Conditional knowledge-based coherence strategy choice: Engaging supervisory on-script corrective feedback in research writing

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STATEMENT OF AUTHENTICATION

The work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in full or in part, for a degree at this or any other institution.

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(Signature)

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ABSTRACT

Research writing has been traditionally considered a challenging task for international Chinese Higher-Degree-by-Research (HDR) students, particularly at their novice stage as a writer. To help them conquer the challenges, supervisory on-script focused corrective feedback is a pedagogical method for providing models of conditional knowledge and helping produce coherent research writing. This supervisory pedagogy has been researched (Aitchison et al., 2012; Can & Walker, 2014). However, the pedagogical use of schemas and conditional knowledge as a facilitator for successful research writing are under researched with respect to international Chinese HDR students. This lack of knowledge limits the pedagogical possibilities for building international Chinese HDR students' capacity for creating coherent research writing. Investigating the possibilities for improving their conditional knowledge and schemas can help address this challenge.

This warrants a new approach to developing pedagogies that improve HDR students' research writing, one that captures a dynamic view of the development of their conditional knowledge and schemas in a coherent hierarchy. In this doctoral study, the investigation focuses on the construction of conditional knowledge for creating micro-level coherence in research writing engaged by supervisory on-script corrective feedback. To this end, the potential for engaging conditional knowledge

and schemas involves analysing evidence of international Chinese HDR students' coherence strategy choices and their supervisor's corresponding on-script corrective feedback. This study points to the need for pedagogies that accommodate text-based and reader-based coherence in HDR students' research writing. The primary aims of the research reported in this thesis were to investigate the interrelationships among (a) international Chinese HDR students' conditional knowledge used in creating the micro-level coherence; (b) their choices of the coherence strategies used; and (c) their supervisor's modelling of appropriate choices of coherence strategies via on-script focused corrective feedback on these students' draft research texts. The case study used interrelated approaches to address these aims. First, this study explored the appropriateness or otherwise of these HDR students' use of coherence strategies through collecting and analysing evidence of the conditional knowledge they used in creating the micro-level coherence in their research writing. Second, a key pedagogy used to enhance their conditional knowledge for creating coherence, supervisory on-script focused corrective feedback, was developed. Through mapping, categorising and conceptualising the conditional knowledge required for creating the micro-level coherence in HDR students' research writing, this study connects text-based and reader-based coherence. This study thereby develops a new supervision pedagogy which recognises and mobilises supervisor's modelling of conditional knowledge for enhancing HDR students' conditional knowledge in order to build HDR students' capabilities for producing coherent research writing.

LIST OF ABBREVIATIONS

AWL   Academic Word List

EAP   English for Academic Purposes

EFL   English as a Foreign Language

ESL   English as a Second Language

HDR   Higher Degree by Research

IL   Information Literacy

PRC   People's Republic of China

SC   Speakers of Chinese

SE   Speakers of English

CHAPTER ONE
Introduction

This introductory chapter provides an overview of the key elements of this thesis. It offers a brief account of the research focus, research questions, key terms to be used, the theoretical and methodological orientation, and the innovativeness of this study. An overview of the thesis structure explains how the thesis statement is developed through the chapters. In the next section, the research focus is explained.

1.1 Introduction

Research writing has been traditionally considered as a challenging task for Higher-Degree-by-Research (HDR) students. This is indeed the case for international HDR students in Australian institutions, universities in particular (Han, 2012; Kozar & Lum, 2013; Singh, 2011). As Kozar and Lum (2013: A-135) posit,

> [research] writing is daunting and even overwhelming for many HDR students and the learning curve is extremely steep. Needless to say, the challenges that come with [research] writing are felt even more keenly by those producing a thesis in a second language.

There are many challenges that HDR students confront when commencing *research writing*. One such challenge, widely cited in the literature, is

> When [HDR student] writers are not sure exactly what they are saying and what they are not, or when they don't feel they have the authority to publicly commit to a particular point of view, the Thematic structure of their paragraphs may be really difficult for a reader to navigate. Central meanings can get buried and paragraphs can seem to be about everything or nothing (Kamler & Thomson, 2014: 114).

Learning *research writing* is a stumbling block for HDR students. Both students with English as a second language and students English as their first language confront challenges in their academic writing. As Kamler and Thomson (2014: 114) contend, "one of the difficult tasks in writing the dissertation [thesis] is to say precisely what it is about". Paltridge (2014) also asserts that *research writing* such as dissertation or thesis and research proposals is a writing genre in which HDR student writers may not be skilled. However, despite choices of *coherence strategies* being critical for creating coherent research texts, little is researched on international Chinese HDR students' coherence creation in their *research writing*. Han (2012) explored the information literacy (IL) development of international HDR students from China as they undertook their research studies in an Australian university. She found that these international students experience significant difficulties in developing their IL skills during their research. However, despite a few studies on the difficulties international Chinese HDR students confront with their research writing, there is little investigation into coherence in their *research writing*.

Interestingly, various studies have been conducted into *coherence* in English learner-writers' academic texts. Ebrahimi and Ebrahimi (2012) reported that it remains a challenging task for English learner-writers to produce coherent texts. Literature review of studies of *coherence* in English learners' writing shows that there is a persistent and disconcerting characteristic of inappropriate establishment of *cohesive ties* and *thematic organisation* in these students' writing (Krisnawati, 2013; Naderi et al., 2014). For instance, they have difficulty in "expressing themselves in a coherent manner" (Wisker, 2012: 210). The lack of text *cohesion* and *coherence* is

often clearly visible in their academic texts (Yao, 2014). In particular, they are not skillful in using *cohesion* and *coherence strategies* in their *research writing* (Ebrahimi & Ebrahimi, 2012; Krisnawati, 2013; Naderi et al., 2014; Yao, 2014).

Further, *conditional knowledge* as a facilitator for successful writing production has been widely explored in the area of English learners' writing. For example, Okasha and Hamdi (2014) report that *conditional knowledge* helps promote English learner-writers' strategic writing capability to transform a passive construction into an active one. They found that engaging *conditional knowledge* as one type of "strategic knowledge" into instruction helped Iranian EFL postgraduate students overcome their difficulty in getting access to their existent *schema*. Dresel et al. (2015) also argues against researching *conditional knowledge* adhering to learners' self-perception through interviews or observations rather than their actual written texts which can reflect how they conducted strategy use in their natural flow of language. The risk is that there may be discrepancies between students' perceptions and their actual behavior. Despite various studies on *conditional knowledge* and learner English writing, international Chinese HDR students' *conditional knowledge* and their *research writing* have been under researched.

Focused written corrective feedback is much valued as a method to help produce coherent written texts. For example, Bitchener et al. (2012) argue that teachers' *on-script written corrective feedback* provides English learner students with writing support for producing coherent texts. Hyland (2010) also reports that *supervisor's written corrective feedback* points to the inappropriateness in coherence strategy students employ in their academic writing. Further, it also provides them with corresponding *conditional knowledge* of strategy use. These feedback strategies can inform students explicitly about successful performance in a writing task (Kang & Han, 2015; Lee, 2013). In addition, it also helps them better understand expectations for writing in a given disciplinary community (Hyland, 2009). Accordingly, it is highly valued by novice English learner writers (Hyland, 1998; Hyland & Tse, 2004; Hyatt, 2005). However, despite *supervisory feedback* being highly preferred by

international Chinese HDR students, there is little research on the role *supervisory on-script focused corrective feedback* plays in international Chinese *HDR students' research writing*.

In reference to these three issues, international Chinese *HDR students' research writing* is, at best, underestimated. Therefore, this seems to indicate that international Chinese HDR students' *coherence creation* in their research writing is less related to their *conditional knowledge* for creating *coherence* or *supervisory on-script focused corrective feedback*. Is this true? With this question in mind, I commenced this study. The research problem that this study addressed is the ignorance of the effects of *conditional knowledge* and *supervisory on-script corrective feedback* can play on international Chinese HDR students' *coherence creation* in their *research writing*.

1.2 Research focus

To research the problem identified above and its potential solutions, this study takes as its primary focus, the interrelationships among (a) international Chinese HDR students' *conditional knowledge* used in creating the *micro-level coherence*; (b) their choices of the *coherence strategies* used; and (c) their supervisor's modelling of appropriate choices of *coherence* strategies via *on-script focused corrective feedback* on these students' draft research texts. To this end, first draft research texts produced by international Chinese HDR students and their Western supervisor's corresponding *on-script focused corrective feedback* on these students' texts were analysed to capture a dynamic view of the engagement of *conditional knowledge* and *schemas* in *coherence* hierarchy (see evidentiary Chapters 5 to 8). The term international *Chinese HDR students* is used to include both doctoral and master research students.

To undertake this task, the characterisation of *conditional knowledge* for creating the *micro-level coherence* in *research writing* was explored. The research focus on *conditional knowledge* required consideration of the HDR students' choice of *coherence strategies*. Therefore, the first task was to collect evidence which might

show these students' actual uses of *coherence strategies*. Then based on this, a theoretical framework was established for conceptualising *conditional knowledge* necessary for creating the *micro-level coherence* and its engagement in *research writing*.

The concept of *coherence* has been variously defined, as it "is not a well-defined notion" (van Dijk, 1977: 93). *Coherence* has multitude features, including *text-based* and *reader-based features* (Garning, 2014). *Text-based coherence* refers to "a feature internal to text" (Johns, 1986: 248), while *reader-based coherence* means that "coherence is as much a reader-based phenomenon as it is a writer-based creation" (Fleckenstein, 1992: 81).

In this study, *coherence* in *research writing* was taken as being both *text-based* and *reader-based*. Engaging Rumelhart's (1980) concepts of *content schema* and *textual schema,* Halliday and Matthiessen's (2004) concepts of *cohesion*, *text themes* and *thematic organisations* and Eggins' (2004) *thematic progression patterns* provide tools for interpreting the appropriateness or otherwise of these HDR students' *coherence strategies* used in creating the *micro-level text-based coherence* in their research texts, and the *micro-level reader-based coherence* identified in the *supervisory on-script focused corrective feedback* on these students' texts. Also, a comparison was conducted between the resulting appropriateness or otherwise of *schemas* constructed by these HDR students and the *conditional knowledge* modelled by their supervisor to explain the construct of *conditional knowledge* necessary for creating the *micro-level coherence* in *research writing*. Interestingly, the concepts of *content schema* and *textual schema* (Rumelhart, 1980); *cohesion*, *text theme* and *thematic organisation* (Halliday & Matthiessen, 2004), and *thematic progression pattern* (Eggins, 2004) proved to be a very useful analytical tool. These concepts were used to analyse the appropriateness or otherwise of these HDR students' *coherence strategy* implementation in their *research writing*. To do so, the *text-based* and *reader-based coherence hierarchy* was mapped, which provided key insights

into where *conditional knowledge* necessary for creating the *micro-level coherence* is concentrated.

The contention in this study is that *conditional knowledge* is crucial for *choice of coherence strategies*. This is because, for international Chinese HDR students, their conditional knowledge for coherence creation is their

> knowing what and knowing how [to use coherence] are not sufficient to guarantee that [these HDR students] will apply [coherence] strategies appropriately. They need to learn when and why various [coherence] strategies should be used to accomplish different purposes (Paris et al., 1984: 1241).

It is their knowing their *conditional knowledge for creating coherence* that contributes to their appropriate *choice of coherence strategies*. The concept of *conditional knowledge* advanced by Paris, Lipson, and Wixson (1983) was used in this study, because they consider *conditional knowledge* a basis for establishing evidence of learners' knowing the why and when aspects of cognition. That is to say, the term *conditional knowledge* captures "the dimension of knowledge when to invoke strategies" (Garner, 1990: 518).

In this study, the investigation was conducted at the micro-level, in the case of *conditional knowledge,* for creating *coherence* in *research writing* in two ways. First, this study explored the appropriateness or otherwise of the students' *choice of coherence strategies* that verified *conditional knowledge* through creating the *micro-level coherence* in their *research writing*. Meanwhile, students' *conditional knowledge* was analysed to identify their appropriateness in *choice of coherence strategies*. It was assumed that for international Chinese HDR students to demonstrate their repertoire of making appropriate *choice of coherence strategies* through *conditional knowledge* was significant for creating coherent texts (Hamed et al., 2014). Second, to enhance their *conditional knowledge* for *coherence creation*,

supervisory on-script focused corrective feedback needed to be engaged. It included supervisor's modelling of *appropriate schemas* (*conditional knowledge*) for *coherence strategy use*, whose role was to activate students' existent *schemas* for creating the *micro-level coherence*.

1.3 Setting boundaries: Delimitations of study

The study reported in this thesis investigated the possibility of reconceptualising Australian *HDR supervision pedagogy* of international Chinese HDR students' *research writing*. This provides a basis for using such writing as a vehicle for knowledge transfer which engages *conditional knowledge* to advance the theoretical knowledge production (see Chapter 9). The scope of the study was delimited by a research curve, captured by the concentric circles depicted in Figure 1.1.
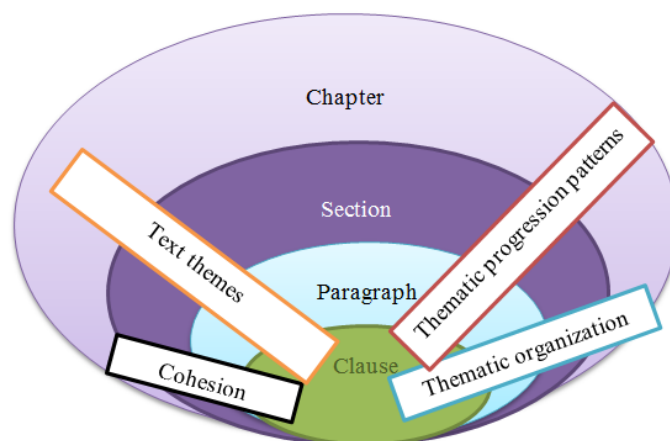
Figure 1.1 Delimitations of this thesis

Instead of researching what was achieved through *HDR supervisory pedagogy*, this study focused on analysing the crucial links evident in *coherence* in international Chinese HDR students' *research writing*: *cohesion, text theme, thematic organisation and thematic progression pattern*. In doing so, this doctoral project explored the *conditional knowledge* and *schemas* that surfaced, and how they were

engaged or not engaged. This research focused on both (a) international Chinese HDR students' uses of *coherence strategies* in their first draft research texts and (b) the corresponding *supervisory on-script focused corrective feedback* provided by their supervisor on their draft texts. The issue under investigation was how students render their *conditional knowledge* through *creating the micro-level coherence* in their *research writing*. As such, this study offered the participants an opportunity to share their *conditional knowledge* as a way of forming and informing the knowledge transfer represented by this thesis.

This study researched students' *coherence strategy choice* and their supervisor's corresponding *on-script corrective feedback* on their texts to research how *conditional knowledge* as a form of strategy-invoking knowledge supported their *coherence strategy choice*. This study focused on analysing primary evidence of the appropriateness or otherwise of *coherence strategies* used in these HDR students' draft research texts to verify their *conditional knowledge* for *coherence creation*. Specifically, evidence of *coherence strategies* used in these students' research texts have been mapped and analysed. Based on the analysis, a typology was produced concerning *content schemas* and *textual schemas* constructed by these students' *coherence strategies* operating at the multiple levels: the chapter level, section level, paragraph level and clause level.

Coherence strategies used at the chapter and section levels have been described as the macro-level coherence, whereas those used at the paragraph and clausal levels are interpreted as the *micro-level coherence*. Here it should be emphasised that the *micro-level coherence*, that is, *coherence* created at *the clausal and paragraph level* is the research focus in this thesis. Therefore, the analysis of evidence in this thesis has addressed whether *coherence strategies* are appropriately used by international Chinese HDR students in creating the *micro-level coherence* in their *research writing*. Subsequently, this was used to verify their *conditional knowledge* for *creating the micro-level coherence* in *research writing*. Accordingly, as the next section indicates,

research questions that will be addressed in this study are structured according to *coherence strategies* used at these hierarchies, so defined.

1.4 Research questions

The main research question addressed in this thesis is: *How does international Chinese HDR students' coherence strategy usage reflect their conditional knowledge for creating the micro-level coherence in their research writing through engaging supervisory on-script focused corrective feedback?*

The contributory research questions and the chapters in which they have been addressed are provided in Table 1.1 below.

Table 1.1 Summary of research questions and evidentiary chapters

Contributory research questions	Evidentiarychapter
1. How do international Chinese HDR students use coherence strategies to construe their content schemas to create coherence at the intra-clausal level in their research writing? 2. Are these strategies used appropriately? 3. What are the characteristics of their inappropriate content schemas and conditional knowledge which affect their creation of the micro-level coherence?	Chapter 5
4. Why are some coherence strategies used by these students in constructing their content schemas at the intra-clausal level inappropriate? 5. How does the supervisory on-script feedback provide modelling of conditional knowledge to correct these students' inappropriate content schemas for coherence creation at the intra-clausal level?	Chapter 6

6. How do these students use coherence strategies to construe their textual schemas for creating coherence at the intra-and-inter-clausal levels as well as at the intra-paragraph level in their research writing? 7. Are these strategies used appropriately? 8. What are the characteristics of their inappropriate textual schemas and conditional knowledge which affect their creation of the micro-level coherence?	Chapter 7
9. Why are some coherence strategies used by the students in constructing their textual schemas at the intra-and inter-clausal levels as well as at the intra-paragraph level inappropriate? 10. How does the supervisory on-script feedback provide modelling of conditional knowledge to correct the students' inappropriate textual schemas for coherence creation at these micro-levels?	Chapter 8

These questions which guided the generation of evidence were refined during the course of the project and are answered in the evidentiary Chapters (5-8). Through exploration of these research questions, this thesis reports new knowledge of international Chinese HDR students' *conditional knowledge* for *creating the micro-level coherence* in their *research writing*. Further, in answering these questions, this study includes original ideas about the possibilities these suggest for *HDR supervisory pedagogies* to engage *supervisor's on-script corrective feedback* as modelling of *conditional knowledge* for HDR students' *conditional knowledge* co-construction.

1.5 Definition of key concepts

This section provides definitions of key concepts that are used in this thesis. Each of the five subsections is entitled by the name of these concepts.

1.5.1 International Chinese HDR students

The term *'international Chinese HDR students'* refers to international Chinese Higher-Degree-by-Research students. It is used in this thesis as a generic term to include all Chinese students who pursue a Higher-Degree-by-Research (Doctoral research degree or Master research degree) in Australia. *International Chinese HDR students* in this case study include both doctoral students and master students who are studying in the field of education at university in Australia.

1.5.2 Conditional knowledge for creating the micro-level coherence

The term *"conditional knowledge for creating the micro-level coherence"* is used in this study. It is an original concept that is informed by Paris et al.'s (1983) idea of "knowing the why and when aspects of cognition", Johns' (1986: 248) idea of *text-based coherence* referring to "a feature internal to text", and Fleckenstein's (1992: 81) idea of *reader-based coherence* meaning that "coherence is as much a reader-based phenomenon as it is a writer-based creation". *The micro-level coherence* in this thesis includes coherence created at three levels, namely, *the intra-clausal level*, *the inter-clausal level* and *the intra-paragraph level*. *Conditional knowledge* is the knowledge stored dynamically in cognitive representations (schemas) that is activated in different situations or tasks (Garcia & Pintrich, 1994). Such *conditional knowledge* supports students' strategic choice fitting into specific situations in a cognitive activity (Uesaka & Manalo, 2007; Young & Fry, 2012).

This resonates with the evidence analysed in Chapters 5-8, which reveals that these HDR students' *conditional knowledge for creating the micro-level coherence* in their *research writing* is schematic in structure and strategic in nature. These features were identified by analysing these HDR students' appropriate or otherwise *coherence strategy use at the intra-clausal level* (see Chapter 5), *the inter-clausal level* (see Chapter 7), and *the intra-paragraph level* (see Chapter 7). Further, these features were also verified by contrast with their *supervisor's on-script corrective feedback* as

modelling of *appropriate schemas* constructed by way of *coherence strategy use at the intra-clausal level* (see Chapter 6), *the inter-clausal level* (see Chapter 8) and *the intra-paragraph level* (see Chapter 8).

