chapter 2 emphasized the significance of understanding the interaction between semantic profiles and student comprehension, particularly for L2 learners navigating knowledge-building practices in UK higher education. Chapter 3 introduced the Legitimation Code Theory as the theoretical lens of the current study. Moreover, Chapter 6 highlights how students' cultural and educational backgrounds influence their interpretation of lecture content. Against this backdrop, the current chapter

focuses on analysing semantic gravity (SG) and semantic density (SD) to identify shifts in semantic profiles across lectures, demonstrating how these shifts impact knowledge construction.

This chapter adopts a methodologically robust approach, utilizing an extensive dataset of lecture transcripts meticulously coded for SG and SD levels. Detailed examples of the analytical process are presented to ensure transparency, an essential component given the innovative nature of this approach. The inclusion of detailed data tables (Tables 5.1, 5.2, and 5.3) serves to offer a ‘thick description’ (Lincoln & Guba, 1985) of the lecture contexts while constructing an ‘audit trail’ (Guba & Lincoln, 1998) for the analysis. Although these tables may appear dense, their role is indispensable in providing a nuanced understanding of how lecturers construct and convey knowledge. Each table is accompanied by a summary, which distils key patterns of knowledge-building practices within lectures. Corresponding semantic profiles (Figures 5.1, 5.2, and 5.3) visually illustrate these patterns and allow for a clearer integration of findings into subsequent chapters.

5.2. Analysing Knowledge Building in Academic Lectures through Semantic Profiles

As outlined in Chapter 4, constructing summary tables for each lecture served as a crucial step in the data reduction process. These tables, presented as Tables 5.1, 5.2, and 5.3, provide a detailed breakdown of each lecture, forming the foundation for constructing the corresponding semantic profiles.

To briefly recap the key methodological points from Chapter 4, the process of analysing the lectures involved coding them in terms of Semantic Gravity (SG) and Semantic Density (SD). These concepts are central to understanding how abstract and concrete levels interact within an academic lecture context. SG refers to the degree of context-dependence of meaning (with stronger SG indicating more context-dependent, concrete content), while SD refers to the complexity or condensation of meaning (with stronger SD indicating more abstract, dense content). The relationship between SG and SD was mapped using a translation device, as detailed in Table 4.5 of Chapter 4.

To analyse, each lecture was segmented into parts based on the introduction of new sub-topics, concepts, or shifts between abstract theoretical content and concrete examples. In some instances, shifts within a single part were significant enough to warrant further subdivision into sub-parts, labelled as a, b, c, etc.

Each summary table contains the following details about the recorded lecture:

- Column 1: Numbered parts of the lecture and the duration of each part.
- Column 2: Summary of the content in each part of the lecture, including what was verbally communicated by the lecturer.
- Column 3: Summary of the PowerPoint slides, including text, diagrams, tables, multimedia, etc.
- Column 4: Coding comments, explaining how each lecture part was coded according to the translation device (refer to Table 4.5 in Chapter 4).
- Column 5: Coding in terms of Abstract and Concrete levels.

The coding comments in Column 4, along with the coding in Column 5, are instrumental in interpreting the shape of the semantic profiles presented later in this chapter. These profiles visually represent the nature of transitions between semantic levels whether rapid or gradual. For example, a rapid shift between levels might indicate a quick transition from abstract theory to concrete examples, while gradual shifts reflect a more extended connection between these levels. Discontinuities in the profile, such as when a new concept is introduced without clear linkage to prior content, are depicted as breaks or sharp changes. Conversely, extended periods without transitions are represented as a semantic flatline, indicating a consistent level of abstraction or concreteness (Maton, 2013).

5.2.1. Semantic Profile Analysis of Module A Lectures

Module A Session 1 (MAS1)

In this section, I will analyse a 55-minute lecture. As indicated in Table 5.1, the lecture lasted for 53 minutes, and the remaining 2.30 minutes were utilized for administrative tasks. Table 5.1 presents the data used to create the semantic profile, as shown in Figure 5.1 below the table.

Table 5.1 Summary data for Module A session 1

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
1 0-2.07 1a	The lecturer introduces the session's topic: "The focus today is communicative competence...", followed by a reminder of the previous knowledge	Some phrases, e.g., accuracy VS. fluency etc.	The lecturer using quotations (SG+, SD-) to recall the previous week's knowledge and attempts to activate students' prior knowledge. Since the content is not new, therefore, I coded it as <i>Linking</i> which falls in the middle of the vertical axis. Everyday L2 and daily examples are used to illustrate, leading to a downwards shift (SG+, SD-), coded as <i>Concrete</i> .	L-C-A

2.07-3.00 1b	The lecturer then summarizes the “disappointment with traditional teaching of language”.	Quotations	The lecturer uses a quotation as a written summary, accompany with oral summary full of relatively simple academic L2 (SG-, SD+), coded as <i>Abstract</i> .	
3-4.10	Administrative comments on Blackboard reflections on students’ posts.		A semantic wave is identified in Part 1. Marked as a flatline.	Semantic flatline
2 4.10-6.05 2a	A reminder of the ‘communicative principles’.	A quotation of communicative principles.	The quotation of communicative principles serves as Linking to guide students to link the theory to the practice (watch video clips and evaluate), coded as <i>Linking</i> .	L
6.05-13.19 2b	Video clip 1 playing (6.05-8);		The video provides a specific context (SG+); The lecturer asks probing questions and gives answers; using everyday L2 to evaluate	A-C

	The lecturer then evaluates the video.		the video and links to the communicative principles, coded as <i>Concrete</i> here.	
13.25-24.04 2c	The same as 2b		The same as 2b	A-C
24.25-32.20 2d	The same as 2b		The same as 2b	A-C
32.43-37 2e	The same as 2b		The same as 2b	A-C
37.05-38.31 2f	The lecturer asks students to think about “what could the students do?”.	“Key question: What could the students do?”	The lecturer asks students to think about what the students in those videos could do, then the lecturer provides an oral summary, coded as <i>Abstract</i> .	C-A
38.32-39.17 2g	The lecturer then moves on to talk about communicative competence which links	A cartoon image	The lecturer uses a cartoon image to illustrate a focus on form; the explanation is full of everyday L2 and coded as <i>Concrete</i> .	A-C

	into these to illustrate a focus on form.			
3 39.20-39.44 3a	The lecturer introduces a theory of language.	Probing questions • Which language(s)? • Which language variety? • What kind of linguistic theory?	The lecturer asks some probing questions about a theory of language, coded as <i>Linking</i> here.	L
39.44-42.36 3b	The lecturer introduces 'structuralist linguistics'.	Quotations and citations	The lecturer first provides the definition (quotation), then other researchers' citations who criticize Chomsky's argument are employed. Frequent academic L2 and some everyday L2 are used, coded as <i>Concrete</i> .	A-C

42.38-44.42 3c	Introduce 'Hymes's speech event'	Daily dialogue examples	The lecturer illustrates Hymes's speech event with daily dialogue examples full of everyday L2. Therefore, I coded this part as <i>Concrete</i> .	A-C
44.43-45.25 3d	Introduce 'Usage approach'	Quotation	Quotation is used to provide definition. The delivery speech is mainly everyday L2, coded as C.	A-C
45.26-46.04 3e	Introduce 'model of communicative competence'	A diagram of citations	The lecturer uses a diagram made of chronological citations; use of academic L2 leads to an <i>Abstract flatline</i> coding here.	A
46.05-50.17 3f 50.18-50.40	The lecturer introduces communicative competence according to Bachman. Oral summary	Citation; daily dialogue examples Citation	The lecturer provides definition from citation, then provides daily dialogue examples with everyday L2 and everyday examples, coded as <i>Concrete</i> . The lecturer uses a high-stake reading citation (part of students' pre-class reading	A-C-A-C

3g			task) to make a written and oral summary (SG-, SD+), coded as <i>Abstract</i> .	
50.41-52.37 3h	Introduce examples on Strategies	Examples (genres)	The lecturer then introduces some examples on strategies and genres, using everyday L2, before therefore coded as <i>Concrete</i> .	
4 52.38-55.09	Administrative speech on the coming workshop		This part is about workshop/homework instruction; therefore, I coded it as <i>Concrete flatline</i> .	C

5.2.1.1. Semantic profile of the Module A session 1 (MAS1)

The shifts in SG and SD (which relates to the shifts between Concrete and Abstract levels) are represented in the form of a semantic profile in Figure 5.1 below.

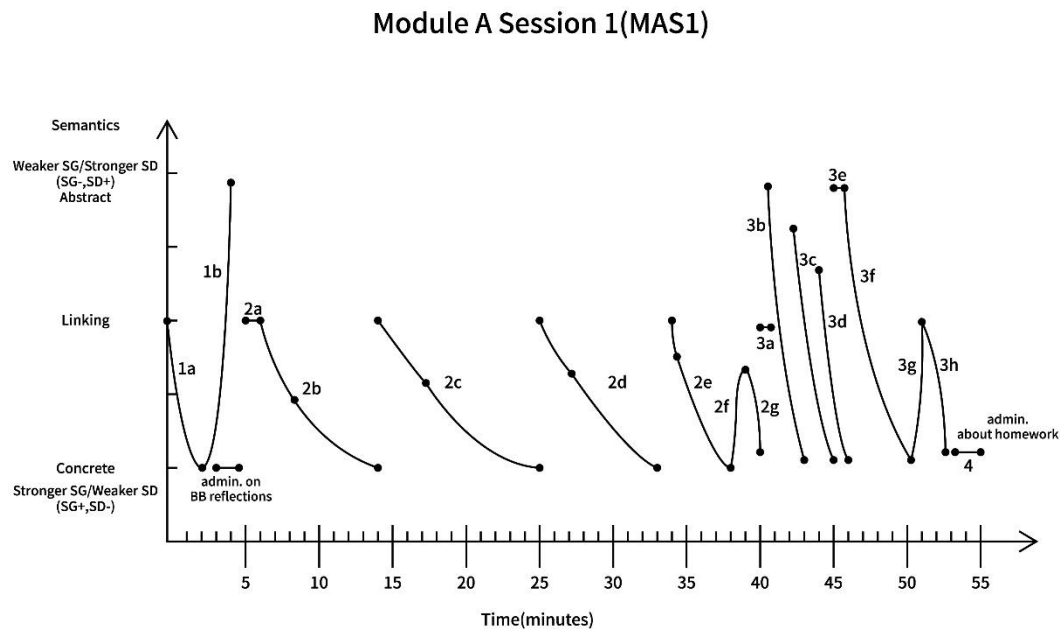


Figure 5.1 Semantic profile of the Module A Session 1

***Note:** The strength of semantic shifts is measured and shown in an approximate way that no standardized scaling is available for the time being, e.g. I define the strength as a) the academic L2 embeds relatively strong strength than everyday L2, b) the strength of examples of quotations, is stronger than that of daily examples or experiences, and c) previous knowledge's semantic strength is relatively weaker than that of new concepts of terms.

As shown in Figure 5.1 above, the semantic profile of MAS1 exhibits several forms of “semantic waves,” characterized by repeated unpacking and repacking with varying strengths (e.g., Part 1 and Part 2e-2f-2g). Additionally, “downward

semantic shifts” are observed (e.g., Part 2c, 3d, etc.), where highly condensed and decontextualized concepts or ideas (SG-, SD+) transition towards simpler, more concrete understandings (SG+, SD-), indicating repeated unpacking.

Unpacking strategies include:

- a) daily examples,
- b) visuals (e.g., video clips, cartoons),
- c) everyday L2, and
- d) a combination of academic L2 (minor) and everyday L2 (major).

Repacking strategies consist of:

- a) oral summary,
- b) written summary (quotation), and
- c) quotation or citation with academic L2.

As illustrated in Figure 5.1, downward shifts outnumber upward shifts by approximately three to one. Most of the time is spent linking abstract concepts with concrete examples, with the least time devoted to the abstract level.

Recorded lectures are characterized by a predominant focus on unpacking (downward shifts), with limited instances of repacking (upward shifts). This pattern reflects a consistent emphasis on connecting theoretical knowledge to practical examples while devoting minimal attention to stronger abstraction.

To illustrate these patterns of semantic profiles, two excerpts will be analysed in the following sections: one exemplifying a downward shift and another illustrating a semantic wave. These examples will highlight the distribution and characteristics of semantic movements within the lecture content.

Excerpt 1: (13.31-19.04, see 2c in Figure 5.1)

Topic of the session: Communicative competence

Topic of the excerpt: the communicative principles

The teacher illustrated the communicative principles with video clip (visual aid), commented and evaluated using everyday L2.

T1: I'm going to go to another example now, because we can't spend too long on these, but we're going to go to Vietnam now. So I'd like to you to watch this. And again, same question to you... **So the focus here is not on language.** So what he wants to achieve with the language class is kind of hidden, because he's asking a question that involves communication. And the students then try to communicate... **It's not really what it looks like. It's not a real communication.** Students know what their role is and teachers know what their role is...

Excerpt 2: (46.04-52.37, see Part 3f-3g-3h in Figure 5.1)

Topic of the session: Communicative competence

Topic of the excerpt: Introduce communicative competence according to Bachman.

The teacher introduced Bachman's communicative competence with a combination of academic L2 (e.g. terminologies) and everyday L2 (see blue), and everyday examples to repack.

T1: This has now been divided into much more than that. For the task, this week, we'd like you to focus on five areas of competence. So linguistic competence, pragmatic competence, discuss competence, strategic competence, and fluency. **I've got these definitions here for you,** and they're even summarized on

blackboard for you more carefully... We're gonna give you examples of teaching methods. And we want you to think about whether those would be successful in improving students' language. So language competence is part of communicative competence. Cause if you don't have the language, the structures, and the ideas... You might ask people for a repetition, so ask people to be clearer. You might avoid a particular word that you think the other person won't understand... This is part of your reading, there is a quite useful list of all the things that are involved in discourse... Here are some examples of strategies. I mentioned some of these before. Again, I'm sure you're all familiar with them. So paraphrasing. If you don't know the meaning of a word, using other languages to help you...

Module A Session 2 (MAS2)

This part presents an analysis of a 50-minute of lecture (as shown in Table 5.2 below, the lecture took 49 minutes and 1 minute left was used for administrative purposes). Table 5.2 is the summary table containing the data that was to construct the semantic profile, illustrated in Figure 5.2 below the table.

Table 5.2 Summary data for Module A Session 2

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
1 1-6.09 1a	The lecturer starts the lesson by asking students to think about communication and watch a video clip, “I want you to focus on what is authentic to a child when they are practicing their communication and learning their language?”	“Thinking about communication” “How does communication work”	The lecturer poses a question which narrows down the communication to the context of a child’s language practicing and communication, so coded as <i>Linking</i> level. The lecturer then uses the visual aid (the self-made video clip) to provide a specific context of how a	L-C-A

	Playing self-made video clip Comment the video and make summary.		child communicate in daily life full of daily languages, e.g., “she wouldn’t walk into the shop and talk to a shopkeeper to purchase something like that”., therefore, this is coded as <i>Concrete</i> level. Nally the lecturer repacks this part by summarizing orally, coded as <i>Abstract</i>.	
6.09-7.58 1b	The lecturer makes an oral summary.		The lecturer summaries and repacks the key points of authentic communication, which is coded as A level.	
2 7.59-10.03 2a	The lecturer then introduces the key theme of the session, “so today’s focus is the	The teacher’s role and three questions: • What kind of role and functions can teachers	The lecture introduces the new term ‘the teacher’s role’ (SG-) and ask three Socratic questions which a) narrow down the context to the	A-C

	teacher's role" and asked three probing questions.	have in classroom? • What kind of teachers have you experienced? • What kind of teacher do you want to be?	classroom, b) ask students to link to their individual experiences, c) link to students' own teaching context in the future. Therefore, the SG is coded as C level. The teacher then made an oral summary to these questions full of everyday L2 (SD-).	
10.04-10.23 2b	The lecturer then provides some examples related to the term.	Examples: • Educator • Instructor • Teacher • Facilitator	The lecturer provides some examples to illustrate what can the potential teacher's role be (SG+, SD-). Coded as C level.	A-C
10.30-16.09 2c	The lecturer then moves on to a new concept, "we are	The slide shows six examples of dialogues.	The teacher uses different dialogue examples to illustrate the interaction patterns, providing	A-C

	going to look at <i>interaction patterns</i> in a classroom”.		specific context with detailed explanations (SG+, SD-). Coded as C level.	
16.09-17.39 2d	The lecturer made an oral summary, and asks probing questions related to the discussed.	“Considerations” “What are the implications of this for your lesson plan?”	The lecturer makes an oral summary and asks the students to link to their existing or future teaching situation (e.g., the lesson plan). The oral summary and Socratic questions lead to a shift up here, therefore coded as A level.	C-A
3 17.40-19.08 3a	The lecturer continues introducing the teacher’s role in this part.	“Expertise” “Manager” “Source of advice” ...	The lecturer explains each of the samples on the slide with examples and everyday L2 (e.g., he explains expertise as “someone who presents, gives information) (SG+, SD-), coded as C level.	A-C

19.10-19.30 3b	The lecturer asks students to rank those teacher's roles as an after-class task.	A list of teacher's roles, with questions "which is more important? How will you rank them?"	The lecturer asks students to do a thinking practice to evaluate the importance of each teacher's role.	C-A
19.35-21.15 3c	The teacher introduces the teacher's tasks.	The teacher's most important job is: "Motivation and engagement" ...	The lecturer introduces the potential tasks of a teacher with key words shown on the slide, and detailed verbal explanation, Socratic questions and daily examples (SG+, SD-). Coded as C level.	A-C

21.16-26.14 3d	The lecturer then illustrates the surface level and deeper level.	Surface level, e.g. S-S Deeper level, displaying some probing questions, e.g. What is the teacher doing? What does the teacher do before/afterwards? ...	The lecturer unpacks the concepts with examples and everyday L2, coded as C level.	A-C
4 26.22-29.22 4a	The lecturer then introduces the implication of CLT approach.	Literature citations in the form of bullet points of key phrases, e.g. “diverting from lesson plans”	The lecturer refers to literature as examples to explain and justify the implication of CLT approach. The lecturer used everyday L2 and daily examples to contextualize and reduce the strength of semantic density (SG-, SG+). For example, to explain “diverting from lesson plan, recognizing windows of opportunity”, the lecturer says “it	A-C-A-C-A-C

			provides an opportunity to go away from the planned lesson and to focus on something they have noticed or they want to learn...”. In this way, the SG is strengthened, and the SD is weakened. There are two new terms in the citations listed (i.e. post-method and linguistic imperialism) are introduced and repacked with examples.	
29.24-32.09 4b	The lecturer then illustrates some conflicting aspects.	Some conflicting aspects: ● Being pragmatic ● Being aware ● Being human	The lecturer introduces three conflicting aspects using three abstract phrases as shown in the slide, then explains with everyday L2, e.g., being pragmatic means	A-C

			think about “where you are, what you are teaching, why you are teaching it, the people you are teaching it...” (SG+, SD-). Coded as C level.	
5 32.10-33.55 5a	The lecturer goes on introducing teacher roles and student needs. Introducing the culture of class	Teacher roles and student needs: ● Culture of class ● Forms of T interventions ● Student expectations	The teacher explains all the three relative abstract phrases in the same teaching manner: using daily examples (e.g., classroom activities) and everyday L2. Therefore, it is coded as SG+, SD-.	A-C
33.57-35.27 5b	Introducing forms of teacher interventions			A-C
35.31-36.08 5c	Introducing student expectations			A-C
6 36.10-38.58	The lecturer then introduces two positions on CLT.	Citations from two different literature	The lecturer uses citations from two articles to explain that the	A-C-A

			module sits between the two different positions. Again, the citations are relatively theoretical and abstract (SG-, SD+). The lecturer repacks with everyday L2 and examples (coded as C level). Finally, the lecturer makes an oral summary, “This is ideological, and people’s values become erased...with a kind of westernization.” (SG-, SD+), coded as A level.	
7 39-42.17	The lecturer then moves on to the introduction of class management.	Class management: “Tolerance of error” “Feasibility”	The phrase class management itself is SG-, SD+ since there is no specific context provided; the lecturer uses examples, to explain new key terms (i.e. tolerance of	A-C

			error, feasibility) e.g., young learners made errors in the classroom, classroom dialogue examples etc. to illustrate and therefore move the semantic profile downwards (SG+, SD-), coded as C level.	
8 42.19-47.50	The lecturer explains a concept in the assignment.	“Authenticity” and several citations.	The lecturer uses citations to define the authenticity and asking probing questions to provide specific context (SG+, SD-). The lecturer then asks students to do reading after class, coded as from <i>Concrete to Linking</i> level.	A-C-L

5.2.1.2. Semantic profile of the Module A Session 2 (MAS2)

The shifts in SG and SD (which relates to the shifts between Concrete and Abstract levels) are represented in the form of a semantic profile in Figure 5.2 below.

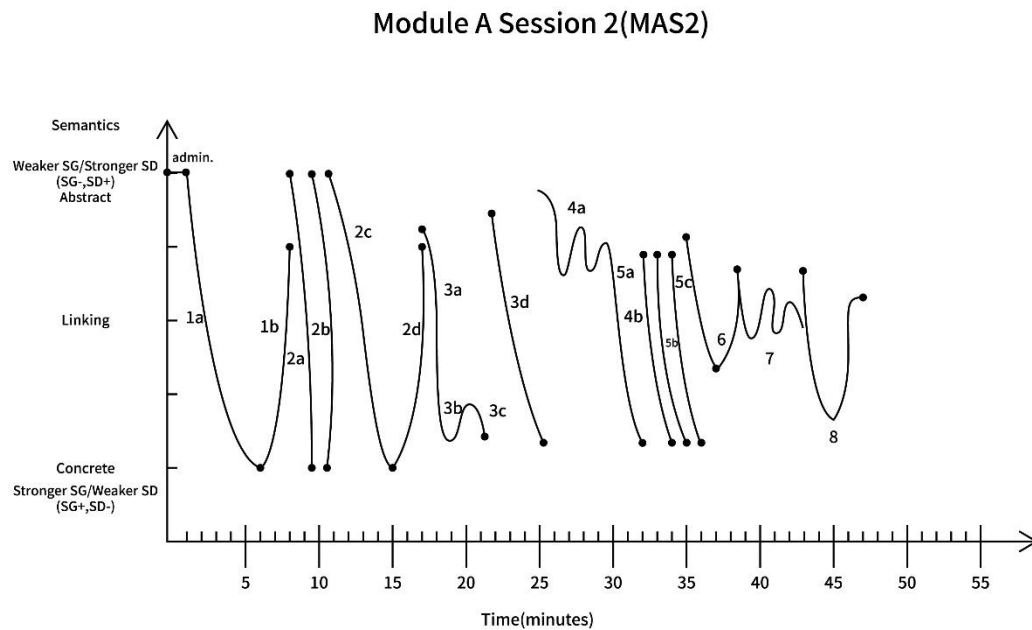


Figure 5.2 Semantic profile of the Module A Session 2

As illustrated in Figure 5.2, the semantic profile of MAS1 exhibits "semantic waves," characterized by repeated unpacking and repacking with varying degrees of strength (e.g., Part 7 and Part 8), and "downward semantic shifts" (e.g., Part 3d, 5a) from highly condensed and decontextualized concepts or ideas (SG-, SD+) towards simpler, more concrete understandings (SG+, SD-). This pattern represents a process of repeated unpacking.

The strategies adopted for unpacking include:

- a) Examples/everyday experiences

- b) Visuals (e.g., video clips)
- c) Everyday L2

For repacking, the strategies consist of:

- a) Oral summary
- b) Assigning high-stakes reading after class
- c) Asking students to evaluate discussed content (e.g., rank the importance of a teacher's role)

As depicted in Figure 5.2, downward shifts occur twice as frequently as upward shifts, demonstrating that teachers predominantly focus on unpacking (downward shifts) with limited repacking (upward shifts). This reflects the patterns of knowledge building within the observed lectures. The recorded data indicates that opportunities for guided writing practices or joint construction between teachers and students were minimal, as repacking was mainly observed in oral summaries of previous discussions.

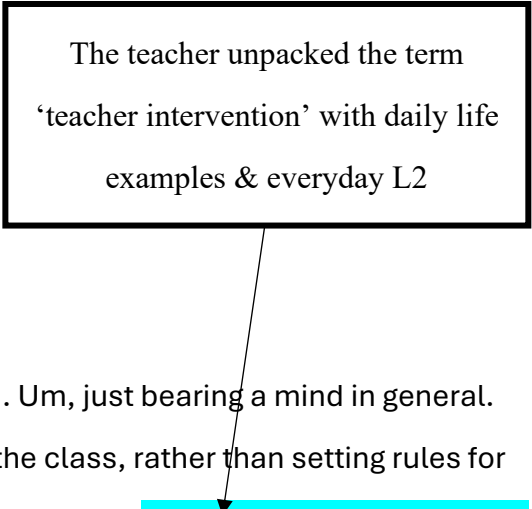
Two examples are presented below to illustrate the knowledge construction process in terms of semantic profiles: one highlights a downward shift, and the other demonstrates a semantic wave. These excerpts provide insight into the movement between different levels of semantic density and gravity, as observed in the analysed lectures.

Excerpt 1: (33.57-35.29, see 5b in Figure 5.2)

Topic of the session: Teacher roles

Topic of the excerpt: the forms of teacher intervention

The teacher unpacked the term
'teacher intervention' with daily life
examples & everyday L2

A rectangular box with a black border containing the text 'The teacher unpacked the term 'teacher intervention' with daily life examples & everyday L2'. A thin black arrow originates from the bottom of the box and points down to the word 'they' in the transcript below.

T1: Um also forms of teacher intervention. Um, just bearing a mind in general. You know, teachers can agree rules with the class, rather than setting rules for the class, they can ask for, um, ask for an example, they could ask what content the students are interested in, rather than just providing the material. And even if you're following a syllabus, you know, the teacher might set homework to find another example or to share something that's relevant to what you're teaching. Um likewise, the teacher might use homework for further practice and understanding. They also might use homework to set up the task in the class you're focusing on. So some of you, um, when you're planning your class, don't think everything needs to be new. You could have set a task already that prepares the students, so they already know something about the topic. They already know some of the vocabulary. You don't have to teach everything like its brand new. So that will be useful for you to create a communicative class um, because, yeah, don't assume you have to go in, teach the language, teach the vocabulary, teach the pronunciation, and then do the communication, because they could have done things before.

The excerpt 1 displays a sematic profile of downward semantic shifts or down escalator (Maton, 2013). It moves from condensed and decontextualized concept (i.e. the teacher intervention) (SG-, SD+) towards simpler, more concrete understandings (SG+, SD-), i.e. unpacking. Strategies employed are

examples/everyday experience, and everyday L2. As discussed in Chapter 2, the downwards shift is frequently identified as a way to deliver information in various disciplines and fields (e.g., biology, physics, ballet, pre-service teacher training, translation etc.).

Excerpt 2: (39-42.17, see 7 in Figure 5.2)

Topic of the session: Teacher roles

Topic of the excerpt: class management

The teacher fleshed out the concept ‘class management’ with more specific examples or contexts (see in blue); during the process, T introduced another three technical terms (SG-, SD+): tolerance of error, use of L1, and feasibility.

T1: ...if you talk about tolerance of error and use of L1, you know, we have to think about, how will that happen? Why is that happening? Like, what goal is that linking to long term goals and short-term goals? Do the students understand what they're doing? So that links, again, to the human aspect and the need to take students with you where you're going. And also, what is the trajectory of the class and the students? So what have they done before? What are they going to do later? And that should inform what you do now. Also, feasibility. So how much, how much responsibility will students take for their own learning? How involved in supportive are other stakeholders, like parents, for example. So again, that's just another thought that if you've got a class of adult learners, it can be quite easy to implement methods and just tell them why they're doing what they're doing. It's much more difficult with young learners to, to do something they're not expecting, and then tell them that it's okay, cause, again, they're going to be expecting particular ways to learn. Another example here, just really, um, what we want to be fully moving away from now is the classroom killer. I've observed this so many times when I've observed language teachers.

Um. So the teacher says, so discuss if you think the answer is A-B-C or D, and then students discuss the answer. Teacher Okay, what's the answer? Group one D No, it's not. You're wrong. Group two A Yes, it is. Okay, next question. Um. So I mean, what you can see here is the need. So here, the discussion has no value to the class. It's not clear what they're discussing, um, what ideas are relevant. We're not accessing their thinking. Um. The teacher student interaction is not focused on the meaningful part of discussing something. It's just focusing on the outcome.

The excerpt illustrates a semantic profile characterized by semantic waves, featuring repeated processes of unpacking and repacking in spoken form. Strategies for unpacking include the use of everyday life examples and everyday L2 language. For repacking, the strategy employed is an oral summary. These findings align with the observed pedagogical emphasis on oral knowledge-building processes in academic lectures.

Module A Session 3 (MAS3)

This part presents an analysis of a 41-minute of lecture (as shown in Table 5.3 below, the lecture took 41 minutes, and the 4 minutes were used for administrative purposes). Table 5.3 is the summary table containing the data that was to construct the semantic profile, illustrated in Figure 5.3 below the table.

Table 5.3 Summary data for Module A session 3

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
1 0-3.51	The lecturers outline the session at the beginning orally.	The session topic: “Errors, mistakes, and feedback”	The lecturer introduces what will be covered in this session orally without providing specific contexts, coded as <i>Abstract</i> .	A
3.52-6.20 1b	The lecturer introduces ‘errors and mistakes.	• What are errors? • How should we deal with then?	The lecturer starts with errors and mistakes, asking probing questions and give answers. The process unpacks the abstract concepts from quotations into concrete situations	A-C

			with everyday L2, therefore, I coded it as from <i>Abstract</i> to <i>Concrete</i> .	
6.24-8.05 Administrative speech for seminars 8.10-10.02 1c	The lecturer the explains the difference between an error and a mistake.	‘Error vs. mistake’ Definitions from quotations;	The lecturer firstly illustrates what are errors and mistakes (SG-, SD+), then moves on to unpack them with daily examples (SG+, SD-); both academic L2 (e.g. terminology) and everyday L2 are used. I coded this part as from <i>Abstract</i> to <i>Concrete</i> .	A-C
10.07-11.23 1d	Introduce ‘factors causing a mistake’	Factors causing a mistake? • Incomplete knowledge • False hypothesis • ...	The lecturer illustrates the potential factors causing a mistake (SG-, SD+) by providing specific examples (SG+, SD-), coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
11.24-12.00 1e	Introduce ‘decisions on error treatment’	• What kind of error? • Whether to deal with it? (Is it useful to correct?)	Some probing questions are raised here before moving on detailed	L

			analysis in the next part, therefore, I coded it as <i>Linking</i> .	
12.01-12.56 1f	The lecturer introduces kinds of error.	‘What kind of error?’ • Phonological • Morphological • ...	The lecturer illustrates different kinds of errors (SG-, SD+) with everyday examples and everyday L2. Coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
12.59-15.35 1g	Introduce ‘whether to deal with the error?’	‘Whether to deal with the error?’ • Effect on communication • Effect on students • Taught before? Taught later? • ...	The lecturer unpacks the decontextualized question ‘whether to deal with the error’ (SG-, SD+) with specific situations full of daily examples and everyday L2 (SG+, SD-), coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
15.35-19.00 1h	Introduce ‘fluency vs. accuracy’	General guidelines	The lecturer illustrates the general guidelines of fluency and accuracy with daily examples. Everyday L2 is used to weaken the semantic density	A-C

			of academic terminologies. I coded this part as from <i>Abstract to Concrete</i> .	
19.02-20.14 1i	Introduce ‘the correction-during-communication’ paradox	“The correction-during-communication paradox”	Academic L2 (written), everyday L2 (oral), and daily examples are used to unpack the paradox, coded as from <i>Abstract to Concrete</i> .	A-C
2 20.15-23.50 2a	The lecturer then moves on to introduce ‘when to deal with the error’.	When to correct” • Immediately • At the end of the activity • ...	The lecturer asks a probing question about the time to correct the errors, then illustrates with detailed and specific examples, coded as from <i>Abstract to Concrete</i> .	A-C
23.51-28.56 2b	Introduce ‘who will correct the error’	Who? • Student-self-correction • Students-pairs • ... Diagram: Group=support or pressure?	The lecturer explains who will correct the error with a list of potential answers. Again, everyday L2 and daily examples are used to repack; a diagram with probing questions is also	A-C

		Teacher=guide or judge?		employed in this part, therefore, coded as from <i>Abstract</i> to <i>Concrete</i> .	
28.57-29.22 2c	Introduce ‘the techniques to correct error’; introduce ‘explicit correction’	Definition of explicit correction	A Dialogue example	To unpack the abstract concept, the lecturer uses academic L2 to introduce the terminology then attempts to weaken the SD strength by employing everyday L2 when explaining dialogue examples (SG+, SD-), coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
29.23-29.56 2d	Introduce the technique of ‘recast’	Definition of recast	A Dialogue example	The same as 2c above.	A-C
29.58-30.10 2e	Introduce the technique of ‘clarification request’	Definition of clarification request	A Dialogue example	The same as 2c above.	A-C

30.11-30.50 2f	Introduce the technique of 'meta-linguistic feedback'	Definition of meta-linguistic feedback	A Dialogue example		The same as 2c above.	A-C
30.51-31.12 2g	Introduce the technique of 'elicitation'	Definition of elicitation	A Dialogue example		The same as 2c above.	A-C
31.15-31.49 2h	Introduce the technique of 'repetition'	Definition of repetition	A Dialogue example		The same as 2c above.	A-C
31.50-34.03 2i	Introduces other techniques	'There are many more ways of correcting that go beyond traditional methods' • Correction tasks • Task-embedded correction • ...			To unpack those decontextualized abstract techniques, the lecturer uses daily examples and everyday L2 to illustrate, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C

34.04-35.02 2j	The lecturer then further illustrates ‘a focus on recasts’.	Citations	To clarify a focus on recasts, the lecturer uses daily examples to unpack it, full of everyday L2; academic L2 is also used to explain terminologies (e.g. juxtaposition), coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
35.04-36.40 2k	Introduce ‘disadvantages of recasts: Noticing’	Quotations and citations	The lecturer illustrates the disadvantages of recasts with findings/examples from quotations and citations; everyday L2 and academic L2 are used together to unpack the concepts, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
36.42-39.30 2l	Introduce ‘recasts: salience’	Citations. ‘Salience (function/understanding) of a	The same as 2k.	A-C

		recast is constrained by a broad range of factors.'		
39.30-41 2m	Summarize	A written summary	The lecturer summarizes the session in written text and orally. I coded it as <i>Abstract</i> level.	A

5.2.1.3. Semantic profile of the Module A session 3 (MAS3)

The shifts in SG and SD (which relates to the shifts between Concrete and Abstract levels) are represented in the form of a semantic profile in Figure 5.3 below.

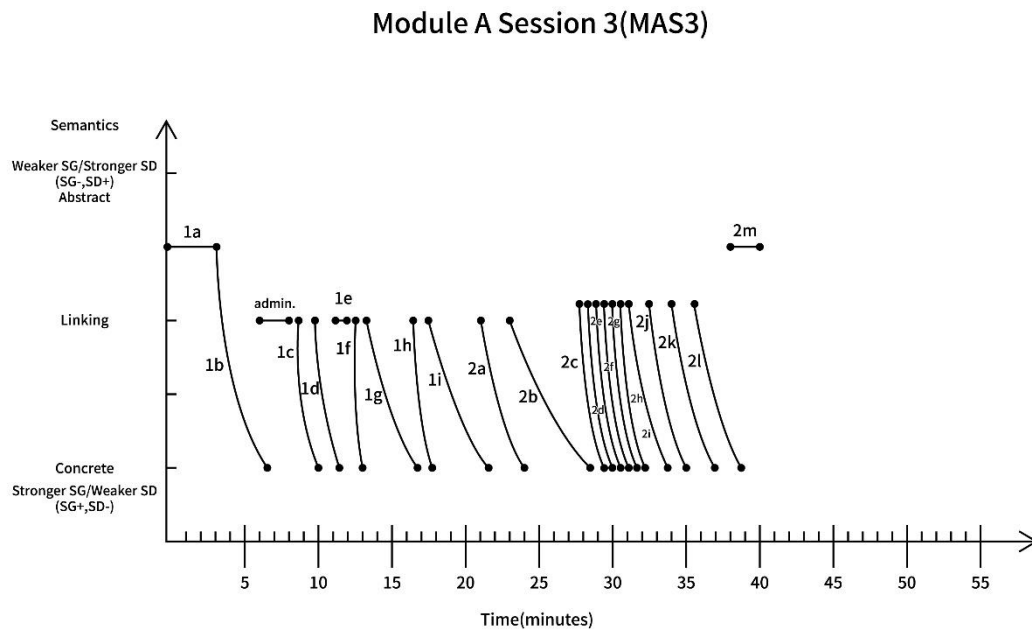


Figure 5.3 Semantic profile of the Module A Session 3

As illustrated in Figure 5.3, the semantic profile of MAS3 is characterized by repeated "downward semantic shifts" (e.g., Part 1i, 2b) from highly condensed and decontextualized concepts or ideas (SG-, SD+) towards simpler, more concrete understandings (SG+, SD-), which is indicative of repeated unpacking. This pattern is only disrupted by a single upward shift observed at the conclusion of the lecture when the lecturer provides a summary of the session in both written and oral form.

The strategies employed for unpacking include:

- a) Utilizing daily examples or everyday experiences,
- b) Incorporating visuals (e.g., diagrams),
- c) Using a combination of academic L2 and everyday L2 to evaluate quotations or citations.

Conversely, strategies for repacking involve:

- a) Providing oral summaries,
- b) Delivering written summaries.

As depicted in Figure 5.3, the prominence of downward shifts is evident. The semantic strength oscillates between the linking level and the concrete level. This fluctuation arises due to the relatively weaker semantic density strength inherent in concepts such as errors in tasks. Two excerpts will be used below to illustrate a downward shift and a semantic wave, demonstrating how knowledge is constructed through these semantic profiles.

Excerpt 1: (8.10-10.05, see 1c in Figure 5.3)

Topic of the session: Errors, mistakes and tasks

Topic of the excerpt: the difference between an error and a mistake

The teacher explained the difference between an error and a mistake by using everyday L2 to illustrate daily examples.

T1: Let's have a think about what's the difference between an error and a mistake. So an error is systematic. It's related to competence. A mistake is the opposite, it's not systematic. So here I said learners can often correct their own mistakes. **If you give them time or if you give them support, they could correct them.** As they do not reflect their underlying competence. Unlike errors. So

again, from there, I'd say it should be quite obvious that correcting a mistake is pretty pointless. There's no reason to, like, now, if you said, you don't say in the sentence, you can just say there's no reason to correct mistakes. I'll just say that's annoying. Don't interrupt me and say that, because I know that I just make everybody makes mistakes when they speak and when they write sometimes... That's the first starting point. So we need to distinguish between an error, something a student doesn't know or can't do. And a mistake, which is something that naturally happens in our first language and in our additional languages. When we do anything or in anything, we make mistakes. When we cook, we make mistakes. When we drive, we make mistakes when we do lots of different tasks.

This session follows repeated downwards shifts and the way the lecturer unpacks the concepts are same, i.e. introducing the definitions from citations or quotations, then illustrating with daily examples in everyday L2. The three sessions above are taught by the same lecturer, and the semantic profiles show quite similar patterns, i.e., a majority of downwards shifts accompany a few semantic waves.

5.2.2. Semantic Profile Analysis of Module B Lectures

Module B Session 1 (MBS1)

This section presents an analysis of a 62-minute of lecture (as shown in Table 5.4 below). Table 5.4 is the summary table containing the data that was to construct the semantic profile, illustrated in Figure 5.4 below the table.