1.5.3 Research writing

The term *'research writing'* is used in this thesis. *Research writing* is a particular genre because:

> research writing such as field notes, articles, literature reviews, conference papers and the dissertation itself are particular kind of texts, or genre, which are constructed in particular institutional and cultural settings…Thus, what is created is a particular genre, which has patterns and conventions that can be learned and interrogated. But these genres are discipline-specific texts-the creation of which demands the formation of discipline-specific scholarly identities (Kamler & Thomson, 2014: 12).

In this study, *research writing* is a generic term which includes doctoral dissertation, master theses and research proposals produced by international Chinese HDR students.

1.5.4 Coherence strategies

The term *'coherence strategies'* is used throughout the thesis. Strategies are:

> skills under consideration…They are deliberate actions and therefore are available for introspection or conscious report…They may not always be accurate or useful but strategies are identifiable to the agent and to others by intentions and selected goal states (Paris et al., 1983: 295).

In this thesis, *coherence strategies* refer to coherence skills under consideration for international Chinese HDR students and their supervisor.

1.5.5 Supervisory on-script focused corrective feedback

The term *'supervisory on-script focused corrective feedback'* is an adaptation of Bitchener et al.'s (2012: 856) idea of focused corrective written feedback which refers to "feedback that ... targets only one or two linguistic forms or structures [errors or inappropriateness]".

In this thesis, *supervisory on-script corrective feedback* refers to the feedback given by a native English-speaking supervisor to international Chinese HDR students' first draft research texts by way of written or electronic form on the students' scripts. It focuses on the erroneous or inappropriate *coherence strategies* employed by international Chinese HDR students in their research texts. This supervisory feedback provides students with specific correction for their inappropriate *coherence strategy use* in the form of *conditional knowledge* compatible with specific contexts or situations in research writing. Oral feedback which may have accompanied discussions between supervisors and HDR students is not part of this study.

1.6 The Case: An HDR research writing program

The case studied in this project is an HDR research writing program. This program is implemented in the field of education in an Australian University.

This HDR research writing program was undertaken between April 2013 and June 2014. Twelve international Chinese HDR students and their supervisors were involved in this program. In this program, students' first draft research texts (herein referred to as draft thesis and dissertation chapters and/or research proposals) were submitted to the supervisors. The supervisors marked the drafts and provided students with focused corrective feedback on their scripts. Providing such feedback

contributes pedagogical support for research writing. It reflects due consideration of novice HDR students as writers and the challenges in research writing, particular at the stage of revision after their completion of their first draft. As Can and Walker (2014: 313) posit, "[HDR students] need feedback most frequently for arguments and justification in their paper, clarity and understand ability of the statements, inclusion and exclusion of information, introduction, and conclusion parts of their paper". O'Mathony et al. (2013: 26) also found that HDR students "made errors at grammar and expression; linking ideas; sentence structure; chapter/thesis structure; and summarising or paraphrasing, and style of writing". Therefore, they had clear preference for the feedback that "gives them clear direction about how to improve their paper" (Can & Walker, 2014: 315).

International HDR students confront challenges with their *research writing*. Thus this case study was undertaken focusing on international Chinese HDR students' *conditional knowledge for the micro-level coherence creation* through investigating their uses of *coherence strategies* in their *research writing*. As Ethics approval was obtained, data were collected with the permission of the six students and their supervisor. The collected data included their first draft research texts, namely, two drafts of dissertation Introduction chapters from two doctoral students, two drafts of thesis Introduction chapters from two master students, and two drafts of research proposal from two doctoral students. Meanwhile, six printed copies of corresponding *supervisory on-script focused corrective feedback* on these particular students' draft texts were also collected as another part of data. The purposes of this study are summarised in Table 1.2.

Table 1.2 Purposes of the study of HDR research writing

To develop an alternative HDR supervision pedagogic intervention through a conditional knowledge-based approach, aimed to:
● Investigate international Chinese HDR students' conditional knowledge for creating the micro-level coherence in research writing at their novice stage
● Develop an alternative supervision pedagogical approach through engaging supervisory on-script feedback as a method of writing support
● Improve international Chinese HDR students' capacities of producing scholarly satisfied research production

1.7 Theoretical point of departure and methodological implications

A key feature of this study is the intimate connection between its theoretical underpinnings and the research methodology. The research method implemented in this study is an *exploratory-interpretive* approach. This study uses the exploratory approach for higher education research, giving special attention to the recent development in the exploratory paradigm which includes methodological divergences within the exploratory approach. The exploratory approach met the needs for this study; thus, "being exploratory" is an important part of developing theory from data. The crucial role of exploratory research methods is to "generate new ideas and weave them together to form grounded theory, or that emerges directly from data" (Stebbins, 2001: 11).

One important distinction needs to be clarified in the use of the causal-process tracing approach for this exploratory study. This study is not about an educational researcher trying to "create a particular effect or product" (Stebbins, 2001: 4) through testing or experimenting with a question. Theorizing by this approach aims to "generate new ideas and weave them together to form grounded theory, or theory

that emerges directly from data" (Stebbins, 2001: 11). The causal-process tracing approach has benefits for this study as "by applying the process-tracing method, case studies can test theoretical frameworks through a rigorous research design that ensures substantial empirical leverage" (Ulriksen & Dadalauri, 2014: 3). Specifically, in this study this causal-process tracing approach is used to identify the intervening causal process between international Chinese HDR students' conditional knowledge; their uses of coherence strategies and their supervisor's modelling of conditional knowledge within the context of research writing. This makes it possible to "generate causal explanations that preserve rather than eradicate contextual richness" (Welch et al., 2011: 751). As such, this study employs this approach to theorize international Chinese HDR students' conditional knowledge for creating the micro-level coherence in their research writing.

This study began by collecting evidence to identify the intervening causal process among international Chinese HDR students' conditional knowledge, their coherence strategy usage and their supervisor's modelling of conditional knowledge within the context of research writing. Then, this intervening causal process was explained by looking for evidence where causal explanations are generated.

A conditional knowledge-interpretive approach was used to analyse and explain international Chinese HDR students' conditional knowledge for creating the micro-level coherence; their uses of coherence strategies and their *supervisor's* modelling of conditional knowledge through supervisory feedback. The context for this study is research writing in a higher education research program. The interpretation builds an account of HDR students' conditional knowledge for creating the micro-level coherence in research writing based on analyses informed by Rumelhart's (1980) *schema theory,* Halliday and Hasan's (1985) *coherence theory*, Halliday and Matthiessen's (2004) *systemic functional linguistics* and Eggins' (2004) *thematic progression* about *coherence* creation in research writing. These conceptual tools made it possible to generate powerful causal explanations. Ultimately, this meant that the causal-process between HDR students' conditional knowledge,

coherence strategy usage, and supervisory modeling of conditional knowledge could be traced through engaging multiple conceptual tools for analysing research writing in higher education research.

My analysis of the use of *conditional knowledge* has resulted in two novel theoretical contributions: First, a basis was developed for formulating a conception of *conditional knowledge* for creating the *micro-level coherence* in HDR students' research writing which connects *text-based coherence* and *reader-based coherence* through mapping, analysing, categorising and conceptualisation; Second, an alternative supervision pedagogical approach was developed, which recognises and mobilises supervisor's modelling of *conditional knowledge* for enhancing HDR students' *conditional knowledge,* thus building HDR students' capacity for producing coherent research writing.

Through using this causal-process tracing–interpretative approach, it has been possible to concentrate on HDR students' *conditional knowledge* for creating the *micro-level coherence*. Evidence was gathered from international Chinese HDR students concerning their *conditional knowledge* for creating the micro-level coherence in their research writing. This endeavor, however, was constrained by issues of access. Document collection was used as the primary data collection method. Data generation from documents was used to analyse the construct of *conditional knowledge* reflected by participants' actual uses of *coherence* strategies in their research writing. How this causal-process tracing–interpretative approach informed the data generation, analysis, conclusion drawing and verification, and theorising is explained and justified in Chapter 4. Table 1.3 provides an overview of the empirical literature about international Chinese HDR students' *conditional knowledge* for creating the *micro-level coherence* in research writing.

Table 1.3 An overview of the empirical literature on HDR students' research writing, conditional knowledge of English learner-writers and coherence in English learner-writers' writing

No.	Authors & Year	Research topics	Research method	Subjects		
				HDR students in Australia	International Chinese HDR students in Australia	English learners in other countries
1	Kamler & Thomson (2014); Han (2012)	Discipline–specific content	document	✓	✓	
2	Samani et al., (2012)	The students/supervisor	survey	✓	✓	
3	Aitchison et al ., (2012) Basturkmen et al., (2014)	Supervisory focused written feedback	Survey document	✓	✓	
4 5	O'Mahony et al., (2013)	Writing support	Survey document	✓	✓	✓
	Kamler and Thomson (2014); Han (2012)	Thematic issues	document	✓	✓	✓
6	Okasha and Hamdi (2014);Dresel et al., (2015);Sun (2014);Hamed and Saiedi (2014); Schraw and Gutierrez (2015)	Conditional knowledge	Interview Document Self-protocol Ethnographic data			✓
7	Hamed and Saiedi (2014);Sun (2014);Sim and Shin (2014)	Schema theory	Document questionnaire			✓
8	Świątek (2015); Ürkmez (2014); Chrabaszcz and Jiang (2014); Quan and Weisser (2015)	reference	corpus			✓

9	Huang et al., (2013); Hyland and Tse (2007) ; Kargozari, Ghaemi and Heravi (2012); Cai et al., (2014)	Lexical cohesion	corpus			✔
10	Tahara (2013); Laso and John (2013)	General noun	corpus			✔
11	Zhang (2014); Hamed (2014);	conjunctions	corpus			✔
12	Mellos (2011); Wei (2013a); Kamler & Thomson (2014); Al Bakaa (2015); Wei (2013b);	Theme	corpus			✔
13	Ebrahimi and Ebrahimi (2012a); Kamler & Thomson (2014)	thematic progression	corpus	✔	✔	✔

The overview in Table 1.3 shows that this study is innovative in several ways. First, the research goal and design of mapping international Chinese HDR students' *conditional knowledge* for creating the micro-level coherence in research writing has not been studied previously. Second, most *coherence* and *conditional knowledge* studies in the last five years are about English learner-writers who are studying in other countries rather than native English speaking countries. However, advanced English learner writers, such as HDR students, are seldom the subjects in *conditional knowledge* and *coherence* studies.

1.8 Thesis statement

In higher education research projects, these international Chinese HDR students' *research writing* program encounters challenges regarding *conditional knowledge* needed for *creating the micro-level coherence* and the interrelations, appropriate or otherwise, of *coherence strategy use* that *supervisory on-script focused corrective feedback* can help address. International Chinese HDR students used their *conditional knowledge*, concentrating on *coherence creation at the intra-clausal level*, *the inter-clausal level* and *the intra-paragraph level* by using *coherence strategies* in their *research writing*. For them, *conditional knowledge* for *creating the micro-level coherence* through the process of *research writing* is necessary for contributing to appropriate *coherence strategy choices* and appropriate *schema* construction. To fully release the intellectual agency of such robust *conditional knowledge* requires Australian HDR supervisors to go beyond their existing perceptions of *conditional knowledge* for the *micro-level coherence creation* in *research writing*, that is, beyond a framework built for their comfort. These findings formed the basis for (a) a conceptualisation of *conditional knowledge* in international Chinese HDR students' *research writing*, and (b) the approach of *conditional knowledge-based strategy choices for creating the micro-level text-based and reader-based coherence* for international HDR students' *research writing* programs. Both concepts could be tested and further developed in future research.

1.9 Overview of thesis structure

This thesis is composed of nine chapters. Figure 1.2 presents the structure of the thesis.
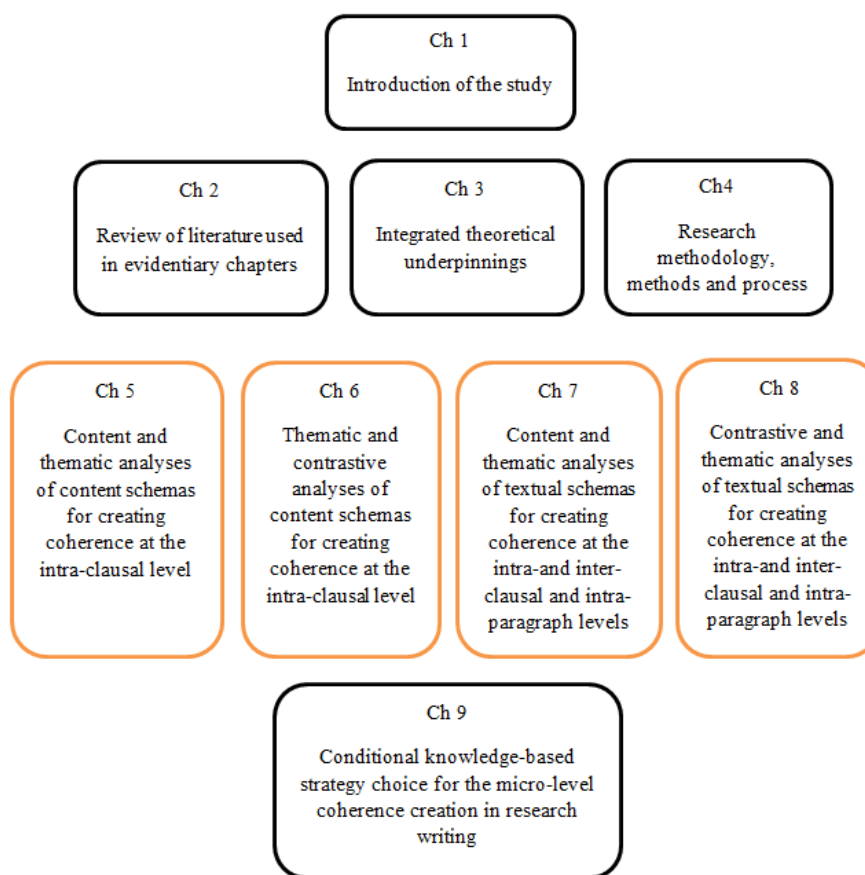
Figure 1.2 Thesis structure

Chapter 2 reviews research literature that informed the development of this study. This chapter is organised along a continuum of inquiry which has been formulated and addressed during this study. These inquiries offer useful answers and/or insights into an array of interconnected issues which contributed to the development of the argument in this study. The beginning section provides an overview of the major approaches and salient issues in international Chinese HDR students' *research writing*. To locate the phenomenon of missing links, the conceptually focused review of recent literature is provided in the three sections of this chapter. The beginning section offers an overview of HDR research writing in Australian context. The second section reviews literatures on *coherence* in English learner-writers' academic writing. The last section reviews literature about how *conditional knowledge* and *schema* have been engaged in English learner-writers' academic writing.

Chapter 3 formulates a theoretical framework for this research. It suggests possibilities to reconceptualise international Chinese HDR students' *conditional knowledge* for *creating the micro-level coherence* in *research writing* in this research project. This conceptual framework draws on concepts from Flower and Hayes' (1981) theory of *writing is a cognitive process*, Johns' (1986) concept of *text-based coherence*, Fleckenstein's (1992) concept of *reader-based coherence*, Paris et al.,'s (1983) concept of *conditional knowledge*, Rumelhart's (1980) concepts of *content schema* and *textual schema*, Halliday and Hasan's (1985) concept of *cohesion*, Halliday and Matthiessen's (2004) concepts of *text themes* and *thematic organisation* and Eggins' (2004) concept of *thematic progression.* These conceptual tools are used in the analysis presented in the evidentiary chapters.

Chapter 4 provides the history of this study. It reports on its methodology, methods and processes of the investigation. This chapter provides explanation and justification of the research strategy and design, including details of the research principles and procedures implemented for data collection, reduction, analysis, and display at each stage of the study. The procedures for drawing conclusions and writing thematic narrative are explained and justified. The issues of research ethics are addressed.

Chapters 5 to 8 are the evidentiary chapters which map, categorise, and conceptualise international Chinese HDR students' *conditional knowledge* for *creating the micro-level coherence* in their *research writing* in the case of this project.

Chapter 5 is the first evidentiary investigating international Chinese HDR students' *conditional knowledge* for *creating the intra-clausal level coherence* from the perspective of *content schema*. This chapter tests Johns' (1986) conceptualisation of *text-based coherence*, Paris et al.'s (1983) conceptualisation of *conditional knowledge*, Rumelhart's (1980) conceptualisation of *content schema*, Halliday and Hasan's (1985) conceptualisation of *reference* and *lexical cohesion*, Halliday and Matthiessen's (2004) conceptualisation of *topical theme* and *rheme*. This chapter

offers an alternative approach to HDR research writing project based on conceptualising international Chinese HDR students' *conditional knowledge* for creating the intra-clausal level coherence from the perspective of *content schema*.

Chapter 6 analyses international Chinese HDR students' inappropriate *content schemas* for *creating the intra-clausal level coherence* in uses of *coherence strategies* in *research writing* in contrast to their supervisor's modelling of appropriate content schemas through *supervisory on-script focused corrective feedback*. This chapter also examines Johns' (1986) concept of *text-based coherence*, Fleckenstein's (1992) concept of *reader-based coherence*, Paris et al.'s (1983) concept of *conditional knowledge*, Rumelhart's (1980) concept of *content schema*, Halliday and Hasan's (1985) concept of *cohesion*, Halliday and Matthiessen's (2004) concepts of *Topical Theme and Rhemes*.

Chapter 7 investigates international Chinese HDR students' *conditional knowledge* for *creating the intra-and-inter-clausal and intra-paragraph level coherence* from the perspective of *textual schema*. This chapter also examines Johns' (1986) conceptualisation of *text-based coherence*, Fleckenstein's (1992) conceptualisation of *reader-based coherence*, Paris et al.'s (1983) conceptualisation of *conditional knowledge*, Rumelhart's (1980) conceptualisation of *textual schema*, Halliday and Hasan's (1985) conceptualisation of *conjunction*, Halliday and Matthiessen's (2004) conceptualisations of *textual themes*, *thematic organisation* and *information structure* and Eggins' (2004) conceptualisation of *thematic progression*. This chapter offers an alternative approach to HDR research writing project based on conceptualising international Chinese HDR students' *conditional knowledge* for creating the inter-clausal and intra-paragraph level coherence from the perspective of *textual schema*.

Chapter 8 analyses international Chinese HDR students' inappropriate *textual schemas* for *creating the intra-clausal*, *the inter-clausal level*, and *the intra-paragraph level coherence* in contrast to their supervisor's modelling of

appropriate *textual schemas* through *supervisory on-script focused corrective feedback*. This chapter examines Johns' (1986) conceptualisation of *text-based coherence*, Fleckenstein's (1992) conceptualisation of *reader-based coherence*, Paris et al.'s (1983) conceptualisation of *conditional knowledge*, Rumelhart's (1980) conceptualisation of *textual schema*, Halliday and Hasan's (1985) conceptualisation of *conjunction*, Halliday and Matthiessen's (2004) conceptualisations of *textual themes*, *thematic organisation* and *information structure* and Eggins' (2004) conceptualisation of *thematic progression*.

Chapter 9 is the concluding chapter to this thesis. It briefly outlines the development of this study and summarises the key findings of each evidentiary chapter in reference to each of the research questions. This chapter discusses some of the key theoretical insights developed throughout the thesis as a possible basis to formulate a conception of *conditional knowledge* for *creating the micro-level coherence* in HDR *research writing* projects. A pedagogical approach of *conditional knowledge-based strategy choice* for *creating the micro-level coherence* in *research writing* developed in this thesis is introduced as an alternative model to *HDR supervision pedagogical* approach for *HDR research writing* programs.

CHAPTER TWO

A review of recent (2015-2010) research literature

2.1 Introduction

This study was conducted with reference to selected research literature covering an array of concepts. With respect to selecting literature, I was informed by Webster and Watson' (2002: 13) to "analyse the past to prepare for the future". That is, in writing this literature review I focused on examining the past as a means for "making a chart for future research" (Webster & Watson, 2002: 19). This principle guided the production of a high-quality review.

> A high-quality review is complete and focuses on concepts. A complete review covers relevant literature on the topic and is not confined to one research methodology, one set of journals, or one geographic region. …A literature review is concept–centric. These concepts determine the organisation framework of a review (Webster & Watson, 2002: 15-16).

In this regard, I have used a concept-centric way to organise this chapter. With the concept of international HDR research writing as central, independent variables (factors) that cause variation in dependent variables were searched (Webster & Watson, 2002). The search for relevant intellectual resources was conducted using

two digital libraries, namely: Google Scholar and EBSCO. The selection of research literature and arrangement of this chapter follows the continuum of questions concerning key concepts:

1. What does research literature reveal about international *HDR students' research writing* in higher education research in Australia?

2. What are the challenges *international HDR students* confront with respect to their research writing?

3. What are the *factors* influencing *international HDR students' research writing*?

4. What is the significance of *coherence* for *international HDR students' research writing*?

5. How has the *coherence* of *English learner-writers'* academic writing been explored?

6. What approaches to researching *coherence* are adopted by scholars?

7. What is the significance of *schema theory* for English learner-writers' academic writing?

8. What approaches to researching *schema theory* are adopted by scholars?

9. How has *schema theory* been used to investigate English learner-writers' *schemas* relative to academic writing in English?

10. What is the significance of *conditional knowledge* to English learner-writers' writing?

11. What approaches to *conditional knowledge* are adopted by scholars?

12. How has English leaner-writers' *conditional knowledge* about academic writing in English been studied?

13. Finally, how has *conditional knowledge* and *schema theory* engaged in researching *coherence in research writing (*since *conditional knowledge* and *schema theory* and *coherence theory* are the major theoretical underpinnings in this study)?

It can be seen from these questions that *conditional knowledge*, *schema theory* and *coherence* are the major theoretical underpinnings in this study. The literature answering these questions has been used to establish understandings of the research topic and to make links to findings in this study (Holbrook, Bourke, Fairbairn & Lovat, 2007). The first section reviews literature on HDR research writing in Australia. The second section reviews empirical literature on writing support interventions in higher education research. The third section follows with a review of empirical literature on international Chinese HDR students' research writing.

2.2 HDR research writing in Australia

This section reviews empirical literature on factors influencing HDR research writing.

2.2.1 Factors influencing HDR research writing

Empirical literature which has explored factors influencing HDR students' research writing tended to focus on external factors such as examiners' comments, the HDR students, supervision, the institution and the broader community (Prieto et al., 2015; Samania et al., 2012).

Examiners' comments on HDR students' dissertations are an influencing factor in their research writing. Prieto et al.'s (2015) research analysed PhD examiner's reports on Australian engineering PhD students. They found that:

> assessment areas such as significance and contribution of the thesis, publications arising from the thesis, breath, depth and recency of the literature review and communication and editorial correctness are areas in which the proportion of text of engineering examiners' comments differs significantly from other fields (Prieto et al., 2015: 3).

The HDR students, supervision, the institution and broader community are factors which influence HDR students' success. Samania et al. (2012) conducted an online survey into factors influencing international HDR students' success in the Engineering and Information Technology disciplines in three Australian universities. They assessed the perceptions of students and supervisors as factors influencing these international HDR students' success. Their study found that "both students and supervisors are positive about their experiences, and do not see language or culture as particularly problematic" (Samania et al., 2012: 866). International HDR students on average completed in shorter time periods than domestic students and "their success is linked to a complex set of factors involving the student, supervision, the institution and broader community" (Samania et al., 2012: 866). Writing support intervention to HDR students' research writing has been recognized as the primary strategy to help HDR students with their research writing.

2.2.2 Writing support to HDR research writing: Supervisory feedback as the primary strategy

Writing support has been prioritised by some researchers (Aitchison, 2015; Can & Walker, 2014; Kozar & Lum, 2013; McGregor, 2012; O'Mahony et al., 2013). Despite higher education researchers' attention on *supervisory feedback*, however, few have investigated more specific aspects such as the functions and forms of supervisor's feedback on students' research texts

Supervisory feedback helps HDR students produce their thesis and related texts. Aitchison et al. (2012) researched the writing experiences of HDR doctoral students and their supervisors in a science faculty in an Australian university. They explored the tensions over roles and identities experienced by supervisors and HDR doctoral students as played out in the production of the thesis and related texts. They found that "both students and supervisors nominated *feedback* as the primary strategy by which students learned to write" (Aitchison et al., 2012: 443). For some supervisors,

"substantial reworking of students' writing was an expedient strategy for 'sorting out students' writing and for providing appropriate models" (Aitchison et al., 2012: 444).

Teacher assistance as a writing support intervention helps students improve their academic writing. O'Mahony et al. (2013) reported on writing support interventions for HDR students in Australia. A specialist in academic writing was employed to support HDR students through correcting mistakes and giving explicit explanation of the rules or conventions needed to correct the errors. Students self-identified the areas that needed to be improved and required special attention. They found that all the students identified the following areas: "grammar and expression; linking ideas; sentence structure; chapter/thesis structure; and summarising or paraphrasing, and style of writing" (O'Mathony et al., 2013: 26)

Research writing groups are regarded as a method to help HDR research students improve their writing. Kozar and Lum (2013) researched factors likely to impact on the effectiveness of off-campus doctoral students' research writing in Australia. They found that:

> factors related to group implementation and members' perceptions of the interpersonal and cognitive gains and group logistics are likely to impact the effectiveness of CMC-enabled research writing groups and should be taken into account by those designing learning resources for off-campus doctoral students (Kozar & Lum, 2013: A-132).

They also espouse that:

> it seems particularly important for doctoral educators to develop a deeper appreciation of the challenges that these students are likely to face and to consider ways in which their experience could be improved (Kozar & Lum, 2013: A-144).

Supervisory focused written feedback benefits HDR students' research writing. Can and Walker (2014) investigated social science international HDR doctoral students' preferences and needs for written feedback on their academic writing. They found that:

> [doctoral students] need feedback most frequently for arguments and justification in their paper, clarity and understandability of the statements, inclusion and exclusion of information, introduction, and conclusion parts of their paper (Can & Walker, 2014: 313).

These HDR students had a clear preference for the feedback that "gives them clear direction about how to improve their paper" (Can & Walker, 2014: 13). They argue that "supervisors should therefore address critical issues in early drafts" (Can & Walker, 2014: 315).

Written feedback on draft texts is an essential component of teaching. Supervising master and doctoral dissertations is a key function of teaching in higher education. As East, Bitchener, and Basturkmen (2012) report, giving written feedback on draft texts is an essential component of this function. However, the specific types of response that supervisors give to their students' dissertations or written work has received limited research interest to date.

2.2.3 International Chinese HDR students' research writing in Australia

Although international HDR students' written texts have been investigated by researchers, the focus in these empirical studies has mainly been on the macro-level content of their thesis writing. Singh (2011) points out that this exemplifies considerable ignorance relating to international Chinese HDR students' prior knowledge and capabilities in Australian higher education. He uses the concept of 'optimal ignorance' to pose the question of just how much should supervisors be prepared to overcome their lack of knowledge. This ignorance concerns many

aspects, one of which is Chinese HDR students' research writing. The ignorance of the micro-aspect of *HDR students' research writing* is evident with respect to *coherence* and *cohesion*.

Theorising is important for international HDR students' thesis writing. Singh and Meng (2013) researched international Chinese HDR students' theses from the perspective of content or discipline-specific knowledge. They analysed the 'excess of words' used by their inclusion of the Chinese languages and concepts in their theses. They suggested a three-dimensional strategy for enhancing HDR students' potential for using bilingualism as a theoretical tool for analysing evidence in their research writing.

Argument development is a key aspect of international HDR students' research writing. Singh and Huang (2013) studied international Chinese HDR students' engagement in critique writing and the justification for arguments in their theses. They analysed international Chinese HDR students' use of Chinese metaphors to critically theorise evidence about Australian education. They contended that Chinese metaphors could be used as analytical concepts for developing arguments in these students' research writing.

Developing information literacy skills through research writing is challenging for international Chinese HDR students. Han (2012) explored the information literacy (IL) development of international HDR students from China as they undertook their research studies in an Australian university. Three international PhD students from China participated in this research. A biographical approach was used to collect the data. A total of 222 reflective accounts were collected from the participants over a period of fifteen month. The findings indicate that these international students experience significant difficulties in developing their IL skills during their research writing.

Engaging Chinese theoretical resources is a pedagogical intervention that helps international Chinese HDR students produce scholarly arguments in their research writing. Singh and Han (2009) investigated the possibilities for extending the capabilities of international Chinese HDR students for scholarly arguments by engaging the theoretical resources available through their intellectual heritage. They conducted supervisor-students collaborating research writing activities to help Chinese HDR student develop their bilingual capabilities.

Coherence issues challenge international Chinese HDR students in their research writing. Han (2012) conducted a content analysis of Chinese international research students' literature review chapters to investigate how critical information literacy challenges them. Content analysis of the initial drafts of their use of literature review revealed that these students were challenged in their use of critical information concerning creation of coherence around a theme or topic.

2.3 Coherence in learner English writing

This section reviews recent literature on *coherence* in English learner-writers' writing. Current empirical literature generally involves error analysis of *articles*, *reference*, *lexical collocation relative to domain specific knowledge*, and *conjunctions*. The first section reviews literature on *reference*; the second section focuses on *lexical cohesion*. The third section reviews literature on general nouns; the fourth section addresses *conjunctions*; and the last section deals with theme and *thematic progression patterns*.

2.3.1 Reference

Articles are the most frequently used words in English and therefore the most common. However, they are the most difficult ones to acquire for English learners, especially for those whose native languages have no system of article (Chrabaszcz & Jiang, 2014; Crompton, 2011; Świątek, 2015; Ürkmez, 2014).

2.3.1.1 Comparison studies of reference used by English learner-writers from different language backgrounds

Absence of an article system in L1 (e.g. Chinese) is one of the elements affecting the appropriate use of an English article system by non-English speakers learning to be bilingual. Świątek (2015) researched the use of the English article system by Polish and Turkish students of English philology. A comparison study was conducted between those two groups of non-native speakers of English. The Polish groups were represented by first and third year students and the Turkish groups comprised MA and first year PhD. students. The researcher found that "the most difficult article to be used by [English learners] was type 5 [the definite article and zero articles]" (Świątek, 2015: 124).

Similarly, Crompton (2011) researched article errors in the English writing of advanced L1 Arabic learners. The corpus written by first and second year undergraduate students were analysed. This researcher found that "zero article is overused generally by [EFL] writers" (Crompton, 2011: 16). Moreover, there were "instances of articles being used where the syntax of the NP required something else, for example a possessive or demonstrative" (Crompton, 2011: 18).

Article use is the most challenging cohesive devices for EFL learners in creating coherent texts in English. Ürkmez (2014) investigated article use in the compositions by Turkish EFL learners. He explored an article classification used by Turkish EFL learners whose first language lacks an article system. Moreover, they mostly overgeneralised the zero article, the definite article "the" and indefinite article "a/an". Ürkmez (2014: 13) found that these EFL student writers "tend to use the definite article the more frequently than any other articles".

Native language is supposedly one of the elements affecting the use of the English definite article by EFL students. Chrabaszcz and Jiang (2014) researched the effect of native language on the use of the English definite article by EFL students (Spanish

speakers and Russian speakers). They conducted a cross-language comparison with respect to the use of definite articles. Findings demonstrated that Russian EFL students whose native language has no need for the definite article were inclined to omit the definite article. In contrast, Spanish EFL students whose native language uses a definite article, performed native-like in their use of the definite article. This is hardly surprising and points to the importance of pedagogical differentiation in bilingual education.

2.3.1.2 Comparison studies of reference used by English learner and English native-speaker

Mastery of cohesive devices poses a most significant challenge for English learners writing. Quan and Weisser (2015) researched the 'self-repair' operation in conversations by Chinese English learners. A comparison study was conducted between Chinese EFL learners and English native speakers regarding which types of syntactic/lexical elements are most frequently repeated. They found that the Chinese English learners that "[Chinese EFL] learners not only overuse *the…*, but also potentially do not distinguish properly between definite and indefinite reference" (Quan & Weisser, 2015: 43).

Not surprisingly, cohesion errors are the main reasons for failure to produce cohesive texts in English learners' writing. Maalej (2015) studied the use of central determiners in Tunisian EFL university students' written texts. Contrastive and error analysis of students' written texts were conducted on the appropriateness of determination use. Findings revealed that the majority of students inappropriately used determination in their texts. Also, these students were found to misuse the definite article, zero article, and indefinite article in their writing.

Reference, conjunction, and lexical cohesion are three main aspects of cohesion that are the most challenging for English leaner writers. O'Brien (2015) conducted a systematic study on errors that occurred in Arabic EFL students' academic writing.

Error analysis was conducted concerning students' use of the definite article and pronominals at the sentence level. Findings demonstrated that Arabic student writers' overuse of the definite article was found to be the most frequent error. Moreover, another error found in these students' texts was the occurrence of redundant pronouns supposedly due to the influence of native language, but in effect due to lack of appropriate pedagogy.

Pronouns and the definite article pose difficulty for English learners' academic writing. Moqimipour and Shahrokhi (2015) conducted a study on errors supposedly caused by the interference of the Persian language on Iranian EFL students' academic writing. Error analysis was undertaken on 12 categories of errors relative to the first language interference. The results revealed that pronoun, article and sentence structure were frequent errors committed by Iranian EFL students in their writing. However, no consideration was given to whether appropriate pedagogies were being used.

The influence of mother tongue on English learners' refence use in academic writing can not be neglected. Bestgen, Granger and Thewissen (2012) researched error patterns and automatic L1 identification in essays written by English learners from different mother tongue backgrounds. The findings indicated that English learners made "unclear pronominal reference…and erroneous demonstrative determiners" (Bestgen, Granger & Thewissen, 2012: 132). Not supprisingly, the appropriate use of reference, for instance, pronominal as a feature that "the raters took into account when assessing the quality of the essays, as accuracy was part of the criteria they had to rate, along with elements pertaining to complexity and coherence and cohesion" (Bestgen, Granger & Thewissen, 2012: 133).

Lexical collocation is also difficult for English learner writers. Kwan and Yunus (2014) examined cohesive errors in writing among ESL pre-service teachers. Essays written by these pre-service teachers were analysed. Content analysis was conducted on students' written essays with respect to inappropriateness in employment of

cohesive devices. Findings showed that cohesive errors occurred highly in lexical cohesion and reference, among which lexical collocation proved the most difficult form of cohesion for them. This result indicated that ESL learners' overall mastery of cohesive devices in writing is insufficient.

Cho and Shin (2014) examined cohesive devices in Korean college students' EFL academic writing. Content and corpus analysis were conducted on student writers' EFL academic texts. Cho and Shin found that these student writers used the demonstrative and conjunctions quite frequently, yet not all of these uses were appropriate. Specifically, they found that these Korean EFL students made cohesion errors such as using demonstratives without a specific referent, or without collocationally fitting or grammatically congruent referents. These errors caused the vagueness of ideas expressed in their academic texts.

Yao (2014) investigated the cohesion and coherence problems in Chinese EFL students' academic writing. Academic written texts were collected and analysed using Halliday and Hasan's (1985) framework. Findings showed that reference, conjunctions and lexical cohesion were three types of cohesive devices used by these students. Specifically, Chinese EFL students were found to overuse pronominal reference, conjunctions and demonstrative in their academic texts.

Chinese EFL students tend to inappropriately use cohesive devices in their academic writing. Bao (2015) investigated the discourse errors committed by Chinese EFL students in their written texts. Discourse analysis and error analysis were conducted on cohesion errors from four aspects: reference, conjunction, substitution, and lexical cohesion. Their findings demonstrated that Chinese EFL students ambiguously used reference by misusing the definite article with the demonstrative; misused or overused conjunctions, and misused lexical items in their written texts.

2.3.2 Lexical cohesion relative to domain-specific knowledge

Despite lexical collocation being an active field of research, little is known concerning lexical collocation existing in domain specific texts. Lexical collocation relative domain-specific knowledge is a challenge for most of the EFL student writers. A "discipline-based lexical repertoire" is necessary for English learners (Ghaemi & Heravi, 2012; Huang et al., 2013; Hyland & Tse, 2007; Kargozari, Ghaemi & Heravi, 2012; Laso & John, 2013; Wang et al., 2014)

Laso and John (2013) conducted a study of bilingual medical writers' awareness of collocational patterning of abstract nouns in medical discourse. Their investigation revealed that:

> it is challenging for non-native speaker writers to acquire phraseological competence in academic writing English and develop a good knowledge of domain-specific collocation patterns (Laso & John, 2013: 307).

Huang et al. (2013) conducted research focusing on domain-specific collocations in English for Academic Purpose (EAP) texts. They investigated whether the academic word list (AWL) words take different collocates in different domain-specific corpora. They found that "uneven distributions and difference in lexical collocation" is a challenge for most of the bilingual students in EAP writing (Huang, el al., 2014: 542). They noted that EAP researchers were suggesting pedagogies to develop discipline-based vocabulary and collocation lists. What EAP students apparently need is to study these common specialised collocations and usages with which to make their writings and speech professional in their own domain(s).

Hyland and Tse (2007) explored the distribution of words from a range of academic disciplines and genres. They found that individual lexical items on the list often occur and behave in different ways in terms of collocation. Due to the collocational

differences, they suggested that teachers help students develop a more "discipline-based lexical repertoire" (Hyland & Tse, 2007: 235).

Kargozari, Ghaemi and Heravi (2012) studied the cohesive devices in 180 compositions (argumentative, descriptive, and expository) produced by Iranian EFL university students. They found that the students in their study:

> overused reiteration of the same lexical item as a cohesive device, but underused other lexical devices…these problems were mainly concerned with the use of reference and lexical cohesion (Kargozari, Ghaemi & Heravi, 2012: 39)

They also found that those university students:

> employed a variety of cohesive devices with some types of devices used more frequently than other. … lexical devices had the highest percentage (67.70%), followed by the reference devices (23.44%) and the conjunction devices (8.90%) (Kargozari, Ghaemi & Heravi, 2012: 30-31).

Wang et al. (2014) investigated lexical phrases, including general ones and those more specific, used by bilingual student writers within a genre-based framework in China, including Hong Kong. They studied the construction of EFL academic texts through analysing rewriting of drafts by these EFL tertiary students in their disciplinary-specific academic writing. Their findings identified the point that, in terms of the source of acquisition, perceived usefulness, number and appropriateness of use, general and more-specific lexical phrases were all used in different patterns. Results of this study showed that both students' awareness of lexical phrases was improved throughout the instructional period.

2.3.3 General noun

Inappropriate use of general nouns hinders bilingual learners of English from creating textual cohesion in their writing. In particular, collocational patterning of abstract nouns poses a challenge for English learner writers (Caldwell, 2009; Tahara, 2014).

Tahara (2014) reviewed studies of how students create textual cohesion by using metadiscursive nouns in second language writing. These studies focused on the implementation of grammatical and lexical cohesion devices using Halliday and Hasan's (1985) framework and the analysis of vague nouns (Hinkel, 2003). The results of these studies showed that nouns utilised by the second language students as cohesive devices had common features, namely:

> a limited range of vocabulary; generalization without elaboration; vague referents by cohesion devices; and more use of repetition and less use of nouns that can evaluate and characterise the referents (Taraha, 2014: 22).

Caldwell (2009) investigated the use of metadiscursive nouns in undergraduates' writing in South Africa. This study revealed that inappropriate use of "abstract" nouns like problem, purpose, fact, example and idea causeed 'vagueness' in students' writing. Student writers in this study tended to use "shell" nouns not only as noun phrase heads but, repetitively, within specific phrases whose function should be to constraint reference.

Wei and Lei (2011) studied lexical bundles in the academic writing of advanced Chinese English learners. In their study, a corpus of doctoral dissertations by the learners and a corpus of published journal articles by professional writers were analysed. The findings showed that there is often insufficient use of general nouns in these doctoral dissertations of Chinese English learner writers.

Davoudi and Behshad (2015) researched collocation use in the academic writing of Iranian advanced English learners. They analyzed the data to determine the sources of collocational errors, and the strategy types utilized by learners in order to overcome their collocational deficiencies. The findings indicated that Iranian advanced English learner writers committed collocation errors such as general nouns in their writing in English. The next section reviews literature on conjunctions used in learner English writing.

2.3.4 Conjunctions

Empirical literature shows that the erroneous use of conjunctions poses the most difficulty for bilingual learners beginning to write in English.

Adversative and concessive conjunctions pose a difficulty for Chinese EFL student writers. Zhang (2014) examined the syntactic and semantic categories of adversative and concessive conjunctions from the perspective of functional grammar. She contrasted and explored the discourse functions of adversative and concessive conjunctions used by both Chinese EFL learners and native English speakers in their argumentative texts. Findings showed that conjunction use poses the most difficulty for the English learner-writers.