Table 5.4 Summary data for Module B Session 1

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide		Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
1 0-4 1a	The lecturer starts the session by asking students to think about ‘Language at the university: where is it?’.	Lectures	Rules and regulations	The lecturer first raises a question (no condensed terminology included), then providing answers in forms of bullet points; daily examples and everyday L2 are used, therefore, I coded this part as from <i>Linking</i> to <i>Concrete</i> .	L-C
		Seminars	Office hour		
		Teaching materials	Notice board		
		...	...		

4.02-9 1b	The lecturer then asks another question 'Language at the university: purposes/functions?'	• Conveying, co-constructing and disseminating knowledge	• Regulating behavior	The lecturer raises another question and provides answers in forms of bullet points; The lecturer illustrates using daily examples full of both academic L2 and everyday L2, coded as from <i>Linking</i> to <i>Concrete</i> .	L-C
		• Learning and providing feedback	• Creating groups and social relations		
		• Conveying	• Performing identities and memberships		
		• ...	• ...		
9.03-13.22 1c	Introduce the English in EMI	Citations • English plus? • Which English?		The lecturer illustrates with daily examples and	A-C

		Is English an educational target?	everyday L2, coded as from <i>Abstract</i> to <i>Concrete</i> .	
13.23-14.55 1d	Introduce “E” in EMI in the international university	Quotation	Quotation is used to illustrate accompanying daily examples and everyday L2; the lecturer also links to last week’s content, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
2 14.55-17.43 2a	Introduce conceptualizations of academic English (EAP)	citations	The lecturer uses academic L2, everyday L2, and daily examples to illustrate the concepts, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
17.45-20 2b	Introduce ‘genre studies’	key findings related in forms of bullet points	Both academic L2 and everyday L2 are employed	A-C-A

20-20.42 2c	Summarize		to introduce this part, coded as from <i>Abstract</i> to <i>Concrete</i> . The lecturer then summarized orally with both academic L2 and everyday L2, coded as from <i>Concrete</i> to <i>Abstract</i> .	
20.42-26.02 2d	Introduce a new concept 'academic literacies'	Related contents in forms of bullet points	The lecturer illustrates the concept with daily examples, both academic L2 and everyday L2 are used, therefore coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
26.05-28.04 2e	Introduce 'corpus- linguistics'	citations and questions	The lecturer raises questions and then	A-C

			provides answers full of everyday L2, coded as from <i>Abstract</i> to <i>Concrete</i> .	
28.06-30.38 2f	Introduce 'ELFA' (English as an Academic Lingua Franca)	citations	The lecturer illustrates the new concept with citations full of academic L2; the lecturer then repacks it with daily examples, everyday L2, and links to online resources (e.g. a link to the ELFA corpus), coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
30.40-44.45 2g	Introduce a variety of conceptual approaches	quotations	The same as 2d.	A-C
44.47-51.03 2h	Introduce new forms of approaches	quotations	The same as 2d.	A-C

51.04-51.46 2i	Introduce text- organization and rhetorical preferences	quotations	The same as 2d.	A-C
3 51.50-58.45 3a	Introduce some conclusions from ELFA research	quotations	The same as 2d.	A-C
58.47-62.15 3b 62.16-63.24 3c	Introduce some pedagogical implications Ask students to reflect their future practice	quotations	The same as 2d. The lecturer asks students to reflect their future teaching practices, repacking Coded as from <i>Concrete to Linking</i> .	A-C-L

5.2.2.1. Semantic profile of the Module B Session 1 (MBS1)

The shifts in SG and SD (which relates to the shifts between Concrete and Abstract levels) are represented in the form of a semantic profile in Figure 5.4 below.

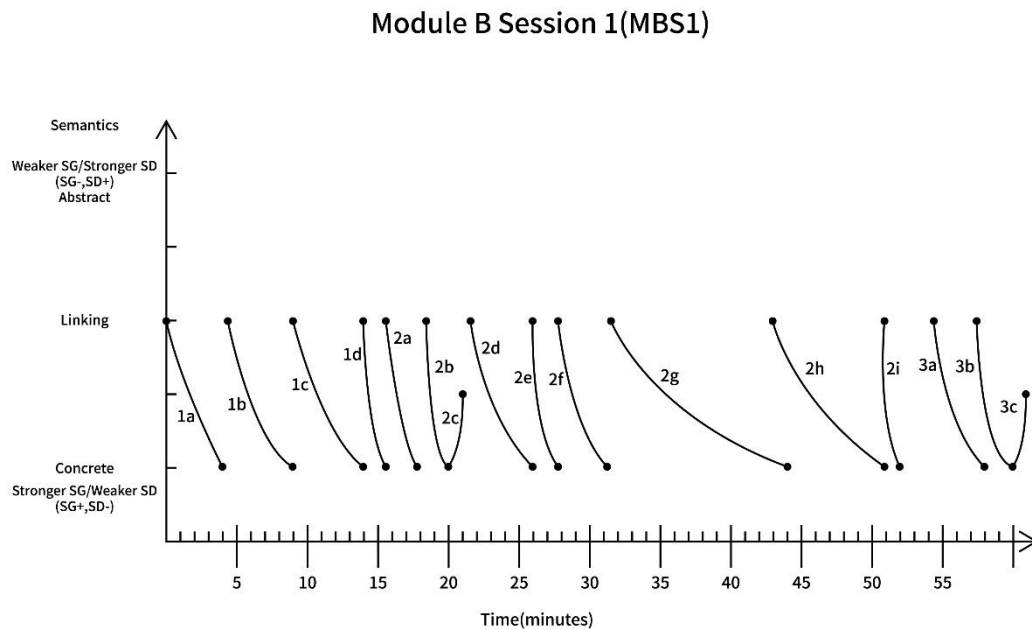


Figure 5.4 Semantic profile of the Module B Session 1

As shown in Figure 5.4 above, the semantic profile of MBS1 consists of the same form of semantics waves (e.g. 2b-2c, 3b-3c), and the rest are downwards shifts (e.g. 1b, 2d, and 2i etc.). Strategies adopted for unpacking include a) daily examples/everyday experience, b) visuals (e.g. diagrams), and c) everyday L2. Strategies used for repacking consist of a) oral summary, b) academic L2, and c) asking probing questions without providing answers.

As is shown in the Figure 5.4, the lecture features almost all downwards shifts, which means the lecture is full of contextualized contexts accompanying

relatively less condense meanings. To further explain how knowledge is built in terms of semantic profiles in this session, I will use two excerpt examples to illustrate a downwards shift, and a semantic wave respectively as below.

Excerpt 1: (28.06-30.38, see 2f in Figure 5.4)

Topic of the session: The 'E' in EMI:

Conceptualizing English in academic settings

Topic of the excerpt: Introducing ELFA

(English as an Academic Lingua Franca)

The lecturer unpacked the new concept with citations full of academic L2; the lecturer then repacks it with daily examples, everyday L2, and links to online resources.

T2: ...Intercultural students mix together different linguistic backgrounds...there were 20 native speakers in this classroom, we would still be in an English telling what kind of a situation, okay? But what they highlight, and it's not highlighted in the other approaches is that maybe speakers ways of doing academic English is not the idea. It's not something we have to imitate, because there may be very rich and historically developed ways of expressing knowledge and expressing content in other languages and in other cultures that you may be able to express the English. And why should we not value that as well instead of being obsessed with only accepting what looked like what native speakers do? Okay. So a lot of research came out from an ELFA corpus that collected lectures and seminars, recorded interactions in seminars, recorded lectures in a Finnish university where there were, obviously international students. And this is the link to the ELFA corpus. I thought that you might be interested in knowing that I think this year is being released, there is a corpus on Chinese academic written and spoken English which has been developed and by the university of Nottingham Ningbo [China], okay? I don't know if it's accessible for the public yet, but it will be very interesting to look at these types of data as well.

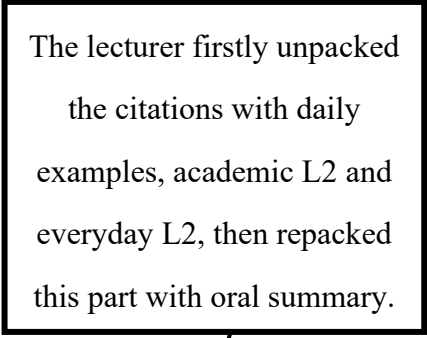
Excerpt 2: (17.45-20.42, see 2b-2c in Figure 5.4)

Topic of the session: The 'E' in EMI:

Conceptualizing English in academic settings

Topic of the excerpt: Introduce genre studies

The lecturer firstly unpacked the citations with daily examples, academic L2 and everyday L2, then repacked this part with oral summary.



T2: We then have another approach to understanding academic language use in university settings, which is general studies. This is a little bit different from EAP in that it considers differences. For the first time, again, we begin to try to understand what are the differences. There is not one single magical way or structure, both performing academic tasks or using language for academic tasks. But there are differences depending on the disciplines how we're dealing with or that our students are dealing with, and the different types of tests, and the functions of different types of tests, and even of different sections within the text. So we begin to understand that there's not one academic English... There is a type of way of using English to write an academic essay, but it's different to make an academic presentation. This is probably different from writing a report for the business company where you might work afterwards. Yeah. And an academic presentation or a conference presentation, will involve different language skills and different strategies than a same speech in the industry... We also are creative. We also may be expressing certain identities, trying to connect with our readers or with our hearers in a way that lets them see who we want to portray in our writing.

Module B Session 2 (MBS2)

This section presents an analysis of one 53-minute of lecture, and the summary table containing the data that was to construct the semantic profile can be found in the Appendix.

5.2.2.2. Semantic profile of the Module B Session 2 (MBS2)

The shifts in SG and SD (which relates to the shifts between Concrete and Abstract levels) are represented in the form of a semantic profile in Figure 5.5 below.

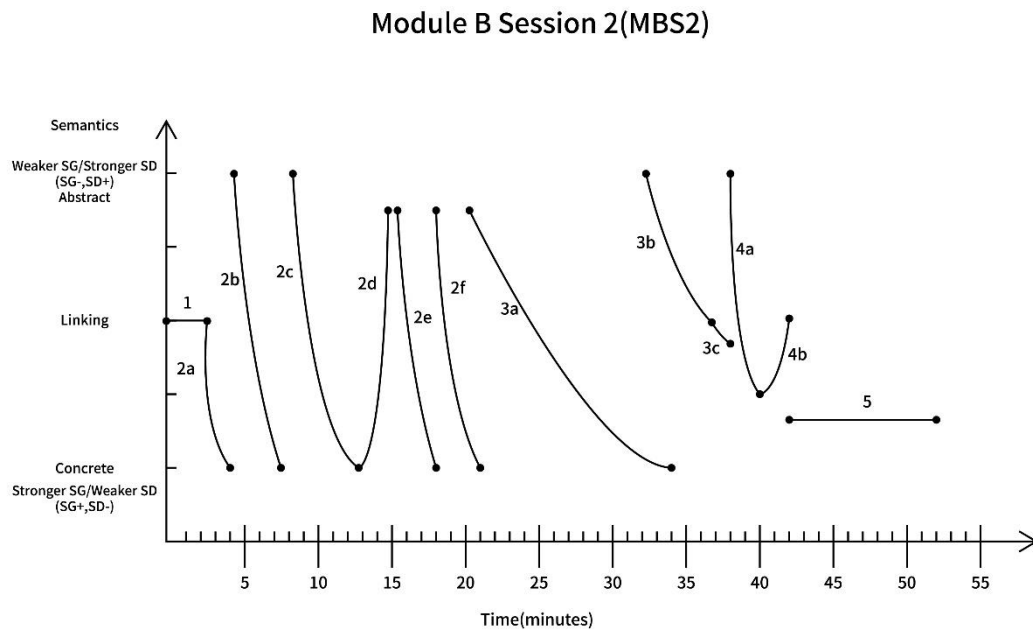


Figure 5.5 Semantic profile of the Module B Session 2

As shown in Figure 5.5, the semantic profile of MBS1 is characterized by various forms of semantic waves (e.g., 4d+4e), a few downward shifts (e.g., 1b), and a predominant occurrence of repeated upward shifts (e.g., 3a, 3c, 3d, 3e, 3f). Strategies identified for unpacking include the use of examples or everyday experiences, visuals such as diagrams, and everyday L2 language. Strategies for repacking include oral summaries, assigning high-stakes reading after class, using quotations to define terms or illustrate concepts, and employing academic L2 language.

The analysis highlights that the dominant feature of the semantic profile is the prevalence of upward shifts, indicating a frequent transition to relatively decontextualized contexts with condensed meanings.

Module B Session 3 (MBS3)

This section presents an analysis of one 49-minute of lecture. The summary table containing the data that was to construct the semantic profile is in Appendix.

5.2.2.3. Semantic profile of the Module B Session 3 (MBS3)

The shifts in SG and SD (which relates to the shifts between Concrete and Abstract levels) are represented in the form of a semantic profile in Figure 5.6 below.

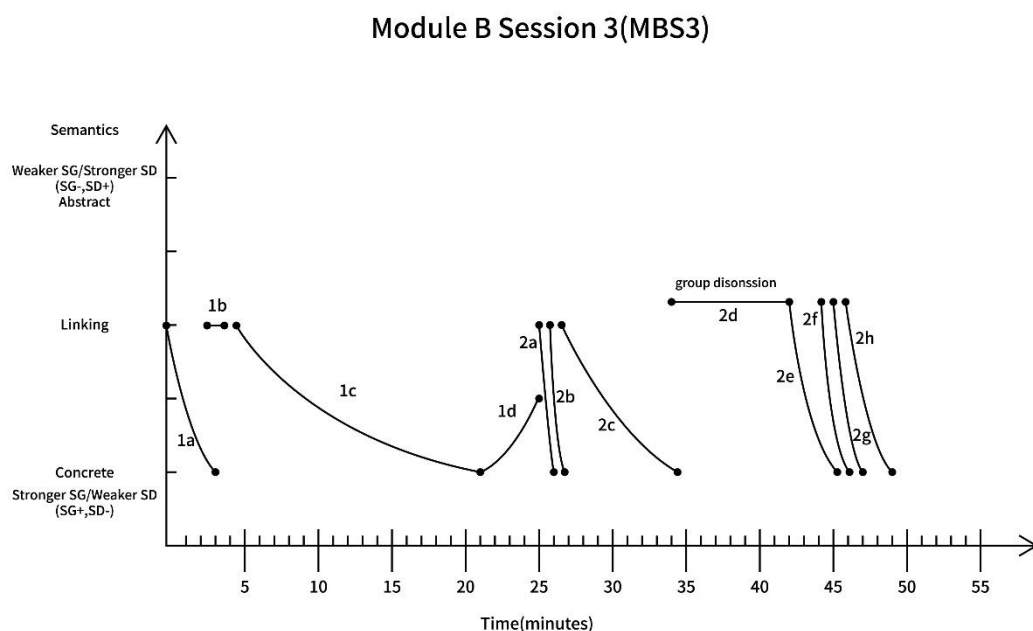


Figure 5.6 Semantic profile of the Module B Session 3

As shown in Figure 5.6, the semantic profile of MBS3 includes various forms of semantic waves (e.g., 4d and 4e), a few downward shifts (e.g., 1b), and predominantly repeated upward shifts (e.g., 3a, 3c, 3d, 3e, 3f). The strategies adopted for unpacking include a) using examples and everyday experiences, b) incorporating visuals such as diagrams, and c) utilizing everyday L2 language. The strategies employed for repacking involve a) providing oral summaries, b) assigning high-stakes reading tasks for after class, c) using quotations to define terms or illustrate concepts, and d) employing academic L2 language.

The data indicates that the lecture features a prevalence of upward shifts, reflecting a focus on relatively decontextualized content with condensed meanings. The semantic profiles highlight the interplay between unpacking and repacking strategies utilized during the session. These strategies facilitate the transition between concrete and abstract meanings, supporting the progression of knowledge-building practices.

To further illustrate the findings, three excerpts are presented: one highlighting a downward shift, another an upward shift, and the third a semantic wave. These examples offer a detailed representation of the semantic movements and their role in structuring the session's content.

5.2.3. Semantic Profile Analysis of Module C Lectures

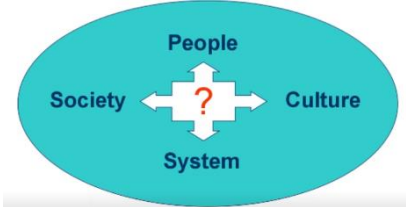
Module C Session 1 (MCS1)

This section presents an analysis of one 38-minute of lecture (as shown in Table 5.7 below. Table 5.7 is the summary table containing the data that was to construct the semantic profile, illustrated in Figure 5.7 below the table.

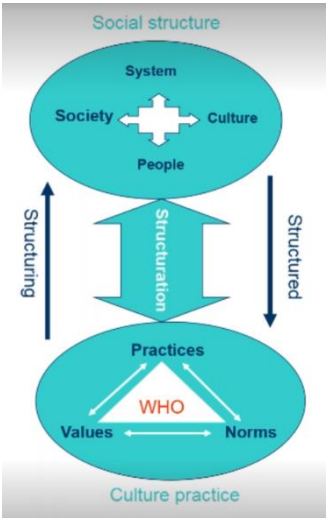
Table 5.7 Summary data for Module C session 1

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
1 0-1.00 1a	The lecturer firstly introduces the outline of the session.	Three main topics about cultural communication and identity, listed in bullet points form.	The lecturer introduces the main topics of the session; many abstract terminologies (e.g. cultural identity) are	A

			mentioned, therefore, I coded it as <i>Abstract</i> .	
1-2.51 1b	The lecturer recalls the previous knowledge about key concepts of culture.	Some key concepts of culture from Week 1: • “Culture is a verb”. (Street, 1993) • “a process of constant struggle” (Sarup, 1996: 140) • ...	The lecturer illustrates the previous content (taught in week 1) by referring to citations and quotations with both academic L2 and everyday L2, therefore coded as from	L-C

			<i>Linking to Concrete.</i>	
2.52-4.33 1c	Introduce four new concepts	 A soceity is a system of interrelationships which connects people together; while culture is the way how the system of interrelationships functions	The lecturer introduces four concepts and asks students to think about their relationship; a diagram and a written summary are provided. However, there is no explicit change of semantic shifts	A

			observed (e.g. providing specific contexts or use daily examples), therefore coded as <i>Abstract</i> .	
4.35-5.44 1d	The lecturer then moves on to introduces another three now concepts: practices, values, and norms. Summarize	quotations (definitions)	The lecturer illustrates with quotations; both academic L2 and everyday L2 are employed, coded as from	A-C-A

5.44-8.14 1e			<i>Abstract to Concrete.</i> The lecturer uses a diagram to make summary of this part, many academic L2 are used (e.g. social culture, social system, agent etc.) coded as from <i>Concrete to Abstract.</i>	
-------------------------	--	---	--	--

2 8.15-9.43 2a	Introduce a new concept “identity” and classification: self- identity and social identity.	Quotations	The illustration process is full of academic L2 and few examples are provided, therefore coded as from <i>Abstract</i> to <i>Concrete</i> (a little bit stronger and not reaching the bottom)	A-C
9.44-13.15 2b	Introduce “self-identity” and “social identity”	Quotations, diagrams	The lecturer illustrates the two new	A-C

			concepts with quotations, diagrams (e.g. the lecturer's own accent; an iceberg), and a metaphor (e.g. a pivot); Both academic L2 (major) and everyday L2 (minor) are used, coded as from <i>Abstract</i> to <i>Concrete</i>.	
3 13.17-15.03	The lecturer moves on to the second topic	quotations	It is worth noting that	A-[A+]

3a	“different concepts/understandings of identity”		after the illustration, the semantic strength increases due to academic L2 (e.g. essentialist model) without further explanation or specific examples, coded as from <i>Abstract</i> to <i>Abstract +</i> .	
----	---	--	---	--

15.03-15.23 3b	Discuss about different ways to conceptualize identity.	Think retrospectively about different concepts of culture discussed in weeks 1 and 2, and discuss in small groups different ways to conceptualize identity:  <pre> graph TD Identity --> Essentialist Identity --> Non-essentialist Essentialist --> Arrow1[] Non-essentialist --> Arrow2[] </pre>	A diagram is used with both academic L2 and everyday L2, coded as from <i>Abstract</i> to <i>Abstract -</i> .	A-[A-]
15.24-16.36 3c	Introduce a new concept 'essentialist model'	quotations	Quotations are used to unpack the abstract concept. However, since the lecturer uses a lot academic L2 (e.g. contesting negative	A-[A+]

			images) and a one-sentence example with any further explanations, I coded this part as from <i>Abstract</i> to <i>Abstract</i> +.	
16.38-17.50 3d	Introduce new terms 'stereotype and prejudice'	quotations	The same as 3c.	A-[A+]
17.52-20.00 3e	Introduce new concepts 'non-essentialist/anti-essentialist model'	quotations	The same as 3c.	A-[A+]

20.02-21.47 3f	Introduce new terms 'modern and Post-modern'	quotations, two paintings (as examples)	The lecturer illustrates the new terms with quotations and two paintings, coded as from <i>Abstract</i> to <i>Concrete</i> (a little stronger due to the abstract painting examples).	A-C
21.48-23 3g	Introduce new terms 'identification and power-play'	quotations	The lecturer illustrates with condensed academic	A-[A+]

			terminologies and then makes an oral summary full of academic L2, therefore coded as from <i>Abstract</i> to <i>Abstract +</i> .	
4 23-25.06 4a	The lecturer then moves on to the third topic 3 'why identity matters in intercultural communication'.	Models of communication	The lecturer illustrates the models of communicatio n full of academic L2 and summarizes	A-[A+]

			orally, coded as from <i>Abstract</i> to <i>Abstract</i> +.	
25.07-25.37 4b	Suggest doing high-stake reading after class		Coded as from <i>Abstract</i> + to <i>Abstract</i> .	[A+]-A
25.37-26.40 4c	summarize	quotation, a written summary	The lecturer summarizes with both written text and spoken speech, coded as <i>Abstract</i> .	A
26.40-28.28 4d	Further illustration with an example	An episode of 'asking for a bag' in an open market.	The lecturer uses a daily purchasing	A-C

			example to unpack and full of everyday L2, coded as from <i>Abstract</i> to <i>Concrete</i> .	
28.30-36.20 4e	Introduce 'participation framework'	quotations, a diagram	The lecturer illustrates the participation framework with quotations full of academic L2 and a complex diagram, then makes an oral summary, coded as from	A-[A+]

			<i>Abstract to Abstract +.</i>	
36.22-37.10 4f	A summary of the session	Summary of the main topics: Topic 1: What identity is in socio-cultural studies - Identity is about WHO one is and what is meaningful to him in cultural practice - Identity is multifaceted and multi-layered - Identities are often categories into social identities and self/personal identities Topic 2: Different concepts/understandings of identity - Essentialist: common origin, authentic, original, fully-constituted, singular, separated, distinct and fixed; the danger: stereotype and prejudice - Nonessentialist: relational, never unified, fragmented and fractured, multiply constructed, antagonistic, subjected to a radical historicization; key to it: power play Topic 3: Why identity matters in intercultural communication - a symbolic struggle through language, discourse and social interactions in intercultural settings	The lecturer summarizes the session with both written text and spoken speech; both academic L2 and everyday L2 are used, coded as from Abstract+ to Abstract -.	[A+[-[A-]

5.2.3.1. Semantic profile of the Module C session 1 (MCS1)

The shifts in SG and SD (which relates to the shifts between Concrete and Abstract levels) are represented in the form of a semantic profile in Figure 5.7 below.

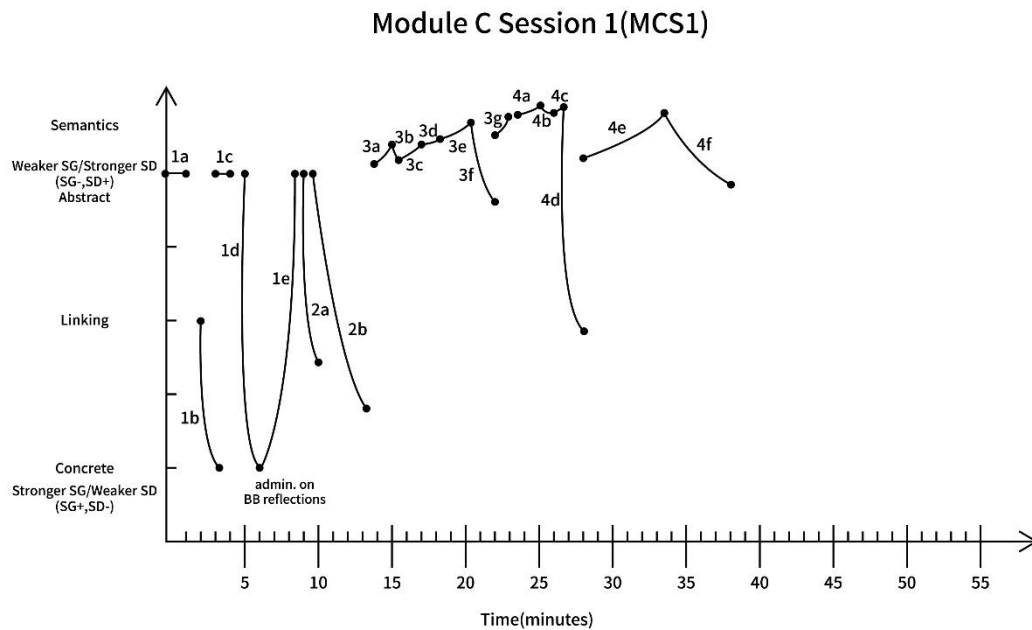


Figure 5.7 Semantic profile of the Module C Session 1

As shown in Figure 5.7, the semantic profile of MAS1 is characterized by several forms of semantic waves (e.g., 4d+4e), a few downward shifts (e.g., 1b), and predominantly repeated upward shifts (e.g., 3a, 3c, 3d, 3e, 3f). The strategies adopted for unpacking complex concepts include:

- a) providing examples or drawing from everyday experience,
- b) using visuals such as diagrams,
- c) employing everyday L2 (second language) expressions.

Conversely, strategies for repacking information into more complex forms consist of:

- a) offering oral summaries,
- b) assigning high-stakes reading tasks for after-class work,
- c) using quotations to define terms or illustrate concepts,
- d) employing academic L2 expressions.

As illustrated in Figure 5.7, the dominance of upward shifts indicates that the lecture is characterized by relatively decontextualized contexts with condensed meanings. To demonstrate the construction of knowledge through semantic profiles in this session, three excerpt examples will be provided. These examples represent a downward shift, an upward shift, and a semantic wave, respectively, showcasing the dynamics of knowledge building in the lecture.

Excerpt 1: (1-2.51, see 1b in Figure 5.7)

Topic of the session: Intercultural

communication and identity

Topic of the excerpt: key concepts of culture

The teacher explained the key concepts of culture by linking back to previous knowledge, citation, and everyday L2.

T3: If we reflect back what we have discussed in week one, some of the key concepts mentioned in week one would be **culture is a verb** (citation). In other words, **culture is not a noun or not an object**. You could show it is more as a verb that has its uh **its functions change the world, and change the way we live**. So we say culture is a verb, and culture is a process of constant struggle. In other words, there is not a foreign established culture. Culture is in the constant change, and it is the social struggle. We have different culture, and we also say that culture is produced by participants. And we also learned that culture is

shared. Culture is both conscious and unconscious. Culture is dynamic and fluid, and culture is an emergent resource.

The lecturer started the session by recalling the previous knowledge in week 1, the illustration combines citations and everyday L2. Compared with the strategies used in MAS1, there is no examples used here. More difference will be discussed in section 5.4.

Excerpt 2: (15.25-16.38, see 3c in Figure 5.7)

Topic of the session: Intercultural communication and identity

Topic of the excerpt: the essentialist model

The teacher illustrated the concept with a long quotation (on slide), academic L2, and a one-sentence example.

T3: For an essentialist perspective on identity, it is more concerned with the idea of a common origin, or it is more concerned with a common structure of experience that makes us part of a social being. Struggling against the existing construction of a particular identity, takes the form of contestant negative images with positive images. And all of trying to discover the authentic, original content of identity. In other words, we try to say, for instance, we try to establish an identity as a Chinese, as someone to do so, we believe that there is an authentic Chinese identity. Basically, we say that the structure of representations of identity here takes form of offering one fully constitute, separated and distinctive identity in place of another.

The excerpt 2 is a typical downwards shift repeated occur in this session. After an illustration full of academic L2, a long quotation, and one-sentence examples or no examples, the semantic gravity is weakened (SG-) and the semantic

density is strengthened (SD+), leading to a relatively stronger strength in the semantic profile.

Excerpt 3: (26.40-28.28, see 4d+4e in Figure 5.7)

Topic of the session: Intercultural communication and identity

Topic of the excerpt: why identify matters in intercultural communication

The teacher unpacked with a daily example & everyday L2, and then repacked with an oral summary & academic L2.

T3: This example is about an episode of asking for a bag in an open market.

Saturday open market near the centre of a city in UK, a mature international student from China, decide to buy some lettuces, and asks for a plastic bag from a vegetable vendor. The conversation is very simple. The student said, could I have a bag? And the vendor says please. He says, could I have a bag? And she says, please. Could I have a bag? Please forget it. I want you to think what is happening here. Is that communication successful? Obviously this communicative event is not very successful. Otherwise the student would buy lettuces. But what is happening here? ... Today we have discussed about identity in understands the communicative event. Sometimes it is useful. We try to understand, first of all, the power relationships. Obviously, the power relationships in the event is in the market, a customer and vendor. And at the same time, it is a cultural event, and culture is verb. In other words, we have to understand any communication as doing.

Module C Session 2 (MCS2)

This section presents an analysis of a 37-minute lecture, as summarized in Table

5.8 below. The lecture itself lasted 36 minutes, with the remaining minute allocated for administrative purposes. Table 5.8 provides a summary of the data used to construct the semantic profile, illustrated in Figure 5.8 following the table.

Sessions 2 and 3, delivered by a different lecturer, showcase a distinctly different pedagogical approach compared to the lecturer of Session 1. The specific teaching methods and their corresponding features are detailed in the subsequent sections. Section 5.3 will provide an in-depth examination of these variances in pedagogic practices.

Table 5.8 Summary data for Module C Session 2

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
1 0-1.09 1a	Introduce the outline of the session	Outline • Digital communication • EMIC (electronically mediated intercultural communication) • ...	The key concepts are outlined at the beginning of the lecture, coded as <i>Abstract</i> (SG-, SD+).	A
1.12-2.38 1b	The lecturer begins with digital communication.	Definition of digital communication	The lecturer firstly gives definition, then providing daily examples; both	A-C

			academic L2 (e.g. terminology) and everyday L2 are used. Therefore, I coded this part from <i>Abstract</i> to <i>Concrete</i> .	
2.39-3.28 1c	The lecturer moves on to introduce computer-mediated communication (CMC) and electronically mediated intercultural communication (EMIC).	Citations	The lecturer illustrates the new concepts with citations, accompanying daily examples and everyday L2 (SG+, SD-), coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
3.30-7.11 1d	Introduce features of digital communication through EMIC	Citations. Pie chart and bar chart (data from Internet World Stats, 2019)	The lecturer uses citations and visual aids (e.g. pie chart) to unpack the features of digital communication, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
7.12-8.18 1e	The lecturer then introduces a new concept	• Synchronous communication • Asynchronous	The lecturer illustrates with daily examples and everyday L2 to unpack	A-C

	‘multi-way communication’.	communication • A combination of both	the new concept, coded as from <i>Abstract</i> to <i>Concrete</i> .	
8.20-9.26 1f	Introduce a new concept ‘multimodality’	Citations related to the multimodality	The lecturer refers to citations, unpacking the concept with daily examples and everyday L2 (SG+, SD-), coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
9.28-10.21 1g	Introduce a new concept ‘mobility’	Citations related to the mobility	The same as 1f.	A-C
10.23-12.34 1h	Introduce a new concept ‘translanguaging’	Citations related to the translanguaging	The same as 1f.	A-C
12.35-14.30 1i	Introduce a new concept ‘transmodality’	Citations related to the transmodality	The same as 1f.	A-C
14.32-15.39 1j	Introduce a new concept ‘transculturality’	Citations related to the transculturality	The same as 1f.	A-C-A
15.40-16.00	Summarize			

1k			The lecturer summarizes the sub-topic orally, leading to an upwards shift (SG-, SD+), coded as <i>Abstract</i> .	
2 16.10-17.56 2a	The lecturer then moves on to introduce some 'current and popular ways that people communicate in digital spaces'. Introduce a new concept 'Intercultural communication and Web. 2.0'	Quotation, citations, bar charts, logos	The lecturer unpacks the concept using quotation followed by evaluation; daily examples and some visual aids (e.g. bar charts) are also employed, therefore, I coded this part as from <i>Abstract</i> to <i>Concrete</i> .	A-C
18.00-19.06 2b	Introduce 'social network sites (SNSs)'	The same as 2a.	The same as 2a.	A-C
19.08-21.02 2c	Introduce 'transcultural communication and SNS'	Quotation, diagram (full of texts and quotations)	The lecturer unpacks the concept using quotation followed by evaluation; daily	A-C-A-C-A

			examples and some visual aids (e.g. diagram) are also employed, therefore, I coded this part as from <i>Abstract</i> to <i>Concrete</i> . The Concrete level is relatively stronger (nearer to Linking) due to the dense information in the diagram (see Figure 4.8 Part 2c).	
21.03-24.05 2d	Summarize	A written summary	The lecturer summarizes this part with both written text (from citations) on the slide and in oral, coded as <i>Abstract</i> .	
24.06-32.34 2e	The lecturer illustrates an example of EMIC on SNSs.	An example of EMIC on SNSs (a famous Hong Kong martial arts star)	An example is used here to further unpack the concept, moving to a strengthening SD and weakening SD level, coded as <i>Concrete</i> .	
32.35-34.10	Summarize again			

2f			The lecturer summarizes orally, coded as <i>Abstract</i> .	
3 34.12-35.10	Summary of the session	A written summary with bullet points	The lecturer provides a written summary at the end of the session, accompanying oral illustrations, coded as <i>Abstract</i> , but nearer to Linking.	A
4 35.11-36.18	Administrative speech for workshop activity		Marked as <i>Concrete</i> .	C

5.2.3.2. Semantic profile of the Module C Session 2 (MCS2)

The shifts in SG and SD (which relates to the shifts between Concrete and Abstract levels) are represented in the form of a semantic profile in Figure 5.8 below.

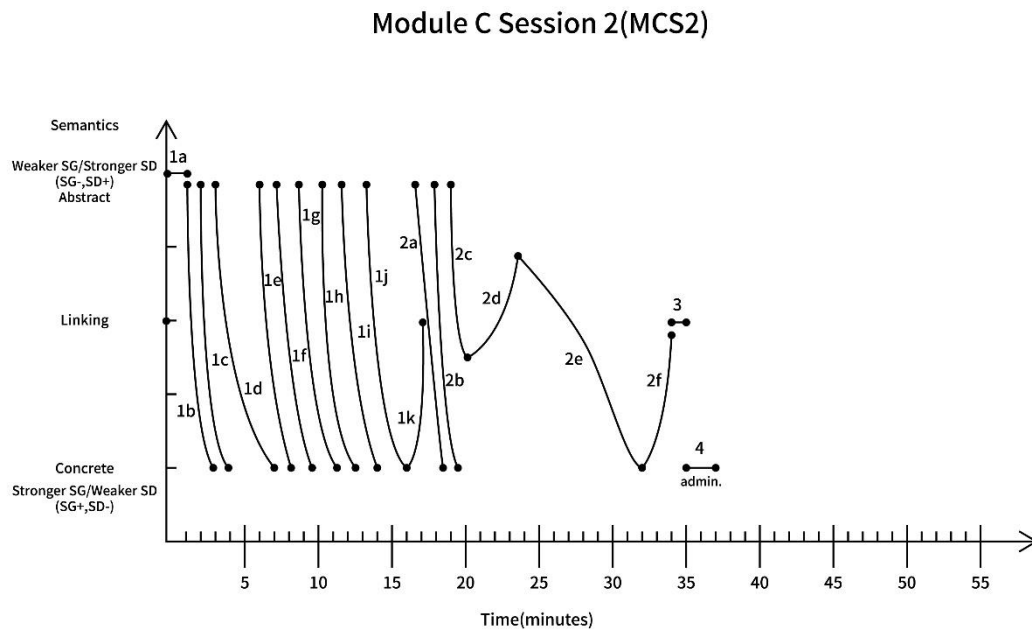


Figure 5.8 Semantic profile of the Module C Session 2

As depicted in Figure 5.8, the semantic profile of MCS2 is characterized by the prevalence of various forms of semantic waves (e.g., 1j-1k) and a dominant number of downward shifts (e.g., 1b, 1f, 1c, 1d). The strategies used for unpacking abstract concepts include: (a) daily examples, (b) visuals such as pie charts and bar charts, and (c) everyday L2 language. For repacking these concepts, the strategies involve: (a) oral summaries, (b) written summaries, (c) combining oral and written summaries, (d) quotations to define terms or illustrate points, and (e) academic L2 language, particularly specialized terminology.

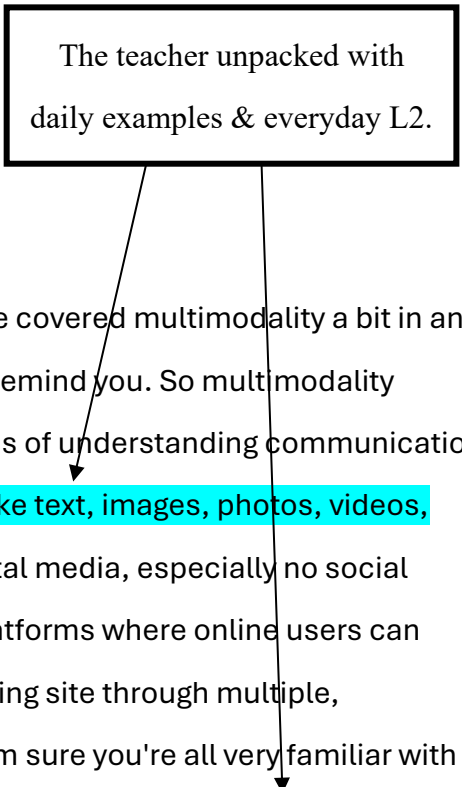
The frequent downward shifts reveal that the lecture content is largely composed of contextualized scenarios and specific examples. The lecturer predominantly employs daily examples and everyday L2 language to unpack abstract concepts. To further illustrate the knowledge construction process depicted through the semantic profiles, the following sections present examples of a downward shift and a semantic wave.

Excerpt 1: (8.20-9.26, see 1f in Figure 5.8)

Topic of the session: Intercultural communication and digital communication

Topic of the excerpt: Multimodality

The teacher unpacked with daily examples & everyday L2.



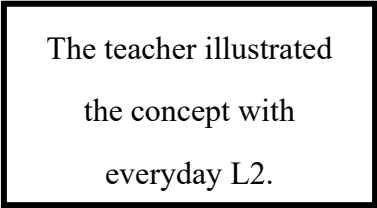
T4: The next feature is multimodality. Now, we covered multimodality a bit in an earlier lecture, but I just quickly got over it to remind you. So multimodality involves the full range of communicative forms of understanding communication and representation. So it can include things like text, images, photos, videos, and so on. And multimodality transforms digital media, especially no social networking sites to interactive multimodal platforms where online users can commonly interact on a single social networking site through multiple, synchronous and asynchronous modes. So I'm sure you're all very familiar with how multimodal the internet is. Typically, if you look at a page on a social networking site, you'll have a mixture of different kinds of text, may be different languages as well, different fonts, different colours. You'll have things like hyperlink should also have images that accompany the text or perhaps text companies, the image. You may have photos, you often have videos, you might have little gifts and animations and things like that. So digital spaces are typically very multi modal spaces.

Excerpt 2: (14.32-16-, see 1j-1k in Figure 5.8)

*Topic of the session: Intercultural communication
and digital communication*

Topic of the excerpt: Transculturality

The teacher illustrated
the concept with
everyday L2.



T4: The last concept is transculturality. So again, we've talked about this in relation to trans cultural communication. But to remind you, transcultural communication refers to how interactance moves through and across rather than in between cultural and linguistic boundaries, in which those very boundaries become blurred...This is the idea that just as linguistic resources and other multimodal resources become, it becomes difficult to distinguish between different boundaries between them. So the same is true for cultural references and cultural practices, which may use elements of different cultural references or different cultural groups, but may also refer to multiple cultural groups simultaneously and where it becomes difficult to clearly distinguish between a kind of cultural reference or group and another...

Module C Session 3 (MCS3)

This section presents an analysis of 36-minute of lecture (as shown in Table 5.9 below. Table 5.9 is the summary table containing the data that was to construct the semantic profile, illustrated in Figure 5.9 below the table.

Table 5.9 Summary data for Module C session 3

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
1 0-1.21 1a	The lecturer firstly introduces the outline of the session.	Outline of the session • Cultural as ideology • Critical approaches to culture and intercultural communication • ...	The relatively decontextualized outline of the session is coded as <i>Linking</i> .	A
1.23-2.30 1b	Introduce 'critical approaches to	Quotations	The lecturer uses quotations (SG-, SD+) to illustrate critical approaches to intercultural communication with	A-C

	intercultural communication'		academic L2 (e.g. terminologies in the quotations) and everyday L2, therefore, coded as from <i>Abstract</i> to <i>Concrete</i> .	
2.32-3.26 1c	Introduce 'ideology'	citation	The lecturer introduces a new concept 'ideology' with citations; both academic L2 (minor) and everyday L2 (major) are used to unpack, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
3.28-9.46 1d	Introduce 'culture as ideology'	quotations	Another new concept is illustrated with quotations; daily examples are also used to contextualize the content, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
2 9.49-10.46 2a	Introduce 'the idea of culture'	quotation	The same as 1d.	A-C-A

10.48-11.26 2b	Summarize		The lecturer summarizes orally, coded as <i>Abstract</i> .	
11.27-12.26 2c	Introduce 'globalization and the teaching of communication skills'	Quotation	The lecturer uses a quotation to explain the new concept; both academic L2 (minor) and everyday L2 (major) are used, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C-A
12.28-13.14 2d	Summarize		The lecturer summarizes orally, which unpack the content and coded as from <i>Concrete</i> to <i>Abstract</i> .	
13.16-15.05 2e	Introduce 'intercultural communication and ideology'	quotation	The same as 2c.	A-C
15.06-16.50 2f	Introduce 'intercultural communication: a critical introduction'	quotation	The same as 2c; The lecturer also recalls some previous knowledge.	A-C

16.51-18.26 2g	Introduce ‘critical pedagogy: political approaches to language and intercultural communication’	quotation	The same as 2c.	A-C
3 18.27-20.48 3a 20.50-23 3b	A discussion activity The lecturer provides answers to the three questions.	Three questions about critical pedagogy	The lecturer initiates a discussion activity, asking students to think about three probing questions, coded as from <i>Linking</i> to <i>Abstract</i> . The lecturer then provides answers to the above three questions and evaluates with everyday L2, coded as from <i>Abstract</i> to <i>Linking</i> .	L-A-L
4 23.02-23.40 4a	The lecturer then moves on to introduce ‘critical pedagogy’.	quotation	The lecture illustrates a decontextualized concept by unpacking a meaning-condensed	A-C

			quotation with everyday L2, therefore coded as from <i>Abstract</i> to <i>Concrete</i> .	
23.42-24.22 4b	Introduce critical pedagogy in intercultural communication reflection	citation	The lecturer explains the concept by referring to a citation; both academic L2 and everyday L2 are employed, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
24.24-24.41 4c	Introduce 'dissent'	Citation related to dissent	The same as 4b.	A-C
24.43-24.54 4d	Introduce 'difference'	Citation related to difference	The same as 4b.	A-C
24.56-25.22 4e	Introduce 'dialogue'	Citation related to dialogue	The same as 4b	A-C
25.24-25.38 4f	Introduce 'empowerment'	Citation related to empowerment	The same as 4b.	A-C
25.39-27.37 4g	Introduce 'symbolic competence'	Quotations related to symbolic competence	The lecturer uses quotations to illustrate the abstract concept with	A-C-A

27.38-28.02 4h	An evaluation relates to this part	Probing questions from quotations	both academic L2 and everyday L2, coded as from <i>Abstract</i> to <i>Concrete</i> . The lecturer then evaluates this part and raise some probing questions from quotations, leading to an upwards shift and coded as from <i>Concrete</i> to <i>Abstract</i> .	
28.06-29.50 4i	Introduce 'intercultural/global citizenship and intercultural citizenship education'	quotation	A quotation is employed to unpack the related concept with both academic L2 and everyday L2, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
29.52-31.37 4j	Introduce 'towards transcultural English language education'	Tables and citations	Citations and visual aid (e.g. tables) are used to illustrate the concept, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C

5 31.38-34.06	The lecturer moves on to introduce research related to critical intercultural communication.	Citations	The lecturer introduces research with citations; academic L2 (major) and everyday L2 (minor) are used, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
6 33.08-36.08	The second discussion task	“In small groups read the text (pre-class reading) and discuss the questions that follow”. Four questions listed.	This part is a discussion activity based on a pre-class reading, no answers are provided, and therefore, coded as from <i>Concrete</i> to <i>Linking</i> (maybe a little stronger than Linking, but not reaching the Abstract level since all the terminologies have been illustrated earlier).	C-L

5.2.3.3. Semantic profile of the Module C Session 3 (MCS3)

The shifts in SG and SD (which relates to the shifts between Concrete and Abstract levels) are represented in the form of a semantic profile in Figure 5.9 below.

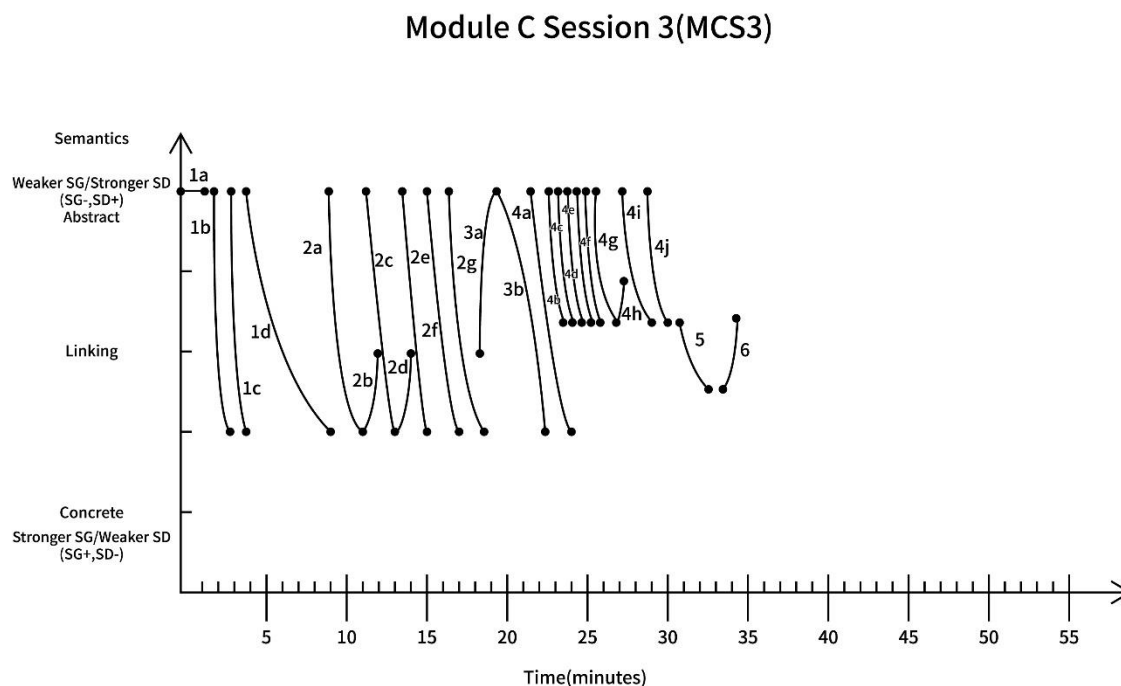


Figure 5.9 Semantic profile of the Module C Session 3

The semantic profile of MAS1, as illustrated in Figure 5.9, demonstrates various forms of semantic waves (e.g., 2a-2b), predominantly downward shifts (e.g., 1b, 2e, 4b), and a single upward shift at the session's conclusion (e.g., part 6). Strategies for unpacking include a) daily examples, b) visual aids (e.g., tables), and c) the use of academic L2 and everyday L2 to illustrate quotations and citations. Repacking strategies involve a) oral summaries, b) written summaries, and c) discussion activities with probing questions.

The analysis of Figure 5.9 highlights a prevalence of downward shifts, indicating a focus on contextualized content with less condensed meanings. Excerpts from the session further illustrate the semantic movements:

1. **Downward shift:** The lecturer transitions from theoretical concepts to relatable,

real-world examples, enhancing semantic gravity (SG↑).

2. **Upward shift:** Concluding the session, abstract summarization of key points reduces semantic gravity (SG↓).
3. **Semantic wave:** Alternating between theoretical frameworks and contextual examples, facilitating a dynamic knowledge-building process.

These examples reflect the session's reliance on explicit strategies to manage semantic gravity and density across different segments, enabling both comprehension and application of lecture content.

Excerpt 1: (2.32-3.26, see 1c in Figure 5.9)

Topic of the session: Intercultural communication, ideology, power, and critical pedagogy

Topic of the excerpt: Introduce the concept 'ideology'

The teacher illustrated the concept with everyday L2.

T4: Let's go into a bit more detail about what ideology is. So ideology similar to culture can be seen as a set of systems, beliefs, or ideas. It's constructed by members of the community to make sense of the variability they encounter. And a typical feature of ideology is often a moral or political dimension. So ideology is often about what's considered, right, wrong, proper or standard... So when we talk about things like language ideology, we're often talking about what's considered standard language, what's considered proper language. So all groups have their own ideologies, and hence there is no neutral view...in fact, like all models, there are simplification of reality. They are the ideology to which we all see our worlds. In that sense, we are all both beneficiaries and victims of ideologies. Thanks to the fact that we speak a language and live in our culture, but we can, or at times, are morally obligated to interrogate our cultural models and replace them with others, sometimes even with explicit and well developed...

Excerpt 2: (33.08-36.08, see Part 6 in Figure 5.9)

*Topic of the session: Intercultural communication,
ideology, power, and critical pedagogy*

Topic of the excerpt: A discussion task

The teacher illustrated the concept with everyday L2 and daily examples.

T4: So we're gonna focus on English language teaching and we're gonna focus on one of the kind of the largest...hopefully, all of you have read the short book chapter from written by Javier...and I'd like you to think about heavy experiences of being in English language teacher. And then think about your own experiences and think has there been a similar dichotomy in the discourse of native speakers of English when talking about nonnative? Whether this has been an educational or work based on social setting? ...so Javier refers to the perception that there is a standard of English that exists from which all other varieties of English are measured against. She claims of this standard is associated with the American or British native speaker of English. You agree with this and has this been your experience of learning or teaching...and then lastly, what do you think the implications of these native and nonnative standards of power relationships are for teaching and learning English and intercultural communication? So I'm gonna stop.

Excerpt 3: (9.49-11.26, see 2a-2b in Figure 5.9)

*Topic of the session: Intercultural communication,
ideology, power, and critical pedagogy*

*Topic of the excerpt: Introduce the concept
'the idea of culture'*

The teacher unpacked the concept with daily examples and everyday L2.

T4: Now just quickly read through it now, but you also see it on your discussion task. So you can read it again yourself after this. So he has written that culture has become a vital preoccupation of the modern age for a whole range of reasons. But he also underscores that the primary problems we confront in the new millennium war, famine, poverty, disease, get drugs, environmental pollution. The displacement of peoples are not especially cultural at all...we have seen how culture has assumed a new political importance. But it has grown at the same time in modest and obeying it is time while

acknowledging its significance to put it back in. So what Eagleton is suggesting here is that culture is important, and this quotation comes from the end of an entire book about culture. So we obviously think it's important. But it is also courting us that not all problems have cultural answers to them. So there is sometimes a tendency to discuss problems as if there were always cultural problems. And if we can solve with the cultural differences, the problems will disappear. And he's cautioning us that this is not the case, and there are many problems where culture has an influence. The culture is not the main issue. Other areas are important. We need to be aware of that.

The section 5.2 has presented nine detailed analyses of recorded academic lectures (with some analysis show similar findings put in Appendix). As part of the analysis, semantic profiles of the pedagogical practices are constructed. Section 5.3 below provides a summary of these semantic profiles of pedagogical practices.

5.3. Summary and Insights from Semantic Profile Analyses of Academic Lectures

The semantic profiles for all three modules presented in this chapter characterize the knowledge-building practices in teaching academic lectures. Each lecture sequence introduced a new topic to students. The concepts of Semantic Gravity (SG) and Semantic Density (SD), combined to form a semantic profile, mapped the pedagogical strategies used in delivering academic lectures. The analysis identified patterns in how lecturers shifted between different levels of SG and SD to facilitate student understanding and engagement with new material. These shifts reflected a structured approach to gradually linking abstract disciplinary concepts to more contextually grounded examples, enabling the students to build knowledge incrementally.

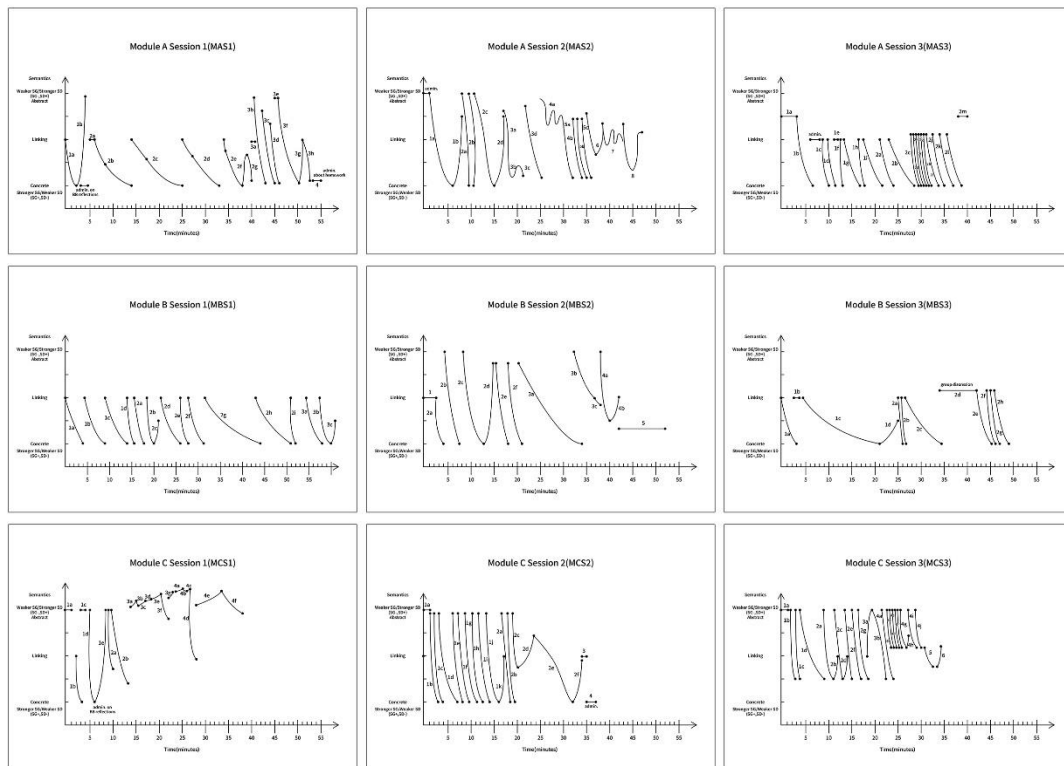


Figure 5.10 Semantic profiles for the knowledge building practices in nine lectures (the top-Module A; the middle-Module B; the bottom-Module C)

In this section, the differences and similarities among the semantic profiles are discussed, with data extracts used to further illustrate these distinctions.

Similarities

In all semantic profiles, there is a notable pattern of shifting between levels of semantic gravity (SG) and semantic density (SD). This includes upwards shifts, downwards shifts, and the formation of semantic waves. Additionally, in the majority of the lectures analysed, discontinuities are observed between these shifts. For example, in sections 3c and 3d of Figure 5.1, and sections 1a and 1b of Figure 5.2, the lecturer transitions from one concept to another without explicitly connecting the new concept to the previously discussed theoretical concept. Implicit links may exist, but they are not overtly indicated.

Differences

Despite these general similarities, several differences are evident:

1. Entry and Exit Points: The starting and ending points in terms of SG and SD levels vary across modules (see Figure 5.10). For instance:

- Module A begins at the Linking level or Abstract level.
- Module B starts at the Linking level.
- Module C starts at the Abstract level.

2. Discontinuities in Shifts: The nature and frequency of discontinuities between shifts differ among the modules. For instance, in MAS1 (sections 3c and 3d), the lecturer moves from one concept to another without explicitly indicating the relationship to the earlier concept. This pattern is similarly observed in Figures 5.1 and 5.2.

To further illustrate these differences, data from Tables 5.1 to 5.9 can be referenced. These tables provide detailed insights into the entry and exit points across the modules, highlighting the specific levels of SG and SD at various stages.

In summary, while all semantic profiles exhibit shifting between SG and SD levels, the entry and exit points and the nature of these shifts show significant variation among the different modules.

Table 5.10 Entry points and exit points of three modules

Module	MAS1	MAS2	MAS3	MBS1	MBS2	MBS3	MCS1	MCS2	MCS3
Entry Point	L	L	A	L	L	L	A	A	A
Exit Point	C	C-L	A	C-L	C	A	A	A	C-L

As indicated, MAS3, MCS1, MCS2, and MCS3 starts at the *Abstract level*: the abstract outline of the session full of terminologies is introduced without providing any specific contexts (e.g., see Table 5.7, Part 1):

The lecturer starts by introducing the main topics: ‘*what identity is in socio-cultural studies*’, ‘*different concepts/understandings of identity*’, and ‘*why identity matters in intercultural communication*’. This is coded as *Abstract* level because there are no specific contexts provided, and the academic discourse is full of terminologies.

In contrast, MAS1, MAS2, MBS1, MBS2, and MBS3 lecture sequence starts at the *Linking level*: the lecturers either a) elicits students’ prior knowledge by recalling together in the class or, b) poses questions on students and providing answers before moving on to the main topics of the session (e.g. see Table 5.6, Part 1 and Table 5.1, Part 1):

T2: *Can you remember one criticism made by scholars in previous weeks about the worldwide spread and apparent acceptance of CLIL/EMI?*

T1: *Thinking about communication...*

The exit points of the three modules differ significantly. In MAS3/MBS3/MCS1/MCS2, the exit point is *Abstract*, characterized by a written summary accompanying oral explanations. In contrast, MAS1/MBS2 adopts a *Concrete* approach, involving administrative speeches related to workshops or online learning resources. Finally, MAS2/MBS1/MCS3 transitions from *Concrete* to *Linking*, which includes three distinct activities: a) assigning students high-stakes reading tasks for after-class, b) prompting students to reflect on their future teaching practices, and c) initiating a discussion task without providing answers.

The semantic profiles indicate that the proportion of lecture time allocated to *Abstract*, *Linking* (an upward or downward movement between *Abstract* and *Concrete*), and *Concrete* levels, referred to as semantic ranges, varies among the three modules. Across the nine lecture sequences, a significant portion of time is devoted to the *Linking* level. Time spent at the *Concrete* level exceeds that at the *Abstract* level in most cases, except in MCS1, where *Abstract* level time dominates. Specifically, in MCS1, when

lectures reach the Concrete level (e.g., at points 1b, 1d, 2a, 2c), they remain there briefly before returning to the Linking level.

The analysis also reveals varying degrees of compression, reflecting the frequency of shifts between levels and the time taken to transition between them. Figure 5.10 shows that middle and end sessions generally exhibit more compression than beginning sessions, as evidenced by the steeper semantic profiles. This indicates that lecture pacing accelerates in the middle and towards the end. Furthermore, Module B is less compressed than Modules A and C, potentially due to its focus on detailed empirical studies (e.g., studies on CLIL/EMI), in contrast to the more theoretical or conceptual orientation of Modules A and C.

While the semantic profiles provide insights into lecture structures and pacing, they cannot fully capture nuances in teaching practices, which require further exploration in other chapters. Below is an example excerpt from MCS1:

Structuration basically works in this way if there are more than two elements, when element functions as the as the structuring force, and the other is structured by the structural force. In other words, for instance, our cultural practice is structured by social structure. We could only do cultural practice in asserting social system. In other words, but at the same time, our cultural practice would influence them, would inference into our social structure. When our values and norms change, then the social system would change as well. When the social system changes, then our way of practice would be structured. But at the same time, with time goes long, with time goes along our way, our cultural practice would finally again in frozen into the social structure. So that's why, to certain extent, we could say that culture is a process of constant struggle.

In the excerpt provided, the lecturer attempted to explain structuration with the example, "For instance, our cultural practice is structured by social structure; we can only engage in cultural practice within an existing social system." This one-sentence example was categorized as Abstract rather than Concrete due to its lack of unpacking

the condensed meaning. Examples were coded differently based on their nature, such as daily life examples (SG+, SD-) or quotations and complex diagrams (SG-, SD+). This variability highlights the different types of examples and their roles in conveying meaning.

Part 2

In the previous section, three distinct semantic profiles were identified in the nine selected online lectures: the semantic wave, the upward shift, and the downward shift. Each lecture demonstrates a combination of these patterns, with varying predominance.

From the thematic analysis of L2 students' responses, several key findings emerged regarding the impact of these semantic profiles on comprehension and knowledge acquisition. First, semantic waves, characterized by frequent shifts between abstract and concrete concepts, were found to support students in building connections between theoretical knowledge and practical applications. Students reported that these shifts helped scaffold their understanding, making complex ideas more accessible.

Second, the upward shift, where the discourse moves progressively from concrete examples to abstract concepts, posed challenges for some students, especially when abstract concepts were introduced without sufficient grounding in concrete examples. This pattern was particularly difficult for students unfamiliar with the disciplinary context, who struggled to anchor abstract concepts in their existing knowledge. Lastly, the downward shift, where discourse transitions from abstract concepts to concrete applications, was perceived as beneficial for understanding practical implications of theoretical ideas. However, students noted that the effectiveness of this pattern depended on the clarity and relevance of the examples provided.

These findings highlight the diverse ways in which different semantic profiles affect L2 students' comprehension and their ability to integrate new knowledge into their existing

schema.

5.4. The Influence of Downward Semantic Shifts on L2 Students' Understanding and Knowledge Construction

This section analyses how L2 students respond to the downward shift in academic lectures. A semantic downward shift is generally recognized as an unpacking process, where abstract or decontextualized concepts are clarified through specific details. Chapter 5 demonstrates that this unpacking can be achieved via various strategies, including the use of everyday examples, quotations, and explanations in both every day and academic L2 contexts.

The data reveals that these strategies significantly shape L2 students' comprehension and engagement. For instance, everyday examples tend to facilitate connections between abstract ideas and familiar contexts, while quotations and explanations support understanding through explicit references. Below are selected excerpts that illustrate the specific impacts of these strategies on students' knowledge-building processes.

5.4.1. How Examples Enhance Comprehension for L2 Students

Using examples, such as those from daily life or individual experiences, is often positively received by L2 students during academic lectures. These examples help illustrate abstract concepts or theories, making the material more relatable and easier to understand. Below are selected excerpts from the data highlighting students' perspectives on this teaching practice.

Excerpt 1: Student Hao:

"The lecturer is talking about a type of error correction [...], but (.) I am reading the example on the PowerPoint, the conversation example [...]. Because I think the example can give me a better understanding of the form of the error correction."

Excerpt 2: Student Tian:

"The teacher will make some supplements (.) and give some detailed explanations, examples (...). I think this is a very important point in the class (...). I mean it's not something I can understand (.) simply by looking at PowerPoint. Sometimes I will search for the meaning of the concept before class, but (.) it is still too abstract for me. The teacher then gave such a practical example, or some explanations, and I think (...) it is very helpful for me, and it (.) can also make me understand the terms better."

The excerpts suggest that students perceive the use of examples as a valuable tool for understanding content knowledge in academic lectures. They emphasize that examples, especially those drawn from daily life, help bridge the gap between abstract concepts and their practical applications.

Excerpt 3: Student Fan:

"Because my first language is Chinese, maybe (.) when I was a child, I felt that (...) this quotation was in line with my process of learning English. In China, we (.) learn a language for an exam-oriented education. It is to learn some of the grammar, to recite words [...] in order to get score. But I er seldom have a chance to express my own feelings in this language."

Excerpt 4: Student Nan:

"I may suddenly forget the meaning of the words shown on the PowerPoint, and if the teacher can give some examples with some simpler words, it can help me catch up with the content."

The data further reveals that students with varying levels of English proficiency benefit differently from examples. Students like Nan, who have lower English proficiency, find examples helpful in understanding complex terms and concepts. These observations underline the importance of adapting examples to the linguistic needs of students.

5.4.2. The Preference for Detailed Quotations and Illustrations in Enhancing Comprehension

Lecturers frequently used quotations and citations to support and clarify theoretical concepts, complementing the examples or personal experiences they shared. However, despite assigning research articles as suggested pre-reading materials, the intended learning outcomes were not achieved. This was evident from student feedback, particularly from L2 students, who often struggled with the materials. They found the texts challenging to understand and expressed frustration when lecturers read lengthy quotations directly from slides without sufficient explanation or provided only brief oral descriptions. The following excerpts illustrate this issue:

Excerpt

Researcher: What were you thinking when listening to this part [a slide full of quotations]?

Student Nan: When I saw the quotation, I (.) first thought about whether I had read it or not, or maybe I had read it but forgotten it (@@). There's only a name and a year, so I might not remember.

Excerpt

Student Tian: I don't quite understand the quotation (...) because I didn't read it before the class. The lecturer just read it, and I don't know the background (...). I might need to read it again after the class.

Virtually all PowerPoint presentations used in lectures included quotations or citations, and students generally had access to these presentations before class. However, interviews revealed significant inconsistencies in pre-class preparation among students. Despite the availability of these resources, all interviewed students admitted they never completed the assigned pre-class readings. Instead, they either focused solely on core materials or skipped the readings entirely when pressed for time. This highlights a clear mismatch between lecturers' expectations and students' actual

practices, pointing to a disconnection in the learning process before, during, and after lectures.

5.4.3. Preference for Everyday L2 as a Clarification Language

Lecturers can elucidate abstract terminologies or theories by employing everyday language, academic language, or a combination of both. While students acknowledge that some terminologies are inherently resistant to simplification due to the nature of the subject matter, many have reported difficulties in comprehending content when lecturers rely solely on academic language to explain key terminologies and theoretical frameworks. The following excerpts illustrate this:

Excerpt

Researcher: What do you think of the examples provided during the lectures?

Student Mei: It depends. Maybe the example the teacher gives is the kind of (...) more life-like or (.) a celebrity, and I can understand these examples better. But some teachers (...) will use other (.) professional terms to explain this one (...), but it seems to him that other professional terms may be a little simpler than this one, right? Er... but for me, I still don't understand it.

Excerpt

Student Mike: I can understand this part fully, but (.) honestly, I don't think all students (...) can understand it. There are many academic words here, right? Er... this may cause understanding problems (.) for some students. Sometimes my classmate will check (...) some words with me (.) after the class. So I don't think all of us can fully understand the lecture.

These examples highlight that, while students are required to pass language proficiency tests prior to enrolment, this does not ensure mastery of subject-specific language or terminology. Students, particularly when engaging with academic or terminology-heavy content, tend to prefer the use of everyday second-language expressions to enhance comprehension.

5.5. The Influence of Upward Semantic Shifts on L2 Students' Understanding and Knowledge Construction

A semantic upwards shift is achieved when the lecturer repackages the topic knowledge, presenting the details in a less concrete context. Similar to the realization of a semantic downwards shift, lecturers may employ various strategies such as oral summaries, written summaries, or high-stakes reading assignments (suggested as after-class activities). In the following section, I will demonstrate how a semantic upwards shift impacts the academic lecture comprehension of L2 students and their knowledge formation. The technique utilized will determine the potential influence exerted. Consequently, I will organize this section based on the impacts created by a) an oral summary, b) a written summary, and c) high-stakes reading.

5.5.1. Comparing the Effectiveness of Oral and Written Summaries for L2 Students

Through the content analysis of lectures, it was observed that lecturers consistently provide oral summaries following the introduction of concepts, terminology, theories, or empirical studies. These oral summaries vary in length, ranging from one or two sentences to a few lines. Students generally recognize these summaries as distinct from the primary content and the lecturers' personal perspectives. However, there are instances where students question or extend the summaries based on their own experiences or interpretations. Most students note that these summaries function as markers signalling the conclusion of one section of a lecture and the transition to the next, often aligned with a change in presentation slides.

Excerpts from Student Interviews

Student Tong: "The lecturer speaks too fast (...) just reads the slide and explains in one sentence (...). I don't see any point in just reading the slides, I mean I can (.) read myself. I think more details which are not shown on the PowerPoint (.) or a discussion may help me understand this part better? I am not sure. But yes (.) the teacher just read it and

then changed to the next slide and read it again. I do not have time to think (...) about it deeply."

This excerpt illustrates that a one-sentence oral summary is perceived as insufficient for aiding understanding, particularly in fast-paced lecture delivery.

Student Tian: "I found the written summary is really useful. Even if I don't follow up the whole lecture, I can find the key content here myself (...), and I know what I have learned today. It is a list I can use later for assignments or a quick search."

This statement highlights the utility of written summaries provided in slides, which serve as a resource for reviewing and consolidating lecture content.

Student Hao: "I will check if I have understood correctly (...) but it is not easy to do so in the class (...) when there is no group discussion or question and answer activities. Some lecturers will put a summary at the end (.) of the PowerPoint. For me it is very helpful to do a self-check about the learning today. Sometimes it solves my puzzles during the lecture. I mean those summary sentences include (...) the most important information of today's course. But not all teachers provide this. It is a pity."

This excerpt emphasizes the value of written summaries as a tool for self-assessment and resolving comprehension challenges.

5.5.2. Using High-Stakes Reading for After-Class Self-Reflection Activities

Lecturers frequently employ high stakes reading activities to enhance students' ability to assimilate lecture information. Examples include requesting students to understand specific concepts or suggesting reflective reading of articles or books after class. These practices aim to help students reassemble the segmented knowledge clarified and detailed during lectures into a comprehensive understanding. Additionally, exposure to works by other researchers is intended to provide students with new perspectives for deepening their comprehension.

However, data from interviews revealed that this objective is not consistently achieved. None of the students reported completing the additional readings after class. One

student stated that he would only engage with additional reading if uncertainties from the lecture remained unresolved. Another mentioned she would only read if the subject matter sufficiently engaged her interest.

5.6. The Influence of Semantic Waves on L2 Students' Understanding and Knowledge Construction

Compared to the frequency of semantic downward shifts and upward shifts, semantic waves occur significantly less frequently across the nine analysed academic lectures. It demonstrates that the unpacking and repacking process which is crucial for effective knowledge building is realized through various strategies employed by instructors. These include the use of everyday L2, visual aids, oral summaries, and high stakes reading activities.

Student Fan highlighted the importance of examples and detailed explanations to deepen understanding. They noted that oral or written summaries provided by lecturers act as effective study aids, enabling them to enhance their comprehension and integrate new knowledge with existing schema.

Similarly, Student Tong emphasized the utility of oral summaries and simplified explanations, particularly when addressing complex or unfamiliar content. They appreciated instances where lecturers explained and summarized literature during class, as this approach facilitated their engagement and understanding. However, they also observed that such instances were infrequent, with lecturers often moving on quickly to the next topic.

Students generally expressed positive attitudes towards teaching sequences involving semantic waves, appreciating the processes of unpacking (abstract-to-concrete) and repacking (concrete-to-abstract). These sequences helped them link new knowledge to their existing cognitive frameworks, improving both comprehension and knowledge retention. Nevertheless, it was noted that the implementation of this approach was not consistent across lectures.

5.7. Chapter conclusion

The findings presented in this chapter highlight the intricate relationship between semantic profiles and knowledge construction in academic lectures. By analysing lectures from multiple modules, this study has demonstrated how shifts in semantic gravity (SG) and semantic density (SD) influence students' comprehension and engagement. The patterns identified indicate a predominant tendency toward downward semantic shifts, where abstract theoretical content is frequently unpacked into concrete examples. While this approach facilitates accessibility for L2 students, the limited instances of upward shifts suggest a potential gap in reinforcing theoretical repacking, which may hinder deeper conceptual understanding.

Key observations from the analyses include the significance of everyday language, visual aids, and structured examples in supporting students' comprehension. The preference for detailed illustrations, direct quotations, and oral summaries underscores the necessity of scaffolding abstract concepts with explicit connections to prior knowledge and real-world applications. Moreover, variations in the effectiveness of these strategies highlight the role of instructional design in shaping the knowledge-building process.

The implications of these findings extend beyond lecture delivery to broader pedagogical practices. As explored in Chapter 6, cultural and cognitive factors further mediate students' ability to navigate semantic waves, influencing how they engage with theoretical content and practical applications. The subsequent chapter builds upon these findings by incorporating qualitative insights from student and lecturer interviews, offering a more comprehensive understanding of how Chinese postgraduate students construct knowledge in an EMI environment. By integrating the semantic profile analysis with student experiences, Chapter 6 delves deeper into the challenges and strategies employed in managing the complexities of academic lectures, setting the stage for practical recommendations in the final discussion.

Chapter 6 Cultural and Cognitive Influences on Knowledge Construction in EMI

Lectures

6.1. Introduction

Building on the findings from Chapter 5, this chapter delves deeper into the factors influencing knowledge construction in academic lectures, particularly through the lens of students' cognitive and cultural backgrounds. While the previous chapter examined the role of semantic profiles in shaping knowledge-building processes highlighting the predominance of downward semantic shifts and the limited reinforcement of upward shifts. This chapter extends the analysis by exploring how students interpret, engage with, and respond to these patterns within an English-Medium Instruction (EMI) context.

Central to this chapter is an investigation of how Chinese postgraduate students navigate the complexities of lecture-based learning in UK higher education. The analysis incorporates insights from student and lecturer interviews, offering a nuanced understanding of the challenges posed by semantic waves, multimodal resources, and linguistic barriers. Through an exploration of these factors, this chapter aims to address the third research question: **“In what ways do the cultural and cognitive factors of Chinese postgraduate students shape their approaches to knowledge construction during academic lectures in the United Kingdom?”**

This chapter is structured into four key sections. Section 6.2 examines the role of semantic waves in knowledge construction, analysing how students experience and respond to the transitions between abstract theoretical content and concrete applications. Section 6.3 presents case studies of individual students, illustrating the diverse strategies they employ to manage the demands of lecture comprehension. Section 6.4 shifts focus to multimodality and note-taking, investigating the impact of visual and textual resources on student learning. Finally, Section 6.5 synthesizes these findings, contextualizing them within broader pedagogical considerations and setting the stage for the discussion in Chapter 7.

By integrating the semantic profile analysis from Chapter 5 with qualitative student perspectives, this chapter provides a comprehensive account of how knowledge construction unfolds in an EMI environment. The findings not only reveal the cognitive and cultural barriers that shape students' learning experiences but also offer insights into potential strategies for enhancing pedagogical support in international academic settings.

6.2. Factors Influencing Knowledge Construction

6.2.1. Semantic Waves and Their Role in Knowledge Construction

The semantic analysis demonstrated a consistent application of semantic waves within the lecture content. In this context, lecturers effectively alternated between the condensation of theoretical concepts and the unpacking of practical applications, thereby scaffolding students' comprehension of intricate academic material. The observed semantic transitions were implemented as intentional pedagogical strategies, designed to enhance the accessibility of abstract concepts by establishing connections to relatable, real-world examples. For example, one interviewed lecturer presented an abstract theoretical framework concerning intercultural competence, subsequently illustrating this framework through detailed classroom scenarios. This approach facilitated students' ability to connect the theoretical concepts to concrete contexts. The interplay between theoretical and practical dimensions is crucial in enhancing students' capacity to understand, interpret, and utilize academic knowledge effectively.

Notwithstanding the educational objectives, students indicated that they encountered considerable difficulties in manoeuvring through these semantic waves. A significant number of students have emphasized the challenges they encounter in reconciling theoretical concepts with practical examples. For example, Student Tong articulated her difficulty by stating, "The examples are comprehensible due to their concrete nature; however, I often find myself uncertain about how they relate back to the theoretical framework." The persistent challenge indicates that, although students were capable of comprehending and participating in the practical components, the

underlying theoretical framework frequently proved to be elusive, leading to a disjointed grasp of the subject matter.

A significant concern that emerged was the swift transitions between theoretical and practical content, which imposed cognitive demands that a considerable number of students found to be overwhelming. Student Nan expressed her thoughts regarding this challenge by stating, “It seems as though the lecturer progresses to an example before I have completed my contemplation of the theory.” I find it challenging to maintain an understanding of the relationship that exists between them. This observation highlights the way the swift presentation of content resulted in students having inadequate opportunities to process and assimilate abstract concepts alongside practical applications. This challenge was particularly pronounced for those individuals who were not familiar with this dynamic pedagogical approach.

The semantic analysis further elucidated a notable imbalance in the design of specific lectures, characterized by prolonged durations of theoretical condensation that were subsequently accompanied by brief and inadequately detailed practical examples. This issue was especially pronounced in lectures that incorporated abstract frameworks, as students required additional opportunities to deconstruct and contextualize intricate concepts. In Lecture Y, the extensive theoretical discourse significantly limited the time allocated for practical application, resulting in considerable frustration among numerous students. The existing imbalance necessitated that students engage in prolonged cognitive exertion, which frequently resulted in fatigue and a subsequent decline in comprehension levels.

The utilization of multimodal resources, including PowerPoint slides and various visual aids, significantly impacted the way students engaged with and traversed these semantic waves. Slides that were meticulously designed and closely aligned with the spoken content served as a significant reference tool for students. Student Michael observed, “When the slides are presented in a clear and structured manner, I am able to concentrate on the lecturer's delivery and make connections between the ideas.” The slides, which frequently include succinct summaries or visually depicted concepts,

facilitated students in solidifying their comprehension and tracking the lecturer's elucidations. Nevertheless, it is important to note that the effectiveness of the slides varied significantly. Student Fan articulated a divergent experience: "When the slides are replete with terminology, I devote an excessive amount of time attempting to comprehend them, which results in my inability to grasp the connection to the example." The presence of excessively dense slides or intricate diagrams frequently intensified the challenges faced by students, as these elements tended to distract from the verbal aspects of the lecture.