Hamed (2014) conducted a study to investigate the appropriate and inappropriate use of conjunctions in argumentative essays written by EFL Libyan students. A corpus of argumentative essays written by students was collocated and in terms of Halliday and Hasan's (1985) taxonomy of conjunction. Findings demonstrated that the Libyan EFL students employed the conjunctions inappropriately. In particular, they made erroneous use of adversative conjunctions because these conjuncions posed considerable difficulty.

Ebrahimi and Khedri (2015) studied multiple theme used in the academic writing of Iranian advanced English learners. They found that these students overused textual

themes in their writing. The overuse of textual themes indicated their greater tendency to "writer more argumentative and factual texts using plenty of conjunctions, coordinators and subordinators functioning as textual theme to link each clause to the surrounding text and context" (Ebrahimi & Khedri, 2013: 252).

Empirical literature on theme and thematic progression and coherence in English learner writing encompasses two lines of investigation and thinking.

2.3.5 Theme and Thematic progression and Coherence in Learner English writing

One branch of research investigating theme and thematic progression in learner English focuses on how appropriate use of theme and thematic progression improves coherence in English learners' writing output, mainly English learner-writing. It is possible to analyse their problems in the use of theme and thematic progression. The second line of thought is comparison studies of theme and thematic progression in English learner writings and native-speaker writings.

2.3.5.1 Theme and thematic progression improves coherence in learner English writing

Theme-rheme choices characterise coherence in English learner writing. In particular, theme choices differ among different levels of English learner writers.

Wei (2013) conducted corpus-based research on topical theme choices in Chinese and Swedish, English learner writings. These English learners had tended to "write on a somewhat vague and general level, often making sweeping statements" (Wei, 2013: 2206). She underpinned the pedagogical importance of increasing:

> English learners' understanding of how Themes contribute to the method
> of development in texts so that they could benefit from an increased

awareness of how themes may be used to manage the build-up of information as it accumulates in their texts (Wei, 2013: 2207).

Alvin (2015) researched the development of topical themes in the writing of research articles. A diagrammatic representation was used to indicate the thematic progression patterns. Alvin posited that pedagogies can be employed to develop students' awareness of "the role of topical themes and the typical thematic patterns in scholarly articles is useful in helping students better understand the norms of scholarly writing" (Alvin, 2015: 308). He also argued that "the topical theme plays an important role in shaping ideas in [research] writing" (Alvin, 2015: 309)

Mellos (2011) analysed the theme and rheme patterns in eight undergraduate ESL essays, four of which were evaluated as being high in coherence and four of which were low in coherence. The study found that high scoring coherent essays employ dense and complex nominal groups in ideational themes, a wide variety of textual themes, and different forms of thematic progression to establish connections between different parts of the text and comment on abstract ideas relevant to the topic. In contrast, the less coherent writing frequently overused unmarked themes of simple nominal groups or pronouns and theme reiteration in a way that made the text difficult to follow and appear to lack development.

Arunsirot (2013) researched the concept of *theme* in Thai EFL students' writing. Thematic selections and thematic progression patterns used by students in their writing were examined. Findings revealed five problems, namely, the problems of empty theme; the brand new theme; overuse of constant progression pattern; empty rheme and confusing selection of textual theme. Arunsirot (2013: 170) found that Thai EFL learners had the problem of a brand new theme, that is, "the new theme is introduced in the text causing a lack of organisational skill in writing". Arunsirot (2013: 161) also reported that "Thai EFL learners' choice of theme and rheme…reveal the writing difficulties with topic development and text flow that Thai EFL learners experience".

AL Bakaa (2014) studied individual voice in thematic development in academic writing by Iraqi and Australian postgraduates. Al Bakaa used Eggins' (2004) model of thematic development to analyze a corpus of four academic assignments from four Masters Students (two Iraqi and two Australian students). The findings showed that Iraqi bilingual postgraduate students had the problem of "the lack of further rheme development" through their writing in English (AL Bakaa, 2014: 69).

Wei (2013a) investigated how intermediate Chinese English learners used themes differently from advanced Chinese English learners in their English speech. The corpus consisted of comparable spoken data sets for intermediate Chinese English learners, advanced Chinese English learners, and English native speakers. The results of theme study revealed that as the length of time learning English increases, the learners became better at making theme choices. Progressively they displayed closer performance to native speakers in theme choices in frequency of use of topical themes, textual themes, interpersonal themes, and theme markedness.

Appropriate use of theme and thematic progression contributes to coherence in learner English writing. Wang (2010) illustrated how appropriate use of theme and thematic progression contributed to coherence in English learner writing by comparing writing that was graded according to high, medium, and low scores. Wang concluded that the pedagogical focus on more multiple theme, clausal theme, and effective thematic progression patterns such as constant progression, linear progression, split theme progression, and split rheme progression could make English writing more coherent. These recommendations were based on a detailed analysis of three writing samples that were graded with high, medium, and low scores from TEM-4 writing sections.

Herriman (2011) studied themes and theme progression in Swedish advanced learners' writing in English. A comparison was made to a sample of similar writing by British university students. The findings showed that these advanced English learners' sample contained more interactional Themes. Especially, their overuse of

high frequency vocabulary reflected a "non-native sound" in their writing (Herriman, 2011: 1).

Thematic progression patterns are one of the factors which influence the production of a more cohesive text in English learner writing. Ebrahimi and Ebrahimi (2012a) compared thematic progression patterns in 180 EFL compositions by 60 Iranian students majoring in Teaching English as a Foreign Language with different academic writing experiences, using McCabe's (1999, as cited in Ebrahimi & Ebrahimi, 2012a) model of thematic progression. The results illustrated significant differences between the three groups regarding their use of linear and constant patterns of progression. These researchers reported that there were significantly more linear and constant patterns in the writings by the senior group who had received instruction on grammar, paragraph writing and essay writing. This was not the case in the writings by the other two groups. It was also found that junior students who received instruction on grammar and paragraph writing were more likely to use these patterns than sophomore students who received only instruction on grammar. They justified such a tendency in light of academic writing experiences as being one of the factors which influenced the production of a more cohesive text due to the application of such cohesive devices.

Fang and Li (2015) investigated the thematic progression patterns used by Chinese English learners in their academic writing. They found that as Chinese English learners did not know how to organise sentences, "it is difficult for them to form coherent discourse although they master lots of material" (Fang & Li, 2015: 266).

Guan (2015) researched theme and rheme use in the academic writing of Chinese advanced English learners. The students' academic texts were analysed in this study. The findings revealed that "Abundant passages and paragraphs appear unnatural and loose" in Chinese advanced English learner writers' academic English texts (Guan, 2015: 344).

2.3.5.2 Comparison studies of theme and thematic progression in English learner writing and English native-speaker writings

Marked and unmarked themes used in demonstrating critical argument present challenges to English learners in writing in English.

Al Bakaa et al. (2015) researched marked and unmarked themes in demonstrating a critical argument written by Iraqi and Australian postgraduate students. They investigated a corpus of four academic assignments from four Masters Students (two Iraqi non-native Australians and two Australian native writers of English). They found that an Australian writer expressed her judgment in the unmarked themes more effectively from a general point of view and linked her first sentence with the theme of the next clause using internal textual devices. Marked themes occurred more frequently in the segments of the Australian native writers than Iraqi EFL students. The Australian writers used marked themes as a point of departure in conveying their argumentative text when compared to Iraqi postgraduate students. These Iraqi writers mostly "focused on word and sentences level structures rather than the structures at the level of their whole written discourse" (Al Bakaa et al., 2015: 252).

English learner writers differ from native English speakers in topical theme choices. Wei (2013b) investigated topical theme choices in Chinese and Swedish learners' English writing. A comparison study was conducted on a corpus of English writing produced by Chinese, Swedish and native English speakers. The researcher examined how topical theme choices in Chinese learners' English writings were different from those in Swedish learners' English writings. The native-speaker texts were used as the research baseline.

Rørvik (2012) examined the use of thematic progression in data from the Norwegian component of the International Corpus of Learner English (NICLE) to investigate whether Norwegian advanced learners of English used the same thematic progression strategies as native-speaking professional writers of English, or whether they were

influenced by Norwegian discourse conventions using the Integrated Contrastive Model. The influence of transfer was also examined through comparison with Norwegian texts written by professional writers. In addition, a comparison with non-professional writers of English and Norwegian was included in order to identify potential similarities between novice writers, regardless of whether they were writing in their L1 or L2. The results indicated that there were differences in the use of thematic progression strategies between the NICLE writers and professional writers of English, and that some of these differences were most likely due to transfer from Norwegian. In addition, novice writers seemed to share certain characteristics in the way they structured their texts, which were different from the strategies employed by professional writers.

2.3.5.3 Comparison studies of theme and thematic progression in the writing of learners of English from different language backgrounds

Theme choices differ among English learner writers from different language backgrounds. Lu (2013) compared theme choices in English texts written by Singaporean students from an English speaking background (SE), those students from a Chinese-speaking background (SC), and students from the People's Republic of China (PRC) at the university level. It was found that SC and PRC students used less topical themes than SE students and that PRC students used less textual themes than both SC and SE students. Further, the PRC students used less interpersonal themes than both SE and SC students. The researcher found that the writing of Singaporean and Chinese students did produce various interesting similarities and differences and attributed these to their sociolinguistic and educational backgrounds. The findings from this study suggest that English learners from different backgrounds (in this case, English learners from Chinese-speaking backgrounds exhibited closer performance to each other as compared to native English speakers.

Ebrahimi and Ebrahimi (2012) researched information development in EFL undergraduate students' composition writing. Their study centred on scrutinising the

status of thematic progression patterns in EFL students' composition. They identified that students might use strategies that entail content and formal elements such as unity of ideas, cohesion and organisation of points and the reader's interpretation and comprehension of his/her written text.

Misuse of the definite article and conjunctions negatively affects EFL students' textual coherence. Arabi and Ali (2015) investigated the manifestation of textual coherence in Sudanese EFL college students' academic written texts. Text analysis of the clausal and textual coherence was conducted on the syntactic, lexical and discoursal errors in students' texts. Their findings showed that these students misused the definite article and conjunctions. They also found that these students were incapable of distinguishing given and new information at the intra-sentential clausal level that negatively influenced the over-all coherence of their texts.

Misuse of reference and conjunctions caused by vagueness in topical themes is a problem for learner of English writing. Göpferich and Nelezen (2014) researched the quality of L2 (English) popular-science texts when compared to the L1 (German) version written by the same German EFL students. They analysed text-coherence errors of these students' written texts in English. Findings showed that there existed coherence errors in these EFL students' texts. This included the misuse of the demonstrative with pronominal in the topical theme position, overuse of the demonstrative in the theme position which caused unidentifiable anaphor-antecedent relation, and illogical connector. They argued that text-coherence errors might serve as a reliable predictor of the general text-production competence of a particular student.

Appropriate use of thematic progression patterns results in well-arranged written texts. Rahmawati and Kurniawan (2015) researched thematic progression analysis in Indonesian EFL students' theses abstracts. They applied a descriptive qualitative method to describe and analyse textual data. A thematic progression theory proposed by Fries (2002, as cited in Paltridge, 2006) was employed to analyse five

undergraduate students' well-written thesis abstracts downloaded from website. They found that constant theme is the type of thematic progression that was mostly used in the thesis abstracts (52.64%). Linear and split thematic progression patterns were also found in the abstracts. However, split rheme was found only once. Among the problems the students encountered were how to write a coherent abstract and to create an appropriate logical connection among sentences in their writing. The study concluded that the students' theses abstracts mostly used the constant theme pattern, which suggests their writing was not quite well-arranged.

Garing (2014) researched coherence in the argumentative essays of EFL undergraduate students in Philippine universities. He investigated five textual features of coherence. He examined how comprehensible the students' texts were, in terms of; focus, organisation, cohesion, support and elaboration, convention and the relationship between the textual features and the comprehensibility of the students' texts.

The next section reviews literature which outlines innovative strategies to chart new pedagogies for engaging conditional knowledge in creating coherence using supervisory on-script focused corrective feedback in international Chinese HDR students' research writing.

2.4 Developing new pedagogical spaces: Engaging conditional knowledge and schemas in writing

The potential of Paris et al.'s (1983) concept of conditional knowledge for enacting writing support in relation to contemporary (HDR) writing was examined by Okasha and Hamdi (2014). They based their research on the concept of conditional knowledge. This concept means that English learner-writers know when it is wise to transform a passive construction into an active one, and their understanding of when to undertake this type of 'strategic writing'. Okasha and Hamdi (2014) researched how strategic writing promoted Iranian EFL postgraduate students' writing skills.

They posit that "conditional knowledge means learners know when it is wise to [transform a passive construction into an active one]" (Okasha & Hamdi, 2014: 675). In their study, conditional knowledge as one type of 'strategic knowledge' was taught via instruction and practiced using a writing model. In this model, conditional knowledge was engaged through teaching instruction about strategic writing. This helped the students overcome their difficulties getting access to the knowledge they already have, that is, their existing schema. Analytical results of the students' written texts indicated that their writing skills were improved by using this pedagogy of strategic writing.

Conditional knowledge may help identify pedagogies which are suitable for specific situations. Dresel et al. (2015) investigated how conditional knowledge helped student writers identify appropriate strategies in their writing. They applied conditional knowledge in their pedagogical model to assess students' competence. They found that students with high conditional knowledge identified a wide variety of strategies as suitable for relevant specific teaching/learning situations.

The pedagogical engagement of content schema in English writing instruction helps activate English learner writers' conditional knowledge, that is, appropriate content schemas. Sun (2014) investigated whether a schema-oriented teaching/learning method was effective for improving Chinese college EFL students' writing ability. She specifically taught the students knowledge of content and textual schema through the analysis of sample essays in writing instruction. The analysis of students' essays and their responses on questionnaires revealed that the pedagogical application of schema theory was effective in activating students' appropriate schemas, that is, conditional knowledge and guiding them in processing information into their texts.

The engagement of textual schema in EFL writing instruction helps activate English learner writers' conditional knowledge or appropriate textual schemas. Similarly, Hamed and Saiedi (2014) researched the role of formal schemas in the development

of writing in an Iranian EFL context. They presented the experimental group with formal schematic knowledge of some texts. Not surprisingly, the findings of this study indicated that the experimental group learners performed better in their writing than the control group. This study revealed that not all of the writing problems the EFL students confront were due to the lack of understanding of formal schemas but that, the existing schemas, that is, conditional knowledge, led to pedagogically improving the writing process.

Incorporating schemas into thesis writing pedagogy helps students produce coherent texts. Sim and Shin (2014) conducted a case study of Korean EFL graduate engineering students focusing on English communicative competence in thesis writing. Through experiencing academic writing pedagogy, they found that EFL graduate students' writing proficiency can be developed. Improvement was achieved in students' knowledge of the writing formats used in research articles, the ability to use grammar and vocabulary correctly, and written discourse skills for professional writing, such as achieving coherence and paraphrasing. This is in line with the results of Carrol's (2004) study. That study incorporated concepts relating to writing format or schema (e.g., an organised block of knowledge and skills) at the sentence level (e.g., grammar and vocabulary) and skills for coherence and paraphrasing at the discourse level, to improve comprehension of texts.

Pedagogically, teacher modelling helps improve English learner writers' use of conditional knowledge in their academic writing in English. Through corpus analysis of student's draft essays, Schraw and Gutierrez (2015) investigated the pedagogical effects of teacher modelling as a means of metacognitive strategy intervention in EFL writing. They provided students with explicit schematic knowledge about each of the strategies through teacher modelling that was structured to include students' draft essays. They found that teacher modelling of strategy use helped enhance students' conditional knowledge. This pedagogy enabled them to determine when and where to use the newly acquired strategy appropriately in their writing. This

empirical study demonstrated that the improvement of conditional knowledge contributes to the appropriateness in strategy use, in academic learning.

However, targeting conditional knowledge about writing as a model to assess students' strategy use in learner English writing is problematic. Conditional knowledge needs to be examined in actual written texts rather than student writers' self-appraisal accounts of strategy use.

2.5 Conclusion

This chapter commenced by identifying the major approaches, trends and salient issues in HDR research writing. The review of empirical literature focused on the factors influencing HDR research writing, writing support to HDR students and international HDR research writing. The next section reviewed research on coherence in English learner-writers' writing, exploring the concerns for learner writers created by the language features; reference, lexical cohesion, general noun, conjunction, theme and thematic progression. The next section provided an account of how Paris, Lipson, and Wixson's (1983) conditional knowledge and Rumelhart's (1980) schema theory have been engaged in English learner-writers' academic writing. In doing so, this literature charted new pedagogical spaces for research, especially the use of supervisory on-script focused corrective feedback in HDR research writing.

CHAPTER THREE

Engaging conditional knowledge and schema in coherent research writing: A theoretic-pedagogical framework

3.1 Introduction

This chapter elaborates on the theoretic-pedagogical framework developed in this thesis to better understand international Chinese HDR students' *conditional knowledge* required for creating the *micro-level coherence* in their research writing. This theoretic-pedagogical framework has been informed by Flower and Hayes' (1981) notion that *writing is a cognitive process.* Figure 3.9 shows this process as being composed of two parts. The upper part offers a theoretical lens to identify the appropriateness or otherwise of coherence strategies used. It indicates that *conditional knowledge* is required for creating the *micro-level coherence* in research writing. Three key concepts constitute this part, namely, Johns' (1986) concept of *text-based coherence*, Fleckenstein's (1992) concept of *reader-based coherence*, and Paris et al.'s (1983) concept of *conditional knowledge.* These are supported by related concepts and ideas proposed by each of these researchers.

The lower part of this theoretic-pedagogical framework focuses on the schematic construction of *conditional knowledge* required for creating the *micro-level coherence* in and through research writing. Rumelhart's (1980) distinction between

content schemas and *textual schemas* is used to investigate the appropriateness of *content and textual schemas* for creating *coherence* in the students' texts. Further, Halliday and Matthiessen's (2004) *topical themes* and *rhemes* are used in relation to *content schemas*. Under the concepts of *topical themes* and *rhemes*, Halliday and Mathiessen's (2004: 536) concepts of *reference* and *lexical cohesion* are used to identify "a relationship between things, or facts (phenomena)" as well as the connectivity derived from the semantic relationship created by specific lexical items. Halliday and Hasan's (1985) concepts of the *definite article*, the *demonstrative pronoun*, the *pronominal pronoun,* the *comparative*, *lexical collocation*, and *lexical reiteration* are also used respectively with reference to *reference* and *lexical cohesion.* In addition, *textual themes* at the inter-clausal level, *thematic organisation* at the intra-and inter-clausal level, and *thematic progression patterns* at the intra-paragraph level are used in relation to textual content (Rumelhart, 1980).

With respect to *textual themes* at the inter-clausal level, appropriate uses of *conjunctions* are employed to establish the appropriate uses of *causal conjunctions*, *additive conjunctions*, *adversative conjunctions* and *concessive conjunctions. Theme structure*, *theme/rheme sequence*, and *information structure* are employed to investigate the appropriate uses of *thematic organisation* at the intra-and inter-clausal level. Eggins' (2004) concepts of *constant theme pattern*, *linear theme pattern* and *multiple theme/split rheme patterns* are applied in relation to progression patterns.

The objective is to test these concepts and hence develop an integrated theoretic-pedagogical framework. The usefulness of these concepts is tested in the evidentiary chapters through the analysis of evidence of coherence strategies used in research writing.

3.2 Conditional knowledge

This section explores Paris, Lipson, and Wixson's (1983) concept of *conditional knowledge* in relation to its cross-disciplinary application in writing. The consideration of this concept is contextualised in reference to research writing.

3.2.1 Defining conditional knowledge

The concept of *conditional knowledge* has evolved through research in psychology and cognitive science. According to Paris et al. (1983), *conditional knowledge* is related to knowing the why and when aspects of cognition. The term *conditional knowledge* is meant to "capture the dimension of knowledge when to invoke strategies" (Garner, 1990: 518). *Conditional knowledge* recognises that:

> Knowing what and knowing how are not sufficient to guarantee that [HDR students] will apply strategies appropriately. [HDR students] need to learn when and why various strategies should be used to accomplish different purposes (Paris et al., 1984: 1241).

Pintrich and Garcia (1994) consider *conditional knowledge* to be a *schema* or acquired knowledge structure. Accordingly, *conditional knowledge* is defined as "the knowledge stored dynamically in cognitive representations (schemas) that are activated in different situations or tasks" (Pintrich & Garcia, 1994: 115). The schematic structure of *conditional knowledge* can support learners' strategic choice if it aligns with specific situations in cognitive activity (Uesaka & Manalo, 2007).

Further developing this concept, Young and Fry (2012: 1) conceptualise *conditional knowledge* as "the knowledge [learners] have about the conditions under which [learners] can implement various cognitive strategies". For example, an HDR student's *conditional knowledge* about research writing contains knowledge about situations under which he/she can determine when and where to use appropriate

strategies for appropriately managing the content and formal elements within their writing, such as unity of ideas, cohesion and organisation of points.

Tracing the effective role of *conditional knowledge* in learning, Schraw and Gutierrez (2015) define *conditional knowledge* as the ability to determine when and where to use a newly acquired strategy appropriately in a specific situation. They empirically demonstrated that the improvement in students' *conditional knowledge* contributes to improvement in the appropriate use of new strategies in academic learning.

Despite these various definitions of *conditional knowledge,* all agree that *conditional knowledge* can be thought of as the learner's acquired schematic knowledge regarding situations under which they are capable of determining when and why various strategies should be used appropriately for a specific task.

Therefore, this study proposes that the *conditional knowledge* required for creating *coherence* in research writing can be regarded as the *schematic* knowledge about situations under which HDR students are able to determine when and why *coherence* strategies should be used appropriately in their research writing. The next section explores the importance of *conditional knowledge* in the field of writing.

3.2.2 Conditional knowledge and writing

For Flower and Hayes (1981), *writing is a cognitive process* which requires writers to have *conditional knowledge*. The text produced by writers offers a point of departure to explore the importance of *conditional knowledge* in writing. *Conditional knowledge* is important in research writing. Negretti (2012) asserted that *conditional knowledge* is a key component in facilitating self-regulated writing. It is a driving force in achieving successful writing outcomes, as it helps writers to transfer skills, knowledge and strategies across contexts and situations (Kuteeva, 2013; Matuchniak et al., 2014; Negretti & Kuteeva, 2011; Negretti, 2012).

The significance of *conditional knowledge* in achieving successful writing outcomes can be seen from Flower and Hayes' (1981) writing model (see Figure 3.1). This particular writing model is composed of a series of correlated components, namely: a writer's knowledge of topic, audience and strategies, writing processes and text produced so far.
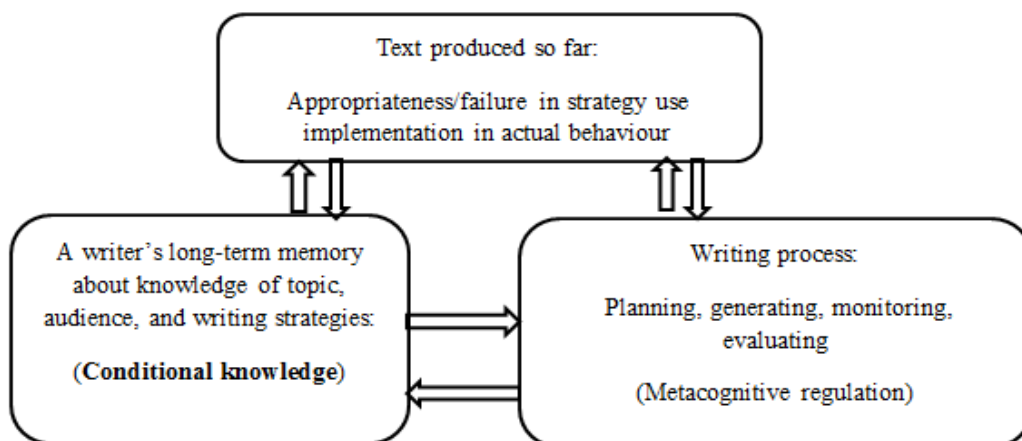
Figure 3.1 Structure of the writing model

(Source: adapted from Flavell, 1979; Flower & Hayes, 1981)

As Flower and Hayes (1981) exemplify inthis model, a writer's *conditional knowledge* interacts with his/her writing process, and this interaction affects the text he/she produces. Conversely, the texts the writer has produced so far, reflects his/her *conditional knowledge* regarding the strategies used in texts at any given point during their production. This model provides a point of departure to conduct this research into *conditional knowledge* in HDR students' research writing.

Conditional knowledge has been explored in relation to the use of declarative knowledge and procedural knowledge in research writing (Flavell, 1987; Ford & Yore, 2012; Hyland, 2007; Okasha & Hamdi, 2014; Schneider & Artelt, 2010;

Young & Fry, 2012; Schraw & Moshman, 1995). Among these forms of knowledge, *conditional knowledge* is a key point to assessing students' academic outcomes and which in this study, would relate to the examination of HDR students' theses. Particularly, *conditional knowledge* is critical to strategic writing (Okasha & Hamdi, 2014). The relative positioning of these three types of *metacognitive knowledge* in writing is presented in Figure 3.2.

Conditional knowledge:
schematic knowledge about conditions or situations concering when and why to use strategies

Procedural knowledge:
how to use strategies

Declarative knowledge:
what strategies to use
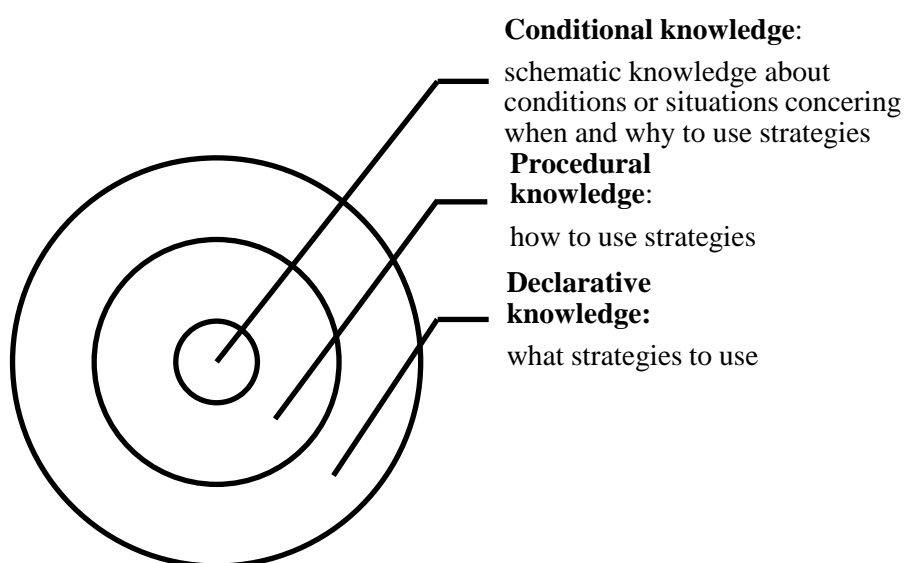
Figure 3.2 Positions of declarative knowledge, procedural knowledge and conditional knowledge in a strategic cognitive process of writing

(Source: adapted from Flavell, 1979; Hyland, 2007; Okasha & Hamdi, 2014; Wang & Chen, 2014)

Figure 3.2 shows the related positioning of three types of metacognitive knowledge in the process of writing. Writing can be treated as a holistic process in which *declarative, procedural* and *conditional knowledge* are correlated (Okasha & Hamdi, 2014; Wang & Chen, 2014). *Declarative knowledge* refers to knowledge about things, including knowledge about oneself as a learner and about what factors influencing one's actual performance (Okasha & Hamdi, 2014; Schraw & Moshman, 1995; Schneider & Artelt, 2010). Located in the outer layer of Figure 3.2, *declarative*

knowledge centers on 'what' knowledge is known about the writing process. *Procedural knowledge* refers to knowing 'how' to use writing strategies and knowledge about the execution of procedural strategies (Flavell, 1979; Okasha & Hamdi, 2014; Schraw & Moshman, 1995). Situated in the middle layer, *procedural knowledge* centers on 'how' to use *declarative knowledge*. C*onditional knowledge* refers to knowing where, when and why to appropriately apply *declarative* and *procedural knowledge* in a specific situation (Devitt, 2004; Johns, 2008). *Conditional knowledge* addresses the conditions or situations under which an HDR student is operating when choosing to employ a particular strategy (Flavell, 1987; Ford & Yore, 2012; Garner, 1990; Okasha & Hamdi, 2014; Raphael, Englert & Kirschner, 1989; Schraw & Dennison, 1994; Scott & Levy, 2013; Young & Fry, 2012). Located in the central position, *conditional knowledge* focuses on the schematic knowledge of situations or conditions about 'when' and 'why' to use *declarative knowledge* and *procedural knowledge* in research writing. According to this configuration, *conditional knowledge* plays the key role in research writing (Okasha & Hamdi, 2014; Paris et al., 1986; Wang & Chen, 2014). The next section explores the interaction between *conditional knowledge* and actual writing behavior.

3.2.3 Conditional knowledge and actual writing behavior

Studies of the interaction between *conditional knowledge* and actual writing behaviour by Flavell (1979) using the concepts of metacognition and metacognitive knowledge can provide a foundation for exploring how metacognition interacts with HDR students' 'actual behavior' (see Figure 3.3).
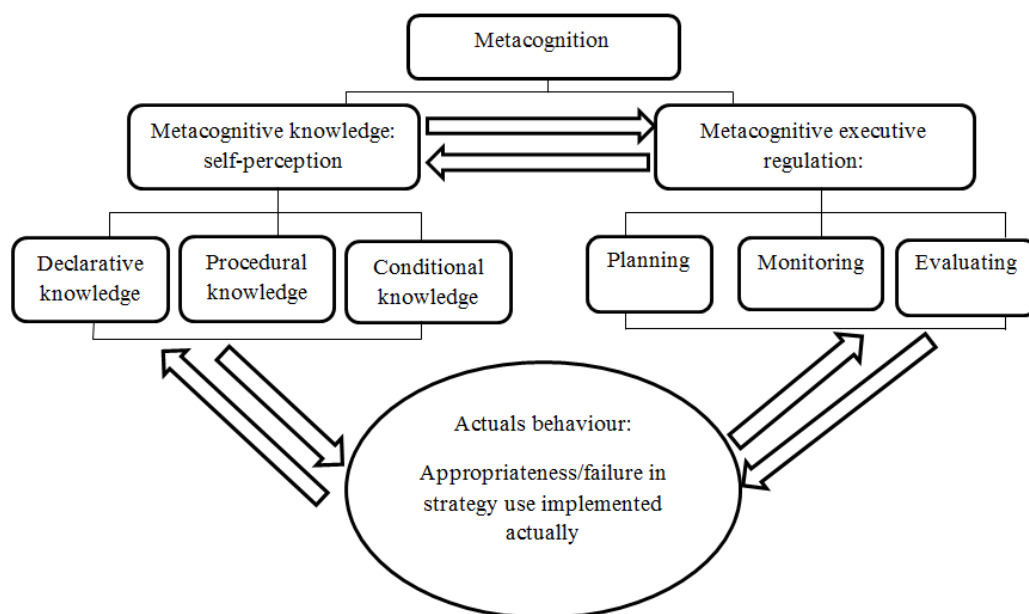
Figure 3.3 The interactive model of metacognition and actual behavior

(Source: adapted from Brown, 1987; Flavell, 1979, 1987; Kuteeva; 2013; Paris et al., 1983; Schraw & Dennison, 1994; Schraw & Moshman, 1995; Young & Fry, 2012)

Figure 3.3 indicates that metacognition is a multi-dimensional construct. Flavell (1979) stated that *metacognition* refers to one's self-awareness and self-monitoring of his/her cognitive functions. It entails two key components: knowledge of cognition and knowledge of regulation. Knowledge of cognition or *metacognitive knowledge* focuses on students' self-perceptions about strategic uses of declarative knowledge, procedural knowledge and c*onditional knowledge*. Knowledge of regulation refers to learners' executive control through planning, monitoring and evaluation (Schraw & Moshman, 1995; Young & Fry, 2012). These two components interact with each other in a multilayered cognitive process (Brown, 1987; Flavell, 1987; Schraw & Dennison, 1994; Young & Fry, 2012). Students' actual writing behaviour is also assumed to involve the interaction of both *metacognitive knowledge* and *metacognitive regulation.* Whether students appropriately use strategies in their

actual writing behaviour may be used as a test of their *conditional knowledge* (Gouchman et al., 2015).

Based on the concepts of *metacognition* and *actual behavior* (Flavell, 1979; Kuteeva, 2013; Schraw & Moshman, 1995; Young & Fry, 2012), the relationship between *conditional knowledge* and actual writing behavior has been the subject of many investigations (Garcia & Pintrich, 1994; Kuteeva, 2013; Okasha & Hamdi, 2014; Paris et al., 1983; Surat et al., 2014; Uesaka & Manalo, 2007; Wang & Chen, 2014). *Conditional knowledge* is schematic and related to measures of academic success (Young & Fry, 2012). A learner's *conditional knowledge* can be identified through his/her appropriateness in strategy use in his/her actual behavior (Kuteeva, 2013). More specifically, *conditional knowledge* is schematic knowledge about conditions or situations of when and why to use strategies in a specific task. It can be verified through appropriateness or failure in strategy use in actual writing behavior (Wang & Chen, 2014). This interactive relationship between *conditional knowledge* and actual writing behavior is represented diagramatically in Figure 3.4.
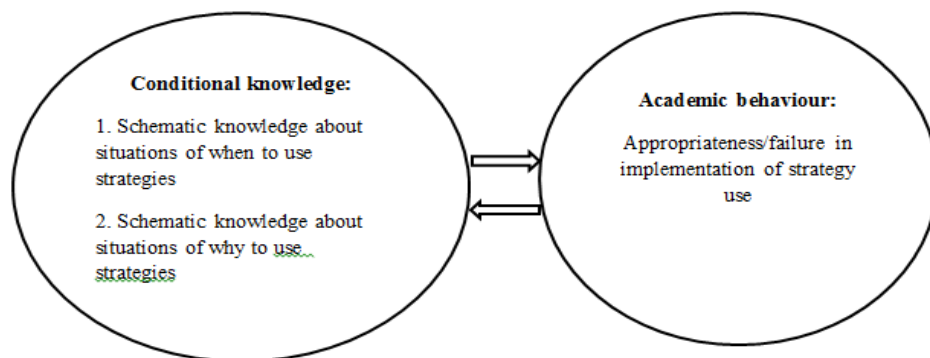
Figure 3.4 An interactive model of conditional knowledge and actual behavior
(Source: adapted from Negretti, 2012; Paris et al., 1983; Surat et al., 2014; Uesaka & Manalo, 2007; Wang & Chen, 2014)

Figure 3.5 represents the appropriateness of actual strategy use in a specific writing task can be and how this can be used to study *conditional knowledge* (Paris et al.,

1983; Surat et al., 2014). The value of this method has been demonstrated in a range of research on *conditional knowledge* (Okasha & Hamdi, 2014; Paris et al., 1983; Raphael, Englert & Kirscher, 1989). Also, it has been supported by research into *conditional knowledge* that focuses on questions of 'when' and 'why' to use strategies in specific situations (Brewer & Nakamura, 1984; Okasha & Hamdi, 2014; Paris et al., 1983; Garcia & Pintrich, 1994; Surat et al., 2014; Uesaka & Manalo, 2007; Wang & Chen, 2014).
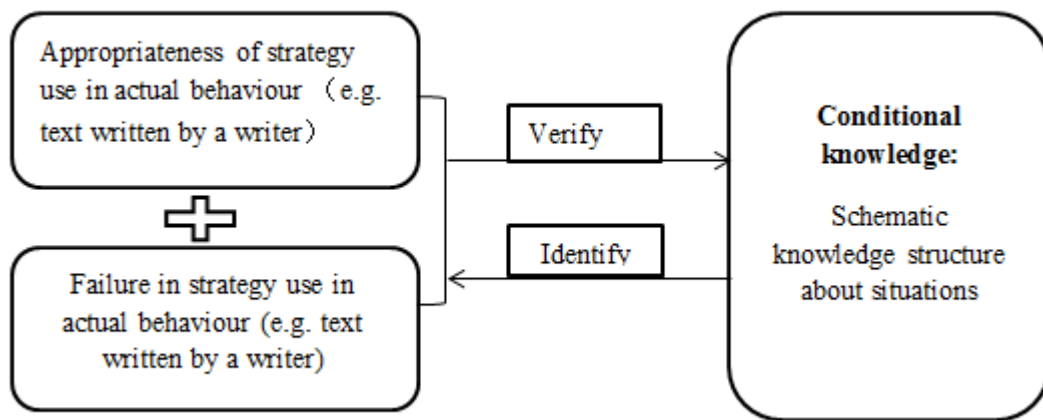
Figure 3.5 Identification of appropriateness in strategy use and verification of conditional knowledge

(Source: adapted from Brewer & Nakamura, 1984; Okasha & Hamdi, 2014; Paris et al., 1983; Garcia & Pintrich, 1994; Surat et al., 2014; Uesaka & Manalo, 2007; Wang & Chen, 2014)

In this study, the research focus is on international Chinese HDR students' *conditional knowledge* required for creating the *micro-level coherence* in their research writing. The foregoing account provides the background informing the theoretic-pedagogical approach implementented in this research. According to this framework, HDR students' *conditional knowledge* for creating the *micro-level coherence* can be treated as schematic knowledge about conditions or situations of

when and why they use *coherence* strategies in their research writing. This framework also has an impact on methodological considerations for this study. Methodologically, these students' *conditional knowledge* for creating the *micro-level coherence* can be investigated by identifying the appropriateness or otherwise of their coherence strategy choices and use in their research writing.

In this regard, the students' appropriateness or inappropriateness in using coherence strategies will be examined to identify their *conditional knowledge* for creating the *micro-level coherence*. This is the primary objective of this thesis. However, the concept of *conditional knowledge* is insufficent for investigating the *micro-level coherence* creation in research writing. There is also a need to better understand the schematic structure or constituents of research writing. Therefore, the next section details *schema* theory.

3.3 Schema theory

This section explores Rumelhart's (1980) *schema theory* by clarifying its connection with the writer's structure for representing research knowledge. This connection, once placed in the field of research writing, can be summarised this way: *schema* refers to the knowledge 'structure' which indicates the typical relation among components. This section will commence by discussing the concept of *schema*. Then it will define the concept of a writer's *schema* from the perspectives of *content schema* and *textual schema*. Next, it will clarify the relationship between a writer's *schema* and his/her *conditional knowledge*. Lastly, this section will explain how a research writer's lack of appropriate *schemas* or *conditional knowledge* is one of the reasons for his/her failure to formulate a coherent text.

3.3.1 Defining schema

The concept of the *schema* can be traced to Plato and Aristotle (Marshall, 1995). Kant (1778) discussed the term *schema* in terms of organising structures that mediate how

one sees and interprets the world (Nevid, 2007). Bartlett (1932: 15) defines the term *schema* as "an active principle in our memory which organises elements of recall into structural wholes". According to Anderson et al., (1978), a *schema* is a type of knowledge 'structure' because it shows the typical relations among its components. As Rumelhart stated (1980: 41),

> Schemata can represent knowledge at all levels-from ideologies and cultural truths to knowledge about the meaning of a particular word, to knowledge about what patterns of excitations are associated with what letters of the alphabet. We have schemata to represent all levels of our experience, all levels of abstraction. Finally, our schemata are our knowledge. All of our generic knowledge is embedded in schemata.

Schema is defined "a data structure for representing our knowledge about all concepts" (Rumelhart, 1980: 23). Rumelhart (1980: 23) further asserts that:

> a schema theory is basically a theory about knowledge-a theory about how knowledge is represented and about how that representation facilitates the use of knowledge in particular ways. According to schema theories, all knowledge is packaged into units. These units are the schemata. Embedded in these packets of knowledge, in addition to knowledge itself, is information about how this knowledge is to be used.

A foundational tenet of *schema* theory is the construction of an interpretation of an event, object or situation (Rumelhart, 1980). Carrell and Eisterhold (1983: 556-558) state that:

> the previously acquired knowledge is called the reader's [or writer's] background knowledge, and the previously acquired knowledge structures are called schemata. [Depending on which], readers [writers] are able to construct a rather complete interpretation of the text.