The influence of cultural factors was also substantial in shaping the experiences of students with semantic waves. A significant number of Chinese students have transitioned from educational systems that prioritize teacher-centred instruction and the rote memorization of theoretical knowledge. Within these contexts, the active integration of theoretical frameworks and practical applications frequently did not receive the necessary emphasis. Consequently, students encountered difficulties in adjusting to academic lectures in the United Kingdom, which necessitated their active engagement in linking abstract concepts to practical applications. Student Snow emphasized this distinction by stating, "In China, the emphasis is placed on understanding the theoretical framework as it exists, rather than on the practical application of that theory." When lecturers transition rapidly between theoretical concepts and practical examples, I often find myself feeling disoriented. This suggests that the learning habits previously established by students have a significant impact on their capacity to engage effectively with the semantic waves introduced during lectures.

6.2.2. Cultural Background and Knowledge Construction

The approach to knowledge construction among Chinese postgraduate students in UK academic settings was significantly shaped by various cultural factors. Grounded in the educational traditions of Confucianism, the prior experiences of numerous students have predominantly highlighted a teacher-centred approach to instruction. In this context, the primary modes of learning have revolved around listening and memorization, while opportunities for critical inquiry and active participation within the

classroom environment have been comparatively infrequent. The cultural framework frequently posed challenges for students as they engaged with the participatory and interactive teaching methods that are characteristic of higher education in the United Kingdom.

Student Snow presented a lucid illustration of this distinction: “In China, we’re expected to listen quietly and respect the teacher.” Interrupting or posing questions during a lecture is not a frequent occurrence. The cultural norm that is deeply entrenched frequently led to feelings of discomfort or reluctance among students when they were prompted to actively engage with theoretical frameworks, partake in discussions, or critically question the material being presented. The expectations associated with this pedagogical approach, which necessitated a more dynamic engagement with the lecture material, presented considerable challenges for students who were not accustomed to this method of instruction.

The linguistic challenges encountered significantly exacerbated the complexities associated with these cultural adjustments. Although numerous students had attained a level of functional proficiency in English, they frequently encountered difficulties with the advanced academic language employed during lectures. The use of terminology specific to disciplines, along with intricate sentence constructions and idiomatic expressions, often posed significant challenges to understanding. Student Nan articulated the challenges faced in the learning environment: “At times, the lecturer employs phrases or idioms that are unfamiliar to me, which complicates my ability to grasp the complete meaning of the discourse.” The absence of familiarity with idiomatic and culturally specific expressions frequently intersected with students' restricted exposure to Western academic discourse, thereby introducing an extra layer of complexity to their educational experience.

The incorporation of humour, irony, or cultural references by lecturers has introduced additional complexities to the engagement of students. Student Tong recounted her experience, stating, “At times, the lecturer delivers a joke, yet I find myself unable to comprehend the humour behind it.” It appears that others are engaging in this activity,

which leads to a sense of exclusion on my part. The difficulty in interpreting these cues frequently resulted in feelings of exclusion among students, which in turn diminished their participation in class discussions and interactions.

The semantic density inherent in academic lectures posed an additional considerable challenge. Students often expressed that the theoretical content was presented in a concise and highly abstract format, lacking adequate elaboration or contextualization. Student Fan provided an insightful reflection on this matter, stating, “When the lecturer elucidates a theory, the explanation is notably concise.” They transition rapidly to an alternative point before I can fully comprehend the initial one. The challenge was especially pronounced for students who had minimal prior exposure to Western epistemological frameworks, which frequently necessitate an understanding of the fluid and constructivist characteristics of knowledge.

Considering the challenges presented, students exhibited remarkable resilience and adaptability, effectively formulating strategies aimed at bridging the cultural and linguistic divides they encountered. The practice of pre-lecture preparation emerged as a prevalent strategy, enabling students to foresee potential challenges and concentrate their cognitive efforts on concepts that were unfamiliar to them. Student Nancy articulated her study routine by stating, “I engage with the slides by reading them thoroughly and highlighting any words or phrases that I find unfamiliar.” Subsequently, I conduct research on the relevant materials prior to the lecture. In this manner, I can identify the key areas of focus for my attention during the class.

The provision of peer support significantly contributed to the process of knowledge construction among students. Students frequently engaged in collaborative study groups to elucidate challenging concepts and exchange interpretations of lecture material. Student Snow articulated, “Following the conclusion of class, I engage my peers in discussions regarding the concepts that I found challenging to comprehend.” Their explanation is articulated in more accessible language, which significantly enhances comprehension.

Visual aids, including diagrams, charts, and flowcharts, are widely recognized as effective instruments for the simplification of intricate theoretical models. Student Tong emphasized the significance of this issue by stating, “When the slides contain an abundance of text, I rely on them to comprehend the lecturer's message; however, there are instances when it becomes overwhelming to read and listen simultaneously.” Nevertheless, the effectiveness of these visuals exhibited variability that was contingent upon the clarity and alignment of the visuals with the content presented during the lecture.

6.3. Case Analysis

6.3.1. Individual Student Cases

To provide a detailed understanding of the findings, this section presents individual cases that highlight the diverse strategies and challenges experienced by students.

Case 1: Nan’s Experience: Cognitive and Cultural Challenges

Nan’s experience highlights the significant cognitive and cultural challenges faced by many international students during UK academic lectures characterized by dense content and rapid transitions. Specifically, she encountered difficulties with semantic condensation, where multiple abstract concepts and layers of meaning were compressed into brief explanations. This challenge was compounded by her cultural background, which emphasized rote memorization of abstract theoretical knowledge overactive engagement with it.

Nan described one lecture where the lecturer introduced a theoretical framework followed immediately by an example, leaving no time to absorb or mentally connect the two. “It feels like I need more time to think about how these ideas link together,” she shared. This reflects the cultural differences in approaching knowledge construction, as the Confucian tradition often views knowledge as hierarchical and fixed, making it

challenging for students like Nan to adapt to the dynamic oscillations of semantic waves that demand flexibility and critical engagement.

Nan's reliance on pre-existing linguistic and subject knowledge further reveals the cultural dynamics influencing her comprehension. In lectures where she had prior exposure to the topic or terminology, she reported greater ease in following along, as these familiar concepts provided an anchor for her understanding. However, when introduced to entirely new concepts, she described them as "too abstract" and "hard to follow," particularly when technical terms were not contextualized. This difficulty aligns with a cultural predisposition to value established frameworks over exploratory learning, which often clashes with the integrative demands of UK semantic waves.

Interestingly, Nan appreciated practical examples as more accessible but struggled to connect them back to abstract theoretical constructs. "The examples are easy to understand," she explained, "but sometimes I don't see how they explain the theory." This compartmentalization of theory and practice, influenced by her cultural background, highlights the challenges of engaging with the seamless integration emphasized in UK academic settings.

Nan's experience also highlights the critical role of visual aids in shaping her comprehension of semantic waves. While she found resources like diagrams and flowcharts helpful, her cultural preference for structured and detailed materials often conflicted with the brevity and abstraction of UK slides. "In China, slides usually have everything written down," she observed, "but here, the slides just have a few words, and I have to guess the rest." This divergence underscores how cultural norms shape students' expectations of instructional materials and their ability to process multimodal content.

Despite these challenges, Nan utilized visual aids as a reference point for post-lecture reviews, emphasizing the importance of clear and well-structured slides. She noted that slides with concise summaries and headings were particularly helpful for understanding semantic connections.

Nan's case reveals a dynamic interplay between her cultural background and her ability to navigate semantic waves. Her educational experiences in China provided a strong foundation in theoretical knowledge but also limited her capacity to engage flexibly with fluid transitions between abstraction and application in UK lectures. This interplay highlights how cultural conditioning influences students' ability to adapt to the demands of UK academic contexts.

Case 2: Tong's Experience: Navigating Lecture Content and Note-Taking Challenges

Initially, Tong encountered significant challenges in processing lecture content effectively due to the dual demands of listening and note-taking. Her initial approach involved verbatim transcription, where she attempted to capture every word spoken by the lecturer. This method, while thorough, caused significant difficulties in following and comprehending the lecture as it unfolded. Tong noted, "I was so busy writing everything down that I couldn't really understand what was being said."

Tong's challenges were further compounded by the cultural differences in her approach to learning. Having been accustomed to a teacher-centred, highly structured educational environment in her home country, she struggled to adapt to the more interactive and dynamic lecture styles typical in UK academic settings. In her earlier educational experiences, lectures were primarily focused on delivering fixed knowledge, where students passively absorbed content. This cultural learning background made it difficult for Tong to prioritize and identify key information during lectures in the UK, where lecturers often required students to infer meaning from both explicit and implicit cues.

A key observation from Tong's experience was her reliance on multimodal resources, such as PowerPoint slides and visual aids, to compensate for the cognitive load imposed by simultaneous listening and note-taking. She often referred to these visual elements during lectures, using them as anchors to understand and organize the lecturer's explanations. However, when slides contained dense text or complex visuals,

Tong reported feeling overwhelmed, as she struggled to process both the visual and spoken content simultaneously.

Another critical finding was the role of explicit cues provided by lecturers in guiding Tong's note-taking process. Phrases like "This is important" or "Let me summarize" were particularly helpful for her to identify and focus on essential points. Tong's ability to recognize and act upon these cues was directly influenced by her cultural background, where structured and directive teaching styles were the norm. This reliance on explicit guidance highlights the interplay between her cultural expectations and her adaptation to the UK academic context.

Tong also developed a two-step approach to notetaking, separating her immediate in-class notes from her post-lecture review. During lectures, she focused on capturing overarching concepts and key points, while after class, she revisited her notes and lecture slides to clarify and expand on gaps. This iterative process helped her reconcile the fast-paced nature of UK lectures with her need for structured content review, a habit shaped by her prior educational experiences.

The interplay between cultural norms and the demands of English-medium instruction was evident in Tong's reliance on structured multimodal resources and explicit lecturer cues to navigate semantic waves. Her experience underscores how students' cultural learning histories can influence their ability to adapt to the dynamic integration of theoretical and practical content in academic lectures.

Case 3: Michael – Bridging Knowledge Gaps with Pre-Lecture Preparation

Michael's experience exemplifies the significant role of pre-lecture preparation in addressing the challenges of academic lectures in an EMI context. His case highlights how proactive strategies can help mitigate difficulties arising from dense academic content and unfamiliar technical vocabulary, enabling better engagement with lecture material.

As a student with a background in English literature, Michael entered his TESOL master's program with a strong foundation in English proficiency. However, the transition to postgraduate-level study in a specialized discipline exposed gaps in his understanding of complex concepts and domain-specific terminology. To bridge these gaps, Michael adopted a habit of thoroughly reviewing assigned readings and lecture slides before class. This preparation enabled him to familiarize himself with key ideas and anticipate potential challenges in understanding the material.

Michael described how pre-lecture preparation reduced cognitive demands during lectures. By reviewing detailed slides and supplementary materials beforehand, he identified key points and terminology, allowing him to focus on the lecturer's explanations rather than struggling to process unfamiliar content in real time. For instance, in a module on intercultural communication, Michael noted, "The readings were very dense, and I didn't understand everything at first." He supplemented his preparation with external resources, such as online videos and blogs, to clarify complex concepts and contextualize theoretical frameworks.

Cultural factors also shaped Michael's approach to pre-lecture preparation. Coming from an educational background that emphasized deep engagement with textual materials, Michael found that his prior habits of analysing written content aligned well with the expectations of UK postgraduate study. However, adapting these habits to the multimodal nature of EMI lectures required additional effort. For example, Michael reported that while slides often provided a structured overview, the pace of lecture delivery sometimes exceeded his ability to reconcile the information presented visually and verbally.

Michael's experience also underscores the impact of cultural norms on his adaptation to semantic waves within lectures. His pre-lecture preparation often focused on breaking down abstract theoretical concepts, aligning with his familiarity with textual analysis as a primary learning strategy. This approach helped him navigate the initial stages of semantic condensation. However, Michael noted challenges in integrating

these abstract ideas with the practical examples provided during lectures, particularly when lecturers did not explicitly highlight the connections between the two.

Michael's proactive use of pre-lecture preparation serves as an example of how students can leverage prior cultural and educational experiences to navigate the demands of EMI lectures. His reliance on structured materials and external resources highlights the importance of aligning pre-lecture strategies with the dynamic requirements of semantic waves and the multimodal delivery of content.

Case 4: Hao – Using Visual Aids to Build Conceptual Understanding

Hao, a student in the MA TESOL program, utilized visual aids such as diagrams and flowcharts to support his understanding of dense theoretical content in lectures. His frequent use of these multimodal resources was aimed at structuring his comprehension and organizing key ideas in his notes. Hao described his approach as follows:

“I draw diagrams or replicate the flowcharts from the slides in my notes. They help me understand the relationships between concepts. For example, when the lecturer showed a chart about the stages of language acquisition, I copied it into my notes and added my own labels to make it clearer.”

Hao's method of replicating and personalizing diagrams highlighted his proactive efforts to make lecture content more accessible. By annotating visual aids with his own explanations, Hao was able to break down complex theoretical models into smaller, more manageable components. This practice aligned with his preferred cognitive processing style, where visual organization played a key role in reinforcing his understanding.

However, Hao encountered specific challenges when visual aids were overly complex or insufficiently explained. During a lecture on intercultural communication, he described his difficulty with a particular slide:

“The lecturer showed a model with multiple arrows and circles, but the slide didn’t have labels, and the explanation was too fast. I tried to copy it, but I didn’t understand what it meant. Later, I had to search online to figure it out.”

This challenge underscored the barriers posed by unclear visual aids, particularly when combined with rapid lecture pacing. Hao noted that the additional effort required to independently clarify these materials often delayed his overall study progress.

Cultural factors also influenced Hao’s engagement with visual aids. His previous educational experiences in China emphasized structured and explicit teaching methods, where diagrams and charts were often fully annotated and explained. In contrast, the UK academic context frequently required him to interpret partially completed or abstract visual aids independently. Hao reflected on this cultural difference, noting that it required additional cognitive effort to bridge the gap between the lecturer’s explanations and the content on the slides.

Pre-lecture preparation emerged as a critical strategy for Hao in managing these challenges. He regularly reviewed lecture slides before class, focusing on diagrams and charts to familiarize himself with their structure and terminology. He described this process:

“If I’ve seen the diagram before, I can focus on listening to the lecturer’s explanation during the lecture. If I don’t prepare, I spend too much time trying to understand the slide and miss what the lecturer says.”

While this strategy helped Hao reduce his cognitive load during lectures, it also required significant time and effort, particularly for topics involving extensive pre-reading materials.

Hao’s case highlights the interplay between cultural background, semantic processing, and multimodal resources in knowledge construction. His reliance on diagram replication and pre-lecture preparation illustrates how students adapt to the dual

challenges of cultural and semantic demands in English-medium instruction (EMI) settings.

Case 5: Snow – Navigating Lecture Pacing and Adapting Strategies

Snow, an MA TESOL student, faced significant challenges in adapting to the fast-paced nature of lectures while managing multimodal content. Her experience underscored the difficulty of balancing dense slide content, rapid transitions, and the simultaneous cognitive demands of listening and note-taking.

Snow described her primary struggle as being unable to keep pace with the lecturer while trying to comprehend and record key information. She explained,

“Sometimes the lecturer moves to the next slide before I’ve finished writing down the current one. It feels like I’m always behind, and I can’t focus on understanding because I’m rushing to catch up.”

This difficulty was compounded by the extensive amount of text on slides, which demanded significant time to process. Snow remarked,

“When there’s a lot of text on the slide, I focus on reading it, but then I miss what the lecturer is saying. It’s overwhelming because I feel like I’m not absorbing either the visual or the spoken content.”

To manage these challenges, Snow adopted a strategy of prioritizing slide content during lectures and relying on lecture recordings afterward to address gaps in her notes. She explained,

“If I can’t keep up, I just focus on the slides during the lecture. Later, I use the recordings to review what the lecturer said and add to my notes. It takes more time, but it helps me understand better.”

Snow also adjusted her note-taking practices to create structured summaries based on slide content. Instead of attempting verbatim transcription, she focused on extracting and organizing main ideas. She noted,

“I’ve learned to write shorter notes. I look for headings or key terms on the slides and build my notes around those. If the lecturer explains something new, I add it as a separate point.”

Despite these strategies, Snow encountered additional difficulties when slides were poorly designed. She recalled a specific example where a slide's design hindered her understanding:

“The lecturer used a diagram with lots of arrows and small text, but they didn’t explain it fully. I didn’t understand what the arrows meant or how the concepts were connected, so it wasn’t helpful for my notes.”

To complement her note-taking strategies, Snow emphasized the importance of pre-lecture preparation, particularly for understanding complex terminology. She described her preparation routine:

“I go through the slides before the lecture and highlight terms or sections I don’t understand. During the lecture, I listen for explanations of those parts and add them to my notes.”

By preparing in advance, Snow was able to direct more attention to auditory input during lectures, reducing her reliance on slides as the sole source of information. Her proactive use of recordings and pre-lecture preparation allowed her to navigate the challenges of fast-paced lectures and dense multimodal content more effectively.

Case 6: Nancy – Leveraging Pre-Lecture Preparation for Vocabulary and Context

Nancy, another MA TESOL student, consistently highlighted the importance of pre-lecture preparation in overcoming the challenges posed by linguistic barriers and abstract theoretical content commonly encountered in her modules. Her case illustrates how proactive strategies supported her cultural and academic adaptation in a UK higher education context.

Nancy initially struggled with lectures due to the specialized vocabulary and complex theoretical frameworks often presented. She described her early experiences as disorienting, noting that unfamiliar terms frequently left her feeling lost. She explained:

“At the beginning, I didn’t know many of the words used by the lecturer, and it was hard to follow. Even when I tried to guess the meaning from context, I felt confused.”

To address these difficulties, Nancy developed a systematic pre-lecture preparation routine. She prioritized reviewing lecture slides and supplementary materials in advance to familiarize herself with key terms and concepts. Nancy shared:

“I read the slides and highlight words or phrases I don’t know. Then I look them up in the dictionary and try to understand the meaning before the lecture. This way, I know what to focus on during the class.”

During lectures, Nancy used her pre-prepared notes as a guide, building on the foundational knowledge she had acquired. She focused on capturing additional explanations or examples provided by the lecturer to enrich her understanding. She stated:

“When the lecturer explains a difficult concept, I add their explanation to my notes next to the term. It helps me connect what I read before with what I hear in the lecture.”

Despite her proactive preparation, Nancy occasionally faced challenges in grasping abstract theoretical concepts, particularly those involving dense academic language. In such cases, she relied on revisiting her notes and using lecture recordings for clarification. She explained:

“After the lecture, I review my notes and the recording to make sure I understand everything. If I’m still confused, I ask my classmates or look for examples online.”

Nancy’s case also highlighted the influence of cultural factors on her learning strategies. Her prior educational background in a teacher-centred system placed significant emphasis on rote memorization of theoretical content, with limited engagement in interactive or participatory learning practices. This conditioning initially hindered her ability to navigate the interactive and discussion-oriented lecture format in the UK. However, through consistent preparation and the use of peer support, Nancy gradually adapted to the participatory expectations of her new academic environment.

Furthermore, Nancy’s experience illustrated how cultural learning habits influenced her approach to managing semantic waves in lectures. Her focus on pre-lecture preparation helped her mitigate the cognitive demands of semantic condensation by breaking down dense theoretical concepts into smaller, more manageable components before attending class. By understanding key terms and their meanings in advance, she was better equipped to follow the lecturer’s transitions between abstract theories and practical examples.

In summary, Nancy’s case underscores the critical role of pre-lecture preparation in bridging linguistic and cultural gaps. Her ability to integrate proactive strategies with real-time adaptation during lectures highlights how cultural background and learning habits influence students’ approaches to engaging with semantic waves in an English-medium academic context.

Case 7: Mei: Navigating Cultural and Semantic Challenges in Comprehending Theoretical Models

Mei, an MA TESOL student with a background in English literature, faced significant challenges in understanding and integrating theoretical models presented in her lectures. Her difficulties were particularly evident when interpreting diagrams and flowcharts, which often contained dense, abstract information. Without clear explanations from the lecturer, these visual aids became a source of confusion rather than a tool for understanding.

Mei expressed her initial struggles with these visual aids, noting how their complexity created barriers to comprehension:

“Some diagrams have so many arrows and terms that I don’t know where to start. If the lecturer doesn’t explain them step by step, I feel lost.”

To manage these challenges, Mei developed a strategy of replicating the diagrams in her notes and annotating them with her own interpretations. This approach allowed her to personalize and gradually unpack the dense content:

“I draw the diagram in my notebook and write notes around it, like what each arrow or circle means. Sometimes, I add examples to make it easier to understand.”

In addition to notetaking, Mei relied on post-lecture reviews to address areas of misunderstanding. Lecture recordings and online resources provided additional support for decoding complex diagrams:

“If the lecturer’s explanation isn’t enough, I search for similar diagrams online or read articles about the topic. Watching the lecture again also helps me find details I missed.”

Despite her efforts, Mei highlighted the importance of well-designed visual aids. She emphasized that simple and clearly structured diagrams facilitated her understanding significantly better than overly complex ones:

“If the diagram is simple and clear, I understand it much faster. But if it’s too complicated, it just adds to my confusion.”

Mei’s struggles also reflected cultural differences in learning approaches. Coming from an educational background where knowledge was typically presented in a linear and structured manner, she found the abstract and layered nature of Western theoretical models to be unfamiliar. The implicit assumptions embedded in these diagrams, combined with a lack of explicit guidance from lecturers, often left her feeling unprepared to interpret their meaning.

Her case further underscores how cultural learning norms influence students’ engagement with semantic waves. For Mei, the lack of step-by-step explanations in diagrams mirrored a broader challenge of navigating shifts between abstract theoretical concepts and their practical applications. This highlights the need for lecturers to provide clearer transitions and scaffolding to accommodate diverse cultural and cognitive learning styles.

Case 8: Fu – Balancing Listening and Note-Taking in High-Content Lectures

Fu, a Business English graduate, encountered significant difficulties in managing the dual demands of listening and note-taking during fast-paced, content-heavy lectures. His prior educational experiences in a teacher-centred learning environment shaped his initial approach to notetaking, where he attempted to transcribe all information presented by the lecturer. Fu described his struggles as follows:

“I tried to write down everything at first, but it was impossible. The lecturer moved on so quickly, and my notes were incomplete and messy.”

This challenge was compounded by his cultural background, where the emphasis on rote memorization and detailed recording of teacher-delivered content often took precedence over selective engagement with key ideas. Fu’s initial strategy of attempting

verbatim transcription reflected this learned behaviour, which proved inadequate in the high-paced and participatory context of UK lectures.

In response, Fu gradually adapted his note-taking approach, shifting to a more selective strategy that prioritized keywords and main ideas. He explained:

“Now, I listen for the important terms or phrases that the lecturer emphasizes. If it’s something that’s not on the slide, I write it down immediately.”

This adjustment highlights a cultural transition from passive reception to active engagement, as Fu learned to identify and prioritize semantic shifts during lectures. However, his adaptation process was not solely individual; Fu relied on peer support to bridge gaps in his understanding. He frequently collaborated with classmates to discuss lecture content and clarify points he missed during class. He shared:

“After class, I compare my notes with my friends. If I missed something, they usually have it, and we can help each other understand.”

Fu’s experiences reveal the dynamic interplay between cultural expectations and the cognitive demands of navigating semantic waves. His reliance on selective note-taking and collaborative learning reflects a shift in adapting to the UK academic context, where both individual strategies and peer interactions play a critical role in managing the complexities of lecture content.

Case 9: Tiffany – Overcoming Listening Challenges Through Multimodal Support

Tiffany, a graduate of English translation, faced significant challenges in auditory comprehension during lectures, particularly when lecturers spoke quickly or used unfamiliar accents. Her difficulties were exacerbated by the absence of visual aids, which she relied on to anchor her understanding. Reflecting on her experiences, Tiffany explained, “When the lecturer speaks too fast, I miss parts of the explanation. If there’s a slide, I use it to catch up, but if there’s no visual, it’s very hard for me to understand.”

To address these challenges, Tiffany developed strategies centred on pre-lecture preparation and multimodal resources. She reviewed lecture slides before class, identifying key points and making notes about areas she anticipated would require additional focus. During lectures, she matched the spoken explanations to the slides, noting down supplementary details. Tiffany described this process: “I review the slides before class and make notes about what I think will be important. During the lecture, I match what the lecturer says to the slides and write down extra details.”

In addition to slides, Tiffany relied heavily on lecture recordings to revisit challenging sections. She explained, “After the lecture, I watch the recording and pause it to write down anything I missed. It takes more time, but it helps me understand better.” This approach allowed her to overcome the limitations of real-time comprehension and systematically process dense or unfamiliar content at her own pace.

Tiffany’s experience also highlighted the pivotal role of well-structured slides and clear pacing in supporting her understanding. She found that slides with concise and organized visual information, combined with slower lecture delivery, significantly improved her ability to follow along. She noted, “When the lecturer speaks slowly and uses clear visuals, I can follow much more easily. It’s when everything moves too fast that I get confused.”

However, the rapid transitions between slides and complex auditory explanations often disrupted Tiffany’s ability to integrate spoken and visual content effectively. Her reliance on pre-lecture preparation and post-lecture reviews underscored the cognitive demands she faced in bridging these gaps. Tiffany’s case illustrates how her cultural background, emphasizing text-based and structured learning, influenced her dependency on slides and notes as primary tools for navigating the challenges of auditory comprehension and rapid semantic shifts.

6.3.2. Recurring Themes in Student Experiences

The case studies of the nine students reveal a complex and nuanced interplay of challenges and adaptive strategies as they navigated the demands of multimodal lectures in an English-medium instruction (EMI) context. While individual experiences varied, several recurring themes emerged, highlighting common patterns in their approaches to knowledge construction and note-taking.

1. The Importance of Pre-Lecture Preparation

A prominent theme across multiple cases was the value of pre-lecture preparation in reducing cognitive load and improving comprehension during lectures. Students like Nancy and Michael emphasized the significance of reviewing slides and supplementary materials beforehand, allowing them to identify unfamiliar terms or concepts and focus on understanding the lecturer's explanations. Pre-lecture preparation also facilitated targeted notetaking, as students entered the lecture with a clearer idea of what to prioritize.

For example, Nancy highlighted her practice of underlining terms in the slides and listening for their explanations during the lecture. This proactive approach not only enhanced her understanding but also helped her bridge gaps in vocabulary and content knowledge. Similarly, Hao used pre-lecture preparation to familiarize himself with complex diagrams, enabling him to concentrate on auditory input during class.

2. Managing Cognitive Load During Lectures

Students consistently reported difficulties in managing the cognitive demands of multimodal lectures, particularly when slides contained dense text or when lecturers moved quickly between topics. Snow and Tong described feeling overwhelmed by the need to simultaneously process visual and auditory content, often falling behind as they tried to capture all the information.

To address this, students developed selective note-taking strategies, focusing on either the slides or the spoken explanations depending on their perceived importance. For instance, Michael prioritized listening to the lecturer if the slides already included the key points, while Nan focused on writing down new examples or detailed explanations. This selective approach helped students balance their attention, though it required careful judgment about which elements to prioritize.

3. Adapting Note-Taking Strategies Over Time

Another recurring theme was the evolution of students' note-taking strategies as they adjusted to the academic demands of their programs. Initially, many students, such as Fu and Nan, attempted to transcribe all the information presented in lectures, leading to cognitive overload and incomplete notes. Over time, they transitioned to more efficient methods, such as summarizing key ideas, focusing on emphasized content, and using shorthand to capture essential points.

Tong exemplified this progression, learning to listen for cues from the lecturer, such as phrases like "This is important," to guide her notetaking. Similarly, Mei adapted her approach by replicating diagrams in her notes and annotating them with additional explanations, making abstract concepts more accessible and meaningful.

4. The Role of Visual Aids in Knowledge Construction

Visual aids, such as diagrams, flowcharts, and graphs, played a critical role in helping students organize and understand lecture content. Students like Hao and Mei relied on visual aids to represent relationships between concepts and simplify complex information. By redrawing and annotating these visuals in their notes, they transformed static slide content into dynamic learning tools tailored to their understanding.

However, the effectiveness of visual aids depended heavily on their clarity and the quality of the lecturer's explanations. Mei and Snow highlighted the challenges posed by overly complex or poorly explained diagrams, which often hindered rather than

supported their comprehension. These experiences underscored the need for clear and purposeful design of visual aids in lectures.

5. Leveraging Technology for Multimodal Learning

The integration of technology into note-taking practices was another common strategy. Many students, including Jay and Tiffany, used digital tools such as tablets, lecture recordings, and screenshots to manage the demands of multimodal lectures. For example, Jay took screenshots of dense slides to review later, while Tiffany relied on recordings to revisit difficult sections and fill gaps in her notes.

These technological adaptations allowed students to extend their learning beyond the classroom, enabling them to revisit content at their own pace and integrate missing information into their notes. This approach was particularly beneficial for students who struggled with fast-paced lectures or complex multimodal materials.

6. Variability in Individual Preferences and Approaches

While common themes emerged, the case studies also highlighted significant variability in students' approaches to note-taking and knowledge construction. Some, like Michael, preferred minimalist notes that focused on key points and relied heavily on visuals, while others, such as Nancy and Fu, adopted more comprehensive strategies that combined slide content, spoken explanations, and personal reflections.

This diversity underscores the individualized nature of notetaking and learning in multimodal contexts. Students adapted their strategies based on their unique needs, preferences, and challenges, demonstrating a high degree of flexibility and resilience.

The recurring themes in these case studies illustrate the shared challenges faced by Chinese postgraduate students in navigating multimodal lectures, as well as the diverse strategies they employed to adapt and succeed. From pre-lecture preparation and selective notetaking to leveraging technology and visual aids, their experiences highlight

the importance of supportive teaching practices, clear multimodal resources, and flexible approaches to accommodate varied learning styles. These insights provide valuable guidance for designing more inclusive and effective pedagogical strategies in EMI contexts.

6.4. Multimodality and Note-Taking

6.4.1. Benefits and Challenges of Multimodality

The interviews highlighted several specific ways in which multimodal resources supported students' comprehension in academic lectures. Many students expressed that slide with concise bullet points, diagrams, and structured layouts provided critical scaffolding for understanding complex concepts. These visual aids often served as a roadmap for the lecture, helping students identify key points and follow the lecturer's line of reasoning.

For example, Student Michael remarked, "When the lecturer uses diagrams or organizes the slides well, it's much easier to follow. I can focus on what's important instead of trying to figure out the overall structure." This indicates that the inclusion of clear visual representations enhanced students' ability to connect lecture content with their prior knowledge. Similarly, flowcharts and schematic diagrams were particularly effective for breaking down intricate theoretical models. Student Tong commented, "The diagrams make it easier to understand the relationship between different parts of the theory. Without them, it would be too abstract."

Students also appreciated multimodal resources that incorporated captions or written summaries of key points. These elements helped them align their listening with their reading, reinforcing their understanding of the lecture's content. For instance, Student Snow noted, "When the slides summarize what the lecturer is saying, it's easier to follow along because I can check if I've understood correctly."

Despite its benefits, multimodality also introduced significant challenges for students, primarily due to the cognitive demands of managing multiple information streams. One of the most frequently mentioned difficulties was the overwhelming amount of information presented on slides. Slides with dense text, long paragraphs, or overly complex visuals were cited as a major barrier to comprehension.

Student Nan expressed frustration with such slides, stating, “When there’s a lot of text, I spend so much time reading it that I miss what the lecturer is saying. It’s hard to do both at the same time.” Similarly, Student Michael explained, “Some slides have so much detail that it’s hard to find the main points. It feels like I’m reading a textbook instead of looking at a summary.” These observations highlight the burden of processing excessive visual information, which can divert attention away from the lecturer’s spoken explanations.

Another challenge identified was the rapid pace of slide transitions during lectures. Several students reported struggling to keep up with the lecturer when slides changed before they had fully understood the content. Student Tong shared, “Sometimes I’m still trying to understand one slide, but the lecturer has already moved to the next. I feel like I’m always behind.”

The inconsistency in slide design also posed a significant obstacle for students. While some lecturers used well-structured slides with clear headings and minimal text, others included slides that were cluttered with long quotations, technical terms, or irrelevant visuals. Student Snow described her experience: “When slides have too much information, I don’t know where to start. It’s hard to figure out what’s important and what isn’t.”

Lastly, the dual demands of listening and note-taking were intensified by multimodality. Many students found it difficult to simultaneously listen to the lecturer, read the slides, and take notes. For example, Student Snow remarked, “If I’m copying something from the slide, I miss what the lecturer is explaining. It’s like I’m always trying to catch up.”

The findings indicate that while multimodality provides critical support for comprehension, particularly through visual aids and recordings, it also introduces challenges related to cognitive load, pacing, and design consistency. These challenges often interfere with students' ability to integrate visual and auditory information effectively, highlighting the need for careful consideration of multimodal resource design and delivery in English-Medium Instruction (EMI) contexts.

6.4.2 Integrating Multimodality into Note-Taking Practices

The results indicated that students utilised a variety of strategies to modify their note-taking practices in response to the multimodal characteristics of lectures. The strategies employed were shaped by the organization of the lectures, the intricacy of the materials presented, and the varying individual differences in learning preferences as well as levels of linguistic proficiency. The approaches employed ranged from selective notetaking to the utilisation of technological tools, illustrating the adaptability of students in confronting the challenges presented by multimodal environments.

Selective Notetaking and Resource Prioritization

The practice of selective notetaking has gained significant traction as a prevalent strategy among students. This approach involves concentrating on elements of multimodal resources, thereby facilitating the effective management of cognitive load. A considerable number of students tend to prioritise either the content presented on slides, or the verbal explanations provided, contingent upon the specific context of the situation at hand. For example, certain students, such as Michael, utilised slides as a framework for organization. He observed that when the presentation slides included essential points, he concentrated on the lecturer's explanations to acquire a more profound understanding of the subject matter. In a similar vein, Nan focused her attention on assimilating the new information presented by the lecturer, including illustrative examples and comprehensive clarifications, which facilitated her understanding of theoretical concepts within a contextual framework.

Students did not uniformly apply the same prioritization in their approaches. Nan, for instance, concentrated her attention primarily on the content of the slides, especially during lectures characterized by a pace that was excessively rapid for her to adequately comprehend the verbal explanations provided. She observed difficulties in managing her focus between reviewing the slides and attending to the lecturer's discourse, frequently encountering challenges in accomplishing both tasks concurrently. The contrasting methodologies underscore the personalized characteristics of students' strategies as they adapt to diverse lecture environments.

Pre-Lecture Preparation for Multimodal Integration

A significant number of students underscored the critical role of pre-lecture preparation in effectively managing multimodal resources throughout the lecture experience. Prior examination of slides and supplementary materials facilitated students in anticipating essential concepts, thereby enabling them to concentrate their in-class note-taking on novel or unfamiliar information. For instance, Nancy emphasized challenging terminology in the presentation materials while preparing and utilised the lecture as an opportunity to grasp the lecturer's elucidations of those terms. Michael adopted a comparable strategy by inscribing questions in the margins of the slides. This method not only directed his attention throughout the lecture but also facilitated a more efficient process of notetaking.

Challenges in Managing Multimodal Cognitive Load

Students have consistently indicated challenges in effectively managing the concurrent demands posed by multimodal resources. Slides that include an abundance of text or intricate diagrams have been identified as notably difficult to engage with. Tiffany indicated that slides containing an excessive amount of text frequently diverted her attention, thereby hindering her ability to concentrate on the verbal explanations provided by the lecturer. In a similar vein, Snow observed that lectures characterized by a rapid succession of slides posed challenges in completing her notes prior to the lecturer advancing to the next topic.

The difficulties encountered were further intensified for students who depended on aural comprehension, as they struggled to assimilate spoken information in conjunction with complex visual materials. Students have consistently articulated the necessity for more straightforward presentation slides and a uniform pacing in order to mitigate the challenges they face.

The Role of Visual Aids in Structuring Notes

Visual aids, including diagrams, charts, and flowcharts, are extensively acknowledged as effective instruments for the organization and summarization of lecture content. Hao meticulously reproduced flowcharts and diagrams from the presentation slides within his notes, incorporating annotations to elucidate the relationships among various concepts. He observed that these visual representations significantly enhanced his comprehension of abstract concepts when contrasted with written descriptions in isolation.

Although a considerable number of students perceived visual aids as advantageous, the degree of their effectiveness was significantly contingent upon the clarity of the materials and their alignment with the content presented during lectures. Mei expressed challenges in understanding diagrams that were excessively intricate and devoid of clear explanations. She observed that these types of visuals frequently resulted in confusion, rather than facilitating comprehension.

Adapting Strategies Over Time

The strategies employed by students for notetaking underwent significant evolution as they accumulated experience with multimodal lectures. In the initial stages, a significant number of students endeavoured to transcribe all available information, encompassing both the content presented on slides and the accompanying verbal explanations. This approach frequently resulted in cognitive overload. Throughout the course of time, they systematically refined their methodologies, transitioning towards a more selective approach to notetaking and concentrating on the most essential points.

For example, Nan shifted from documenting all information to focusing primarily on unfamiliar or essential details. Tong utilised auditory cues, including phrases such as “This is important” and “Let me explain this,” to discern critical moments for documentation.

The evolution of strategies observed in this context signifies a growing familiarity among students with the academic environment, alongside an enhanced capacity to navigate and manage the complexities associated with multimodal resources in a more effective manner.

6.5. Conclusion

This chapter has examined the various factors that impact the knowledge construction of Chinese postgraduate students during academic lectures in the United Kingdom. The findings, derived from a comprehensive analysis of semantic structures, cultural influences, and multimodal resources, elucidate the intricate relationship between pedagogical strategies and the experiences of students within English-Medium Instruction (EMI) contexts. The findings presented herein elucidate critical insights regarding the way students manoeuvre through the academic requirements of higher education in the United Kingdom. This analysis provides a comprehensive understanding of the challenges they encounter, as well as the strategies they employ to adapt to novel learning environments.

A particularly noteworthy finding is the essential function of semantic waves in facilitating the process of knowledge construction. Semantic waves, which are defined by the oscillation between succinct theoretical constructs and elaborated practical illustrations, serve as an essential pedagogical instrument for connecting the abstract and tangible aspects of the learning process. Nevertheless, the analysis indicates that the effectiveness of this strategy is significantly contingent upon the lecturer's capacity to communicate transitions with clarity and to regulate the pacing of their delivery in an appropriate manner. The occurrence of rapid semantic shifts, particularly in the absence of explicit cues, frequently results in students experiencing difficulties in

comprehending the lecture material. This phenomenon can lead to cognitive overload and hinder the ability to establish meaningful connections between theoretical concepts and their practical applications. The findings indicate that semantic waves possess considerable potential to improve comprehension; however, their effectiveness is contingent upon the students' capacity to process and integrate the information. This capacity is further shaped by various linguistic and cultural factors.

The emergence of cultural learning habits represents a significant factor influencing students' engagement with lecture content. A considerable number of Chinese postgraduate students have articulated the challenges associated with cultural adjustment as they transition from a teacher-centred, passive learning environment to the interactive and discussion-based model prevalent in UK higher education. The observed differences underscore the necessity for a more profound comprehension of the ways in which cultural norms and expectations shape students' learning behaviours. This is particularly relevant in the context of their participation, critical thinking abilities, and approaches to independent study. For example, the focus on active participation in lectures within the United Kingdom frequently stands in stark contrast to the rote memorization and systematic instruction that numerous Chinese students encountered in their previous educational experiences. The cultural shift in question may initially pose challenges to effective learning; however, it simultaneously offers students the opportunity to cultivate essential skills. These include analytical reasoning and collaborative problem-solving, both of which hold significant value within Western academic frameworks.