Due to the critical role *schemas* are thought to play in cognitive activities, *schema* theory has been widely applied across disciplines. The next section presents the cross-disciplinary application of *schema* theory in the field of writing.

3.3.2 Schema and writing

With the cross-disciplinary application of *schema* theory in academic writing, two types of *schemas* are proposed as critical for producing well-written texts: *content* and *textual schemas. Content schema* is a block of knowledge about text content (Anderson, Pichert & Shirey, 1983; Sun, 2014). It refers to "the background knowledge relative to content domain of the text" (Garning, 2014: 7). *Content schema* covers knowledge about objects, events, and situations (Carrell & Eisterhold, 1983). In contrast, t*extual schema* is a block of knowledge about the conventions and forms of writing (Anderson, Pichert & Shirey, 1983). It refers to knowledge about discourse structures and forms in terms of organisation, language structure, grammar, vocabulary and level of formality/ register (Garning, 2014; Singhal, 1998).

These two types of *schemas* are integral to research writing. In terms of research writing, the *schemas* an HDR student has to interpret the world are dependent on his/her internal model of the situation he/she faces in writing a thesis, a model of the situation which is then captured by and through the text (Sun, 2014). Therefore, HDR students' familiarity with *content* and *textual schemas* is of importance for their production of research writing (Carrell, 1985; Hamed et al., 2014).

Research on the *schemas* used by writers suggests two reasons for their failures to formulate coherent texts (Furneaux, 2015; Ren, 2014; Rumelhart, 1980; Yao, 2014):

> 1. The writer may not access the *appropriate textual schemas* to provide
> sufficient clues to the readers. That is, he/she may lack conditional
> knowledge about strategy choice for showing relations the readers need
> so that it produces concerns about their creation of a coherent text.

2. The writer may not have the *appropriate content schemas* to interpret the concepts communicated in the text. That is, he/she may lack of *conditional knowledge* required for explaining the content of concepts in creating coherent texts.

Therefore, *appropriate schemas*, that is, *conditional knowledge* are key elements that the HDR students need to draw on, to create coherence in their research writing. This is partially because the absence of *appropriate schemas*, that is, lack of the *conditional knowledge* necessary for creating coherent text or the inadequate clues in a text, might result in the readers' misunderstanding, leading to an incoherent text (Furneaux, 2015; Naderi et al., 2014; Ren, 2014; Yao, 2014).

As for this thesis, the focus is on investigating international Chinese HDR students' *conditional knowledge* needed for creating the *micro-level coherence* in their research writing. S*chema theory* provides a key element in the theoretic-pedagogical framework needed for this research. That is, their *conditional knowledge* needs to be investigated through reference to *content schema* and *textual schema*. Moreover, this framework also provides specific methodological grounds for studying the role of *conditional knowledge* in research writing. As such, *conditional knowledge* is also studied through HDR students' appropriateness and inappropriateness in the use of coherence strategies in their research writing.

How international Chinese HDR students' appropriateness and inappropriateness in the use of coherence strategies relates to their *conditional knowledge* for creating the *micro-level coherence* is explored in this thesis. Given this thesis focus, there is a need fully understand what *coherence* is. Therefore, the next section details *coherence* theory and its related concepts.

3.4 Coherence

In this section, the *coherence* related concepts are presented and discussed, namely, coherence, cohesion, text themes, thematic organisation and thematic progression patterns. These concepts are explained with reference to Halliday and Hasan's (1985) *coherence theory* and Halliday and Matthiessen's (2004) *systemic functional linguistics* and Eggins' (2004) concept of *thematic progression.*

3.4.1 Defining coherence

Coherence is a complex concept, which has a multitude of text-based and reader-based features (Johns, 1986; Halliday & Hasan, 1985; Widdowson, 1978).

3.4.1.1 Text-based coherence and writing

Text-based coherence refers to "an internal feature to text" (Johns, 1986: 248). *Text coherence* as a complex phenomenon involves a variety of facets within the text of *coherence* (Fleckenstein, 1992; O'Brien, 1995). It relates to the features associated with the internal structure and content of the text itself.

These key features of *text-based coherence* are unity of ideas, organisation of points, and cohesion. *Unity of idea* has been defined as "each idea must relate to the main idea (topic sentence) of the particular paragraph it is in and also to other ideas in the same paragraph" (Garning, 2014: 6). *Organisation of points* refers to "the need of the points to progress in a logical sequence from the beginning till the end of the essay" (Garning, 2014: 6). It relies on orderliness in the arrangement of the sentences composing a paragraph (Halliday & Matthiessen, 2004). *Cohesion* refers to the surface marking of *coherence* which signals the ties between sentences and the points being made (Halliday & Hasan, 1985). However, it should be noted that text *cohesion* is only one part of the convention required for effecting *coherence* (van Dijk, 1985),

because the elements of a text can be seen as "connected, with or without overt linguistic connections between these elements" (Brown & Yule, 1983: 224).

3.4.1.2 Reader-based coherence and writing

Reader-based coherence suggests that "coherence is as much a reader-based phenomenon as it is a writer-based creation" (Fleckenstein, 1992: 81). It pertains to the meaningful aspect of writer-reader interaction and requires an integration of reader expectations in text realisation as well (Fleckenstein, 1992; Louwerse, 2001; O'Brien, 1995).

Different from *text-based coherence*, the key feature of *reader-based coherence* is the link between the *schemas* of reader and writer (Garning, 2014). Creating a successful 'fit' between the *schemas* of the reader and the writer refers to the writer's organisation, content, and argument of the texts being consistent with readers' expectations and comprehension, which means that:

> an aspect of comprehension that is established in the mind of the reader as a result of a perception of relatedness among a text's propositions and between the text and the knowledge that the reader possesses of the world (McCagg, 1990: 113).

For instance, HDR students need to remind themselves of the significance of *reader-based coherence* coming from supervisory feedback in order to create *coherence.* As Bitchener (2012: 857) states,

> [supervisory on-script] feedback might be clear and appropriate for the developmental proficiency of the [HDR doctoral students] when the students need to attend to the corrective feedback they are provided with, be aware of and notice a mismatch between their erroneous output and the target-like feedback they received, be able to retrieve the required

linguistic information from their [conditional knowledge about text-based coherence] and be developmentally ready to acquire the targeted forms and structures .

Therefore, to ensure a reader, such as a supervisor or thesis examiner, has appropriate understanding, HDR students need to make their texts "informative, relevant and clear" (van Dijk, 1985: 113). This means that they need to fit into the reader's appropriate *schemas* or *conditional knowledge* regarding the ideas they are presenting in their research writing.

In the research reported in this thesis, the research focus was on *conditional knowledge* for creating the *micro-level coherence*. This meant that the *text-based* and *reader-based* features of *coherence* were explored at the micro-level. The *micro-level coherence* in this study refers to *coherence* established at the intra-clausal level; the inter-clausal level; and the intra-paragraph level in research writing. Based on this consideration, international Chinese HDR students' draft research texts were analysed from the perspective of *text-based coherence*. The corresponding supervisory on-script focused corrective feedback was analysed from the perspective of *reader-based coherence*. These two lines of analyses worked collaboratively to provide a holistic picture of the *coherence* created by HDR students through their research writing. This provided the basis for taking a textographic approach to this study (see Chapter 4). However, understanding *coherence* in this way was insufficient to reveal the participants' *conditional knowledge* for creating the *micro-level coherence* in their research wiring. Therefore, other tools were needed to identify the appropriateness and inappropriateness of their use of coherence strategies in their research writing. The next section details the conceptual tools used for studying *coherence*.

3.4.2 Cohesion

Cohesion, as a surface phenomenon and a critical linguistic property for a discourse, is a necessary condition to ensure successful writing. In light of its relation to text, it has been defined in two different ways. *Cohesion* is defined in terms of the role it plays in organising a text. Halliday and Hasan (1985) defined *cohesion* as a network of relationships between locations in the text, arising from grammatical factors (co-reference, pronominal and conjunctions) and lexical factors (collocation and reiteration). Halliday (1976: 26) assert that "cohesion does not concern what a text means; it concerns how the text is constructed as a semantic edifice". In this regard, *cohesion* has a meaning-based connection. It is "for the textual indications that coherent representations should rebuilt" (Louwerse, 2001: 292)

On the other hand, *cohesion* is also defined in terms of the role cohesive ties play in information flow in a text. Differing from Halliday and Hasan (1985), Hinkel (2003: 279) defines *cohesion* as "the connectivity of ideas in discourse and sentences to one another in text, thus creating the flow of information in a unified way". Building on these definitions, Kwan and Yunus (2014) define *cohesion* as the connectivity and flow of information within a text that are set up through the use of cohesive devices that render the elements within the text inter-related and inter-dependent.

3.4.3 Categories of cohesion

Despite these differences in defining *cohesion*, there are two agree-upon categories of *cohesion*: lexical cohesion and grammatical cohesion. The categories related to *lexical cohesion* are lexical collocation and reiteration. Given the importance of these two subcategories, much research into *lexical cohesion* has been conducted. Halliday (1976) developed two major sub-classes of *lexical cohesion*: *collocation* and *reiteration*. Although generally well adopted, Halliday and Hasan's (1985) concept of *lexical cohesion* is not without criticism. Myers (1991) studied *cohesion* in domain-specific texts, and expanded Halliday and Hasan's (1985) *lexical collocation*

by adapting domain-specific knowledge when analysing *lexical cohesion* of academic texts. Moreover, Cutting (2008) further developed Halliday's (1976) taxonomy of *lexical reiteration* by including 'general words' into its scope. *Lexical cohesion* of domain-specific texts is depicted in Table 3.1.

Table 3.1 lexical cohesion of domain-specific texts

Types of lexical cohesion	Subtypes of lexical cohesion
Lexical collocation	Lexical collocation relative to domain-specific knowledge
Lexical reiteration	General words

(Source: adapted from Cutting, 2008; Halliday, 1976; Halliday & Hasan, 1985; Myers, 1991)

The taxonomy of *grammatical cohesion* developed by Halliday and Hasan (1985) entails reference, substitution, ellipsis, and conjunction. However, as Witte and Faigley (1981) stated, of all the cohesive devices, only three types, namely, *reference*, *conjunction* and *lexical cohesion* appear frequently in written discourse. Therefore, in this research, the focus is the three types of cohesive devices, namely: *reference*, *lexical cohesion relative to domain specific knowledge*, and *conjunction*.

3.4.3.1 Reference

Reference has been described as:

> a relationship between things, or facts (phenomena, or metaphenomena);
> it may be established at varying distances, and although it usually serves

to relate single elements that have a function within a clause (processes, participants, circumstances) (Halliday & Matthiessen, 2004: 536).

In this regard, *reference* shows "a semantic relation whereby information needed for the interpretation of one item is found somewhere in the text" (Carroll, 1999: 158).

Characteristically, *reference ties* include five aspects. They concern manners of *references*, their relations to the text, functions, location and types. These five characteristics are presented in Table 3.2. Based on their relation to the text, *reference ties* are classified either exophoric or endoporic (Halliday & Hasan, 1985). *Exophoric reference* is one which is situational and occurs out of text and deals with the links between words and objects or events in the world (Carroll, 1999; Halliday & Hasan, 1985). For example, the editorial 'we' in a newspaper is an *exophoric reference*. This is because no antecedent to such *references* is recoverable within the text (Witte & Faigley, 1981). *Exophoric references* do not contribute to the *cohesion* of a text, while *endophoric references* do (Halliday & Hasan, 1985). According to the location in the text, *endophoric references* are classified into two categories, namely, anaphoric and cataphoric. *Anaphoric reference* functions to precede text, while *cataphoric reference* acts to follow text (Halliday & Hasan, 1985).

Table 3.2 Characteristics of reference

Manners	**Relation to text**	**Function**	**Location**	**Types**
References	Links between words and other words in a discourse	Contribute to the cohesion of a text	Anaphora (to following texts)	• Pronominal pronouns • Demonstrative pronouns • The definite article

(Source: adapted from Carroll, 1999; Halliday & Hasan, 1985; Halliday & Matthiessen, 2004; Witte & Faigley, 1981)

There are four commonly used types of *references*: pronominal pronouns, demonstratives pronouns, the definite article, and the comparative (Halliday & Hasan, 1985; Halliday & Matthiessen, 2004). *Pronominal pronouns*, also called personal reference, functions within nominal groups (noun phrase). *Demonstrative reference* and the *definite article* are *reference* by means of location. The writer identifies the referent by locating it on a scale of proximity. It entails the definite article '*the*' and the *demonstrative pronoun* such as "*this*". The *definite article* helps identify the referent that is located in a neutral distance, whilst the *demonstrative pronoun* 'this' helps identify the referent in a near distance (Eggins, 2004). Witte and Flaigley (1981: 191) state that the definite article occurs "when one item in a text points to another element [in a near distance] for its interpretation". The *comparative reference* involves two types, namely, general comparison and particular comparison. A general comparison refers to any particular feature (such as; so, as, equal, similar, different, otherwise, and likewise), whereas a particular comparison means that is in respect of quantity or quality (such as; more, ever; additional, better; equally, and well). Each of the sentence pairs below illustrates a different type of *reference cohesion*.

Reference cohesion (pronominal)

(1) On Friday, Tom went to library with his Mum.

(2) ***He*** borrowed some books and DVDs.

Reference cohesion (Demonstratives)

(3) Shelly needs to write two term papers in this semester.

(4) ***This*** is part of course requirements.

Reference cohesion (Definite Article)

(5) David brought a new box of color pencils.

(6) He especially likes ***the*** blue one.

The bold elements in sentences (2), (4), and (6) can be interpreted based on the presupposed information conveyed by the sentences immediately above them. Witte and Flaigley (1981: 191) stated that "reference cohesion occurs when one item in a text points to another element for its interpretation". The next section details another cohesive device: *lexical cohesion*.

3.4.3.2 Lexical cohesion relative to domain specific knowledge

Lexical cohesion is the predominant means of connecting sentences in a text. Halliday and Matthiessen (2004: 535) assert that "lexical cohesion operates within the lexis and is achieved through the choice of lexical items". It is the connectivity derived from the semantic relationship created by specific lexical items that create the coherence of a text. These specific lexical items are identified as two major subclasses of lexical cohesion: *collocation* and *reiteration*. The point is that in both categories, interpretation of one lexical element in the text is facilitated by the presence of another.

Reiteration is a phenomenon in which one lexical item refers back to another related item through a common referent (Halliday & Hasan, 1985). A reiterated item is usually preceded by the reference item *the* or a *demonstrative*, which could be the same word or a repetition, a synonym or near-synonym, a superordinate word, or a general noun.

Lexical collocation refers to the "association of lexical items that regularly co-occur" (Halliday, 1976: 284). These lexical items show a cohesive function when they appear in adjacent sentences. Myers (1991) engaged domain specialised knowledge to analyse the *lexical cohesion* of domain-specific texts. In addition, Cutting (2008) further developed a taxonomy of lexical reiteration by including 'general words' into its original scope.

General nouns, also called *shell nouns,* refer to the use of a set of abstract nouns as conceptual shells for complex, proposition-like pieces of information (Halliday & Hasan, 1985). General nouns fulfill this function by having a 'postnominal' clause and/or by being linked to a complementing clause by means of a copula. The discourse role of general nouns includes identifying functional segments of texts structures, summarising preceding discourse, and/or starting a new topic for succeeding discussion (Tahara, 2014).

3.4.3.3 Conjunctions

Conjunctions are another major class of cohesive ties frequently used in writing as textual themes. Hamed (2014) states that successful cohesive texts rely on the writer's ability to use *conjunctions*. *Conjunctions* signal logical relations in a text. They assist the reader to link different units and paragraphs together to make sense of the text. As stated by Halliday (1976: 226),

> Conjunctive elements are not in themselves cohesive but indirectly, by virtue of their specific meanings; they are not primarily devices for reaching out into the preceding (or following) text, but they express certain meanings that presuppose the presence of other components in the discourse.

Conjunctions are named differently in the literature suggesting a degree of contestation over this concept. For instance, Quirk, Greenbaum, Leech, and Svartvik (1985) and Zamel (1983) call them conjuncts. Huddleston and Pullum (2002) refer to them as connective adverbs. They are also called connectors (Granger & Tyson, 1996); discourse markers (Fraser, 1999); discourse connectors (Cowan, 2008), linking adverbials (Biber, Conrad, & Leech, 2002); logical connectives (Crewe, 1990); and logical connectors (Celce-Murcia & Larsen-Freeman, 1999). Despite being named differently, all these competing terms refer to the same function-that they are discourse markers in texts. As such, adhering to Halliday et al.'s (1976,

2001, 2004) definition, the term *conjunction* is the one employed throughout this study.

According to Halliday and Hasan (1985), there are four subcategories of *conjunctions* used in writing; additive, adversative, causal, and concessive. These four categories are described as follows:

(1) Additive devices are employed to link discourse units of semantic similarity. Examples of additive conjunctions are; *and*, *furthermore*, *for instance*, and *similarl*y. Their functions involve introducing discourse units which repeat and underpin the key point or add relevant new information to the expressions which are previously mentioned in the text.

(2) Adversative discourse connectors are used to connect discourse units of semantic contrast. Examples of adversative conjunctions are; *yet*, *nevertheless*, *however*, *in fact*, and *instead*. Their functions include the introduction of information that mark corrections, contrasts, or opposites in light of previous information.

(3) Causal devices are used to link discourse unit of cause-effect. Examples of causal conjunctions are; *as such, hence*, *therefore*, *because*, *as a result*, and *in this regard*. They perform the role of introducing information that is a result or consequence of the preceding discourse.

(4) Concessive devices are used to relate discourse units of concession and contrast. Examples of concessive conjunctions are; *although*, *despite*, *in spite of*, *notwithstanding*, *whereas* and *while*. They play the role of contrasting one idea with another where one piece of information appears to be surprising or unexpected in view of the other idea.

These four categories reflect four semantic relations between sentences in text. Accordingly, it is important for HDR students to better understand the role *conjunctions* can play in organising their written text.

Conjunctions can play a critical role in research writing. As Heino (2010) states, the significance of *conjunctions* is to signal logical relations in a written text and enhance its readability. As such, *conjunctions* are key elements for creating coherent texts. In other words, their presence should result in coherence and subsequently enhance the quality of the text (Ting, 2003). Additionally, Schleppegrell (1996: 272) asserts that, "conjunction is a grammatical resource for indicating links within texts". Without *conjunctions*, it would be difficult for readers to interpret ideas because these *conjunctions* prepare readers to expect the following ideas (Zamel, 1983). Thus, the appropriate employment of *conjunctions* is an essential skill for HDR students to acquire (McCarthy, 1991).

Considering the research focus, this study will investigate cohesive devices used by international Chinese HDR students in their research writing at two levels, namely, the intra-clausal level and inter-clausal level. *Reference* and *lexical cohesion* are explored at the intra-clausal level whereas *conjunctions* are examined at the inter-clausal level. The next section details other coherence-related concepts, namely, themes and thematic organisation.

3.4.4 Text themes

Halliday and Matthiessen (2004) assert that the theme and the rheme are two constituents of a message. The *theme* "is the first group or phrase that has some function in the experiential structure of the clause" (Halliday & Matthiessen, 2004: 66). It "provides the environment for the remainder of the message, the rheme…in the theme-theme structure, it is the theme that is the prominent element" (Halliday & Matthiessen, 2004: 105).

There are chiefly three types of *theme*, namely, topical theme, textual theme and interpersonal theme. *Topical theme* refers to:

> "the theme [which] contains one and only one of these experiential elements... the theme of a clause ends with the first constituent that is participant, circumstance or process" (Halliday & Matthiessen, 2004: 79).

That is to say, *topical theme* is the first word or phrase carrying meaning in an experiential sense, realised by a participant, process or circumstance. It is incorporated in every clause and anchors the starting point of the message (Bloor & Bloor, 2013). The topical theme is always realized by "Subject, Predicator, Complement, or circumstantial Adjunct and is always the first of these constituents in the clause" (Bloor & Bloor, 2013: 80). *Textual theme* refers "a conjunction [which is a] word or group that either links (paratactic) or binds (hypotactic) the clause in which it occurs structurally to another clause" (Halliday & Matthiessen, 2004: 81). It is realised by *conjunctions* functioning to structure the text by developing links to other clauses. *Interpersonal theme* refers to an item that comes before the rheme which indicates the relationship between participants in the text, or the position or point of view that is being taken in the clause (Paltridge, 2006).