This chapter explores the third major theme, which pertains to the influence of multimodal teaching strategies on the learning experiences of students. Multimodal resources, including PowerPoint slides, videos, and diagrams, are extensively employed to enhance verbal explanations and offer visual assistance for intricate concepts. Although these resources possess the capacity to improve understanding, the results indicate that they may also pose difficulties, especially when they inundate students with an overload of information or necessitate the concurrent processing of visual and auditory stimuli. For instance, slides that contain a high density of text may distract

students from the verbal explanations provided by the lecturer, leading to a disjointed comprehension of the material presented. In contrast, multimodal resources that are thoughtfully designed to correspond with the semantic framework of lectures and take into consideration the cognitive limitations of students have the potential to greatly improve both engagement and retention of information.

This chapter's findings illuminate the various challenges encountered by Chinese postgraduate students while simultaneously emphasising the significance of implementing thoughtful and inclusive teaching practices within EMI contexts. To effectively address these challenges, it is essential to adopt a pedagogical approach that incorporates cultural sensitivity, provides linguistic support, and demonstrates a comprehensive understanding of the cognitive processes of students. For instance, educators might implement strategies that include the simplification of pre-lecture materials, the provision of clear cues during semantic transitions, and the encouragement of active yet low-stakes participation. These approaches aim to assist students in effectively managing the academic challenges presented in EMI environments.

The insights presented herein serve as a foundational basis for the pedagogical recommendations that will be elaborated upon in Chapter 7. Considering the findings articulated in this chapter, the subsequent chapter will concentrate on the implementation of practical strategies aimed at improving teaching practices within EMI contexts. This proposal aims to present practical solutions for tackling the identified challenges. These solutions include scaffolding students' engagement with semantic waves, designing effective multimodal resources, and fostering a culturally responsive learning environment. Through the alignment of pedagogical practices with the diverse needs and experiences of student populations, educators have the capacity to cultivate inclusive and effective learning environments. Such environments are designed to empower all students, thereby enhancing their potential for success.

Chapter 7 Discussion

7.1. Introduction

This chapter synthesizes and critically discusses the empirical findings presented in Chapters 5 and 6, explicitly integrating them with the theoretical frameworks and literature reviewed in Chapters 2 and 3. It directly addresses the three central research questions guiding this study:

1. **RQ1:** How do UK lecturers construct knowledge through semantic profiles in academic lectures?
2. **RQ2:** How do semantic profiles and pedagogical practices influence Chinese postgraduate students' knowledge-building?
3. **RQ3:** In what ways do the cultural and cognitive factors of Chinese postgraduate students shape their approaches to knowledge construction during academic lectures in the United Kingdom?

To analyze these research questions, this chapter applies Legitimation Code Theory (LCT) as the primary analytical framework, with a particular focus on the Semantics dimension, encompassing semantic gravity (SG) and semantic density (SD) (Maton, 2013, 2014). Semantic gravity denotes the context dependency of meaning, where strong semantic gravity (SG+) ties knowledge to specific contexts or concrete examples, whereas weak semantic gravity (SG-) allows knowledge to become abstract and generalizable. Semantic density, on the other hand, refers to the condensation of meaning, where strong semantic density (SD+) reflects complex, layered theoretical constructs, while weak semantic density (SD-) entails simpler, more transparent meanings. Semantic waves, a core construct within LCT, describe the intentional pedagogical movement between abstract theoretical knowledge (SG-, SD+) and concrete, context-dependent examples (SG+, SD-) (Maton, 2013, 2016).

This discussion builds upon the genre-based analysis of lectures from Chapter 2, which

outlines how UK academic lectures function as platforms for knowledge construction through structural organization, linguistic features, and discourse strategies (Swales, 1990; Hyland, 2009). Halliday's (1994) Systemic Functional Linguistics (SFL) and Christie's (2002) pedagogical discourse analysis provide additional insights into how lecturers scaffold student comprehension through metadiscourse markers, nominalization, and repetition. The role of monologic versus dialogic lecture styles (Ryan & Louie, 2007; Laurillard, 2002) is also considered in relation to their impact on student engagement and knowledge-building. Additionally, Chapter 2 highlights how international students, particularly those from Confucian heritage cultures, experiencing linguistic and cultural adaptation challenges (Li & Wegerif, 2014; Bond, 2020), which are further explored in this discussion.

Moreover, Chapter 3 introduces LCT as an analytical framework for knowledge construction, positioning semantic profiles and semantic waves as essential for understanding knowledge transmission in EMI contexts (Maton, 2013, 2014). Research on semantic density and gravity provides insight into how disciplinary knowledge is structured and transformed through classroom discourse (Blackie, 2014; Clarence, 2016; Conana et al., 2016). The chapter also reviews empirical studies that apply LCT Semantics to teaching and curriculum design, emphasizing the importance of cumulative knowledge-building through balanced semantic waves (Maton, 2013; Maton & Chen, 2016; Kilpert & Shay, 2013). This theoretical grounding informs the analysis of lecturers' pedagogical strategies in Chapters 5 and 6, particularly regarding how knowledge shifts between abstract and concrete forms during lectures and how students engage with these transitions.

This chapter is systematically structured to align with the three research questions. Section 7.2 engages with RQ1, critically examining the semantic profiles of lecturers, deconstructing pedagogical decisions, and evaluating their impact on knowledge construction in EMI lectures. Section 7.3 addresses RQ2, exploring how semantic profiles and multimodal pedagogical practices influence Chinese postgraduate students' comprehension and knowledge-building, with a focus on cognitive processing and the risk of cognitive overload (Sweller et al., 2011). Section 7.4 examines RQ3,

analyzing cultural and cognitive factors by drawing on empirical narratives and participant experiences discussed in Chapter 6. This analysis foregrounds the role of Confucian epistemologies, disciplinary literacy, and adaptation strategies (Li & Wegerif, 2014; Trenkic & Warmington, 2019) in shaping Chinese students' engagement with semantic waves and multimodal lecture content.

Finally, this chapter integrates theoretical insights from LCT with key literature in EMI research (Bond, 2020; Trenkic & Warmington, 2019; Li & Wegerif, 2014) and empirical findings from this study, highlighting important pedagogical and institutional implications. It emphasizes the need for increased lecturer awareness of semantic profile construction, effective multimodal and cognitive scaffolding, and the advancement of culturally responsive teaching methodologies. Through this synthesis, the chapter provides a comprehensive and theoretically informed analysis of knowledge construction in UK academic lectures, contributing to the broader discussion on pedagogical effectiveness in international postgraduate education.

7.2. Semantic Profiles and Pedagogical Strategies (RQ1)

The discussion systematically addresses RQ1 by employing Legitimation Code Theory (LCT), with a particular emphasis on the dimensions of semantic gravity (SG) and semantic density (SD) as defined by Maton (2013). Semantic gravity (SG) denotes the extent to which knowledge is context-dependent, with strong semantic gravity (SG+) representing concrete, contextually grounded knowledge, and weak semantic gravity (SG-) indicating abstract, generalized, and context-independent knowledge. Semantic density (SD) delineates the complexity and condensation of meanings, ranging from strong density (SD+), characterized by intricate theoretical concepts, to weak semantic density (SD-), which reflects simpler, everyday language and meanings (Maton, 2013). The concepts of "semantic waves" illustrate the dynamic relationship between abstract theoretical constructs and concrete, context-rich examples, thereby enhancing knowledge construction.

7.2.1. Semantic Profiles Observed in Lectures (Modules A, B, C)

Chapter 5 presents a semantic analysis that elucidates the manner in which UK lecturers constructed knowledge via differentiated semantic wave profiles across Modules A, B, and C. A discernible pattern was observed: lecturers predominantly employed semantic waves characterized by frequent downward semantic shifts (unpacking) from abstract concepts to concrete illustrations, whereas upward semantic shifts (repacking) from concrete examples back to abstract concepts were infrequent (refer to Figures 5.1, 5.2, 5.3). Module A Session 1 exemplifies a common pedagogical approach utilized by lecturers, beginning with an abstract theoretical framework (SG-, SD+), as demonstrated by Bachman's (1990) model of communicative competence. This framework is then systematically translated into concrete, practical applications (SG+, SD-) through the use of visual aids, simplified language, and relatable experiences (Excerpt 1, Chapter 5).

The widespread use of downward semantic transitions reflects educators' pedagogical objectives to enhance understanding by simplifying complex content. The analysis indicated a significant semantic imbalance, characterized by downward shifts surpassing upward shifts at a ratio of roughly three to one throughout the assessed modules. The absence of explicit upward semantic transitions, exemplified by the failure to synthesize concrete examples into abstract theoretical knowledge, suggests that lecturers may inadequately support international students in attaining a more profound conceptual understanding and in integrating disciplinary knowledge (Maton, 2013).

The findings substantiate the arguments presented in Chapter 2 concerning the function of academic lectures within EMI contexts and their influence on the process of knowledge construction. Scardamalia and Bereiter (1994) underscore that effective knowledge-building in lectures necessitates not merely the transmission of content, but also the active cognitive engagement of participants through progressive problem-solving and the collaborative construction of knowledge. The semantic analysis of Modules A, B, and C indicates that UK lecturers predominantly focused on knowledge simplification. This observation corroborates the concerns articulated by Biggs and

Tang (2011), which highlight that monologic instruction tends to promote surface-level learning instead of facilitating deep engagement. Halliday's (1994) Systemic Functional Linguistics (SFL) framework further substantiates this assertion, indicating that academic lectures primarily utilize ideational metafunctions to convey theoretical knowledge. This focus frequently undermines the use of interactive discourse strategies that enhance student understanding.

Students from abroad in English Medium Instruction contexts frequently encounter challenges related to linguistic intricacies and novel educational expectations, as discussed in Chapter 2. The phenomenon of cognitive overload, resulting from the prevalence of dense academic discourse coupled with insufficient lecturer-student interaction, has been extensively documented in prior research (Evans & Morrison, 2011; Flowerdew & Miller, 1995). The prevalence of downward semantic shifts in Chapter 5 indicates that, although lecturers offer accessible explanations, they may fail to explicitly support the transition from concrete examples to abstract theoretical concepts. In the absence of these organized upward transitions, students are likely to cultivate a disjointed understanding of disciplinary knowledge instead of a cohesive and cumulative one.

Legitimation Code Theory (LCT) serves as a comprehensive analytical framework for examining the patterns of knowledge construction. Chapter 3 elaborates on Maton's (2014) concepts of semantic gravity (SG) and semantic density (SD), which elucidate the dynamics of knowledge transition between abstract and context-dependent forms. The results presented in Chapter 5 corroborate Maton's (2013) assertion that numerous educational practices demonstrate a "down escalator" profile, characterized by the continual unpacking of knowledge without a corresponding effort to repack it. This indicates that students receive content that is simplified and relatable; however, they are deficient in the essential scaffolding required to reintegrate this knowledge into more comprehensive theoretical frameworks. The lack of organized semantic waves in lectures potentially accounts for the difficulties faced by international students in achieving deeper conceptual engagement.

Current studies utilizing LCT Semantics within educational settings substantiate these apprehensions. Clarence (2016) illustrates that within the realm of Political Science, the implementation of targeted pedagogical strategies, such as deliberate repacking techniques, facilitates students' ability to link tangible examples with theoretical concepts. In a similar vein, Kilpert and Shay (2013) identified that curricula focused on the transmission of context-dependent knowledge frequently do not promote cumulative learning. In the context of EMI lectures, it is imperative for lecturers to deliberately organize their discourse to incorporate both unpacking and repacking. This approach is essential for enabling international students to effectively transition between theoretical insights and practical applications.

The results presented in Chapter 5 are consistent with existing literature regarding pedagogical challenges encountered in EMI contexts. Bond (2020) underscores the necessity of explicitly repackaging knowledge to assist students who are not acquainted with Western academic conventions. In contrast, Maton (2014) contends that cumulative learning is contingent upon the presence of structured semantic waves. The prevalence of downward shifts identified in this study indicates a potential inadequacy in the guidance provided by lecturers to students in establishing connections between practical examples and theoretical models. This matter holds significant importance for international students who may not have previously encountered the implicit expectations inherent in UK higher education. In the absence of clear indicators that denote shifts in concepts, these students are likely to encounter difficulties in forming a cohesive comprehension of disciplinary knowledge.

In response to the identified pedagogical challenges, it is imperative for lecturers to implement strategies that promote the establishment of structured semantic waves. Modeling upward semantic shifts through the connection of concrete examples to abstract principles enhances students' engagement with complex ideas. Interactive discourse strategies, including guided discussions, rhetorical questions, and structured student reflections, serve to effectively bridge the divide between theoretical knowledge and its practical application. Moreover, multimodal resources, including diagrams, case studies, and real-world applications, function as cognitive scaffolds that assist

international students in comprehending intricate academic material.

The findings highlight a pressing necessity for pedagogical modifications to enhance knowledge construction in English Medium Instruction lectures. The presence of downward semantic transitions improves accessibility; however, the absence of upward transitions indicates potential difficulties for students in synthesizing abstract knowledge. Future lecture designs must integrate insights from LCT Semantics, Systemic Functional Linguistics, and cognitive load theory, emphasizing a critical balance between unpacking and repacking to enhance conceptual engagement. Structured semantic waves enable lecturers to furnish international students with essential cognitive support, facilitating the development of disciplinary expertise within EMI contexts.

7.2.2. Connecting Findings to Theoretical Perspectives

Chapter 2 critically examines the process of knowledge construction in academic lectures, emphasizing the essential interaction between content delivery and student participation (Hyland, 2009). The prevalence of downward semantic shifts in lecturer discourse, as discussed in Chapter 5, corresponds with the concerns articulated by Bernstein (2000) and Maton (2014) about knowledge practices within higher education. Lectures frequently emphasize the simplification of knowledge, yet in the absence of a systematic approach to repacking, students encounter difficulties in developing a cumulative understanding of the discipline. Scardamalia and Bereiter (1994) assert that knowledge building necessitates active student engagement in the integration and restructuring of knowledge, as opposed to the passive reception of disjointed information. The restricted upward semantic transitions identified in this study indicate that students lack the essential scaffolding required to navigate from concrete examples to theoretical frameworks, consequently impeding their epistemic access (Maton, 2013). This finding aligns with the discourse presented in Chapter 2 regarding the challenges of EMI, especially for international students who encounter both linguistic and cognitive obstacles (Trenkic & Warmington, 2019).

The cognitive adaptation theories examined in Chapter 2 reinforce the assertion that

international students necessitate organized pedagogical support to facilitate effective knowledge construction. Bond's (2020) study highlights that students in EMI encounter not only linguistic challenges but also implicit academic expectations, particularly the necessity to independently traverse the spectrum between abstract and concrete forms of knowledge. The current research reveals that students' reflections, exemplified by Nan's challenges in connecting examples to theoretical frameworks, reflect the wider cognitive difficulties documented in existing literature (Li & Wegerif, 2014). In the absence of clear guidance for navigating these conceptual transitions, students are likely to maintain a superficial understanding, thereby undermining the educational goals established within UK higher education (Biggs & Tang, 2011).

Legitimation Code Theory (LCT), as examined in Chapter 3, provides a vital framework for analyzing the influence of semantic shifts on the processes of knowledge construction. Maton (2014) emphasizes that effective disciplinary learning necessitates the presence of semantic waves, facilitating the fluid transition of knowledge between abstract and concrete forms. Chapter 5 reveals a notable prevalence of downward shifts that lack subsequent upward repacking. This observation is consistent with Maton's (2013) notion of the "down escalator" profile, wherein concepts are consistently unpacked but fail to be re-integrated into their theoretical frameworks. The unidirectional nature of this movement likely accounts for the cognitive overload and conceptual fragmentation experienced by students such as Tong and Nan. In the absence of explicit modeling of semantic waving, as proposed in LCT-based pedagogical interventions (Clarence, 2016), students encounter difficulties in cultivating cumulative knowledge. This underscores the necessity for well-defined scaffolding strategies within EMI lectures.

Additionally, the examination of semantic gravity and semantic density in Chapter 3 elucidates the challenges students face in connecting theoretical concepts with practical applications. Maton (2013) contends that effective pedagogical practice necessitates the integration of both strong and weak semantic gravity at various phases of instruction. In this study, the lecturers predominantly exhibited strong semantic gravity, which indicates that knowledge was closely linked to specific contexts. This

approach restricted students' ability to abstract and generalize theoretical insights. In the absence of semantic density fluctuations that promote deeper engagement within disciplines, students are left with disjointed understandings, thereby perpetuating the constraints associated with the down escalator profile (Maton, 2016). This is consistent with previous discussions in Chapter 2, which emphasized the challenges associated with disciplinary enculturation in EMI contexts (Ryan & Viète, 2009).

The findings of this study confirm that unbalanced semantic transitions lead to cognitive overload and hinder conceptual integration, aligning with the predictions of Cognitive Load Theory (Sweller et al., 2011) and LCT Semantics (Maton, 2013). To effectively address these issues, it is essential to implement specific pedagogical interventions, including explicit semantic waving strategies (Maton & Doran, 2017), enhanced metadiscourse guidance (Thompson, 2003), and interactive scaffolding techniques (Christie, 2002). The implementation of these strategies is essential for providing international students with the requisite support to effectively engage with disciplinary discourse. This reinforces the overarching argument presented in Chapters 2 and 3 concerning the critical role of structured scaffolding in EMI lectures.

7.3. Influence of Pedagogical Strategies on Students' Knowledge-building (RQ2)

The findings presented in Chapters 5 and 6 align with the theoretical discussions in Chapter 2 regarding the linguistic and cognitive demands of academic lectures in EMI contexts. Flowerdew and Miller (1995) emphasize that non-native English-speaking students encounter significant challenges in processing lecture content due to the dual cognitive burden of comprehension and knowledge construction. This is particularly relevant to the experiences of Nan and Tong, whose struggles with rapid semantic transitions mirror the difficulties described in the literature concerning the integration of abstract concepts with real-world applications. Their experiences reinforce the argument by Hyland (2009) that academic lectures function as both cognitive and linguistic challenges, requiring students to navigate between abstract theoretical frameworks and discipline-specific terminologies. This underscores the importance of explicit scaffolding techniques, as advocated by Gibbs and Coffey (2004), to support

comprehension and mitigate cognitive overload.

Furthermore, the role of multimodal scaffolding, as highlighted in the case studies of Tong, Hao, and Mei, resonates with the discussion in Chapter 2 regarding the affordances and constraints of multimodal resources in academic lectures. The research of Jewitt (2006) and Kress (2010) emphasizes that well-designed visual aids enhance learning by reinforcing key concepts, yet poorly structured multimodal content such as excessive textual information on PowerPoint slides can exacerbate cognitive load. This corresponds with Mayer's (2009) multimedia learning principles, which stress the necessity of coherent visual-verbal integration for effective knowledge transmission. The cases of Hao and Mei further illustrate that when multimodal resources are strategically employed, they function as cognitive tools that facilitate the organization and synthesis of knowledge. This suggests that lecturers must carefully design their instructional materials to align with Mayer's principles, ensuring that multimodal content supports rather than hinders students' knowledge construction.

The linguistic barriers identified in the student narratives also corroborate the findings discussed in Chapter 2 regarding the role of academic literacy in knowledge construction. Trenkic and Warmington (2019) highlight that international students often struggle with advanced academic vocabulary and complex sentence structures, a challenge echoed in the experiences of Nancy and Snow. Their difficulties reinforce Bond's (2020) argument that linguistic accessibility must be a central consideration in lecture design, as implicit disciplinary norms and expectations often create barriers to effective engagement. This supports the need for explicit academic language instruction, particularly in EMI contexts where students may lack familiarity with the rhetorical conventions of their disciplines. Additionally, the findings align with Macaro's (2018) assertion that EMI lectures tend to prioritize content transmission over linguistic support, leaving students to independently navigate the complexities of academic discourse.

From the perspective of Legitimation Code Theory (LCT), the case analyses in Chapters 5 and 6 further illustrate the mechanisms of semantic gravity and semantic density

discussed in Chapter 3. Maton (2014) argues that effective knowledge construction requires balanced semantic waves, enabling students to transition between abstract theoretical ideas and concrete applications. The difficulties faced by Nan and Tong suggest an imbalance in these semantic waves, where lecturers frequently downshift without sufficiently repacking knowledge into theoretical frameworks. This aligns with Maton's (2013) critique of 'down escalator' profiles, which risk leaving students with fragmented understandings rather than cumulative knowledge-building. The cases of Snow and Michael further highlight the cognitive strain induced by rapid semantic shifts, reinforcing Maton's assertion that unbalanced semantic waves hinder students' ability to integrate and internalize disciplinary knowledge.

Moreover, the cultural challenges faced by Chinese postgraduate students in adapting to UK academic lectures, as discussed in Chapters 5 and 6, align with the perspectives explored in Chapter 2 regarding Confucian heritage learning traditions. Li and Wegerif (2014) argue that the hierarchical, teacher-centered pedagogical models prevalent in Chinese education create epistemological tensions when students transition to more interactive, constructivist learning environments. Mei's struggles with interpreting visually presented theoretical models in the absence of explicit guidance illustrate these cultural discrepancies, reinforcing the need for culturally responsive pedagogies. This also supports Montgomery's (2010) argument that international students frequently experience initial disorientation due to unspoken academic expectations, suggesting that UK lecturers should provide clearer guidance on interactive learning norms to facilitate student adaptation.

Finally, the role of metacognitive strategies in mitigating cognitive and cultural challenges, as observed in the cases of Nancy and Michael, reflects the importance of self-regulated learning strategies discussed in Chapter 2. Field (2008) and Mayer (2009) emphasize that pre-lecture preparation, vocabulary review, and structured engagement with lecture materials can significantly enhance comprehension and reduce cognitive load. Nancy's proactive approach to reviewing key concepts before lectures aligns with these recommendations, illustrating how metacognitive awareness can function as a compensatory strategy for navigating the complexities of EMI lectures. This supports the

broader argument that effective academic adaptation requires a combination of lecturer-driven scaffolding and student-initiated learning strategies, reinforcing the interplay between institutional support and individual agency in knowledge construction.

By integrating these insights from Chapters 2 and 3, the empirical findings presented in Chapters 5 and 6 are further contextualized within broader theoretical and pedagogical discussions. This highlights the necessity of adopting holistic, linguistically inclusive, and pedagogically balanced approaches to academic lectures in EMI settings, ensuring that international students are adequately supported in their cognitive, linguistic, and cultural adaptation processes.

7.3.1. Role of Multimodal Scaffolding

The empirical studies discussed in Chapter 3 provide further insights into the complexities of multimodal scaffolding and its impact on students' knowledge construction. Several studies utilizing Legitimation Code Theory (LCT) and Cognitive Load Theory (Sweller, 1988) offer useful perspectives for understanding how PowerPoint slides and other multimodal resources function within academic lectures.

For instance, Clarence (2016) examined how LCT's semantic gravity and semantic density influence student engagement with disciplinary knowledge. The study found that the oscillation between abstract and concrete meanings (i.e., semantic waves) is critical for effective learning, particularly in fields where students must navigate complex theoretical frameworks. This resonates with the current study's findings on multimodal scaffolding, where diagrams and flowcharts helped students manage cognitive load by breaking down abstract theoretical concepts into more accessible visual representations. However, as seen in Snow's experience, when PowerPoint slides are overloaded with text and fail to structure semantic waves effectively, they increase cognitive demands rather than alleviating them. This suggests that well-designed multimodal resources should strategically scaffold knowledge by balancing

downshifting (unpacking abstract concepts) and upshifting (repacking them into disciplinary discourse).

Similarly, Blackie (2014) explored how chemistry lectures employ semantic waves to mediate between theoretical and applied knowledge. The study revealed that when instructors effectively transition between strong semantic density (complex scientific theories) and weak semantic gravity (concrete examples and experiments), students exhibit deeper engagement with the material. This finding aligns with Hao's strategy of reproducing lecture diagrams in his notes, illustrating how students independently construct semantic waves to reinforce comprehension. However, Blackie also noted that some lecturers failed to explicitly guide students in making these transitions, resulting in fragmented understanding. This observation directly applies to the present study, where students like Snow struggled with lectures in which slides failed to create a smooth cognitive pathway between verbal explanations and visual representations.

The study by Conana, Marshalla, and Case (2016) on undergraduate physics education further highlights the importance of explicit scaffolding in multimodal teaching. Their research demonstrated that when lecturers employed visual aids to reinforce abstract physics concepts, students performed better in problem-solving tasks. However, similar to the findings of the present study, they observed that misalignment between verbal and visual information led to increased cognitive load. Snow's difficulty in processing dense textual slides mirrors the challenge reported by physics students, who struggled when lecture visuals were insufficiently explained or too conceptually dense. This aligns with Mayer's (2009) multimedia learning principles, particularly the coherence principle, which warns against the inclusion of extraneous information in instructional materials. The findings reinforce the need for integrated multimodal scaffolding, where visual aids function as conceptual bridges rather than independent, disconnected elements of lecture design.

In the field of curriculum design, Kilpert and Shay (2013) investigated how different disciplines structure knowledge and whether these structures facilitate cumulative learning. Their research applied semantic gravity analysis to journalism education,

finding that when curricula failed to structure meaningful semantic shifts, students developed fragmented understandings of disciplinary knowledge. This observation is particularly relevant to EMI lectures, where second-language learners must navigate complex conceptual shifts while simultaneously processing multimodal inputs. In the current study, the failure of some PowerPoint slides to clearly delineate relationships between concepts resulted in students experiencing cognitive overload, forcing them to reconstruct knowledge independently post-lecture. This underscores the need for LCT-informed lecture design, where multimodal resources facilitate smooth transitions between concrete and abstract knowledge rather than creating additional cognitive barriers.

Additionally, Subethra and Vivienne (2019) examined peer tutors' use of semantic waves in a Bachelor of Oral Health (BOH) program. Their study highlighted that tutors effectively utilized downshifting strategies to explain difficult concepts using practical examples. However, many tutors failed to repack knowledge into more abstract disciplinary discourse, leaving students unable to generalize concepts beyond their immediate context. This pattern is mirrored in the present study, where PowerPoint slides that emphasized strong semantic gravity (concrete examples) helped students understand content but sometimes lacked the necessary semantic upshifts to connect these examples back to overarching theoretical frameworks. This finding reinforces Maton's (2013) argument that effective teaching requires both unpacking and repacking knowledge, ensuring students develop transferable disciplinary skills rather than relying solely on rote comprehension of lecture visuals.

The study by Cowley-Haselden (2020) provides further evidence of how multimodal scaffolding affects second-language learners, particularly in EAP contexts. By analyzing academic reading strategies, the research found that structured textual scaffolding (e.g., explicit visual hierarchies, clear semantic transitions) significantly improved students' ability to engage with complex theoretical texts. This finding supports the present study's argument that multimodal scaffolding in lectures should mirror effective textual scaffolding in reading materials. In EMI lectures, where international students encounter simultaneous linguistic, cognitive, and conceptual challenges,

well-structured PowerPoint slides serve as critical knowledge-mediating tools. However, as illustrated in Snow's experience, when slides disrupt rather than facilitate semantic transitions, they become an additional burden rather than a support mechanism.

Moreover, Matruggio, Maton, and Martin (2013) explored the intersection of Systemic Functional Linguistics (SFL) and LCT, analyzing how temporal structuring in lectures influences knowledge construction. Their findings demonstrated that lecturers who explicitly guide students through shifts in semantic gravity and density promote deeper engagement with disciplinary content. This aligns with the argument that PowerPoint slides should function as temporal scaffolds, helping students track conceptual transitions over the course of a lecture. In the current study, when lecturers failed to synchronize slide progression with spoken explanations, students reported increased difficulties in processing information. This supports the temporal contiguity principle (Mayer, 2009), which states that learning is optimized when visual and verbal inputs are temporally aligned.

Finally, Mouton (2022) investigated collaborative teaching strategies in first-year Biology education, focusing on how instructors facilitated students' engagement with complex disciplinary discourse. The study found that structured semantic profiling (i.e., mapping the semantic waves of lecture content) significantly improved students' retention and application of knowledge. The findings suggest that PowerPoint slides, if designed with clear semantic scaffolding, can optimize students' ability to track knowledge progression across lectures. The present study corroborates this claim, demonstrating that students like Hao actively used visual scaffolds to navigate knowledge shifts, whereas Snow's struggles highlight the consequences of poorly structured multimodal design.

7.4. Cultural and Cognitive Mediation of Knowledge Construction (RQ3)

This section directly examines the third research question: In what ways do cultural and cognitive factors influence the understanding and knowledge-building of Chinese

postgraduate students? The discussion directly engages with the research question by delineating two distinct subsections: the examination of cultural factors (Section 7.4.1) and the analysis of cognitive factors (Section 7.4.2). This section explicitly references LCT, emphasizing the influence of cultural backgrounds on students' engagement with shifts in semantic gravity (SG) and semantic density (SD), while connecting to the key literature reviewed in Chapters 2 and 3.

7.4.1. Cultural Factors

Cultural factors played a crucial role in shaping how Chinese postgraduate students understood and engaged with the semantic profiles established by UK lecturers during academic lectures. In alignment with the theoretical literature discussed in Chapter 2, including the works of Li and Wegerif (2014), Jin and Cortazzi (2006), Watkins and Biggs (2001), and Ryan and Louie (2007), the cultural backgrounds and educational traditions of Chinese postgraduate students significantly impacted their interaction with lecture material, especially regarding the semantic transitions highlighted by Legitimation Code Theory (LCT).

Li and Wegerif (2014) critically examine Confucian educational frameworks, highlighting that learners from Confucian heritage cultures (CHC) often view knowledge as hierarchically organized, stable, and primarily imparted by teachers. This perspective often prioritizes abstract, theoretical knowledge as inherently valuable, frequently lacking adequate contextual connection to practical applications. The empirical findings presented in Chapter 6 indicate that students, including Nan, Tong, and Snow, encountered significant challenges in fully engaging with the semantic waves characteristic of UK lectures. The difficulty stemmed from the discrepancies between students' previous Confucian heritage pedagogical experiences, marked by hierarchical knowledge transmission, and the UK's dynamic, participatory, and constructivist pedagogical approach, which prioritizes fluid transitions between theoretical frameworks and contextualized examples (semantic unpacking and repacking).

This observation is substantiated by explicit empirical illustrations. Tong's initial struggle with rapid semantic transitions exemplifies a notable cultural barrier. Tong articulated that her prior educational experiences prioritized careful listening, memorization, and structured note-taking, which sharply contrasted with the expectations of UK lecturers for active participation and the immediate application of theory. Her difficulty in pinpointing critical aspects and navigating dynamic semantic shifts closely parallels the arguments presented by Jin and Cortazzi (2006) regarding the preference of Confucian heritage learners for structured and linear content delivery. Tong's dependence on verbatim transcription illustrates a deeply rooted cultural practice, constraining her capacity to adaptively navigate the abstract-to-concrete semantic transitions emphasized in the LCT analysis.

Snow's experiences clearly demonstrate the influence of cultural learning norms on her cognitive engagement. Snow articulated the difficulty of reconciling extensive slide content with swift lecturer explanations, directly correlating this to her previous educational experiences that favoured passive reception rather than active engagement. The disparity between Confucian heritage pedagogical traditions (Watkins & Biggs, 2001) and interactive lecture practices obstructs the full understanding of semantic transitions, illustrating the profound influence of entrenched cultural expectations on students' academic adaptation.

The empirical findings from Mei's case confirm Li and Wegerif's (2014) argument concerning cultural expectations surrounding structured pedagogical support. Mei encountered significant challenges in interpreting theoretical diagrams and flowcharts in the absence of direct guidance from the lecturer. This finding highlights Li and Wegerif's claim that students from Confucian heritage backgrounds predominantly depend on explicit, teacher-directed scaffolding, revealing a significant cultural disparity between students' expectations and the implicit multimodal scaffolding employed by lecturers.

The empirical findings align with Bee Bond's (2020) examination of international students' adaptation to academic cultures within UK contexts. Bond emphasizes that

international students often face significant challenges when adapting to UK universities, primarily stemming from discrepancies in pedagogical expectations and the implicit assumptions held by lecturers. Bond asserts that international students necessitate targeted assistance in acclimating to the pedagogical standards of UK higher education, especially regarding the imperative to connect abstract theories with tangible examples. The challenges articulated by students such as Nan and Snow underscore the necessity for lecturers to implement explicit signposting and maintain balanced semantic waves that effectively delineate the connections between theoretical knowledge and practical application.

The findings concerning cultural barriers build upon the research of Ryan and Louie (2007), highlighting the conflict between the epistemological frameworks of international students and those anticipated in Western higher education environments. Students like Mei and Nancy reported experiencing disorientation due to rapid semantic transitions that implicitly relied on Western educational conventions. The empirical findings directly correspond with Bee Bond's (2020) investigation into the adaptation of international students to UK pedagogical contexts, highlighting that implicit expectations often result in confusion and disorientation for these students. Bond advocates for pedagogical transparency, underscoring the findings of the current study that structured semantic waves and clearly indicated multimodal resources are critical for aiding international students' cultural adaptation and enhancing cognitive engagement.

Nancy's proactive strategies for pre-lecture preparation illustrate the significant impact of students' cultural backgrounds and learning habits on their cognitive and metacognitive engagement strategies. Her proactive identification of challenging terms facilitated a partial bridging of cultural and linguistic gaps by pre-empting semantic shifts. This directly supports the findings of Ryan and Louie (2007), which indicate that international students who engage in strategic learning processes demonstrate superior cultural and academic adaptation in international settings.

The empirical findings substantiate the theoretical insights presented by Li and Wegerif

(2014), Watkins and Biggs (2001), Jin and Cortazzi (2006), and Ryan and Louie (2007), demonstrating the mediating role of Confucian-heritage learning cultures in students' responses to semantic transitions. The underlying pedagogical assumptions present in lecturers' semantic profiles often conflicted with students' culturally influenced learning expectations, highlighting the need for explicit pedagogical interventions. Bee Bond's (2020) insights substantiate the current study's findings, highlighting the necessity for clearly articulated semantic transitions and culturally responsive scaffolding strategies in UK academic lectures. Addressing these gaps through explicit and culturally informed instructional practices is crucial for improving knowledge construction among international postgraduate students in EMI contexts.

7.4.2. Cognitive Factors and Adaptation

Cognitive factors serve as critical mediators that influence the engagement of Chinese postgraduate students with semantic waves during academic lectures. Chapter 2 emphasizes that comprehending academic lectures requires the efficient processing of intricate theoretical material and swift shifts between abstract ideas and tangible examples, which presents significant cognitive difficulties, especially for second language (L2) learners (Field, 2008; Sweller, 1988).

Cognitive Load Theory (CLT) (Sweller, 1988), as discussed in Chapter 2, offers a comprehensive framework for analysing the cognitive demands associated with semantic transitions. CLT posits that human working memory is constrained in capacity; frequent or extensive shifts between strong semantic density (SD+) and strong semantic gravity (SG+) content impose considerable cognitive load, especially when coupled with linguistic processing demands (Sweller, 1988; Mayer, 2009). The study findings clearly demonstrate that students encountered cognitive overload during lectures marked by frequent, rapid semantic shifts and complex multimodal inputs, exacerbated by the requirement for simultaneous listening and visual processing.

Nan reported significant cognitive overload during lectures marked by swift semantic shifts. She described experiencing a sense of overwhelm as lecturers rapidly shifted

from theoretical frameworks to practical examples, lacking adequate intermediate elaboration or clear recontextualization. Nan observed that the lecturer moves on to examples before she has fully processed the theoretical concepts, underscoring the constraints of working memory capacity (Baddeley, 2000) on her immediate understanding. Her challenges exemplify Field's (2008) claim that listening comprehension for L2 learners entails not only linguistic decoding but also the adept handling of cognitive demands inherent in dynamic academic discourse.

Tong encountered cognitive challenges, especially in managing the concurrent tasks of note-taking and listening. Tong initially employed verbatim transcription as her primary note-taking strategy, indicative of her cultural and educational background that emphasizes the importance of capturing detailed lecture content. This strategy overloaded her working memory, resulting in inadequate cognitive resources for effective processing of lecture content. Baddeley (2000) asserts that effective comprehension is heavily reliant on the capacity of working memory to selectively focus on essential information. Tong's initial experiences highlight the interplay between linguistic processing, note-taking, and cognitive overload, leading to diminished comprehension and increased frustration. She ultimately adopted strategic note-taking, focusing on essential points and utilizing multimodal materials, which significantly mitigated cognitive overload.

Michael's experiences illustrate the cognitive challenges involved in concurrently managing linguistic, semantic, and multimodal inputs. Despite a solid foundation in English proficiency, Michael reported challenges in understanding lectures that presented new theoretical concepts alongside multimodal materials at a rapid pace. The identified challenges correspond with Mayer's (2009) multimedia learning principles, indicating that cognitive overload arises when learners are required to process new information from both visual and auditory channels at the same time. Michael articulated his challenges: "At times, I find it difficult to grasp the lecturer's explanation while simultaneously interpreting intricate diagrams or texts on slides," underscoring the significant cognitive burden imposed by multimodal integration, which hinders immediate understanding.

The experiences align closely with the empirical findings of Trenkic and Warmington (2019) regarding linguistic and literacy barriers in EMI contexts. Research indicates that international students often face heightened cognitive processing demands relative to domestic students, attributed to the simultaneous requirements of linguistic decoding and academic comprehension. Nan and Tong reported experiencing increased cognitive strain attributed to the linguistic complexity and unfamiliarity with the academic discourse patterns characteristic of the UK academic context. Nancy and Mei, having engaged in pre-lecture preparations, emphasized the importance of linguistic pre-exposure. They noted that prior familiarity with key terminology and concepts diminished cognitive load and enhanced engagement during lectures. Nancy's systematic preparation routines, which involved reviewing and contextualizing unfamiliar vocabulary prior to lectures, align with Field's (2008) recommendations regarding pre-listening strategies aimed at reducing cognitive overload.

Field (2008) elucidates how students navigate cognitive barriers in lecture comprehension through listening comprehension theory. Students consistently reported challenges when lecturers offered minimal recontextualization of abstract material or inadequate chances for active cognitive integration during semantic shifts. Snow's narrative clearly highlights this issue, noting, "When there's a lot of text on the slide, I focus on reading it, but then I miss what the lecturer is saying." Snow's experience aligns with Field's (2008) assertion that effective listening comprehension necessitates the use of active metacognitive strategies, including prediction, selective attention in real-time, and contextual inferencing, all of which depend on appropriate pacing and explicit support from instructors. The empirical data demonstrates that lecturers' frequent and rapid downward semantic shifts, lacking adequate upward repacking, significantly undermine students' cognitive capacity to engage in higher-order thinking essential for deep comprehension and knowledge construction.

Mei's difficulty in interpreting complex visual aids highlights the cognitive barriers present in lecture design. Complex diagrams, in the absence of explicit lecturer scaffolding, frequently increase cognitive load, compelling her to allocate significant

mental resources to decipher visual-semantic content. The cognitive burden aligns with Mayer's (2009) assertion that effective visual aids must guide cognitive processes through structural coherence, emphasizing spatial contiguity and signalling of important concepts. Mei's challenges clearly illustrate Mayer's principles; inadequately designed visual aids heightened cognitive load and diminished comprehension instead of facilitating understanding.

In summary, the explicit reference to cognitive theories such as Cognitive Load Theory (Sweller, 1988), Working Memory Theory (Baddeley, 2000), and Listening Comprehension frameworks (Field, 2008) demonstrates the significant impact of rapid semantic transitions, linguistic complexity, and poorly integrated multimodal content on the knowledge-building experiences of Chinese postgraduate students. Empirical findings from Nan, Tong, Michael, Snow, Nancy, and Mei illustrate that effective semantic wave design necessitates a thorough consideration of students' cognitive processing limits, balanced semantic transitions (Maton, 2013), explicit repacking of abstract content, and multimodal scaffolding consistent with multimedia learning principles (Mayer, 2009). The integration of Trenkic and Warmington's (2019) findings on additional linguistic burdens underscores the heightened cognitive demands faced by international students. This clearly points to the necessity for pedagogical strategies that are both culturally and linguistically responsive, grounded in cognitive load and listening comprehension frameworks.