With regard to the research focus, the *theme* and the *rheme* used by international Chinese HDR students in their research writing are investigated at the micro-level. Specifically, the *topical theme* and the *rheme* are investigated at the intra-clausal level whereas the *textual theme* is explored at the inter-clausal level.

3.4.5 Thematic organisation

Thematic organisation refers to creating a coherent text as needed to develop the points in a logical sequence from the beginning until the end of the text (Halliday & Matthiessen, 2004). It depends upon orderliness in the arrangement of the sentences composing the paragraph. In terms of the *micro-level coherence*, the organisation of

ideas involves *thematic organisation* at the intra- and inter-clausal level. *Thematic organisation* at the intra-clausal level refers to the message structure in a clause which consists of a theme combined with a rheme, and the structure is expressed by order (Halliday & Hasan, 1985). Halliday and Matthiessen (2004: 64) assert that:

> The Theme is the element which serves as the point of departure of the message; it is that which locates and orients the clause within its context. The remainder of the message, the part in which the Theme is developed, is called in Prague school terminology the rheme.

The theme is followed by *the rheme*. Rheme is "part of the assembly of the new information that the text offers" (Cummings, 2003: 133). The concern is with the ordering of information contained in the *theme* and the *rheme* within and across a clause. An inappropriate *thematic structure* results in clause incoherence and interferes with reading comprehension.

3.4.5.1 Thematic structure

Thematic structure is a systematic method used to indicate the appropriate organisation of ideas (Halliday & Hasan, 1985). It refers to "the organisation of a clause or an utterance which consists of theme and rheme to form a message" (Rahmawati & Kurniawan, 2015: 89). These two constituents need to be organised in the theme-rheme sequence. Halliday and Matthiessen (2004: 65) state that:

> a message structure requires a clause that consists of a theme accompanied by a rheme; and the structure is expressed by the order—whatever is chosen as the Theme is put first.

Halliday (1994) explains that the *theme* is the point of departure of the message. Hence, it is carried by the first constituent of a clause. The *rheme* is, then, what follows the starting point in a clause. *Thematic structure* at the micro-level is

generally operated through two mechanisms: namely, *theme-rheme* sequence at the intra-clausal level and *textual theme* at the inter-clausal level.

3.4.5.2 Information structure

Information structure refers to information comprised of two categories: new information and given information. In English, *coherence* within a sentence is reinforced by given-new information. *New information* is introduced by indefinite expressions and subsequently referred to by definite expressions (Brown & Yule, 1983; Halliday & Hasan, 1985). The following two sentences illustrate the relationships:

1. The other day, I saw a boy get bitten by **a snake**.

2. I tried to catch the snake, but it crawled away.

The noun phrase **a snake** in sentence one is *New information*, while **the snake** in sentence two is *given information*. Indicators of *given information* involve lexical units such as articles, lexical cohesion units and reference pronouns. *Given information* refers to items mentioned for the second time and items presented in the semantic field of a previously mentioned lexical unit.

Pronouns refer anaphorically to a lexical form in the preceding sentence and/or exophorically to references not in the text, but rather in the context. Each of the following sentences illustrates the use of *given information*:

Group A

1. Shelly found an old truck.

2. **The steering wheel** had broken off.

The noun phrase 'an old truck' is determined by indefinite article where 'an' is '*new information*'. The noun phrase (in bold) pre-modified by the definite article and the–steering wheel is *given information*.

Group B

1. What happen to the computer?

2. It was broken by a Tom.

Pronouns refer anaphorically to a full lexical form in the preceding sentence. As shown in sentence 2 in Group B, the pronoun 'it' refers to the noun group 'the computer' in sentence 1. Therefore, it is '*given information*'.

In this study, the research focuses on international Chinese HDR students' *conditional knowledge* required for creating the *micro-level coherence* in their research writing. In terms of this research focus, *thematic organisation* is investigated at the micro-level, namely, *thematic organisation* at the intra-clausal level and *thematic organisation* at the inter-clausal level. The next section introduces thematic progression patterns.

3.4.6 Thematic progression patterns

Thematic progression can be viewed as the skeleton of the plot (Daneš, 1974). The choice of *themes* in individual messages in a text is not random and without structural connections. In this regard, *thematic progression* refers to the ways in which the *theme* of a clause picks up, or repeats, a meaning from a preceding *theme* or *rheme* (Paltridge, 2006). In order to conceptualise the role of the *theme* in text organisation and construction, Eggins (2004) developed three types of *thematic progression patterns*, namely, constant theme pattern, linear or zigzag theme pattern, and multiple theme/split rheme pattern.

3.4.6.1 Constant theme pattern

A *constant theme pattern* refers the patterns in which theme 1 or rheme 1 is repeated in the beginning of next clause (Paltridage, 2006). Such theme reiteration is created "when the same element occurs regularly as theme in text" (Eggins, cited in Mellos, 2011: 9). Without theme repetition, this pattern "can make the written segment difficult to read since there is a lack of thematic development" (Al Bakaa, 2014: 253). This pattern is illustrated schematically in Figure 3.6.
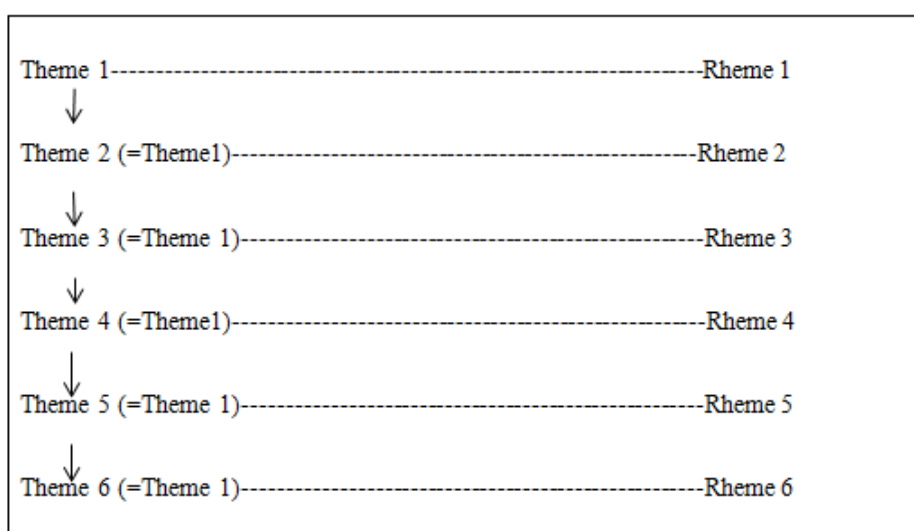
Figure 3.6 Constant theme pattern

The following is an example of *constant theme pattern*.

> The children saw the black feet of the wolf and feared, and they did not
> open the door. They told the wolf that you are not our mother (Ebrahimi
> & Ebrahimi, 2012: 88)

3.4.6.2 Linear theme pattern

A *linear or zig-zag theme pattern* sees the subject matter in the *rheme* of the previous clause taken up in the *theme* of a following clause (Paltrdiage & Burton, 2000). This

pattern occurs when "an element which is introduced in the rheme in clause 1 gets promoted to become the Theme of clause 2" (Eggins, 2004: 324). That is, rheme 1 is repeated as theme 2 in the next clause. This *linear theme pattern* "achieves cohesion in text to give a sense of a cumulative development which may be absent in the repeated theme pattern" (Eggins, 2004: 325). This pattern is illustrated schematically in Figure 3.7.
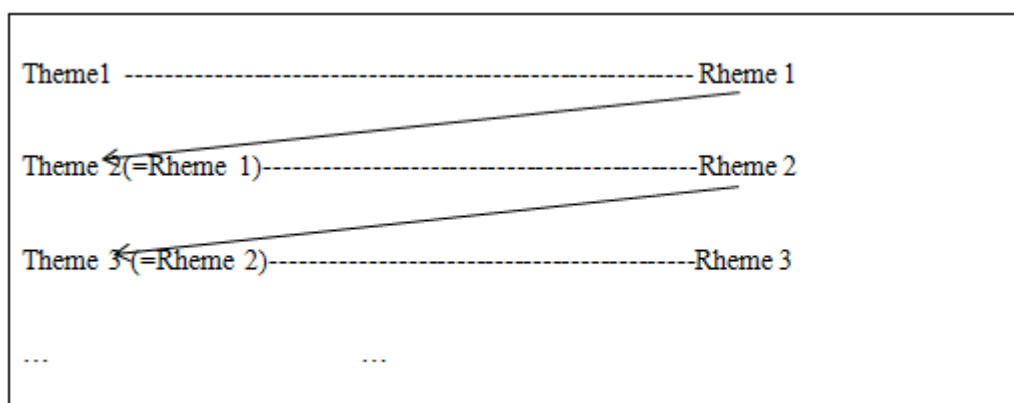
Figure 3.7 Linear theme pattern

The following is an example of *linear theme pattern*:

> On the other day, the mouse went to the shoemaker. The shoemaker accepted to sew his tail if the mouse brings him some sewing-cotton from the carpet maker. The carpet maker listened to the mouse's story and promised to help him (Ebrahimi & Ebrahimi, 2012: 88).

3.4.6.3 Multiple theme/split rheme pattern

A *multiple theme/split rheme pattern* is characterised as the *thematic progression* whereby the item in the *theme* of the first clause functions as a hyper *theme*, that is, as the key element from which the *theme* of the subsequent clauses is derived. In a *multiple theme or split rheme progression pattern*, a *rheme* may include a number of different pieces of information, each of which may be taken up as the *theme* in a

number of subsequent clauses. This type of pattern is illustrated schematically in Figure 3.8.
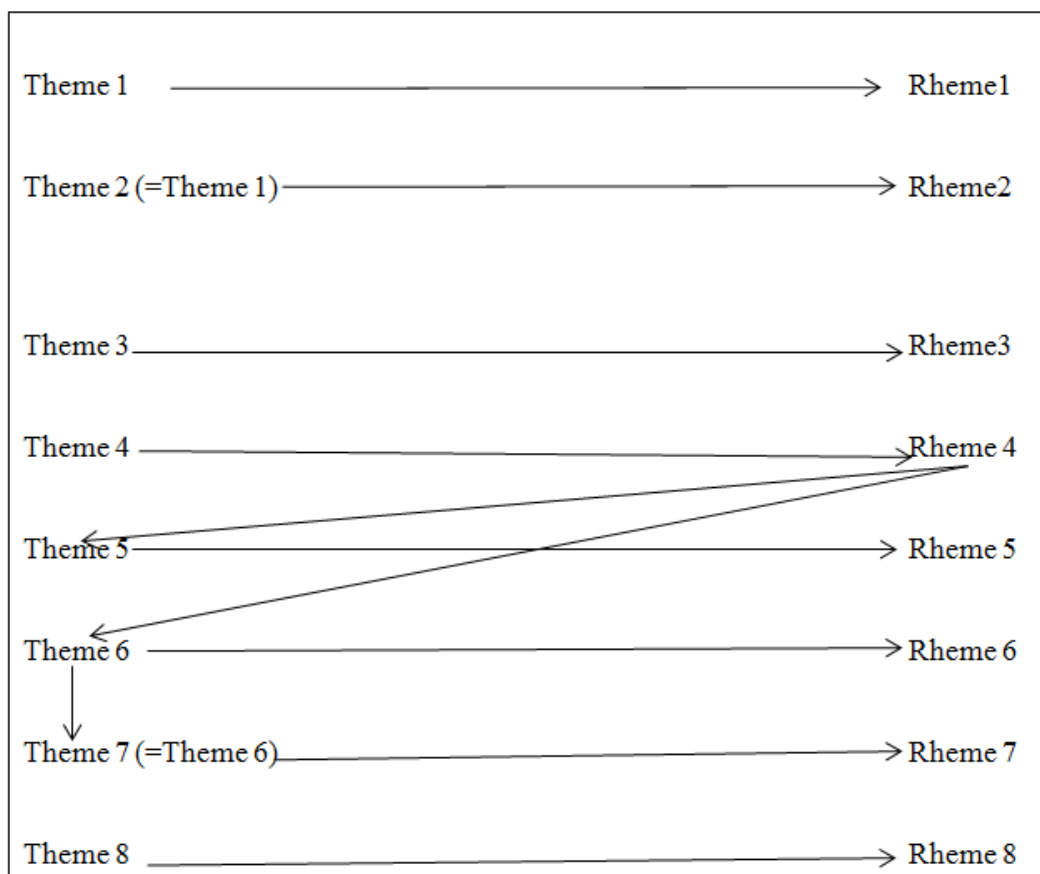
Figure 3.8 Multiple theme/split rheme pattern

The following example provides a concrete instance for this pattern:

> The mother and the child made a plan. She first found the wolf and tore his stomach, and the child brought some stones to fill the wolf's stomach (Ebrahimi & Ebrahimi, 2012: 89).

In light of the research focus for this thesis, *thematic progression patterns* used by international Chinese HDR students in their research writing are investigated at the micro-level. That is, the *thematic progression patterns* at the intra-paragraph level

are studied rather than macro-level patterns as the inter-paragraph level and beyond. The next section develops a theoretic-pedagogical framework concerning the *conditional knowledge* required for creating *micro-level coherence* through research writing.

3.5 HDR students' conditional knowledge for creating the micro-level coherence through research writing

This section engages concepts including *conditional knowledge* (Paris, Lipson & Wixson, 1983); *text-based coherence* (Johns, 1986); *reader-based coherence* (Fleckenstein, 1992); *content schema* and *textual schema* (Rumelhart, 1980); *cohesion* (Halliday & Hasan, 1985); *themes*, *rhemes*, *thematic organisation* (Halliday & Matthiessen, 2004); and *thematic progression patterns* (Eggins, 2004) in the context of international Chinese HDR students' research writing.

3.5.1 Ontological supplement: engaging text-based coherence with reader-based coherence revealed by supervisory corrective feedback

Ontologically, *conditional knowledge* is required to affect *textual coherence*. Such knowledge is considered to be schematic knowledge. Appropriate *schema* for *text-based coherence* is a constitutive element necessary for HDR students' *conditional knowledge*. In this regard, international Chinese HDR students require *conditional knowledge* for creating *textual coherence* through their research writing. To be effective, it has to be composed of appropriate *schemas* for effecting *textual coherence* strategies. To produce scholarly coherent research writing, HDR students need to learn a repertoire of appropriate *schemas* and strategies for creating *text-based coherence* (Furneaux, 2015; Naderi et al., 2014; Ren, 2014; Rumelhart, 1980; Yao, 2014). Such capabilities that these students have, or need to learn, require them to know when and where to use *coherence* strategies in their research writing. However, as Kamler and Thomson (2014: 114) contend:

> When [HDR student] writers are not sure exactly what they are saying
> and what they are not, or when they don't feel they have the authority to
> publicly commit to a particular point of view, the thematic structure of
> their paragraphs may be really difficult for a reader to navigate. Central
> meaning can get buried and paragraphs can seem to be about everything
> or nothing.

Kamler and Thomson' (2014) comments focus on HDR students' writing from a *reader-based* perspective. This differs from the dominant view of *coherence* which prioritizes *text-based* features (Fleckenstein, 1992).

In this study, the pedagogical relationship between *conditional knowledge* for creating the *text-based coherence* and *conditional knowledge* for creating the *reader-based coherence* is refashioned by moving from a closed to an open format. One source of the *conditional knowledge* required for creating the *reader-based coherence* is derived from supervisory on-script corrective feedback. Pedagogically, this is a key component for facilitating self-regulated writing by HDR students (Bitchener, 2012). Such supervisory pedagogy is a driving force of successful writing outcomes, as it helps HDR students transfer skills, knowledge and strategies across contexts and situations (Kuteeva, 2013; Matuchniak et al., 2014; Negretti & Kuteeva, 2011; Negretti, 2012).

HDR students need to learn about the significance of *reader-based coherence* coming from supervisory feedback on their research texts. Supervisory on-script feedback has been described as:

> clear and appropriate for the developmental proficiency of the [HDR
> students] when the students need to attend to the corrective feedback they
> are provided with, be aware of and notice a mismatch between their
> erroneous output and the target-like feedback they received, be able to
> retrieve the required linguistic information from their [conditional

knowledge for creating the text-based coherence] and be developmentally ready to acquire the targeted forms and structures (Bitchener, 2012: 857).

HDR students' *conditional knowledge* requires the ability to create *the text-based coherence* and *reader-based coherence* based on supervisory on-script focused corrective feedback. In doing so, HDR students need to engage metacognitively with their supervisor's modelling of the c*onditional knowledge* they lack in their research writing. This will help them learn to transform their inappropriate schemas into the *conditional knowledge* needed to create coherent research writing.

3.5.2 Methodological supplement

Methodologically, this study is informed by texography. This is a methodology which:

> aims to explore the context in which a text is produced in order to gain an understanding of why the text is written as it is. This examination of context includes consideration of the purpose of the text, the audience for the text, expectations of the particular discourse community…its prime focus of interest is the text and it aims to develop 'ethnographically sensitive texts analytic tools...it draws on a range of ethnographic techniques and combines these with text analysis, with the aim of understanding both the form and formation of the texts that people write (Starfield, Paltridge & Ravelli, 2014: 106-107).

Using this textographical approach for the analysis of research writing texts, consideration is given to the possibility of supervisory pedagogies that might be developed by engaging supervisory on-script focused corrective feedback. This would explicitly develop HDR students' *conditional knowledge* as required for creating the *micro-level coherence*.

HDR research writing could begin with HDR students' mapping their *conditional knowledge* required for creating the *micro-level textual coherence*. HDR students' capabilities for creating the *micro-level coherence* could be demonstrated through their use of appropriate or otherwise, coherence strategies in their research writing. Comparing HDR students' implementation of coherence strategies and the supervisory modelling of appropriate *coherence* strategies could help them create *micro-level coherence* in their research writing. Accordingly, this thesis aims to map, interpret and theorise international Chinese HDR students' uses of appropriate and inappropriate coherence strategies in their research writing. Building their *conditional knowledge* for creating the micro-level coherence can enable them to create meaningful texts using this framework.

3.5.3 Theoretic-pedagogical framework tested in this thesis

The theoretic-pedagogical framework tested in the research reported in this thesis, is informed by an understanding that *writing is a cognitive process* (Flower & Hayes, 1981). This framework is further developed through a detailed study of key analytical concepts and relevant propositions. They are, namely, the concepts of *text-based coherence* (Johns, 1986); *reader-based coherence* (Fleckenstein, 1992); *conditional knowledge* (Paris et al., 1983); *content schema* and *textual schema* (Rumelhart, 1980); cohesion (Halliday & Hasan, 1985); *textual themes* and *thematic organisation* (Halliday & Matthiessen, 2004); and *thematic progression* (Eggins, 2004). These concepts were examined empirically for their value in redeveloping the conceptual framework explored in this study (Figure 3.9).
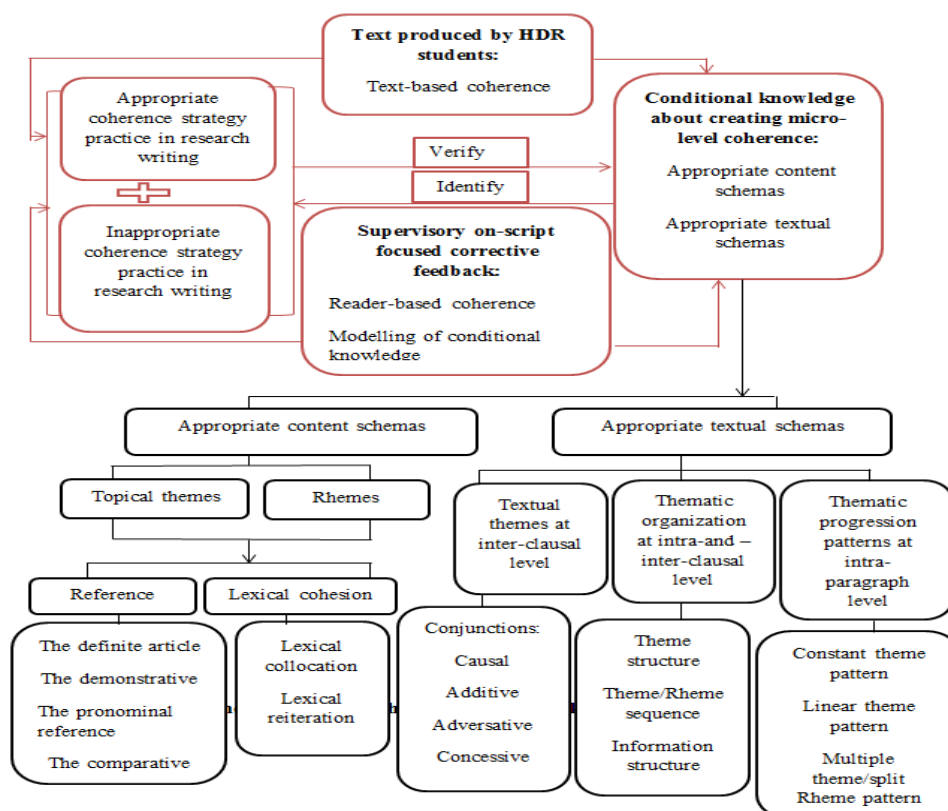
Figure 3.9 The theoretic-pedagogical framework explored in this thesis

This exploratory theoretic-pedagogical framework is depicted as a concept map[1] .