7.5. Implications for Pedagogy and Policy

This study's findings indicate various practical pedagogical strategies grounded in Legitimation Code Theory (LCT), cognitive theories, and multimodal learning principles. These policies explicitly outline institutional strategies designed to facilitate the academic integration of international postgraduate students within UK higher education settings.

7.5.1. Pedagogical Recommendations

This research identifies a key finding aligned with Maton's (2013) LCT framework: the imperative of attaining balanced semantic profiles, referred to as 'semantic waves.' This process entails a systematic alternation between abstract theoretical concepts (characterized by weak semantic gravity and strong semantic density: SG-, SD+) and concrete, contextualized examples (exhibiting strong semantic gravity and weak semantic density: SG+, SD-). Lecturers primarily utilize rapid downward semantic shifts (unpacking), which leads to inadequate upward transitions (repacking) and obstructs students' capacity to develop cumulative and coherent understandings. To address these challenges, lecturers must explicitly balance the unpacking and repacking of content, clearly indicating transitions between theoretical frameworks and practical applications. Achieving this requires the use of explicit verbal cues, structured oral summaries, and reflective questioning techniques. This approach aligns with Sweller's Cognitive Load Theory (1988), which underscores the importance of managing cognitive demands through the systematic sequencing of content.

The empirical data from students, including Nan, Tong, and Snow, clearly demonstrate cognitive overload resulting from rapid semantic transitions and dual-channel processing (auditory and visual). Lecturers must implement strategies that are explicitly aligned with Mayer's (2009) multimedia learning principles, particularly focusing on coherence, signalling, and temporal contiguity, to effectively address this issue. Lecturers must ensure that slide content aligns with oral explanations, maintains visual clarity, and effectively emphasizes key points or transitions. Furthermore, the use of explicit verbal signalling phrases, such as "let me summarize" or "this connects to the theoretical framework," can markedly decrease cognitive load, thereby facilitating more effective information integration for students like Michael and Tong.

Moreover, considering the varied cognitive and linguistic backgrounds of international postgraduate students, multimodal scaffolding (Jewitt, 2006; Kress, 2010) is essential. Empirical findings from participants, including Mei and Hao, demonstrate that visual resources, specifically well-structured diagrams, flowcharts, and succinct textual

summaries enhance comprehension and retention. This effect is particularly pronounced when students engage in proactive annotation and personalization of these materials. Snow and Nancy's experiences illustrate that overly dense or poorly explained visuals contribute to cognitive overload and impede knowledge construction. Lecturers must integrate clear, concise, and visually coherent multimodal resources, accompanied by guided explanations, to enhance semantic wave transitions effectively.

7.5.2. Culturally Responsive Teaching Practices

Cultural factors significantly influenced students' engagement with semantic waves. The empirical accounts of participants such as Tong, Nan, and Snow clearly illustrate the cultural adjustment challenges identified by Li and Wegerif (2014), Jin and Cortazzi (2006), and Ryan and Louie (2007). Their educational backgrounds, shaped by Confucian heritage norms that prioritize hierarchical knowledge transmission, frequently obstruct effective engagement in the dynamic semantic wave interactions characteristic of UK academic contexts.

Based on Bee Bond's (2020) analysis of international students' academic adjustments, it is imperative for lecturers to implement culturally responsive teaching strategies. It is essential to explicitly recognize cultural differences in learning expectations and to offer structured opportunities for students to progressively acclimate to interactive, participatory pedagogies. This involves explicitly instructing students on the rationale for interactive questioning, group discussions, and critical engagement activities, systematically scaffolding their participation to transition from passive to active learners.

Moreover, it is imperative for lecturers to explicitly incorporate pedagogical strategies that address the linguistic challenges highlighted by Trenkic and Warmington (2019), who underscore the significant disparities in language and literacy preparedness between domestic and international students. Pre-teaching essential terminologies, supplying glossaries of key academic terms, and explicitly linking these terms to

practical examples during lectures can markedly improve international students' understanding. Explicit lecturer cues, such as “This is a key idea” or “Let’s summarize the main concepts now,” enhance effective note-taking strategies, particularly for students facing linguistic challenges, as demonstrated by participants Michael, Nancy, and Snow.

7.5.3. Institutional Policy Recommendations

The findings present a compelling argument for the implementation of targeted institutional support mechanisms and policy interventions. Universities must prioritize investment in specialized training programs for lecturers that emphasize effective pedagogical practices, semantic wave management, multimodal resource design, and intercultural communication. Training must explicitly integrate LCT-based strategies (Maton, 2013), focusing on balanced semantic waves, clear transitions for unpacking and repacking, and explicit signposting of conceptual relationships in lecture content.

Furthermore, training must prioritize multimodal instructional design principles as delineated by Mayer’s (2009) multimedia learning guidelines. It is essential that lecturers receive training to create slides and visual aids that are cognitively manageable, visually coherent, and pedagogically effective, as supported by empirical evidence from the participants. Workshops or professional development programs that instruct lecturers on the effective integration of visual aids with spoken delivery can markedly improve students' cognitive processing capacity.

Considering the linguistic and cultural barriers highlighted by participants, it is imperative that universities implement specialized pre-sessional programs for international postgraduate students. Based on empirical findings, such programs must prioritize metacognitive and strategic training (Field, 2008) designed to improve students' capacity to manage cognitive load (Sweller, 1988), navigate semantic transitions, and actively engage with multimodal content. Structured sessions focusing on note-taking strategies, explicit development of academic vocabulary, guided critical reading techniques, and group discussions that replicate actual lecture environments would facilitate smoother transitions for culturally diverse student populations.

Furthermore, these programs must integrate training focused on cultural differences in pedagogical expectations, drawing on the findings of Li and Wegerif (2014) and Bond (2020), thereby equipping students with strategies to proactively adapt to UK academic norms. Intentional preparation for active participation and critical engagement in lectures can markedly alleviate anxiety and disorientation in students from Confucian-heritage educational backgrounds, thereby enhancing their academic integration.

Institutional support must extend beyond pre-sessional phases to include ongoing services such as regular workshops, seminars, and peer-supported study groups. These initiatives should be explicitly designed to aid international students in their cognitive, cultural, and linguistic adaptation throughout their academic programs.

7.5.4. Conclusion on Pedagogy and Policy

The pedagogical and policy implications derived from the empirical findings and theoretical framework indicate a focused approach to improving the academic success of Chinese postgraduate students in EMI contexts. Integrating balanced semantic profiles, culturally responsive strategies, cognitively informed multimodal practices, and robust institutional support mechanisms can enhance international students' learning experiences and knowledge-building outcomes in universities. The implications enhance theoretical frameworks of LCT-informed pedagogy while providing practical solutions that address the academic needs of international postgraduate students in today's global higher education landscape.

7.5. Conclusion

This chapter presents a thorough analysis of the empirical findings, explicitly aligned with the three primary research questions that underpin this study. The findings were rigorously analysed using Legitimation Code Theory (LCT), with a specific emphasis on semantic gravity (SG) and semantic density (SD), as articulated by Maton (2013). The analysis indicated that lecturers primarily utilized semantic profiles marked by frequent

downward shifts, which involved unpacking abstract, dense concepts into concrete, context-specific examples, while exhibiting a lack of upward shifts, or repacking. The imbalanced semantic movement frequently led to incomplete semantic waves, thereby constraining students' ability to reconstruct and integrate theoretical concepts into coherent knowledge structures. Students frequently faced difficulties in integrating abstract theories with practical examples, thereby validating Maton's (2013) claim regarding the importance of balanced semantic waves for effective knowledge construction.

The research explicitly examined the impact of multimodal scaffolding, specifically the use of PowerPoint slides by lecturers, on student engagement with semantic transitions. Consistent with Mayer's (2009) multimedia learning principles, the findings indicate that effectively designed multimodal resources enhance students' capacity to manage cognitive load and understand complex lecture material. In contrast, slides characterized by strong semantic density or poorly aligned visuals often exacerbated cognitive overload, thereby corroborating Mayer's (2009) principles related to redundancy, temporal contiguity, and coherence in multimedia learning. The analysis of students' experiences (e.g., Snow, Hao, Mei) underscores the necessity of well-designed visual aids that align with verbal explanations to enhance multimodal comprehension.

The research integrates LCT semantics with intercultural frameworks, utilizing insights from Li and Wegerif (2014) regarding Confucian heritage education, alongside cognitive frameworks including Cognitive Load Theory (Sweller, 1988), multimedia learning (Mayer, 2009), and second language comprehension strategies (Field, 2008). The empirical cases of students, including Nan, Tong, Michael, and Nancy, illustrate the interaction between cultural conditioning, specifically a preference for structured, explicit, and teacher-led instruction (Li & Wegerif, 2014; Jin & Cortazzi, 2006), and cognitive processing limitations as described by Cognitive Load Theory (Sweller, 1988). This interaction creates further obstacles to effective engagement with lecturers' semantic waves. This synthesis positions the current research as a theoretical contribution by integrating LCT's semantic analysis with multimodal and intercultural

learning frameworks, offering nuanced insights into the complexities encountered by international students in English-Medium Instruction (EMI) contexts.

This study's theoretical contributions are primarily found in its novel integration of LCT semantics with multimodal theories (Jewitt, 2006; Kress, 2010; Mayer, 2009) and intercultural educational frameworks (Li & Wegerif, 2014; Bee Bond, 2020; Trenkic & Warmington, 2019). The study enhances the explanatory capacity of LCT by explicitly linking semantic gravity and semantic density to cognitive load and multimodal resource design, thereby addressing challenges in lecture comprehension. This study enhances intercultural education research by establishing a clear connection between cultural and cognitive mediation and students' semantic processing. It underscores the necessity of addressing intercultural gaps through well-informed semantic wave designs in lectures.

The findings from this study indicate several clear directions for future research. The extension of LCT-based analyses to disciplines beyond TESOL and education studies presents a significant opportunity. It is essential to investigate the functioning of semantic gravity and density transitions within various EMI contexts, including business, engineering, and social sciences. Expanding the student population to encompass individuals from diverse cultural backgrounds and varying language proficiency levels is essential for a comprehensive understanding of semantic profiles in multilingual academic contexts. Additional empirical studies concentrating on lecturers' awareness and intentionality in the use of semantic waves may yield significant insights for the creation of specialized training programs for academic personnel. This research would enhance our theoretical comprehension of effective strategies for assisting diverse student populations in managing intricate semantic transitions in EMI higher education settings.

Chapter 8 Conclusion

8.1. Introduction

This thesis has examined how disciplinary knowledge is constructed through academic lectures within an English-Medium Instruction (EMI) context at a UK university, specifically focusing on the experiences of Chinese postgraduate students enrolled in an MA TESOL program. Grounded explicitly in Legitimation Code Theory (LCT) with particular emphasis on semantic gravity (SG) and semantic density (SD) (Maton, 2013). This research systematically explored the semantic profiles enacted by lecturers and the resulting impacts on student comprehension and knowledge-building. Additionally, the study delved deeply into how cultural and cognitive factors mediated the students' capacity to engage effectively with these semantic profiles.

Utilizing an interpretivist qualitative approach, this research employed detailed classroom observations, stimulated recall interviews, and in-depth qualitative interviews with both lecturers and students. This methodological design enabled a nuanced exploration of how students experienced semantic shifts, multimodal resources, linguistic challenges, and cultural adaptations within lectures.

Empirically, the study revealed that lecturers commonly employed semantic waves, characterized primarily by downward semantic transitions, shifting from abstract, complex disciplinary concepts toward concrete, context-dependent examples. However, findings highlighted a notable imbalance: upward semantic transitions (from concrete examples back to theoretical abstraction) were comparatively limited, adversely affecting students' ability to integrate and synthesize theoretical knowledge. Cognitively, rapid and imbalanced semantic transitions frequently led to overload, making it challenging for international students to adequately process and retain critical lecture content. Culturally, students' Confucian heritage educational backgrounds and their experiences with hierarchical, teacher-centered instructional traditions further complicated their engagement with the participatory, interactive, and learner-centered pedagogical approaches typical of UK academia.

Theoretically, this study contributes by explicitly integrating the LCT semantic dimension with multimodal theories of learning, cognitive load theory, and intercultural educational frameworks. By doing so, it highlights the interconnectedness of semantic transitions, cognitive processing, and cultural adaptation, thus offering a holistic framework for enhancing EMI pedagogy. Practically, the research offers explicit recommendations for lecturers and institutions, including balanced semantic wave strategies, effective multimodal resource design, targeted cognitive scaffolding, and culturally responsive instructional approaches.

The following sections of this concluding chapter succinctly outline the key empirical and theoretical contributions of this research, identify limitations, propose directions for future research, discuss explicit practical implications, and conclude with reflective insights arising from the research process.

8.2. Key Findings

This section consolidates the key findings of the study, focusing on the three main research questions posed. Each finding undergoes a critical analysis that synthesizes empirical data with theoretical insights derived from Legitimation Code Theory (LCT), Cognitive Load Theory (CLT), multimodal learning frameworks, and intercultural perspectives. The findings elucidate the complexities of knowledge construction within EMI lectures, emphasizing the roles of cognitive and linguistic mediation in learning processes, as well as the cultural adaptation challenges encountered by Chinese postgraduate students.

The Construction of Knowledge by Lecturers through Semantic Profiles (RQ 1)

This study addresses Research Question 1, which investigates the construction of knowledge by UK lecturers through semantic profiles. The findings indicate that lecturers primarily utilized semantic waves (Maton, 2013) as a means to facilitate knowledge-building in EMI lectures. The application of semantic waves illustrates the systematic transition between abstract theoretical constructs (SG–, SD+) and more

contextually relevant, concrete examples (SG+, SD–). This process enhances knowledge construction by enabling students to incrementally interact with disciplinary knowledge.

The examination of recorded lectures (Modules A, B, and C, as outlined in Chapter 5) revealed that lecturers frequently employed downward semantic transitions, effectively deconstructing intricate theoretical concepts into more accessible, concrete applications. This methodology aims to enhance student understanding by linking abstract academic content to real-world contexts, thereby alleviating the cognitive load associated with unfamiliar concepts. Nonetheless, a significant finding of this study indicates that upward semantic transitions (repacking) occurred with notably lower frequency. This suggests that although lecturers successfully deconstructed theoretical knowledge, they did not consistently reconstruct it into higher-order conceptual frameworks. This led to the emergence of incomplete semantic waves, characterized by the isolation of concrete examples that were not systematically connected to overarching abstract disciplinary concepts.

Maton (2013) contends that effective cumulative learning necessitates the processes of unpacking and repacking, which are essential for the integration of disciplinary knowledge. This study reveals that the scarcity of upward transitions adversely affects students' capacity to cultivate deeper, abstract conceptual understandings. Students often encountered difficulties in synthesizing knowledge across various lectures due to the lack of explicit reinforcement and recontextualization of essential disciplinary frameworks within their broader theoretical contexts. Students frequently interacted with content superficially, comprehending practical applications in isolation rather than as integral components of a cohesive knowledge framework.

Furthermore, pedagogical inconsistencies were apparent among lecturers, as some utilized systematic, structured semantic waves, whereas others demonstrated extended theoretical exposition (SD+) with limited connection to practical applications (SG+). In contrast, certain lecturers demonstrated an overreliance on practical examples, failing to adequately connect these instances to overarching disciplinary

principles. This approach resulted in students obtaining knowledge that was context-dependent rather than transferable. The observed inconsistencies indicate a variability in lecturers' awareness of semantic structuring. It follows that enhanced pedagogical training focused on effective semantic profiling may significantly improve knowledge-building within EMI contexts.

The influence of semantic profiles and pedagogical strategies on the enhancement of student knowledge construction (RQ 2).

This study, in addressing Research Question 2 regarding the influence of semantic profiles and pedagogical strategies on knowledge-building among Chinese postgraduate students, identified several significant challenges. Cognitive overload was frequently reported by students, stemming from the rapid and unstructured semantic transitions present in EMI lectures. Numerous individuals encountered challenges in following lecturers' transitions from abstract theories to concrete examples, especially when these semantic shifts transpired too rapidly, lacking adequate scaffolding or signposting. The challenge was notably apparent among students like Nan, Tong, Michael, and Snow (discussed in Chapter 5), who reported difficulties with rapid lectures in which the links between abstract theoretical concepts and practical examples were neither clearly established nor reinforced.

The findings presented are consistent with Cognitive Load Theory (Sweller, 1988), which posits that learners' working memory capacity is rapidly surpassed when they must engage with complex theoretical content while concurrently monitoring its practical applications. The absence of organized semantic repacking heightened both intrinsic and extraneous cognitive load, thereby complicating students' ability to retain and integrate new disciplinary knowledge.

Additional congruence is evident with Mayer's (2009) multimedia learning principles, which underscore the necessity for a coherent relationship between verbal and visual information to mitigate cognitive load and improve understanding. This study illustrates that effectively designed multimodal scaffolding, including structured PowerPoint

slides, diagrams, and interactive visual aids, significantly enhances students' engagement with complex semantic structures. Excessive text, complex terminology, and a lack of synchronization between PowerPoint slides and spoken explanations resulted in cognitive overload. The necessity for students to split their focus between reading and listening detracts from their capacity to comprehend the logical flow of information presented during lectures.

Beyond cognitive challenges, linguistic obstacles exacerbated the difficulties faced by students. A significant number of Chinese students encountered difficulties in interpreting academic discourse, especially when instructors utilized abstract theoretical language with insufficient linguistic support. The findings corroborate the study conducted by Trenkic and Warmington (2019), which underscores the influence of language and literacy disparities between domestic and international students on comprehension within EMI contexts. This study reveals that students encountered significant challenges in understanding academic jargon, idiomatic expressions, and culturally specific references, thereby limiting their ability to engage with theoretical content effectively. The absence of explicit linguistic support from lecturers exacerbated these challenges, thereby underscoring the necessity for targeted academic literacy development to enhance international students' engagement with intricate disciplinary knowledge

The Role of Cultural and Cognitive Factors in Knowledge-Building (RQ3)

This study addresses Research Question 3, which investigates the mediation of cultural and cognitive factors in students' understanding and knowledge-building. The findings indicate that students' prior learning experiences significantly influence their engagement with semantic profiles in EMI lectures. Numerous Chinese students face significant challenges when transitioning from a Confucian heritage education system, characterized by an emphasis on rote memorization, hierarchical knowledge structures, and passive learning, to the interactive and student-centered pedagogies prevalent in UK higher education.

This research corroborates the findings of Li and Wegerif (2014) and Bee Bond (2020), who contend that international students frequently encounter difficulties in conforming to the epistemological standards inherent in Western academic traditions. The empirical findings indicated that the students involved in this study exhibited initial reluctance to engage in active learning practices, including questioning, challenging theoretical perspectives, and participating in open-ended discussions. Certain individuals, including Snow and Mei, articulated their reluctance to challenge lecturers, whereas others, like Tong, encountered difficulties with open-ended learning assignments necessitating independent knowledge synthesis.

Alongside the challenges of cultural adaptation, students encountered cognitive strain stemming from the concurrent processing of linguistic and conceptual information. A significant number of individuals encountered difficulties with real-time comprehension, especially when lectures incorporated specialized academic terminology, idiomatic expressions, or intricate syntactic structures. The findings corroborate existing research on second-language academic listening (Field, 2008) and Communicative Language Teaching (Sweller, 1988), indicating that international students frequently experience delayed comprehension as a result of heightened cognitive demands.

In light of the challenges faced, it is evident that students employing strategic learning techniques, specifically structured note-taking, peer discussions, and post-lecture reviews exhibited a higher degree of success in adaptation. Students who engaged in pre-lecture reading, annotated slides, and established study groups demonstrated a superior capacity to handle cognitive and linguistic demands. This indicates that targeted training in metacognitive strategies may significantly improve students' proficiency in navigating EMI lectures.

This study illustrates that successful knowledge construction in EMI contexts necessitates an integration of structured semantic profiling, multimodal scaffolding, and culturally responsive pedagogy. This conclusion chapter's subsequent sections critically examine the theoretical contributions, practical implications, limitations, and

recommendations for future research. It delineates strategies aimed at improving EMI pedagogy and enhancing support mechanisms for international students within higher education contexts.

8.3. Principal Contributions

This research offers substantial advancements across three primary domains: empirical, theoretical, and methodological. The research integrates comprehensive qualitative analysis with a robust theoretical framework, thereby enhancing existing knowledge regarding the influence of semantic profiles on knowledge construction in academic lectures. It critically examines the mediating roles of cognitive and linguistic factors in student engagement and explores the impact of cultural dimensions on the adaptation of Chinese international students to higher education in the UK.

This study offers a systematic analysis of semantic profiles in academic lectures, demonstrating the detrimental effects of imbalanced semantic transitions on the knowledge-building processes of international students. The findings indicate that lecturers often participate in downward semantic shifts, where abstract and lexically dense disciplinary knowledge marked by weak semantic gravity and strong semantic density is translated into more contextually grounded and tangible examples, exhibiting strong semantic gravity and reduced semantic density. This strategy facilitates comprehension by connecting abstract concepts to familiar real-world contexts; however, the insufficient upward transitions (repacking) lead to incomplete semantic waves. In the absence of systematic reinforcement of theoretical frameworks, students encounter challenges in synthesizing lecture content into comprehensive conceptual structures. This results in fragmented knowledge and hampers their ability to apply theoretical insights beyond isolated examples.

The pedagogical inconsistencies exhibited by lecturers significantly exacerbate this process. Certain lecturers implement explicit scaffolding and structured semantic waves, thereby ensuring a consistent connection between concrete applications and abstract disciplinary frameworks. Conversely, some scholars engage in prolonged

theoretical discussions that lack sufficient grounding in accessible examples. In contrast, others tend to overemphasize case studies and practical applications, failing to link these back to overarching disciplinary principles. The identified inconsistencies result in disparate learning experiences for international students, underscoring the necessity for a more systematic framework regarding semantic transitions in university lectures. This study's empirical findings contribute to the existing body of research on knowledge transmission in higher education by providing a detailed discourse analysis of the structuring and accessibility of knowledge for international students in UK universities.

This study theoretically contributes to the field by synthesizing LCT semantics (Maton, 2013) with cognitive load theory (Sweller, 1988), multimedia learning principles (Mayer, 2009), and frameworks for intercultural education (Li & Wegerif, 2014; Bond, 2020). The synthesis across various theoretical frameworks offers a more nuanced model for analyzing the cognitive, linguistic, and cultural challenges encountered by Chinese international students within UK academic environments.

LCT offers a framework for analyzing knowledge structures and pedagogical strategies; however, it fails to consider the cognitive processes through which students actively engage with and interpret these knowledge structures in real-time. This study integrates Cognitive Load Theory (CLT) to illustrate that rapid and unstructured semantic transitions lead to cognitive overload. This phenomenon is especially pronounced among international students, who are required to concurrently navigate complex academic language, disciplinary content, and multimodal resources. The findings of the study indicate that students often encounter cognitive strain when tasked with decoding abstract theoretical content while simultaneously monitoring its practical applications. The absence of organized semantic repacking, characterized by lecturers' failure to systematically reinforce theoretical abstractions, exacerbates students' intrinsic cognitive load, thereby hindering their ability to consolidate and apply knowledge effectively.

The incorporation of multimodal learning principles (Mayer, 2009) enhances this analysis by illustrating the interplay between visual, textual, and auditory information, which can either facilitate or obstruct the process of knowledge construction. The research indicates that effectively structured multimodal scaffolding, exemplified by organized PowerPoint presentations, can markedly improve comprehension through the alleviation of cognitive load. Visual materials that are excessively text-heavy, misaligned with spoken content, or necessitate extensive reading during listening sessions contribute to cognitive overload. This situation compels students to split their focus among various information sources, ultimately diminishing their ability to integrate knowledge effectively.

This study integrates findings from intercultural education research to address the specific challenges encountered by Chinese international students within UK universities. Previous studies (Li & Wegerif, 2014; Bond, 2020) indicate that learners from Confucian heritage frequently encounter difficulties when shifting from hierarchical, teacher-centered educational frameworks to interactive, student-centered learning contexts. This research further elucidates the impact of cultural learning norms on students' capacity to navigate semantic waves within academic lectures. This study reveals that numerous Chinese students encountered significant difficulties in engaging in open-ended discussions, critically assessing theoretical perspectives, and managing ambiguous learning tasks. These challenges stem from the lack of emphasis on such learning behaviors in their previous educational contexts. Students frequently demonstrated a preference for explicit and organized knowledge delivery, which resulted in challenges when attempting to meet UK lecturers' expectations regarding independent knowledge synthesis and self-directed learning. The interplay of cultural dissonance and the cognitive challenges associated with academic English listening has resulted in further obstacles to effective knowledge acquisition within UK higher education.

This study methodologically enhances qualitative research within the realms of international student education and academic discourse analysis through the integration of semantic profiling, stimulated recall interviews, and comprehensive

qualitative coding of student experiences. Prior research concerning the academic challenges faced by international students has predominantly utilized extensive statistical analyses, generalized self-report surveys, or focus groups. These methodologies inadequately address the nuanced micro-level mechanisms that affect students' comprehension and learning strategies. This research addresses existing limitations by employing LCT-informed semantic coding on actual lecture data, facilitating a discourse-analytic examination of the structuring and transmission of knowledge within UK university contexts. The incorporation of stimulated recall interviews offers valuable insights into students' cognitive processing of semantic waves, highlighting immediate comprehension challenges and the strategies employed to address them.

This study integrates lecture analysis with student perspectives, offering a nuanced understanding of international students' engagement with university lectures. This methodological innovation guarantees that the research investigates not only the structuring of knowledge by lecturers but also the ways in which it is experienced, interpreted, and internalized by students. The study critically examines the semantic strategies employed by various lecturers, revealing significant pedagogical variability. This underscores the necessity for more uniform approaches to support the learning of international students within UK higher education.

This study presents three significant contributions. The study offers comprehensive, discourse-level evidence regarding the impact of semantic waves on the knowledge-building processes of international students. It critically illustrates how imbalanced transitions obstruct their capacity to cultivate cumulative and transferable understandings. This model theoretically synthesizes LCT semantics, cognitive load theory, multimodal learning frameworks, and intercultural education perspectives, providing a comprehensive understanding of international students' engagement with academic lectures in UK universities. This study enhances qualitative research on international student education through the implementation of detailed semantic coding and student-centered recall interviews, aiming to provide a more nuanced understanding of the interplay between lecture discourse and student comprehension.

The implications of these contributions are significant for pedagogy, academic support services, and future research concerning international student learning within UK higher education, as elaborated in the subsequent sections.

8.4. Limitations of the Study

While this study provides valuable insights into how Chinese international students engage with knowledge construction in UK higher education, several limitations must be acknowledged. These limitations primarily relate to the research design, data collection scope, and contextual constraints, all of which shape the interpretative nature of the findings.

One key limitation of this study is its qualitative and context-specific nature. The research was conducted within a single UK university, focusing on a specific cohort of Chinese postgraduate students in a linguistics and education-related discipline. While the findings provide in-depth, discourse-level insights into how students interact with semantic profiles in academic lectures, they may not fully capture the experiences of international students from diverse disciplinary backgrounds, linguistic proficiencies, or cultural contexts. Different subject areas such as STEM disciplines, business, or the humanities may involve distinct patterns of semantic structuring, disciplinary language use, and pedagogical strategies, influencing how students engage with lecture discourse. Future research could extend these findings by examining a broader range of disciplines and institutions, providing a more comprehensive picture of international students' academic adaptation in UK higher education.

Another limitation stems from the relatively small sample size, particularly regarding the number of lecturers and lecture sessions analyzed. While the study conducted detailed qualitative analyses of multiple recorded lectures and student interviews, it does not offer a large-scale statistical representation of Chinese international students' experiences across UK universities. The qualitative methodological approach was chosen deliberately to enable a fine-grained analysis of students' cognitive, linguistic, and cultural engagement with semantic waves, but this inevitably limits the

generalizability of the findings to broader student populations. Expanding the sample to include more lecturers, students, and institutions would allow for a more comparative analysis of different teaching styles, semantic structuring patterns, and student adaptation strategies.

A further limitation concerns the mode of data collection, particularly the reliance on online lecture recordings due to contextual constraints during the COVID-19 pandemic. Most of the analyzed lectures were delivered in synchronous or asynchronous online formats, which may not fully reflect the dynamics of face-to-face classroom interactions. In online settings, students may engage differently with lecture content, experiencing greater cognitive demands due to screen-based learning, challenges in processing multimodal inputs, and reduced opportunities for real-time clarification or peer interaction. While this study provides valuable insights into how international students process knowledge in digitally mediated learning environments, future research could explore face-to-face academic settings more extensively, investigating how classroom interactions, in-person lecturer-student engagement, and spontaneous questions shape students' knowledge construction processes.

Additionally, while this study offers detailed qualitative insights into students' cognitive and cultural adaptation challenges, it does not systematically track longitudinal changes in students' learning strategies and academic development over time. Knowledge-building is an ongoing process, and students may refine their ability to navigate semantic waves, manage cognitive load, and engage with academic discourse as they progress through their studies. A longitudinal research design could capture these developmental trajectories, providing a deeper understanding of how international students gradually adapt to UK academic conventions and develop expertise in disciplinary knowledge structures.

Finally, while this study integrates insights from Legitimation Code Theory (LCT), Cognitive Load Theory (CLT), and intercultural education frameworks, the analysis remains focused on student experiences and linguistic-cognitive adaptation rather than lecturer perspectives on knowledge construction and pedagogical decision-making. The

extent to which lecturers are aware of their own semantic structuring practices, consciously adjust their semantic waves, or receive professional training in scaffolding knowledge for international students remains an open question. Future research could incorporate lecturer interviews and classroom-based interventions to explore how pedagogical strategies can be more intentionally designed to support international students' cognitive and cultural transitions in UK higher education.

Despite these limitations, the study provides valuable contributions to understanding international students' engagement with academic discourse, offering insights that are applicable to pedagogical development, institutional policies, and future research on knowledge construction in UK universities. The following sections explore the practical implications and recommendations that emerge from these findings, offering strategies to enhance international student learning experiences and support academic success in higher education contexts.

8.5. Practical Implications

This study provides several critical pedagogical and institutional implications for improving the academic experiences of international students in English-Medium Instruction (EMI) settings, particularly those from Confucian heritage cultures such as China. The findings highlight the need for explicit pedagogical strategies, enhanced lecturer training, and institutional support mechanisms to address the challenges related to semantic structuring, cognitive overload, linguistic difficulties, and cultural adaptation. Implementing these recommendations can significantly enhance international students' ability to engage with and succeed in EMI higher education environments.

One of the most immediate implications of this research is the need for lecturers to intentionally structure their semantic profiles, ensuring a balanced use of downward unpacking and upward repacking transitions. The findings demonstrate that lecturers in EMI contexts frequently unpack complex theoretical concepts (weak semantic gravity, strong semantic density) into contextualized, real-world applications (strong semantic

gravity, weaker semantic density) to aid student comprehension. However, the study also revealed that these downward transitions often lack a corresponding upward movement, leaving students unable to reintegrate the specific examples back into broader disciplinary frameworks. The absence of structured repacking transitions leads to fragmented knowledge construction, where students understand specific applications but struggle to synthesize them into higher-order theoretical understanding.

To address this issue, lecturers should explicitly plan their semantic transitions, ensuring that each downward shift (unpacking) is followed by an explicit upward repacking movement. This can be achieved by signposting key conceptual links, summarizing how specific examples fit within the broader disciplinary framework, and using recap activities that prompt students to reconstruct abstract principles from concrete illustrations. Additionally, lecturers should integrate structured questioning techniques to guide students in making connections between theoretical and applied knowledge. For example, after introducing a theoretical concept and unpacking it into concrete applications, lecturers should pose questions such as: *How does this example reflect the core theoretical principles we discussed earlier?* or *How might this case differ if analyzed using an alternative theoretical framework?* This active scaffolding approach ensures that students are consistently engaging in cumulative knowledge-building rather than acquiring isolated facts.

Beyond semantic structuring, this study underscores the importance of effective multimodal scaffolding, particularly in the design of PowerPoint slides, visual aids, and other instructional materials. The empirical findings demonstrate that students frequently encountered cognitive overload when slides contained strong semantic density, excessive technical terminology, or lacked clear alignment with spoken content. Mayer's (2009) multimedia learning principles emphasize that reducing extraneous cognitive load is essential for optimizing knowledge retention in learning environments, particularly for L2 learners.

To enhance multimodal scaffolding, lecturers should design slides and visual materials that prioritize coherence and alignment. This includes reducing textual density, ensuring that slides provide visual representations that complement rather than duplicate verbal explanations, and synchronizing spoken content with on-screen elements. When presenting complex theoretical ideas, lecturers should introduce progressive multimodal scaffolding, beginning with visual simplifications (such as conceptual diagrams or flowcharts) before incrementally adding textual explanations and deeper theoretical engagement. Additionally, the use of dual-channel processing (i.e., providing information in both visual and auditory modalities) should be carefully paced to avoid overwhelming students with simultaneous high-density inputs. Empirical evidence from this study revealed that students often struggled when slides contained complex terminology without definitions or lacked clear connections to verbal explanations. To mitigate this, lecturers should integrate pre-lecture learning materials, such as annotated slides with glossaries of key terms, guided reading questions, and preparatory activities to help students engage with disciplinary content before encountering it in lectures.

Another significant implication of this research concerns the training and professional development of EMI lecturers. The findings indicate that many lecturers in EMI contexts have limited formal training in second-language pedagogy, cognitive load theory, or intercultural education, yet they are expected to teach linguistically and culturally diverse student cohorts. This lack of pedagogical training often results in implicit expectations that students should independently adapt to academic conventions, rather than explicit institutional efforts to support their transition.

To address this gap, universities should integrate LCT-informed pedagogy, multimodal teaching strategies, and cognitive load management principles into lecturer training programs. These programs should emphasize how to design and implement balanced semantic waves, how to scaffold academic English proficiency within content lectures, and how to foster an inclusive learning environment that accounts for linguistic and cultural diversity. Furthermore, training should focus on intercultural competence development, equipping lecturers with practical strategies to navigate cultural

differences in classroom communication norms, student participation styles, and expectations regarding independent knowledge construction. The empirical findings demonstrate that Chinese postgraduate students struggled with the shift from hierarchical, teacher-centered education models to interactive, student-driven learning approaches. Lecturer training should therefore include strategies for facilitating student engagement, encouraging critical inquiry, and adapting teaching methods to diverse epistemological traditions.

In addition to lecturer training, higher education institutions should implement targeted academic support programs that address the linguistic, cognitive, and cultural adaptation challenges faced by international students. This study highlights that students who actively engaged in structured note-taking, pre-lecture preparation, and post-lecture review activities demonstrated greater resilience in managing the cognitive demands of EMI lectures. Consequently, universities should offer dedicated workshops on effective academic listening, advanced note-taking strategies, and metacognitive approaches to lecture comprehension. These workshops should be designed not only for general academic skills development but should also be discipline-specific, helping students navigate specialized terminologies, discourse structures, and epistemological conventions in their respective fields.

Furthermore, given the linguistic challenges identified in this study, institutions should expand their pre-sessional English programs to include explicit training in disciplinary literacy, technical vocabulary acquisition, and academic discourse analysis. Many students struggle with disciplinary-specific language barriers that extend beyond general English proficiency, making it essential for language support programs to incorporate real-world lecture extracts, academic writing models, and interactive language scaffolding activities that mirror the cognitive and linguistic demands of their academic programs. The empirical evidence suggests that students benefit from structured exposure to EMI lecture formats before the start of their degree programs, allowing them to develop coping strategies and familiarize themselves with academic expectations in a low-stakes environment.

Additionally, the study reveals that cultural adaptation challenges significantly shape students' engagement in EMI contexts. Many Chinese postgraduate students reported uncertainty regarding participation expectations, difficulty in challenging lecturers' perspectives, and hesitation in engaging in open-ended discussions. Universities should therefore integrate intercultural competence programs into their academic orientation sessions, helping international students navigate differences in pedagogical expectations, academic communication styles, and approaches to critical engagement. These initiatives could be enhanced through peer mentoring schemes, where experienced international students offer guidance on academic adaptation strategies, and collaborative learning spaces, where students from diverse backgrounds engage in structured discussions and collaborative knowledge-building activities.

In conclusion, this study underscores the urgent need for EMI institutions to develop a multi-layered approach to international student support, focusing on pedagogical innovation, lecturer training, and structured academic interventions. By explicitly balancing semantic profiles in lecture delivery, adopting multimodal scaffolding strategies, enhancing lecturer pedagogical training, and expanding student support initiatives, universities can create a more inclusive, cognitively accessible, and academically enriching environment for international students. These reforms will not only facilitate deeper engagement, comprehension, and academic success for international students but will also contribute to the broader goal of enhancing equity and accessibility within EMI higher education settings.

8.6. Suggestions for Future Research

This study offers significant insights into the construction of knowledge in academic lectures, analyzed through the framework of Legitimation Code Theory (LCT). It emphasizes the importance of semantic profiles, cognitive processing, and cultural adaptation in this context. Nonetheless, numerous domains remain inadequately investigated, presenting avenues for subsequent inquiry to enhance and clarify these results. A significant avenue for future research involves the implementation of LCT-informed analyses within a wider array of academic disciplines. This study primarily

examines postgraduate students enrolled in an MA TESOL program, a discipline fundamentally linked to language and education. Considering the varied structures of disciplinary knowledge and pedagogical methods, subsequent research ought to investigate the functioning of semantic profiles across additional fields, such as business, engineering, and the sciences. The variations in disciplinary epistemologies and pedagogical traditions can significantly affect the manner in which lecturers organize semantic waves and the ways in which students participate in knowledge construction. Broadening the analysis across diverse academic disciplines would augment the relevance of LCT and yield a more thorough comprehension of the mechanisms by which various fields promote learning through semantic movements.

A significant direction for future research involves the examination of larger and more diverse student populations. This study examines Chinese postgraduate students, providing a nuanced analysis of the impact of their cultural and educational backgrounds on their interaction with semantic waves. International student populations exhibit significant diversity, incorporating individuals from various linguistic and cultural backgrounds. Future research must critically examine the ways in which students from diverse educational backgrounds, including those educated outside of Anglophone systems or possessing varying degrees of language proficiency, engage with academic discourse and contribute to knowledge construction. Determining whether the challenges identified in this study, namely, difficulties with upward semantic shifts, cognitive overload, and academic adaptation are confined to specific student groups or are more universally encountered could inform the creation of targeted instructional strategies.

Longitudinal research examining students' engagement with semantic profiles over time would yield significant insights into their adaptation processes and the evolution of their learning strategies. This study identified the challenges faced by students and their coping strategies at particular stages of their academic journeys. However, subsequent research should investigate the evolution of students' comprehension of disciplinary knowledge throughout various phases of their educational experiences. A longitudinal approach facilitates a nuanced analysis of learners' adjustments in strategies for

managing cognitive load, processing semantic transitions, and integrating complex knowledge structures. Examining the progression of students from their first encounters with academic lectures to the stages of dissertation writing or professional application may reveal critical phases of adaptation and identify the most effective forms of instructional support at various points in their educational journeys.

Furthermore, research focused on interventions that assess lecturers' deliberate application of semantic waves may provide valuable pedagogical insights. This study underscores the detrimental effects of unstructured or imbalanced semantic transitions on student comprehension. Future research should critically evaluate the efficacy of targeted pedagogical interventions aimed at increasing lecturers' awareness of LCT principles. Research employing experimental or quasi-experimental designs could investigate the impact of training lecturers to implement more structured semantic waves on enhancing students' engagement, comprehension, and capacity to develop cumulative knowledge. Systematic analysis of the impact of various teaching strategies can yield specific recommendations aimed at improving classroom instruction and lecturer training.

Subsequent investigations must examine the interplay between LCT and alternative theoretical frameworks, especially concerning multimodal learning and second-language acquisition. This study utilizes Cognitive Load Theory and multimedia learning principles to elucidate the mechanisms by which students process information during academic lectures. However, further interdisciplinary research is necessary to enhance and expand these connections. Examining the impact of various representational modes, namely spoken explanations, written text, visual diagrams, and interactive elements on students' engagement with semantic waves is essential for a comprehensive understanding of the scaffolding of knowledge. Furthermore, an analysis of the convergence between LCT and theories related to schema development and listening comprehension in second-language acquisition may provide valuable insights into the mechanisms through which students engage with and assimilate intricate disciplinary material.

In addition to classroom-based studies, future research should critically examine institutional policies and support systems designed to improve students' academic success. This study highlights the significance of linguistic and cognitive scaffolding; however, additional research is necessary to explore the implementation and evaluation of initiatives like pre-session courses, academic writing support, and subject-specific study skills training within universities. Analyzing the alignment of these interventions with students' genuine needs, especially concerning knowledge construction, would provide critical insights for enhancing academic support services. Furthermore, investigations should examine assessment practices within higher education, critically analyzing the effectiveness of current evaluation methods in capturing students' proficiency in navigating disciplinary knowledge and demonstrating conceptual understanding.

Future research must broaden the application of LCT across various disciplines, engage larger and more diverse student populations, and implement longitudinal and intervention-based methodologies to investigate the evolution of knowledge construction over time. Examining the convergence of LCT with multimodal learning and second-language acquisition theories offers a deeper insight into student engagement with disciplinary knowledge. Additionally, research centered on institutional policies and academic support initiatives could enhance the development of more effective pedagogical and administrative strategies. The exploration of these areas will enhance both the theoretical and empirical comprehension of knowledge construction, while simultaneously providing practical guidance for students as they engage with intricate academic discourse.

8.7. Reflective Points

This research investigates the intricate relationships among language, cognition, pedagogy, and epistemology within the framework of English-Medium Instruction (EMI) in higher education settings. The findings indicate that knowledge construction in EMI classrooms is significantly influenced by the structuring of semantic profiles by lecturers, the degree of pedagogical scaffolding that facilitates cognitive processing,

and the diverse cultural and linguistic backgrounds of students. The insights presented prompt broader reflections that transcend the immediate focus of this study, highlighting significant discussions surrounding EMI policy, pedagogical inclusivity, epistemological diversity, and knowledge-building practices within the context of global higher education.

This research highlights a critical issue: the presumption that EMI classrooms automatically promote internationalization and equitable access to disciplinary knowledge. EMI is often conceptualized as a strategy to enhance global academic mobility and broaden access to higher education. This study indicates that the mere presence of English as the medium of instruction fails to ensure accessibility and does not inherently foster an inclusive learning environment. The empirical findings underscore that international students encounter substantial linguistic, cognitive, and cultural obstacles that are frequently neglected in discussions surrounding EMI policy. This prompts an inquiry into the degree to which EMI programs at UK universities effectively address the learning requirements of international students, as well as the extent to which the responsibility for adaptation is shifted onto the students themselves. The prevalence of English as the predominant academic language worldwide necessitates that international students acquire not only proficiency in disciplinary-specific English but also an understanding of the underlying academic literacy conventions prevalent in Western educational institutions. For EMI to achieve true inclusivity, universities must critically assess the alignment of their pedagogical frameworks with the diverse needs of a growing global student body.

The significance of epistemological diversity within EMI pedagogy warrants further critical examination. This research indicates that Chinese postgraduate students frequently encounter difficulties in adapting from Confucian heritage educational traditions to the participatory, dialogic, and student-centered methodologies prevalent in UK higher education. A significant number of students indicated challenges in engaging with critical discussions, interrogating theoretical perspectives, and participating in open-ended learning activities, as these expectations were insufficiently emphasized in their previous educational experiences. This prompts a critical inquiry

into the underlying preference for Western epistemologies within English Medium Instruction contexts. The objective of EMI is to foster an international learning environment. This raises a critical question: should pedagogical models adhere solely to Western traditions, or should educational institutions actively incorporate diverse knowledge systems and alternative modes of reasoning into their curricula? Legitimation Code Theory (LCT) provides a robust framework for examining the complexities of knowledge legitimization, enabling a critical analysis of the processes through which specific knowledge structures gain legitimacy while others are systematically marginalized. The notions of semantic gravity (SG) and semantic density (SD) serve as analytical frameworks for examining the operational dynamics of various knowledge traditions. Certain disciplines and cultural contexts exhibit a pronounced emphasis on semantic gravity, favoring contextualized knowledge, whereas others lean towards a diminished semantic gravity, prioritizing abstract and decontextualized forms of knowledge. The difficulties faced by international students in navigating the fluctuations of semantic gravity in EMI lectures may extend beyond mere cognitive challenges; they also encompass epistemological issues that highlight the underlying tensions between diverse knowledge production traditions.

This prompts a more extensive inquiry: what characteristics would define an epistemically inclusive EMI pedagogy? For EMI to transcend mere linguistic accessibility and effectively incorporate diverse cultural methodologies in knowledge construction, it is imperative for universities to reevaluate their curriculum design, assessment of learning outcomes, and the organization of classroom interactions. Is it essential for lecturers to explicitly recognize and integrate non-Western perspectives within their disciplinary frameworks? Is there a necessity for EMI programs to provide enhanced support for students making the transition from hierarchical, exam-centric educational frameworks to open-ended, research-oriented learning environments? The inquiries presented contest the prevailing notion that Western pedagogical standards serve as the universal benchmark or optimal model. They advocate for a more pluralistic framework in EMI education, emphasizing the importance of acknowledging and appreciating diverse epistemologies, rather than imposing an expectation for international students to conform to a monolithic academic tradition.

Another aspect worthy of consideration is the enduring cognitive implications of EMI on the academic pathways of international students. This research primarily investigates students' immediate interaction with semantic profiles during lectures, analyzing the effects of cognitive load, linguistic obstacles, and multimodal scaffolding on real-time knowledge construction. Nonetheless, significant and unresolved inquiries persist regarding the impact of these challenges on students' academic performance and their disciplinary development throughout their postgraduate studies and subsequent endeavors. Does consistent cognitive overload among students, resulting from dense semantic waves, insufficient explicit repacking, and elevated linguistic complexity, contribute to enduring difficulties in knowledge retention, critical thinking, and engagement within their respective disciplines? Legitimation Code Theory posits that the process of cumulative knowledge-building necessitates the presence of structured semantic wave patterns. However, if international students encounter challenges in effectively engaging with these patterns during EMI lectures, they may experience enduring difficulties in synthesizing and applying their disciplinary knowledge within professional and research contexts.

This highlights the pressing necessity for longitudinal studies that monitor students' academic adaptation across time periods. Future research should investigate the strategies employed by international students to navigate complex semantic profiles. Additionally, it is essential to examine how their engagement with EMI pedagogies evolves throughout various stages of their academic journey. Furthermore, the potential long-term implications of initial challenges in knowledge construction on their academic confidence, research capabilities, and career progression warrant critical analysis. Moreover, an in-depth examination of the performance of EMI-trained graduates in multilingual professional environments is essential. Such research could elucidate whether the cognitive and linguistic adjustments necessitated by EMI education effectively prepare students for participation in global knowledge economies, or if they inadvertently establish new obstacles to the application of disciplinary expertise across varied cultural and linguistic contexts.

The research highlights significant policy-level implications arising from the expansion of EMI within the context of global higher education. Although EMI has gained significant traction as a means of internationalizing higher education and enhancing cross-border student mobility, it frequently lacks the necessary pedagogical innovations to effectively accommodate diverse learner needs. Research in EMI studies increasingly challenges the assumption that students will inherently adapt to English as the language of instruction without significant institutional interventions. The findings of this study indicate that for EMI to achieve genuine effectiveness, it necessitates not merely a linguistic transition but a comprehensive pedagogical transformation. This transformation should emphasize structured knowledge-building, multimodal scaffolding, and explicit epistemic inclusivity.

This study's findings prompt a critical reassessment of the necessity to consistently categorize EMI in Anglophone countries as a "EMI" context. The external examiner's report raises a critical question regarding the alignment of UK universities, characterized by English as the primary native language and locally trained lecturers, with the definition of EMI as it is understood in non-Anglophone contexts (Dearden & Macaro, 2016). This issue warrants further examination and discussion. A different perspective might involve reframing EMI not merely as a language policy but as an international student experience. This approach would highlight the necessary pedagogical and epistemological adjustments aimed at enhancing knowledge accessibility for international learners, rather than prioritizing English solely as the medium of instruction.

This analysis prompts essential inquiries regarding the future of EMI pedagogy, the ethical obligations of universities to international students, and the significance of epistemological inclusivity within the context of global higher education. The expansion of English as a Medium of Instruction (EMI) necessitates a critical examination of its implementation. It is imperative that this process transcends mere language accessibility, focusing instead on the establishment of learning environments that are inclusive in pedagogical, cognitive, and epistemic dimensions. For higher education institutions to effectively foster the academic success of international students, EMI

must transform into a framework that explicitly incorporates structured knowledge development, intercultural competence, and robust linguistic and cognitive support systems. This study functions as both a theoretical contribution to LCT-informed EMI research and a call to action for educators, policymakers, and researchers. It urges a critical examination of the structures and assumptions that underlie EMI education in the 21st century.

Appendix A Module B Session 2 (MBS2) Summary Table

Table A Summary data for Module B Session 2

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
1 0-2.40	The lecturer starts the session by reviewing “road-mapping framework” and language policy discussed in the previous week.	The diagram of the road-mapping framework	The lecturer first reviewed and discussed a framework mentioned last week, using illustration technique and questions. Therefore, I coded this part as <i>Linking</i> since it functions as a bridge between the previous and the future knowledge.	L
2 2.50-4 2a	The lecturer then stressed that today session’s focuses are agents and beliefs.	Highlighting the Agents and the Beliefs shown in the diagram	The lecturer asks what agents and beliefs may refer to and then illustrates using daily examples full of both academic L2 and everyday L2, trying to decode the abstract terminologies. Therefore, being coded as from <i>Linking</i> to <i>Concrete</i> .	L-C
4.30-7.00 2b	Introduce the importance of beliefs in language policy and going beyond the written ones	- frequently absent, esp. at secondary level De facto language	The lecturer introduces the importance of beliefs in language policy with daily examples, everyday L2 and citations, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C

Appendix A

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
		policy must frequently be derived from a study of language practices and beliefs.		
7.10-14.40 2c	Introduce lay theories (learner/teacher beliefs)	Citations	Citations in terms of studies exploring learner and teachers' beliefs are used to illustrate accompanying daily examples and everyday L2, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
14.40-15.20 2d	Introduce learner's beliefs	A quotation	The lecturer uses academic L2 and everyday L2 to further illustrate the learner belief, coded as from <i>Abstract</i> to <i>Concrete</i> .	C-A
15.40-18 2e	Introduce the influence of learner's beliefs.	Citations	Both academic L2 and everyday L2 are employed to introduce this part, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C

Appendix A

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
18.04-21.14 2f	Introduce the influence of teacher's beliefs	Citations	The lecturer the potential influence of the teacher's beliefs with daily examples, both academic L2 and everyday L2 are used, therefore coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
21.20-34.20 3a	Introduce teacher cognition and influences on teacher beliefs	Citations, quotations, and diagrams	The lecturer introduces the abstract concepts and then provides illustrations full of everyday L2, academic L2, and examples accompanying visual aids (e.g. diagrams), therefore being coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
34.25-36.50 3b	Introduce the beliefs from the EMI/CLIL perspectives	• What is 'best' practice? How is it achieved? • Who needs to do/have what? • What is 'success'? • What are the perceived	The lecturer further illustrates beliefs from EMI/CLIL perspectives in the form of questions, repacking it with daily examples, everyday L2, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C

Appendix A

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
		problems? ...		
36.55-39.20 3c	Overview studies EMI	citations	The lecturer then reviews some EMI studies using academic L2 and everyday L2, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
39.25-40.10 4a	Introduce what does success mean from EMI/CLIL perspectives	A quotation and a figure	The lecturer introduces what does success mean from EMI/CLIL perspectives using a quotation with both academic L2 and everyday L2, coded as from <i>Abstract</i> to <i>Concrete</i> .	A-C
40.15-43 4b	The lecturer asks students to think about “Your beliefs about EMI”.	- What do you think is happening to your learning in EMI? - Will you teach through English? Why/not?	The lecturer asks students to carry out self-reflection in terms of beliefs in EMI based on their individual experiences or perceptions, coded as from <i>Concrete</i> to <i>Linking</i> since this requires students to link the detailed knowledge to relatively practical teaching context.	C-L

Appendix A

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
5	Introduce a free EMI online course	Course link	The lecturer finally introduces a free EMI online course related to today's session, coded as Concrete due to its, relatively, strong context dependence and weak information density.	C

Appendix B Module B Session 3 (MBS3) Summary Table

Table B Summary data for Module B Session 3

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
1 0-3.10 1a	The lecturer starts the session by linking back to one criticism in the previous week and asks why to look at outcomes of CLIL/EMI.	Citations	In this part, both academic L2 and everyday L2 are used accompanying some examples, therefore, I coded this part as from <i>Linking</i> (the previous knowledge) to <i>Concrete</i> .	L-C
3.15-4 1b	The lecturer then raises two questions in terms of the content outcomes of the existing studies.	- Do CLIL students do 'worse' in content learning than L1 group? - Do EMI students do 'worse' in content learning than L1 group?	The lecturer raises two questions in this part before illustrating the related research results, therefore coded as Linking.	L

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
5-23 1c	Introduce the content outcomes in CLIL/EMI in details.	Citations and quotations	The lecturer illustrates this part with academic L2, everyday L2, and daily examples, coded as from <i>Linking</i> to <i>Concrete</i> .	L-C
23.10-24.40 1d	Summarize this part with questions format	Questions, e.g. What are the consequences of achieving 'similar' subject knowledge in CLIL subjects?	The lecturer raises some questions in terms of the content outcomes of CLIL/EMI full of everyday L2 and daily examples, coded as from <i>Concrete</i> to <i>Linking</i> (instead of Abstract) due to its weak knowledge density and strong context-dependence.	C-L
2 24.50-26 2a	Introduce language outcomes	Questions format	The lecturer uses academic L2, everyday L2, and daily examples to illustrate this part, coded as from <i>Linking</i> to <i>Concrete</i> .	L-C
26.10-26.50 2b	Introduce language (CLIL and EMI) rationales	Questions format	Both academic L2 and everyday L2 are employed to introduce this part, coded as from <i>Linking</i> to <i>Concrete</i> .	L-C

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
27-34.50 2c	Introduce language outcomes (CLIL)	Citations	The lecturer illustrates this part with daily examples, both academic L2 and everyday L2 are used, therefore coded as from <i>Linking</i> to <i>Concrete</i> .	L-C
35-42 2d	group discussion			
42.10-45.10 2e	Introduce 'language outcomes CLIL: Which FL/LF elements show + improvement?'	Diagrams, citations	The lecturer summarizes group discussion activities full of academic L2, everyday L2, and examples, coded as from <i>Linking</i> to <i>Concrete</i> .	L-C
45.20-46.10 2f	Introduce language outcomes: EMI	citations	The lecturer illustrates this part with citations full of academic L2; the lecturer then repacks it with daily examples, everyday L2, therefore, coded as from <i>Linking</i> to <i>Concrete</i> .	L-C
46.20-47 2g	Introduce effects for L1 development	But...beyond L2/FL/LF	The same as 2f.	L-C

Parts of the lecture and the time taken (approximate minutes)	What happens in class	What is shown on the PowerPoint slide	Coding comments	Position and shifts in SG and SD Abstract=A Concrete=C Linking=L
47.05-48.45 2h	Introduce dangers of cross-contexts conclusions	Problems with comparisons? Different educational cultures	The same as 2g	L-C

Appendix C Interview Guidance for Students

Participants

Researcher: Xiaowei Zhou

Participants: International students enrolled in the MA ELT/TESOL program at the University of Southampton during the 2022-2023 academic year.

Interview Procedure:

Prior to the interview, participants are requested to watch a video. During the interview, the researcher and the participant will watch the video together. This study employs the Stimulated Recall Interview (SRI) qualitative methodology. Both the researcher and the participant have the autonomy to pause or replay sections of the video at any time, allowing either party to pose questions or make comments. The researcher will primarily pause at the boundaries of textual paragraphs (see the attached lecture transcript for specific pauses). The interview questions will focus on the participants' authentic psychological responses during the video viewing. The interview is structured into two parts:

Part I: Questions Related to the Lectures (Including, but not limited to)

1. What are you thinking at this moment?
2. Can you tell me what was going through your mind at that time?
3. What were you thinking during that moment?
4. You seemed a bit confused during this section. What were you thinking at that time?
5. Do you remember what you were thinking when the lecturer gave that example?
6. Can you recall your thoughts when the lecturer said those words?
7. Why do you think the lecturer made that point?
8. Did you understand what was being said at that moment?

Part II: Background Information (For the first interview session only)

1. What were your IELTS listening score and overall band score?
2. Before coming to the UK, what was your strongest and weakest area in English learning?
3. In your opinion, what are the key differences between the academic expectations in your home country and those in the UK?
4. Have you taken any additional measures to adapt to English learning more quickly? (For example, watching videos on YouTube or participating in group activities?)

Appendix D Staff Semi-structured Interview

Questions

Part 1. Lecturers Background Information

1. Where are you from?
2. How long have you been working at the Faculty of Arts and Humanities?
3. How long have you been teaching this module?

Part 2. Lectures in General

1. What do you think students go to lectures as part of their academic course?
2. What do you expect international students to do before a lecture? Why?
3. What do you think are the main problems L2 students have understanding your lectures?
4. What do you think L2 students can do to understand your lectures better?
5. Within lectures what kind of strategies do you think students should employ in lectures to help them understand?
6. What do you think lecturers can do to help the L2 students with those problems?
7. Will you provide additional support or make any adaptations to help international students understand your lectures better? Why?
8. What do you expect students to do after a lecture? Why?
9. Do you have any idea of how much they're understanding?
10. For international students, what abilities do you think are the most critical in academic lectures?
11. Do you think there's anything that the university or the department could do to make international students' comprehension of lectures easier?
12. Does your university provide academic English support and resources specifically for international students?
13. Is there anything else about lectures or students listening in lectures that you think is particularly important or relevant?

Appendix E Transcription Conventions

Transcription key: Jeffersonian transcription

[]	Square brackets	Overlapping talk
=	Equals sign	No space between turns
(0.4)	Time in round brackets	Intervals within or between talk (measured in tenths of a second)
(.)	Period in round brackets	Discernable silence, too short to measure
-	Hyphen/dash	Abrupt cut-off of preceding sound
:::	Colons	Extension of preceding sound (the more colons, the greater the extension)
.	Period	Closing intonation (not necessarily the end of a sentence)
,	Comma	Continuing intonation (not necessarily between clauses of sentences)
?	Question mark	Rising intonation (not necessarily a question)
¿	Inverted question mark	Weak rising intonation
!	Exclamation mark	Animated tone
<u>here</u>	Underlining	Emphasis
HERE	Capitals	Loud, relative to surrounding talk
°here°	Degree signs	Soft, relative to surrounding talk
>here<	'More than' symbols	Speeded up relative to surrounding talk
<here>	'Less than' symbols	Slowed down relative to surrounding talk
<here	'More than' symbol	'Jump started' talk with loud onset
↑↓	Up or down arrow	Marked rise or fall in pitch, immediately following the arrow
.hhh		Audible inbreath (the more 'h's, the longer)
hhh		Audible outbreath (the more 'h's, the longer)
hah/heh/huh		Laughter voiced separately from talk
lau(h)gh	'h' in brackets within a word	Laughter interpolated within talk
£ (or \$)	Pound (or dollar) sign	Smiley voice
#	Hash sign	Creaky voice
()	Empty round brackets	Transcriber could not hear what was said
(here)	Word(s) in round brackets	Possible hearing of what was said
(here)/(there)	Word(s) in round brackets/other words(s) in round brackets	Two alternative possible hearings of the same bit of talk
((coughs))	Word(s) in double round brackets	Transcriber's comment on, or description of, a sound
tch(t)		Tongue click
mcht		Lip-parting sound

Appendix F Student Participant Interview

Transcription Sample

[Lecture video playback]

Researcher: What were you thinking?

Hao: Compared with China and Britain, I think in China, as far as my personal educational experience is concerned, (...) there are many teachers like this. Many teachers like to make an outline before class, and I don't know if it's a habit, but in Britain, some teachers will have it, for example, some teachers (.) will not have it in this course. But some teachers will hand out on the blackboard, for example. I think they are similar. But when it comes to a video, maybe I personally think that one will make students much clearer.

Researcher: You just mentioned that before the lecture, some tutors will give some designated literature to read on the Blackboard, including hands-out. Do you usually do a preview?

Hao: I can't say 100%, but maybe 70%. What may be covered is based on the question, but I think it is more based on the question to find the answer. It's still a bit like (...) doing reading. It's a little bit like this, if you don't read the literature, you can't answer those questions.

Researcher: Okay.

[Lecture video playback]

Researcher: Generally, the lecturer will extend some explanations after introducing a complex quotation or a theory or a term. Sometimes it may be an example, and sometimes it may be a further explanation. How much can you understand about this part?

Hao: I think it should be related to the course itself or the content of each unit. It's a quantitative one, not a standard percentage, for example, like this, I think I may understand about (...) sixty or seventy percent. It depends on the content itself, not on its length.

Researcher: After the lecturer puts forward a concept, he or she then explains it in the form of examples. Do you have any ideas about this form of teaching?

Hao: It depends. Maybe the example he gives is the kind of more life-like or a celebrity. I think for me at this stage, maybe my English level, er, enable to understand them better, but it is possible that some teachers will use other professional terms to explain this one. But it seems to him that other professional terms may be a little simpler than this one, right? But it's actually a professional term (...), and it's a very professional term for me, so I still don't understand it.

Researcher: Okay, do you have any problems in understanding this slide?

Hao: There is no big problem in understanding, But the teacher mentioned a connection with what we learned in week one. The teacher is still trying to let the students establish a connection between the knowledge point of this lesson and the previous knowledge point. But to be honest,

I don't really understand what kind of causal connection it is. The teacher wants us to (.) transition to a culture through country or culture is a verb. but I didn't really understand it at that time. At that time, I didn't quite understand how it was a transition method.

Researcher: Okay, let's move on to the next slide.

[Lecture video playback]

Researcher: When the lecturer explains this part, what were you thinking?

Hao: I can understand the internal structure of the two circles that the teacher talked about, and the relationship between them. But I still wanted to talk about (...) how these two things would relate to today's lesson. I would try to think. Then what the teacher just said is that the two of them influence each other. Then I can understand and think of examples of mutual influence. Just try to think of some examples that I can understand in terms of my cognition, but I have some doubts about how the teacher want to make a further transition to today's session.

Researcher: Okay. Some lecturers often have some diagrams in PowerPoint.

Do you think this kind of presentation will be more intuitive for you?

Hao: It is intuitive in most cases, but I actually had a question in this class. There are some problems such as the directivity of this arrow. In fact, sometimes I can explain it in detail later. In fact, it will cause confusion to the students, because they do not fully understand, for example, the contents of the two circles. When he really understands it thoroughly, he doesn't know what kind of causal relationship the directivity of such an arrow is. So it leads to an arrow. For example, does the arrow indicate which is the cause? Which is the result or the cause or the effect, you know what I mean? But in most cases, there are arrows. Then there is this kind of model or graphics, which will help me simplify my understanding and help me understand.

[Lecture video playback]

Researcher: This page is about some common definitions of identity. Well, is there any vocabulary that you are not familiar with?

Hao: If the word does not affect my understanding, I will not look it up, but I think if there is a new word, I will look it up. Because I think my thinking is following the PPT page by page. Also, I think what I say in class is a little different from what I see offline, that is, I may be more inclined to listen to what others say in class. They will not check it by themselves, because others feel that other students may be closer to us because of their (.) cognition. Some of their answers may actually be able to solve one of your questions to a large extent.

Researcher: Following your answer just now, in class, you will pay attention to some answers or comments from other students to the teacher's questions?

Hao: Personally, I will, and I like it. Er (...) (then for this page of PPT, it is identity, social identity, and self-identity. The teacher is explaining a single one. For example, if I don't look at the back, I

can understand when I look at the front to explain each individual. But when I look at these PPT, I may obviously find that these three are confusing (...)I will think about what is the difference among them. I thought they were very similar. Then when the teacher is explaining, for example, he just uses a text explanation. Then it seemed that my doubts were not answered at that time.

Researcher: Right.

Hao: Yes, in fact, in the end, it may be because this course has too many specialized nouns and is more abstract. I will reflect on my understanding many times. Is my understanding correct? Does my understanding need to be adjusted? Can my understanding be understood in this way? But some courses are not so abstract, and I will not repeatedly look at my thinking.

Researcher: Okay. Let's move on to the next part.

[Lecture video playback]

Hao: The biggest problem I understand on this page is that I don't understand this word very well. This word, yes, but by giving examples, I then understand it. This means that it is a vague meaning or more arbitrary. On this page, there are a lot of words (...). But I think the teacher must have a reason to present this, or to help you provide more context to understand. So now you have an obligation to understand what looks a little longer.

Researcher: Okay.

Hao: Yes, then I think some PPT will be highlighted. When the color is highlighted, the color is actually very helpful for understanding. Yeah.

Researcher: Often the quotation of the original text like this will appear, do you have such a model that you prefer to be taught by teacher? That is to say, what might be easier for you to understand?

Hao: Sometimes I may take a picture of it and translate it directly into Chinese. If I understand the (...) literal part in English, then maybe I think I got this kind of deep thing. But I still prefer to look at the words of Chinese scholars. This is very effective, I also think sometimes the teacher can have a tendency to carry out a disassembly.

Researcher: Can you further explain this?

Hao: I mean the teacher can fragment a very complex and integral thing into small parts and providing some daily examples.

[Lecture video playback]

Researcher: Was there a problem understanding this page at that time?

Hao: No. But I think my understanding will be a little deeper if the teacher doesn't use concepts (.) to explain concepts. I can know the meaning of the word, but it's a proper noun. I can't understand the meaning behind it. Then I was very confused when I saw this arrow.

[Lecture video playback]

Researcher: What were you thinking?

Hao: In the part, the teacher first gave a situation, and then gave a theory in a field, then we go to the next page of PPT. But I think one of my learning habits is first theory, then examples, and then combination, yes, because in this case, I feel that I will forget the context in front of me, right? Although the content is very simple, but I still feel that there will be a little bit of forgotten feeling.

Researcher: How much do you think you can understand today's lecture?

Hao: 80%. The remaining 20% may be due to some specialized knowledge as I said. Subject knowledge.

Researcher: Okay.

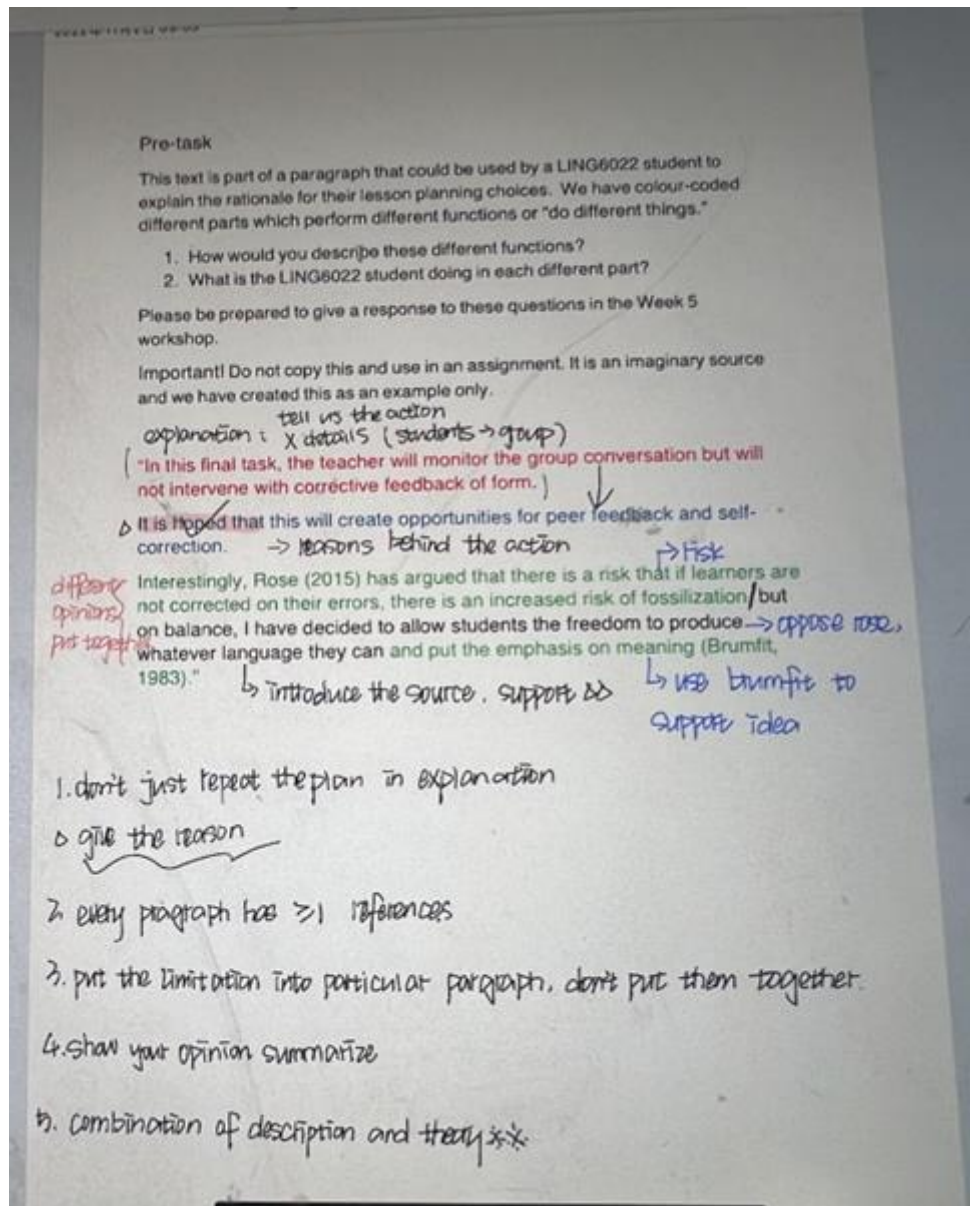
Hao: Although the teacher explained, he still used the theory to explain the theory as I said just now. In fact, it still makes me have doubts. Also, I may have attended the class, and then I can understand the content of the class, and then I can find the model essay when I write the paper. But when I wrote it, I felt a little difficult, especially from theory to practice.

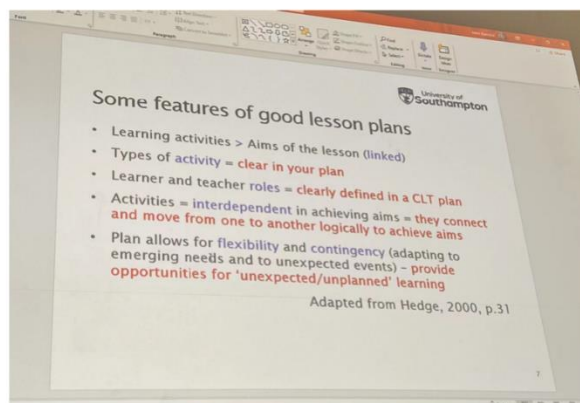
Researcher: Okay, that's what I'm interviewing today. Do you have anything else to share with me?

Hao: No.

Researcher: Thank you for your participation.

Appendix G Student Participants' Note-Taking Samples





3P (Present, Practice, Produce)

1. not C/T

2. mit authentiz

Pre - while - Post - (more aligned)

Pre-SS do their own research for the lesson / or create the task.

while - the task is largely ss lead.

Post-SS have to create sth as an outcome based on the content of the first two stages

eg

Pre: make a plan about holiday in detail

while: share Ss plan with each other and discussed.

(Post: perfect the plan, learn how to perfect their ability in planning.

Pre-task

This text is part of a paragraph that could be used by a LING6022 student to explain the rationale for their lesson planning choices. We have colour-coded different parts which perform different functions or "do different things."

1. How would you describe these different functions?
2. What is the LING6022 student doing in each different part?

Please be prepared to give a response to these questions in the Week 5 workshop.

Important! Do not copy this and use in an assignment. It is an imaginary source and we have created this as an example only.

- A "In this final task, the teacher will monitor the group conversation but will not intervene with corrective feedback of form." → why? (just say what happen)
- B It is hoped that this will create opportunities for peer feedback and self-correction. ~~no will~~ do not explain it.)
- C Interestingly, Rose (2015) has argued that there is a risk that if learners are not corrected on their errors, there is an increased risk of fossilization, but on balance, I have decided to allow students the freedom to produce whatever language they can and put the emphasis on meaning (Brumfit, 1983)."

challenge

A: 指出学生的阶段: stage, 是课程哪一个阶段.

A → B 完成A的原因, 衔接下一步, C 应该干嘛

what happen in the room + reason + sources + (plan + source 关系)

Red - practice

Blue - theory for practice (claim)

Green - the theoretical argument

Black - rationale

Red at the end - support for the rationale.

段落, 怎么?

1. showing support for a claim.
2. synthesis of sources
3. different opinions
4. refuting counter-argument

对观点的认可

Responses to Feedback

How will you improve on these issues?

	Feedback issue (given in bold)	Your ideas
1	"Some tasks are too Teacher-led" What alternatives are there?	Students practice on their own.
2	"You need to define this competences and say precisely how you achieve this in your plan" ... their pragmatic competence (Bachman, 1990) is improved by using English to discuss which one is the most interesting traveling experience in the group. What needs to be improved here?	① how he defines it as. ② details: culture / food, signature food: dumplings, hot pot ?? ③ Students bring ideas (pictures, ~) ↓ ④ put it on blackboard ↓ ⑤ discuss about it
3	"Lack of details about the principle" In my lesson plan, the teacher gives students some pictures which are authentic. don't have a link, which principle? How could you improve this sentence? There is more than one issue here!	① use authentic materials ② teacher-led ask students to bring, teachers choose from their pictures.
4	"Not showing awareness of what an idea means when applied to teaching (e.g. 'autonomy', 'natural language', etc.)" What should you do here?	definition + different views

LING6028 W3

0:28 先列出课程的3个目标,让学生大致明白学习目的,有一定
的学习期待。(在中国,以前许多老师这样,不知道是否是利用慢)
1:50 与W建立联系,且用Why?的方式引出4个方面的relation-
ship,紧接着放入到 Culture practice 中,更侧重 Practice, Values,
Norms 3方面。

5:12 进一步区分 Norms 和 Values,也很好地理解,这时我的内
心想法是,这两个哪个是 Identity 呢?或是与 Identity 有什么
关系呢?

6:37 当谈到 Social structure 影响 Culture Practice,
CP 反过来又影响 SS 时,我觉得十分抽象,太抽象里不能立刻
想到较为合适的例子。老师接下来也没有举例,而是在 CP 中
对 "WHO" 进行解释。

8:15 从 "WHO" 到 "AGENT" 到本章重点: "Identity" 均
难懂!老师的话: Who is the participant of the CP
has the sth to do with the Definition of Identities.
不禁让我有疑问: 是因为 WHO 是指代人,而太有意识,所以
过渡到 Identity 的吗? 但是没有人 (WHO) 才能是 agent 吗?

9:38 Identity 和 self-identity 有点难区别,我能稍微
领会,但难以表达清楚... (可能我理解能力太差了)

箭头的指向性(性)和 identification and power-
play 都是 Anti-essentialist model 是否方便理解?

22:36 power-play 是抽象的 Power 还是具体的 Power 还是疑问?
所产生效果? PPT 若解释: 老师又有解释一点,还是有疑问。

24:04 cross = 属性 inter = 不同为特性 trans = 跨与多样性
并存,能理解吗?

35:58 在解释了 Identity 的作用后,要是能让学生自己结合
生活经历 (比如举美国后生中 Identity 需要做出调整或
在哪些 process 起作用),可能学生印象会更深刻。

*在整个看视频的过程中,可能是专业名词过多,且抽象,
我会多次反思自己的理解对吗? 可以这样理解吗?
这是否算对 "元认知" 的发展有帮助。(对自己认知过程的
认知)。

Appendix H Sample from the Researcher's Diary

On Thursday, 16th February 2023, the researcher decided to revise the research questions and methodology as follows:

1. **Modification of Research Questions:** The scope of the study now includes an analysis of factors influencing staff members' comprehension of students' academic English lectures. These findings will be compared with data gathered from student participants to identify both similarities and differences. To enhance clarity and facilitate understanding, the presentation of these findings will not only be explained in written form but also accompanied by charts and graphs in the thesis (see attached document).
2. **Lecturer and Tutor Invitations:** Six lecturers and tutors were contacted via email, and two of them responded on the same day and agreed to participate in the interviews.
3. **Inclusion of Questions on Online Mediums:** A point for consideration in the next phase of research is whether to ask student participants for their opinions on online platforms. Furthermore, the thesis will need to clearly articulate the specifics of the lecture format used in this study, as well as the supporting materials involved.
4. **Meeting with Professor K.M.:** Some brief, focused questions related to my research will be prepared to ask Professor K.M. during an in-person meeting scheduled for mid-year in London.
5. **Interview with Participant 'Nan':** In yesterday's interview with Nan regarding LING6042 W3, the participant appeared to rely heavily on their own schema. For instance, due to fragmented input, Nan made three comments that were directly opposite to the content presented by the lecturer. However, when the same lecture segments were replayed, the participant was able to provide an accurate interpretation. The stark contrast surprised the researcher. Upon further probing, it was revealed that Nan's expectations regarding the form and style of lecture delivery fell into the category of individual learning differences, which makes generalization difficult at this stage. This observation, however, prompted curiosity about how lecturers perceive international students' understanding of lecture content.
6. **Language Interpretation Issues:** Another intriguing finding from Nan's interview was a misunderstanding due to an inability to accurately interpret English-written content. This led to errors in understanding both the topic and the lecture material. When the researcher translated the question into the participant's native language (Chinese), Nan provided a completely different (and correct) answer. Throughout the process, the participant did not consciously acknowledge this phenomenon and attributed the

confusion to the lecturer's failure to present content in written form on the PowerPoint slides. This aspect will be analyzed and discussed in detail in the thesis report.

List of References

- Ashwin, P. (2005). *Variation in students' experiences of the "Oxford tutorial"*. Higher Education, 50(4), 631-644. <https://doi.org/10.1007/s10734-004-6369-7>
- Airey, J., & Linder, C. (2006). Language and the experience of learning university physics in Sweden. *European Journal of Physics*, 27(3), 553–560. <https://doi.org/10.1088/0143-0807/27/3/013>
- Airey, J. (2011). Talking about teaching in English: Swedish university lecturers' experiences of changing teaching language. *Ibérica: Revista de la Asociación Europea de Lenguas para Fines Específicos*, 22, 35–54.
- Airey, J., Lauridsen, K. M., Räsänen, A., Salö, L., & Schwach, V. (2017). The expansion of English-medium instruction in the Nordic countries: Can top-down university language policies encourage bottom-up disciplinary literacy goals? *Higher Education*, 73(4), 561–576. <https://doi.org/10.1007/s10734-015-9950-2>
- Ali, A. (2020) 'Lecture comprehension challenges among second language learners', *Journal of Applied Linguistics*, 34(2), pp. 45-67.
- Anderson, A., & Lynch, T. (1988). *Listening*. Oxford University Press.
- Anderson, J. R. (1983). *The architecture of cognition*. Harvard University Press.
- Anderson, J. R. (1985). *Cognitive psychology and its implications* (2nd ed.). Freeman.
- Anderson, J. R. (1995). *Cognitive psychology and its implications* (4th ed.). W. H. Freeman.
- Bachman, L. F. (1990). *Fundamental considerations in language testing*. Oxford University Press.
- Bernstein, B. (2000). *Pedagogy, Symbolic Control and Identity: Theory, research, critique* (revised edition). Oxford, Rowman & Littlefield.
- Baddeley, A. D. (2000). The episodic buffer: A new component of working memory? *Trends in Cognitive Sciences*, 4(11), 417–423. [https://doi.org/10.1016/S1364-6613\(00\)01538-2](https://doi.org/10.1016/S1364-6613(00)01538-2)
- Bond, B. (2020). *Making language visible in the university: English for academic purposes and internationalisation* (Vol. 82). Multilingual Matters.
- Blackie, M. (2014). Creating semantic waves: Using Legitimation Code Theory as a tool to aid the teaching of chemistry, *Chemistry Education Research and Practice*, 15, 462–9.
- Blackie, M.A.L., Case, J.M. and Jawitz, J. (2022) 'Collaborative teaching strategies to enhance scientific discourse skills in first-year biology students', *Journal of Higher Education Research and Practice*, 22(3), pp. 121–138.
- Bajak, A. (2014). Lectures aren't just boring, they're ineffective, too, study finds. *Science*.
- Baker, W. (2019). *Culture and identity through English as a Lingua Franca: Rethinking concepts and goals in intercultural communication*. De Gruyter Mouton.

- Baker, W., & Hüttner, J. (2016). English as a lingua franca in education. *ELT Journal*, 71(2), 241–252. <https://doi.org/10.1093/elt/ccw060>
- Belhiah, H., & Elhami, M. (2015). English as a medium of instruction in the Gulf: When students and teachers speak. *Language Policy*, 14, 3–23. <https://doi.org/10.1007/s10993-014-9336-9>
- Benson, M. (1989). Ethnographic research in educational contexts: The case of listening in an academic course. *TESOL Quarterly*, 23(4), 421–446. <https://doi.org/10.2307/3587331>
- Berg, B. L. (2004). *Qualitative research methods for the social sciences* (5th ed.). Pearson.
- Barnett, R. (2000). *Realizing the University in an Age of Supercomplexity*. Buckingham: Open University Press.
- Biber, D. (1988). *Variation across speech and writing*. Cambridge University Press.
- Biggs, J. (2003). *Teaching for Quality Learning at University*. Buckingham: Open University Press.
- Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university* (4th ed.). Open University Press.
- Bloom, B. S. (1954). *Taxonomy of educational objectives: The classification of educational goals*. McKay.
- Blackie, M. A., Adendorff, H., & Mouton, M. (2022). Enacting Legitimation Code Theory in science education. In *Enhancing Science Education* (pp. 1–18). Routledge.
- Brown, G. (1990). *Listening to spoken English* (2nd ed.). Longman.
- Brown, G., & Yule, G. (1983). *Teaching the spoken language*. Cambridge University Press.
- Bligh, D. A. (1998) *What's the use of lectures?* Exeter: Intellect Books.
- Bryman, A. (2012). *Social Research Methods* (4th ed.). Oxford University Press.
- Buck, G. (1992) 'Listening comprehension: Construct validity and trait characteristics', *Language Learning*, 42(3), pp. 313–357.
- Buck, G. (2001). *Assessing listening*. Cambridge: Cambridge University Press.
- Clark, H. H., & Clark, E. V. (1977). *Psychology and language* (p. 43). New York: Harcourt Brace Jovanovich.
- Chandler, P. and Sweller, J. (1991) 'Cognitive Load Theory and the Format of Instruction', *Cognition and Instruction*, 8(4), pp. 293–332. https://doi.org/10.1207/s1532690xc0804_2.
- Cowley-Haselden, S. (2020). Semantic density in English for academic purposes: Supporting international students with academic reading. *Journal of English for Academic Purposes*, 45, 100855. <https://doi.org/10.1016/j.jeap.2020.100855>
- Chaudron, C. and Richards, J. C. (1986) 'The effect of discourse markers on the comprehension of lectures', *Applied Linguistics*, 7(2), pp. 113–127.
- Corbin, J. and Strauss, A. (2008) *Basics of qualitative research: Techniques and procedures for developing grounded theory*. 3rd edn. Thousand Oaks, CA: SAGE.

- Chi, M. T. H. (2009). Active-constructive-interactive: A conceptual framework for differentiating learning activities. *Topics in Cognitive Science*, 1(1), 73-105. <https://doi.org/10.1111/j.1756-8765.2008.01005.x>
- Coyle, D., Hood, P., & Marsh, D. (2010). *CLIL: Content and language integrated learning*. Cambridge University Press.
- Christie, F. (2002). *Classroom discourse analysis: A functional perspective*. Continuum.
- Clarence, S. (2016). Enabling cumulative knowledge-building through teaching: A Legitimation Code Theory analysis of pedagogic practice in law and political science. *Teaching in Higher Education*, 21(2), 162–178. <https://doi.org/10.1080/13562517.2015.1122588>
- Cannell, C. F., & Kahn, R. L. (1968). Interviewing. In G. Lindzey & E. Aronson (Eds.), *The Handbook of Social Psychology* (Vol. 2, pp. 526-595). Addison-Wesley.
- Carrell, P. L., Devine, J., & Eskey, D. E. (1988). *Interactive approaches to second language reading*. Cambridge University Press.
- Chang, A. C., & Read, J. (2006). The effects of listening support on the listening performance of EFL learners. *TESOL Quarterly*, 40(2), 375-397. <https://doi.org/10.2307/40264527>
- Chen, Y. H., & Ge, G. C. (2007). A corpus-based lexical study on frequency and distribution of Coxhead's AWL word families in medical research articles (RAs). *English for Specific Purposes*, 26(4), 502-514. <https://doi.org/10.1016/j.esp.2007.04.003>
- Chuang, M. T., Wu, P. C., & Huang, S. (2020). Effects of providing pre-organized outlines on lecture comprehension and note-taking performance in L2 learning. *Journal of Educational Psychology*, 112(1), 45-57. <https://doi.org/10.1037/edu0000367>
- Clarence, S. (2016). Exploring the nature of disciplinary teaching and learning using Legitimation Code Theory Semantics. *Teaching in higher education*, 21(2), 123-137.
- Clarence, S. (2017) 'Using Legitimation Code Theory to explore student engagement in South African higher education', *Journal of Education*, 68, pp. 113–136.
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge.
- Conana, H., Marshalla, D., & Case, J. (2016). Exploring pedagogical practice and student learning in physics using Legitimation Code Theory. *Physical Review Physics Education Research*, 12(1), 1–16. <https://doi.org/10.1103/PhysRevPhysEducRes.12.010132>
- Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (3rd ed.). SAGE Publications.
- Costa, F. (2012). Focus on form in ICLHE lectures in Italy: Evidence from English-medium science lectures by native speakers of Italian. *AILA Review*, 25(1), 30–47. <https://doi.org/10.1075/aila.25.03cos>

- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). SAGE Publications.
- Domizio, P. (2008) 'How to make lectures more effective', *Medical Teacher*, 30(4), pp. 410-416.
- Dafouz, E., & Smit, U. (2016). Towards a dynamic conceptual framework for English-medium education in multilingual university settings. *European Journal of Applied Linguistics*, 4(1), 97–122. <https://doi.org/10.1515/eujal-2016-0011>
- Dafouz, E., & Smit, U. (2017). A call for research: The need for new approaches to English-medium education in multilingual university settings. In C. Macaro (Ed.), *English medium instruction in higher education in Asia-Pacific* (pp. 65–80). De Gruyter Mouton.
- Dafouz, E., & Smit, U. (2020). Road-mapping English medium education in multilingual university settings: Using Legitimation Code Theory to understand EMI implementation. In K. van der Wende (Ed.), *Internationalisation revisited* (pp. 175–192). Springer.
- Dai, F.J., & Liu, C.Y. (2023). The Specialization and Semantics Interpretation of Teacher Talk of Civil Engineering English MOOC in China: The Legitimation Code Theory Perspective. *Journal of Languages and Language Teaching*, 11(3), 405-418.
- Dearden, J., & Macaro, E. (2016). Higher education teachers' attitudes towards English medium instruction: A three-country comparison. *Studies in second language learning and teaching*, 6(3), 455-486.
- Doiz, A., Lasagabaster, D., & Sierra, J. M. (2013). Future challenges for English-medium instruction at the tertiary level. In A. Doiz, D. Lasagabaster, & J. M. Sierra (Eds.), *English-medium instruction at universities: Global challenges* (pp. 213-233). Multilingual Matters.
- Dornyei, Z. (2007). *Research Methods in Applied Linguistics: Quantitative, Qualitative, and Mixed Methodologies*. Oxford University Press.
- Dudley-Evans, T., & St John, M. J. (1998). *Developments in English for specific purposes*. Cambridge university press.
- Ericsson, K. A., & Simon, H. A. (1996). *Protocol Analysis: Verbal Reports as Data* (Revised ed.). MIT Press.
- Evans, S., & Morrison, B. (2011). Meeting the challenges of English-medium higher education: The first-year experience in Hong Kong. *English for Specific Purposes*, 30(3), 198-208. <https://doi.org/10.1016/j.esp.2011.01.001>
- Evans, S., & Morrison, B. (2018). Adjusting to higher education: International students' experiences of academic transition in an English-medium environment. *Higher Education Research & Development*, 38(4), 1–16. <https://doi.org/10.1080/07294360.2018.1548378>
- Field, J. (2004). An insight into listeners' problems: Too much bottom-up or too much top-down? *System*, 32(3), 363-377. <https://doi.org/10.1016/j.system.2004.05.002>

- Field, J. (2008) *Listening in the language classroom*. Cambridge: Cambridge University Press.
- Field, J. (2018). *Listening in the language classroom*. Cambridge University Press.
- Flowerdew, J. (1994) *Academic listening: Research perspectives*. Cambridge: Cambridge University Press.
- Flowerdew, J. and Miller, L. (1992) 'Student perceptions, problems and strategies in second language lecture comprehension', *RELC Journal*, 23(2), pp. 60-80.
- Flowerdew, J. (1992). Definitions in science lectures. *Applied linguistics*, 13(2), 202-221.
- Flowerdew, J., & Miller, L. (1992). Student perceptions, problems and strategies in second language lecture comprehension. *RELC Journal*, 23(2), 60-80. <https://doi.org/10.1177/003368829202300205>
- Flowerdew, J. and Miller, L. (1995). On the notion of culture in L2 lectures. *TESOL Quarterly*, 29(2), pp. 345–373. <https://doi.org/10.2307/3587628>
- Flowerdew, J., & Miller, L. (1996). Lectures in a second language: Notes towards a cultural grammar. *English for Specific Purposes*, 15(2), 121–140. [https://doi.org/10.1016/0889-4906\(96\)00015-4](https://doi.org/10.1016/0889-4906(96)00015-4)
- Flowerdew, J., & Miller, L. (1997). The teaching of academic listening comprehension and the question of authenticity. *English for Specific Purposes*, 16(1), 27–46. [https://doi.org/10.1016/S0889-4906\(96\)00030-0](https://doi.org/10.1016/S0889-4906(96)00030-0)
- Flowerdew, J., & Miller, L. (2005). *Second language listening: Theory and practice*. Cambridge University Press.
- Flowerdew, J., & Miller, L. (2014). Dimensions of academic listening. *Teaching English as a second or foreign language*, 4, 90-103.
- Flowerdew, J., & Miller, L. (2015). *Academic listening: Research perspectives*. Cambridge University Press.
- Fortuño, B. B., & Gómez, I. F. (2005). Spoken academic discourse: An approach to research on lectures. *Revista española de lingüística aplicada*, (1), 161-178.
- Georgiou, H. (2012). Investigating physics learning and teaching interactions: Disciplinary knowledge and classroom practices (Unpublished doctoral thesis). University of Sydney.
- Georgiou, H, Maton, K., & Sharma, M. (2014). Recovering knowledge for science education research: Exploring the “Icarus Effect” in student work [J]. *Canadian Journal of Science, Mathematics and Technology Education*, 14(3): 252—268.
- Galloway, N., Numajiri, T., & Rees, N. (2017). The globalization of English: Language policy and English-medium instruction in the UAE. *TESOL Quarterly*, 51(1), 15–37. <https://doi.org/10.1002/tesq.270>

- Galloway, N., Kriukow, J., & Numajiri, T. (2020). Internationalisation, higher education and the growing demand for English: An investigation into the English medium of instruction (EMI) movement in China and Japan. *ELT Research Papers*, 20(2), 1–37.
- Gass, S. M., & Mackey, A. (2000). Stimulated recall methodology in second language research. Routledge.
- Gay, G. (2010). *Culturally responsive teaching: Theory, research, and practice* (2nd ed.). Teachers College Press.
- Gibbs, G., & Coffey, M. (2004). The impact of training of university teachers on their teaching skills, their approach to teaching and the approach to learning of their students. *Active learning in higher education*, 5(1), 87-100.
- Goh, C. C. (2000). A cognitive perspective on language learners' listening comprehension problems. *System*, 28(1), 55-75. [https://doi.org/10.1016/S0346-251X\(99\)00060-3](https://doi.org/10.1016/S0346-251X(99)00060-3)
- Goh, C. C. (2008). Metacognitive instruction for second language listening development: Theory, practice, and research implications. *RELC Journal*, 39(2), 188–213. <https://doi.org/10.1177/0033688208092184>
- Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report*, 8(4), 597-607.
- Gomm, R., Hammersley, M., & Foster, P. (Eds.). (2000). Case Study Method: Key Issues, Key Texts. SAGE Publications.
- Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and semantics*, vol. 3: Speech acts (pp. 41-58). Academic Press.
- Griffiths, R. (1990). Speech rate and listening comprehension: Further evidence of the relationship. *TESOL Quarterly*, 24(2), 385-390. <https://doi.org/10.2307/3586901>
- Guba, E. G., & Lincoln, Y. S. (1998). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The landscape of qualitative research: Theories and issues* (pp. 195-220). Sage Publications.
- Gu, Q., & Schweisfurth, M. (2015). Transnational connections, competences and identities: Experiences of Chinese international students after their return 'home'. *British Educational Research Journal*, 41(6), 947–970. <https://doi.org/10.1002/berj.3175>
- Guo, P.J., Kim, J. and Rubin, R. (2014) 'How video production affects student engagement: An empirical study of MOOC videos', *Proceedings of the First ACM Conference on Learning at Scale*, Atlanta, Georgia, 4–5 March. <https://doi.org/10.1145/2556325.2566239>.
- Gupta, A., & Saks, N. S. (2013). Exploring medical student decisions regarding attending live lectures and using recorded lectures. *Medical Teacher*, 35(9), 767-771. <https://doi.org/10.3109/0142159X.2013.801940>

- Halliday, M. A. K. (1994). *An introduction to functional grammar* (2nd ed.). Edward Arnold.
- Hu, M. and Nation, P. (2000) 'Unknown vocabulary density and reading comprehension', *Reading in a Foreign Language*, 13(1), pp. 403-430.
- Haskins, C. H. (2017). *The rise of universities*. Routledge.
- Harding, L. (2013). Listening in a second language. In C. A. Chapelle (Ed.), *The Encyclopedia of Applied Linguistics*. Wiley-Blackwell. <https://doi.org/10.1002/9781405198431.wbeal0712>
- Hassan, S. (2017). Exploring LCT's Semantics dimension in EFL education. *Journal of Language and Education*, 3(1), 15–28. <https://doi.org/10.17323/2411-7390-2017-3-1-15-28>
- Hofstede, G. (1986). Cultural differences in teaching and learning. *International Journal of Intercultural Relations*, 10(3), 301-320. [https://doi.org/10.1016/0147-1767\(86\)90015-5](https://doi.org/10.1016/0147-1767(86)90015-5)
- Heng, T. T. (2018). Different is not deficient: Contradicting stereotypes of Chinese international students in US higher education. *Studies in Higher Education*, 43(1), 22–36. <https://doi.org/10.1080/03075079.2016.1152466>
- Humphreys, P. (2017). Conceptualizing EMI in a global context. In A. Kirkpatrick (Ed.), *English as a lingua franca: Language learning, teaching and assessment* (pp. 31–48). Springer.
- Hyland, K. (2009). *Academic discourse: English in a global context*. Continuum.
- Hyland, K. (2011). Academic discourse. *Continuum companion to discourse analysis*, 171-184.
- Hyland, K. (2016). *Teaching and researching writing* (3rd ed.). Routledge.
- Islam, N., Kim, D., & Kwon, M. (2020). A comparison of two forms of e-learning: Computer-based learning and mobile-based learning. *Interactive Learning Environments*, 28(4), 464-481. <https://doi.org/10.1080/10494820.2019.1610453>
- Issa Mohamed, H., & Banda, F. (2008). Classroom discourse and discursive practices in higher education in Tanzania. *Journal of Multilingual and Multicultural Development*, 29(2), 95-109.
- James, W. (1977). *The principles of psychology* (Vol. 1). Harvard University Press.
- Jewitt, C. (2006). *Technology, literacy, learning: A multimodal approach*. Routledge.
- Jewitt, C. (2008). Multimodal discourses across the curriculum. *Encyclopedia of language and education*, 3, 357-367.
- Jin, L., & Cortazzi, M. (2006). Changing practices in Chinese cultures of learning. *Language, Culture and Curriculum*, 19(1), 5–20. <https://doi.org/10.1080/07908310608668751>
- Jenkins, J. (2019). English Medium Instruction in the global linguistic landscape. *International Journal of Applied Linguistics*, 29(2), 287-303. <https://doi.org/10.1111/ijal.12228>
- Jiang, L., Zhang, L., & May, S. (2019). EMI in China: Challenges and strategies for teaching and learning. *TESOL Quarterly*, 53(3), 595–621. <https://doi.org/10.1002/tesq.505>

- Just, M. A., Carpenter, P. A., & Keller, T. A. (2020). The capacity theory of comprehension: New frontiers of research in cognition. *Journal of Cognitive Psychology*, 32(5), 551-570. <https://doi.org/10.1080/20445911.2020.1776665>
- Kang, O., Rubin, D. L., & Pickering, L. (2010). Suprasegmental measures of accentedness and judgments of language learner proficiency in oral English. *Modern Language Journal*, 94(4), 554-566. <https://doi.org/10.1111/j.1540-4781.2010.01091.x>
- Keis, O., Grab, C., Schneider, A. and Ochsner, W. (2017) Online or face-to-face instruction? A qualitative study on the advantages and disadvantages of e-learning, *International Journal for Research in Vocational Education and Training*, 4(1), pp. 5–22.
- Kuo, M., Liao, Y. and Wang, L. (2020) 'Prior knowledge activation and lecture comprehension in EFL contexts', *Journal of English for Academic Purposes*, 47(2), pp. 231-248.
- Kilpert, L., & Shay, S. (2013). Semantic profiles and cumulative knowledge-building in journalism education. *Linguistics and Education*, 24(3), 350–364. <https://doi.org/10.1016/j.linged.2013.03.001>
- Kirk, S. (2017) 'Specialization and Semantics in English for Academic Purposes (EAP) curricula: A Legitimation Code Theory approach', *Journal of English for Academic Purposes*, 30, pp. 1–14. doi:10.1016/j.jeap.2017.10.002.
- Kirk, S. (2018). *Enacting the curriculum in English for academic purposes: A legitimation code theory analysis* (Doctoral dissertation, Durham University).
- Kuo, L., Yang, J., & Cheng, H. (2020). The effects of activating prior knowledge on listening comprehension in L2 learners. *Journal of English for Academic Purposes*, 46, 100909. <https://doi.org/10.1016/j.jeap.2020.100909>
- Kress, G. (2010). *Multimodality: A social semiotic approach to contemporary communication*. Routledge.
- Laufer, B. (2003) 'Vocabulary acquisition in a second language: Do learners really acquire most vocabulary incidentally?', *Journal of Second Language Acquisition*, 25(2), pp. 233-248.
- Langsford, S., & Rusznyak, L. (2024). Revisiting scaffolding: Towards a coherent concept for planning, teaching, and learning. *Educational Studies*, 50(1), 22-38. <https://doi.org/10.1080/03055698.2023.2194078>
- Laurillard, D. (2002). *Rethinking university teaching: A conversational framework for the effective use of learning technologies* (2nd ed.). Routledge.
- Li, L., & Wegerif, R. (2014). *Dialogic space for learning: Theorizing a pedagogy of intercultural understanding*. Springer.

- Lambrinos, E., & Maton, K. (2015). Embodied knowledge and body knowledge: using LCT to explore dance and gesture in education', paper presented to the. In *First International Legitimation Code Theory Colloquium*.
- Lee, J. and Huang, W. (2018) 'The effects of computer-assisted language learning on listening comprehension', *Language Learning & Technology*, 22(1), pp. 1-20.
- Levis, J. M., & Pickering, L. (2017). Teaching pronunciation: A course book and reference guide. Cambridge University Press.
- Liberman, A. M., Cooper, F. S., Shankweiler, D. P., & Studdert-Kennedy, M. (1967). Perception of the speech code. *Psychological Review*, 74(6), 431-461. <https://doi.org/10.1037/h0020279>
- Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. SAGE Publications.
- Lindstrøm, C. (2010) 'Semantic waves: An LCT approach to physics teaching', *Journal of Science Education*, 34(3), pp. 251–266.
- Lund, R. J. (1991). A comparison of second language listening and reading comprehension. *Modern Language Journal*, 75(2), 196-204. <https://doi.org/10.1111/j.1540-4781.1991.tb05349.x>
- Lynch, T. (1996). Communication in the language classroom. Oxford University Press.
- Langsford, D. and Rusznyak, L. (2024) Understanding teaching and learning: Investigating the role of instructional practices in higher education, *Educational Research Review*, 37, 100499.
- Montgomery, C. (2010). *Understanding the International Student Experience*. Basingstoke: Palgrave Macmillan.
- Martin, J. R. (2013). Embedded literacy: Knowledge as meaning. *Linguistics and Education*, 24(1): 23–37.
- Mukhtar, K., Javed, K., Arooj, M. and Sethi, A. (2020) 'Advantages, limitations and recommendations for online learning during COVID-19 pandemic era', *Pakistan Journal of Medical Sciences*, 36(COVID19-S4), pp. S27–S31.
- Matruglio, E., Maton, K. and Martin, J. R. (2013). Time travel: The role of temporality in enabling semantic waves in secondary school teaching, *Linguistics and Education*, 24(1): 38–49.
- Macaro, E., Curle, S., Pun, J., An, J., & Dearden, J. (2018). A systematic review of English medium instruction in higher education. *Language Teaching*, 51(1), 36–76. <https://doi.org/10.1017/S0261444817000350>
- Macaro, E. (2018). *English Medium Instruction: Content and language in policy and practice*. Oxford University Press.
- Macaro, E. (2020). Exploring the role of language in English medium instruction. *International Journal of Bilingual Education and Bilingualism*, 23(3), 263-276.

- Mackey, A., & Gass, S. (2012). Research methods in second language acquisition: A practical guide. Wiley-Blackwell.
- Marshall, C., & Rossman, G. B. (2011). Designing qualitative research (5th ed.). SAGE Publications.
- Martinez, R. S., Bosman, M., & Wittrock, R. M. (2021). The role of questioning in improving lecture comprehension. *Instructional Science*, 49(1), 135-149. <https://doi.org/10.1007/s11251-020-09535-1>
- Mason, J. (1996). Qualitative researching. SAGE Publications.
- Mason, J. (2002). Qualitative researching (2nd ed.). SAGE Publications.
- Maton, K. (2009). Cumulative and segmented learning: Exploring the role of curriculum structures in knowledge-building. *British Journal of Sociology of Education*, 30(1), 43–57. <https://doi.org/10.1080/01425690802514342>
- Maton, K. (2011) 'Knowledge-building: How can we create powerful and transferable knowledge?', in Christie, F. and Maton, K. (eds.) *Disciplinarity: Functional Linguistics and Sociological Perspectives*. London: Continuum, pp. 66–85.
- Maton, K. (2013). Making semantic waves: A key to cumulative knowledge-building. *Linguistics and Education*, 24(1), 8–22. <https://doi.org/10.1016/j.linged.2012.11.005>
- Maton, K. (2014). Building powerful knowledge: The significance of semantic waves. *Knowledge and the future of the curriculum: International studies in social realism*, 181-197.
- Maton, K. (2014c). *Knowledge and knowers: Towards a realist sociology of education*. Routledge.
- Maton, K., Hood, S., & Shay, S. (Eds.). (2015). *Knowledge-building: educational studies in legitimation code theory*. Routledge.
- Maton, K., & Chen, R. (2016). LCT in higher education: A toolkit for understanding knowledge-building practices. *Higher Education*, 72(3), 525–540. <https://doi.org/10.1007/s10734-015-9960-0>
- Maton, K., & Doran, Y. J. (2017). Semantic waves as a lens for curriculum analysis. *British Journal of Sociology of Education*, 38(5), 663–681. <https://doi.org/10.1080/01425692.2016.1173659>
- Maton, K. (2019). Semantic waves: Context, complexity and academic discourse. In *Accessing Academic Discourse* (pp. 59-85). Routledge.
- Maton, K., & Chen, R. (2020). Specialization and the semantic plane. In M. Lamont & K. Maton (Eds.), *Specialization: Building knowledge through discourse* (pp. 15–35). Routledge.
- Mayer, R. E. (2009) *Multimedia learning*. 2nd edn. Cambridge: Cambridge University Press.
- Mayer, R.E. (2020) *Multimedia Learning*. 3rd edn. Cambridge: Cambridge University Press.

- Mayer, R. E., Fiorella, L., & Stull, A. (2021). How does prior knowledge influence learning from multimedia lessons? A cognitive load theory approach. *Journal of Educational Psychology*, 113(5), 925-940. <https://doi.org/10.1037/edu0000545>
- Morell, T. (2004). Interactive lecture discourse for L2 learners in EMI university classrooms. *English for Specific Purposes*, 23(4), 325-338. <https://doi.org/10.1016/j.esp.2003.09.002>
- Merriam, S. B. (1998). *Qualitative Research and Case Study Applications in Education*. Jossey-Bass.
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. Jossey-Bass.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). SAGE Publications.
- Montgomery, C. (2010). *Understanding the international student experience*. Palgrave Macmillan.
- Morton, T. (2024). Using Legitimation Code Theory to explore knowledge building in English medium higher education teaching: methodological challenges and innovations. *Teaching in Higher Education*, 1-19.
- Mouton, J. (2022). Semantic profiling in first-year Biology lectures: A Legitimation Code Theory analysis. *International Journal of Science Education*, 44(3), 456-478. <https://doi.org/10.1080/09500693.2021.1991125>
- Mouton, M. (2020). A case for project based learning to enact semantic waves: towards cumulative knowledge building. *Journal of Biological Education*, 54(4), 363-380.
- Munby, J. (1978). *Communicative syllabus design*. Cambridge University Press.
- Munro, M. J., & Derwing, T. M. (1995). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning*, 45(1), 73-97. <https://doi.org/10.1111/j.1467-1770.1995.tb00963.x>
- Maringe, F., & Jenkins, J. (2015). *International education and management: Research, policy and practice*. Palgrave Macmillan.
- Murphy, S., Zuber, J., & Peverly, S. T. (2018). The relation of notetaking to academic performance. *Educational Psychology Review*, 30(1), 377-393. <https://doi.org/10.1007/s10648-018-9434-4>
- O'Malley, J. M., Chamot, A. U., & Küpper, L. (1985). Listening comprehension strategies in second language acquisition. *Applied Linguistics*, 6(4), 378-392. <https://doi.org/10.1093/applin/6.4.378>
- Oppenheim, A. N. (1992). *Questionnaire Design, Interviewing and Attitude Measurement* (2nd ed.). Continuum International Publishing Group.
- Osada, N. (2004). Listening comprehension research: A brief review of the past thirty years. *Dialogue*, 3, 53-66.

- Oxford, R. (1990). *Language learning strategies: What every teacher should know*. Newbury House.
- Pessoa, S., Miller, R. T. and Kaufer, D. (2014). 'Students' challenges and development in the transition to English-medium instruction in a higher education institution in Qatar: A mixed-methods study'. *International Journal of Applied Linguistics*, 24(3), pp. 329-351.
- Paivio, A. (1986). *Mental representations: A dual coding approach*. Oxford University Press.
- Patton, M.Q. (1980) *Qualitative evaluation methods*. Beverly Hills, CA: SAGE.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). SAGE Publications.
- Perkin, H. (2014). History of universities. In *International Higher Education Volume 1* (pp. 169-204). Routledge.
- Pecorari, D., & Malmström, H. (2018). At the crossroads of EMI and EAP: Academic language strategies in an EMI context. *International Journal of Bilingual Education and Bilingualism*, 21(5), 543-556. <https://doi.org/10.1080/13670050.2018.1491943>
- Peverly, S. T., Ramaswamy, V., Brown, C., Sumowski, J., & Alidoost, M. (2007). What predicts skill in lecture note taking? *Journal of Educational Psychology*, 99(1), 167-180. <https://doi.org/10.1037/0022-0663.99.1.167>
- Pin-Hwa, T. (2013). The importance of note-taking skills: The students' perception. *Journal of Language Teaching and Research*, 4(2), 250-256. <https://doi.org/10.4304/jltr.4.2.250-256>
- Powers, D. E. (1986). *A survey of academic skills in the context of academic lecture comprehension*. Educational Testing Service.
- Rahimirad, M., & Moini, M. R. (2015). The challenges of teaching academic listening skills in an EAP context: A study on pedagogical practices and teachers' perceptions. *Journal of English for Academic Purposes*, 20, 39-55. <https://doi.org/10.1016/j.jeap.2015.08.003>
- Richards, J. C. (1983). Listening comprehension: Approach, design, procedure. *TESOL Quarterly*, 17(2), 219-240. <https://doi.org/10.2307/3586651>
- Richards, J. C. (2005). *Second language listening: Theory and practice*. Cambridge University Press.
- Richards, K. (2003). *Qualitative Inquiry in TESOL*. Palgrave Macmillan.
- Ryan, J. and Carroll, J. (2005) *Teaching international students: Improving learning for all*. London: Routledge.
- Ryan, J., & Louie, K. (2007). False dichotomy? 'Western' and 'Confucian' concepts of scholarship and learning. *Educational Philosophy and Theory*, 39(4), 404-417. <https://doi.org/10.1111/j.1469-5812.2007.00347.x>

- Ryan, J., & Viete, R. (2009). Respectful interactions: Learning with international students in the English-speaking academy. *Teaching in Higher Education*, 14(3), 303–314. <https://doi.org/10.1080/13562510902898866>
- Rost, M. (1990). *Listening in language learning*. Longman.
- Rost, M. (2011). *Teaching and researching listening* (2nd ed.). Routledge.
- Rost, M. (2013). Listening in a multilingual world: The challenges of second language (L2) listening. *International Journal of Listening*, 28(3), 131-148.
- Rose, H., & Galloway, N. (2019). Debating EMI in the higher education classroom. *Language Teaching*, 52(2), 213-224. <https://doi.org/10.1017/S0261444819000187>
- Rose, H., Curle, S., Aizawa, I. and Thompson, G. (2019). 'What drives success in English medium taught courses? The interplay between proficiency, personality, engagement and internationalisation'. *Studies in Higher Education*, 45(11), pp. 2149-2160.
- Sperber, D. and Wilson, D. (1986) *Relevance: Communication and cognition*. Cambridge: Harvard University Press.
- Scardamalia, M. and Bereiter, C. (1994). Computer support for knowledge-building communities. *The Journal of the Learning Sciences*, 3(3), pp. 265–283. https://doi.org/10.1207/s15327809jls0303_3
- Star, J.R., Lynch, K. and Perova, N. (2011) 'The importance of teachers' understandings of the subject matter', *Educational Review*, 63(2), pp. 117–140.
- Shay, S. & Steyn, D. (2015). Enabling knowledge progression in vocational curricula: Design as a case study, in K. MATON, S. HOOD & S. SHAY (eds) *Knowledge-building: Educational studies in Legitimation Code Theory*. London, Routledge.
- Suzuki, W., Itagaki, N. and Takada, M. (2017). 'Japanese university students' speaking fluency and its relationship with speaking time in English-medium instruction'. *Journal of English for Academic Purposes*, 26, pp. 1-13.
- Subethra, P., & Vivienne, W. (2019). Tutors use of semantic eaves as a teaching strategy to guide student learning: A case study.
- Sanchez, H. S., & Grimshaw, T. (2019). Stimulated recall. In *The Routledge handbook of research methods in applied linguistics* (pp. 312-323). Routledge.
- Soruc, A., & Griffiths, C. (2018). English Medium Instruction in higher education: Implementing challenges. *International Journal of Applied Linguistics*, 28(3), 455-472. <https://doi.org/10.1111/ijal.12205>
- Segalowitz, N., & Segalowitz, S. J. (1993). Skilled performance, practice, and the differentiation of speed-up from automatization effects: Evidence from second language word recognition. *Applied Psycholinguistics*, 14(3), 369-385. <https://doi.org/10.1017/S0142716400010845>

- Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (3rd ed.). Teachers College Press.
- Swales, J. M. (1990). *Genre analysis: English in academic and research settings*. Cambridge University Press.
- Siegel, J., & Siegel, A. (2014). L2 listening pedagogy: A comprehensive review of empirical research and practical approaches. *Language Teaching Research*, 18(2), 252-272. <https://doi.org/10.1177/1362168813519326>
- Siegel, J. (2021). *Developing second language listening comprehension: Theory and practice*.
- Silverman, D. (2010). *Doing qualitative research* (3rd ed.). SAGE Publications.
- Silverman, D., & Marvasti, A. (2008). *Doing qualitative research: A comprehensive guide*. SAGE Publications.
- Street, B. V. (1993). Culture is a verb: Anthropological aspects of language and cultural process. In D. Graddol, L. Thompson, & M. Byram (Eds.), *Language and culture* (pp. 23-43). Multilingual Matters.
- Spencer-Oatey, H., & Dauber, D. (2017). Internationalisation and student identity: International students' negotiation of academic group work. *Journal of Studies in International Education*, 21(1), 3-17. <https://doi.org/10.1177/1028315316687012>
- Sweller, J. (1988). *Cognitive load during problem solving: Effects on learning*. *Cognitive Science*, 12(2), 257-285. https://doi.org/10.1207/s15516709cog1202_4
- Sweller, J., Ayres, P., & Kalyuga, S. (2011). *Cognitive load theory*. Springer.
- Sweller, J. (2011) *Cognitive Load Theory*. New York: Springer.
- Sánchez, A., & Grimshaw, M. (2019). Reexamining transcription challenges in multilingual interviews. *Language and Intercultural Communication*, 19(2), 165-177. <https://doi.org/10.1080/14708477.2019.1584149>
- Teng, M. F. (2020). The role of metacognitive knowledge in English as a foreign *Language Awareness*, 29(4), 295-314. <https://doi.org/10.1080/09658416.2020.1832694>
- Thompson, S. E. (2003). Text-structuring metadiscourse, intonation and the signalling of organisation in academic lectures. *Journal of English for Academic Purposes*, 2(1), 5-20. [https://doi.org/10.1016/S1475-1585\(02\)00036-X](https://doi.org/10.1016/S1475-1585(02)00036-X)
- Tatzl, D. (2011). English-medium masters' programmes at an Austrian university of applied sciences: Attitudes, experiences and challenges. *Journal of English for Academic purposes*, 10(4), 252-270.
- Taguchi, N. and Naguma, A. (2006). 'Transitioning to EMI in Japan: Examining student preparedness and support needs'. *Asian Journal of Applied Linguistics*, 3(1), pp. 23-39.

- Taguchi, N. (2014). English Medium Instruction: Perspectives from Asia. *Annual Review of Applied Linguistics*, 34, 1-22. <https://doi.org/10.1017/S0267190514000111>
- Thompson, G., Rose, H., Curle, S. and Aizawa, I. (2019). 'Exploring the impact of English-medium instruction (EMI) on university student academic achievement: A systematic review'. *TESOL Quarterly*, 53(3), pp. 555-579.
- Tan, X., Lee, A., & Koh, Y. (2020). Flipped lecturing in higher education: Impacts on student engagement and learning outcomes. *Journal of Educational Technology & Society*, 23(2), 47-58.
- Trenkic, D. and Warmington, M. (2019). 'Language and literacy skills of home and international university students: How different are they, and does it matter?'. *Bilingualism: Language and Cognition*, 22(2), pp. 349-365.
- Trenkic, D., Warmington, M. and Yeung, L. (2019). 'The role of academic language skills in university success: Implications for EMI policy'. *Higher Education Research & Development*, 38(2), pp. 255-269.
- Tsuneyoshi, R. (2005). 'The "Internationalization" of Japanese education and the new challenges for teacher education'. *Teaching and Teacher Education*, 21(7), pp. 889-900.
- Thanji, M., & Vasantha, S. (2016). Impact of e-learning during COVID-19 pandemic among students and teachers: A study based on web survey and analysis. *Journal of Emerging Technologies and Innovative Research*, 3(5), 94-104.
- Thornton, M. A., & Lee, J. S. (2021). The impact of cognitive load on second language comprehension. *Applied Psycholinguistics*, 42(3), 1-24. <https://doi.org/10.1017/S0142716421000015>
- Ur, P. (1984) Teaching listening comprehension. Cambridge: Cambridge University Press.
- Vandergrift, L. (2004). Listening to learn or learning to listen? *Annual Review of Applied Linguistics*, 24, 3-25. <https://doi.org/10.1017/S0267190504000017>
- Vandergrift, L. (2007). Recent developments in second language listening comprehension research. *Language Teaching*, 40(3), pp. 191-210. <https://doi.org/10.1017/S0261444807004338>
- Vandergrift, L., & Tafaghodtari, M. H. (2010). Teaching L2 learners how to listen does make a difference: An empirical study. *Language Learning*, 60(2), 470-497. <https://doi.org/10.1111/j.1467-9922.2009.00559.x>
- Vandergrift, L., & Goh, C. C. (2012). Teaching and learning second language listening: Metacognition in action. Routledge.
- Watkins, D. A., & Biggs, J. B. (2001). *The paradox of the Chinese learner: Towards a contextualized understanding of learning*. Comparative Education Research Centre, University of Hong Kong.

- Wilkinson, R. and Yasuda, S. (2013). 'International content learning through English: EMI in the social sciences at a Japanese university'. *Journal of International and Advanced Japanese Studies*, 5, pp. 3-22.
- Wu, Q. (2015). Re-examining the 'Chinese learner': A case study of mainland Chinese students' learning experiences at British universities. *Higher Education*, 70(4), 753–766.
<https://doi.org/10.1007/s10734-015-9865-y>
- Yin, R. K. (1984). *Case Study Research: Design and Methods* (1st ed.). SAGE Publications.
- Young, L. (1994). University lectures—macro-structure and micro-features. In J. Flowerdew (Ed.), *Academic listening: Research perspectives* (pp. 159-176). Cambridge University Press.
- Zhang, D., & Goh, C. (2006). Academic listening development: A study of Chinese learners in an English-medium university. *RELC Journal*, 37(1), 55-75.
<https://doi.org/10.1177/0033688206063472>
- Zhu, H. (2011). *The language and intercultural communication reader*. London, UK: Routledge.