The **concept map** illustrates the key concepts tested through the analysis of evidence concerning international Chinese HDR students' *conditional knowledge* used to create the *micro-level coherence* in their research writing. It contains two parts. Part one contains the process of identifying appropriate coherence strategies and *conditional knowledge*. These are represented by red lines. This part contains five

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[1]Concept mapping is a "graphic organisational technique" designed to aid in explaining and exploring their knowledge and understanding of a topic (Hay & Kinchin, 2006: 129). Hay & Kinchin (2006: 130) explain that "concept mapping has considerable utility in learning and teaching'. Concept maps may be "used to enable sharing of understanding between teachers and students (e.g. Kinchin, 2000a, 2003) and to facilitate group work (Hay & Kinchin, 2006: 130).

components, namely, the HDR students' research texts; supervisory on-script focused corrective feedback; the appropriate coherence strategies implemented in research writing; inappropriate coherence strategies implemented in research writing; and conditional knowledge for creating the *micro-level coherence*.

Part two of this concept map relating to cohesion represents a schematic and hierarchical construction of *conditional knowledge*. This is represented by black lines. In this section, the *conditional knowledge* required for creating the *micro-level coherence* is constituted by two key components, namely, appropriate *content schemas* and appropriate *textual schemas* (Rumelhart, 1980). Appropriate *content schemas* include appropriate uses of *topical themes* and *themes*. In terms of the appropriate content of *topical themes* and *themes*, two types of appropriate uses of cohesive components are included, namely, *reference* and *lexical cohesion* (Halliday & Matthiessen, 2004). These two concepts are used to identify "a relationship between things, or facts (phenomena)" and the connectivity derived from semantic relationship created by specific lexical items within the content of *topical themes* and *themes* (Halliday & Matthiessen, 2004: 536). Evidence of the appropriate uses of reference includes that of the *definite article*; the *demonstrative pronoun*; the *pronominal pronoun;* and the *comparative*. The appropriate use of *lexical cohesion* includes that of *lexical collocation* and *lexical reiteration*.

Appropriate *textual schemas* are constituted through three components, namely, *textual themes* at the inter-clausal level, *thematic organisation* at the intra- and inter-clausal level, and *thematic progression patterns* at the intra-paragraph level. With respect to *textual themes* at the inter-clausal level, appropriate uses of *conjunctions* include *causal*, *additive*, *adversative* and *concessive conjunctions*. These concepts contribute to this study as a basis to identify coherence relationships in HDR students' research writing.

As for the appropriate uses of *thematic organisation* at the intra- and inter-clausal level, three aspects are involved, namely, *theme structure*, *theme/rheme sequence*,

and *information structure*. These concepts contribute to this study with its aim to examine the development of points in a logical sequence from the beginning of the clause until the end of it, as this appears in students' texts (Holliday & Matthiessen, 2004). Appropriate uses of *thematic progression patterns* include *constant theme*, *linear theme* and *multiple theme/split rheme patterns*. These concepts are used to examine structural connection to the text or the way in which the theme of a clause picks up, or repeats a meaning from a preceding theme or rheme (Eggins, 2004). This theoretic-pedagogical framework is examined and tested through data analysis in this study.

3.6 Conclusion

The conceptual mapping undertaken in this chapter focused on the need to research international Chinese HDR students' conditional knowledge required for text-based and reader-based coherence in their research writing. These concepts were examined through analysis review of the relevant literature in the field. This theoretic-pedagogical framework developed and implemented in this thesis is open to critique.

CHAPTER FOUR

Tracing causes and processes in research writing:
An interpretive case study

4.1 Introduction

The previous Chapter outlined the theoretic-pedagogical framework constructed for the research reported in this thesis. It provided the conceptual tools for the collection and analysis of evidence about international Chinese Higher-Degree-by-Research (HDR) students' conditional knowledge required for creating the micro-level coherence in their research writing. In order to address the research questions postulated in Chapter 1, an appropriate research methodology also has to be developed to implement the research project on which this thesis is based. This Chapter provides a detailed explanation and justification of the research methodology informing this study.

The plan of the research process, the research design, the principles and procedures for data collection and analysis along with research ethics are presented. Research of this nature potentially generates considerable amounts of data. However, this is managed by carefully selecting the most salient procedures for data analysis and presentation. This is guided by the analytical techniques explained in this Chapter.

As a higher education researcher, working out analytical strategies useful for conducting this research commenced during the initial stages of research planning. This strategy helped with the development and conduct of the data collection process and analysis procedures. These analytical procedures were checked, tested and refined against the evidence. Schatzman and Strauss (1973: 109) define analysis as a means of "working of [with] the thought processes rather than as a formidable, academic abstraction." Maintaining a record of "thoughts and some checks bearing upon their usefulness and validity [of the research saved the] crushing task of sorting out a mountain of data without benefit of preliminary analysis" (Schatzman & Strauss, 1973: 110). In the next section I provide a brief recount of the purpose of this research and the methodology most suited to this purpose.

4.2 Underpinning methodology

This section introduces methodological underpinnings of this study. The two subsections below introduce the basis for making an informed methodological choice and the idea of this research as a textographical study.

4.2.1 Making an informed methodological choice

In the context of research methodology, the concept of paradigm refers to a set of philosophical assumptions about the phenomena to be studied; about how they can be understood, and about the proper purpose and product of research (Hammersley, 2012). Differences in philosophies produce distinctive research paradigms. Typically, three research paradigms are employed in educational research, namely, quantitative, qualitative and mixed research.

The implementation of these paradigms in higher education research does not mean they are totally compatible with the methodological orientation of higher education researchers. Rather, *paradigm wars* are found between purist advocates of quantitative and qualitative paradigms. *Quantitative paradigm* purists (Ayer, 1959;

Maxwell & Delaney, 2004; Popper, 1959; Schrag, 1992) advocate a positivist philosophy that holds that social observations should be thought of as entities in much the same way as physical scientists treat physical phenomena. They contend that in a *quantitative paradigm* the observer is separate from reality.

Qualitative paradigm purists reject positivism. They contend that interpretivist philosophies such as constructivism, idealism, relativism, humanism, hermeneutics, and, sometimes, postmodernism are more appropriate when researching human beings (Guba & Lincoln, 1989; Lincoln & Guba, 2000; Schwandt, 2005). They emphasise the constructivism of social science inquiry, asserting that the knower and known cannot be separated because humans are the source of reality (Guba, 1990).

Both quantitative and qualitative purists view their paradigms as the ideal for educational research. The methodological views of the two groups focus on the same themes, *knowledge* (epistemology) and *reality* (ontology). However, they regard the positive and interpretive research paradigm as incompatible, including their associated methods (Howe, 1988). They argue these cannot and should not be mixed in a study. This might explain why *single paradigm* is typically used to study higher education (Hammersley, 2012).

To bridge this schism between these two paradigms, a mixed methods research *paradigm* has been developed (Onwuegbuzie & Leech, 2004a). Mixed methods paradigm has been defined as:

> the class of research where [*educational*] research mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single [*educational*] study (Johnson & Onwuegbuzie, 2007: 128)

According to this definition, a key feature of the mixed methods paradigm is its methodological pluralism or eclecticism. That is, a *mixed methods research*

paradigm "fits together the insights provided by qualitative and quantitative research into a workable solution" (Johnson & Onwuegbuzie, 2007: 127). However, it is not quantitative and qualitative methods that needs to be considered, but rather the underlying research philosophy. Table 4.1 outlines Johnson and Onwuegbuzie's (2007) comparison of the major philosophical divisions between the positivist, interpretivist and pragmatist approaches to educational research. Each approach incorporates different understandings of the research elements.

Table 4.1 Philosophical departures for different research approaches to educational research

Research approaches	Philosophical departure	Perspective on knowledge about reality	Major characteristics
Quantitative paradigm	Positivist	Objective and 'found'	focus on deduction, confirmation, theory/hypothesis testing, explanation, prediction, standardised data collection, and statistical analysis
Qualitative paradigm	Interprevitist	Subjective and constructed	focus on induction, discovery, exploration, theory/hypothesis generation, the researcher as the primary "instrument "of data collection, and qualitative analysis
Mixed methods paradigm	Pragmatism and system of philosophy	pragmatic and determined by empirical and practical consequences	focus on methodological pluralism or eclecticism fitting together the insights provided by qualitative and quantitative research into a workable solution

The comparison of these philosophies of research as shown in Table 4.1 highlights the implications for how research would be conducted via each of these paradigms (according to their major features).

The *positivist paradigm* to educational research focuses on deduction, confirmation, theory/hypothesis testing, explanation, prediction, standardised data collection, and statistical analysis. The *interpretive research paradigm* centers on induction, discovery, exploration, theory/hypothesis generation, and qualitative analysis. However, the *mixed methods paradigm* combines quantitative and qualitative methods through focusing on induction (or discovery of patterns), deduction (testing of theories and hypotheses), and abduction (uncovering and relying on the best of a set of explanations for understanding one's results) (Johnson & Onwuegbuzie, 2007).

This comparison guided an informed methodological choice with a manageable degree of philosophical clarity, to be implemented in this research. An approach that engaged with qualitative and quantitative methods was subsequently chosen for this research.

This study is primarily concerned with a special phenomenon, that is, the relationship between international Chinese HDR students' *conditional knowledge* required for creating the *micro-level coherence* in their research writing and the appropriateness of the coherence strategies they may use. The study aims at effecting changes to the existing HDR supervisory pedagogies for improving international Chinese HDR students' research writing. In doing so, this study focuses on international Chinese HDR students' *conditional knowledge* for creating the *micro-level coherence*; the inappropriateness or otherwise of the schemas used in their coherence strategies and their Western supervisor's modelling of *conditional knowledge* through supervisory on-script corrective feedback.

Based on the aims of this study, the following choices were made for methodological action.

4.2.2 Research textographically

Research on 'research in higher education' needs a more contextualised basis for understanding HDR students' research texts. This means that contextualised elements such as the purpose of the text, the audience for the text, and the expectations of the particular discourse community need to be considered while HDR students' research texts are examined (Starfield, Paltridge & Ravelli, 2014). *Textography* is a research approach which can meet the demands of this inquiry. It provides higher education researchers a contextualised basis for analysing students' written texts as well as the context in which the texts are produced (Starfield, Paltridge & Ravelli, 2014). This approach is used to examine the purpose and structure of texts, through combining text analysis with ethnographic techniques and other data sources (Starfield, Paltridge & Ravelli, 2014).

However, literature on academic writing shows that different approaches are adopted by scholars to promote research writing (Prieto et al., 2015; Samani et al., 2012). Ethnographies tend to be prioritised in research relating to an academic literacy tradition (O'Mahony et al., 2013), whereas these are underused in English for academic purposes research, which take a textual orientation, focusing on the language and discourse conventions of academic texts in specific disciplines (Hyland, 2000, 2008).

Considering the discrepancies in the use of these approaches to research, Starfield, Paltridge and Ravelli (2014) draw them together through using textographies as a research approach. This approach has the potential to assist academic researchers to study academic writing. According to Starfield, Paltridge and Ravelli (2014: 106-107), a textography is:

> a methodology that aims to get an inside view of the worlds in which texts are written, why texts are written as they are, and the values that underlie the texts that have been written. A particular goal of a

textography is to examine the 'situatedness' of written texts. A textography, thus, aims to explore the context in which a text is produced in order to gain an understanding of why the text is written as it is. This examination of context includes consideration of the purpose of the text, the audience for the text, expectations of the particular discourse community…its prime focus of interest is the text and it aims to develop 'ethnographically sensitive texts analytic tools…it draws on a range of ethnographic techniques and combines these with text analysis, with the aim of understanding both the form and formation of the texts that people write.

The research reported in this thesis adopted a textogrphic approach to better understand international Chinese HDR students' *conditional knowledge* for creating the *micro-level coherence* in their research writing. It was used because of the need to examine students' *conditional knowledge* through text analysis of their research texts on the one hand. On the other hand, it was also used because of the need to examine *ethnographic* data from their Western supervisor as the audience for their text, that is, supervisory on-script focused corrective feedback. *Textographic* research was used with the aim of getting an inside view of the *conditional knowledge* which invokes students' *coherence strategy choice* in producing research texts; why the research texts are written as they are, what guides the research writing, and the values that underline the research texts that have been written (see Table 4.2).

Table 4.2 Contextualised elements brought together by the textographic approach used in this study

Textual approach	The writer of the text	International Chinese HDR students in Education
	Written texts	First draft of research texts produced by International Chinese HDR students in Education
	Students' coherence strategy use in the context of research writing in higher education	Students' conditional knowledge and inappropriate schemas about creating micro-level coherence in research writing
Ethnographic approach	The audience of the text	Their Western supervisor
	Expectations of the particular discourse community	Supervisory on-script focused corrective feedback
	Supervisor' coherence strategy use in the context of research writing in higher education	Supervisor' modelling of conditional knowledge students lack for creating the micro coherence in specific research writing context

Combining both *textual* and *ethnographic* approaches to examine research writing can strengthen the observations made by each of these approaches (Paltridge, 2008). The summary presented in Table 4.2 supports an understanding of the major *textual* and *ethnographic* elements brought together by the *textographic approach* employed

in this study. As Jørgensen and Phillips (2002: 153) posit, every research perspective "produces a particular understanding of the phenomenon under study." In this regard:

> the use of one approach in combination with another can be used to provide a fuller and more explanatory perspective on the question under investigation than just the use of a single approach (Paltridge, 2008: 21).

Paltridge (2008: 21) argues that:

> textographies are one way in which research approaches might be combined in academic writing, providing a more situated and contextualised basis for understanding student writing in the social, cultural, and institutional setting in which it takes place than might be obtained by just looking at students' texts alone.

With these points in mind, it was most appropriate to conduct this research *textographically*, that is, to develop a *textography* through engaging supervisory on-script corrective feedback in examining the HDR students' *conditional knowledge* for creating the *micro-level coherence* in their research writing. Consequently, *conditional knowledge* modelled by the supervisor who was the expert reader of the students' texts:

> made visible to students the [coherence strategy] choices and constraints available in the [research] writing they are doing so that they can locate themselves and begin to participate within these genres more meaningfully (Paltridge, 2008: 21).

The next section details the case study methodology employed for this project.

4.3 Case Study

Case study method was chosen to conduct this research project. According to Yin (2013: 4), *case-study* research is "an in-depth investigation of (contemporary) phenomena in a real-life context, particularly equipped to answer how and why questions" (Yin, 2009: 8-18).

Yin (2009: 5) contends that a *case study* design should be used:

> when a research question addresses either a descriptive question— 'what is happening or has happened?'—or an explanatory question— 'how or why did something happen?'". Moreover, "focusing on the study of a phenomenon within its real-world context, the case study favors the collection of data in natural settings.

In this regard, *case study* was selected primarily to conduct an in-depth investigation into an educational phenomenon through a real-life instance. In-depth *case studies* provide "the rich description or the insightful explanation" (Yin, 2013: 4). For example, with respect to its application in the study of metacognition in writing in English as a foreign language, in-depth *case studies* enable researchers to understand metacognitive knowledge such as *conditional knowledge* about writing and to trace the shaping and changing processes of these factors (Kuteeva, 2013; Negretti & Kuteeva, 2011).

This *case study* examines *conditional knowledge* to test views directly related to coherence strategy choice in research writing. As such, a *case* refers to "a specific instance or manifestation of the phenomenon to be studied" (Swanborn, 2010: 21). The educational phenomenon studied in this research is international Chinese HDR students' *conditional knowledge* and their supervisor's modelling of *conditional knowledge* for creating the *micro-level coherence* in research writing. The

investigation of this educational phenomenon is conducted through the real-life instance of international Chinese HDR students' research writing.

Despite *case studies* playing a crucial role in theory development in most fields of education, their worth has defied consensus. Five common misunderstandings relating to case study methods have been identified by Flyvbjert (2006). These are:

(a) theoretical knowledge is more valuable than practical knowledge;

(b) one cannot generalize from a single case, therefore, the single-case study cannot contribute to scientific development;

(c) the case study is most useful for generating hypotheses, whereas other methods are more suitable for hypotheses testing and theory building;

(d) the case study contains a bias toward verification; and

(e) it is often difficult to summarize specific case studies (Flyvbjerg, 2006: 219).

These misunderstandings need to be addressed in relation to this research. With respect to the first misunderstanding about the role of *cases* in human learning, Flyvbjerg (2006: 223) contends that:

predictive theories and universals cannot be found in the study of human affairs. Concrete, context-dependent knowledge is therefore more valuable than the vain search for predictive theories and universals.

In this regard, good *case study* research can provide valuable insights into educational practices. As for the second misunderstanding for cases as "Black Swans", Flyvbjerg (2006: 228) challenges this critique by arguing that:

one can often generalize on the basis of a single case, and the case study may be central to scientific development via generalization as supplement or alternative to other methods. But formal generalization is overvalued as a source of scientific development, whereas 'the force of example'.

In terms of the third misunderstanding regarding strategies of case selection, Flyvbjerg (2006: 235) posits that:

A case can be simultaneously extreme, critical, and paradigmatic. The interpretation of such a case can provide a unique wealth of information because one obtains various perspectives and conclusions on the case according to whether it is viewed and interpreted as one or another type of case.

Therefore, *case study* is valuable for "both generating and testing of hypotheses but is not limited to these research activities alone" (Flyvbjerg, 2006: 229).With regard to the misunderstanding of case studies being bound by a subjective bias, Flyvbjerg (2006: 233) explains that:

the question of subjectivism and bias toward verification applies to all methods, not just to the case study and other qualitative methods. For example, the element of arbitrary subjectivism will be significant in the choice of categories and variables for a quantitative or structural investigation, such as a structured questionnaire to be used across a large sample of cases.

Therefore, *case study* research tends toward the falsification of preconceived notions than toward verification" (Flyvbjerg, 2006: 237). In light of the fifth misunderstanding regarding the difficulty summarising specific case studies, (Flyvbjerg, 2006: 241) purports that:

It is correct that summarizing case studies is often difficult, especially as concerns case process. It is less correct as regards case outcomes. The problems in summarizing case studies, however, are due more often to the properties of the reality studied than to the case study as a research method. Often it is not desirable to summarize and generalize case studies. Good studies should be read as narratives in their entirety.

Thus, *case-study* method can "contribute to the cumulative development of knowledge" (Flyvbjerg, 2006: 241).

The above mentioned responses to the criticisms of *case study* as a method show that rigorous methods are indispensable for undertaking all forms of educational research. Before one commences investigating the selected case(s), it is necessary to determine what type of *case study* is to be undertaken.

4.3.1 Determining the type of case study

This research is designed as a single case study. The *single case* is international Chinese HDR students' *condition knowledge* for creating the *micro-level coherence* in their research writing. The case was selected as a critical incident to be studied in depth. One rationale for this *single-case* study is that it provides "vital contributions to theory-testing" in education (Ulriksen & Dadalauri, 2014: 3). This *single case* is representative of a critical case which is used to test theories or theoretical assumptions detected in Chapters 2 to 3. The critical case is "central to confirming or disconfirming" this theoretic-pedagogical framework (Ulriksen & Dadalauri, 2014: 6). It represents a most-likely case or least-likely case, which permits the formulation of theoretical generalisations as such. If this is not valid or true for this case, then it would not apply to other cases. If this is valid for this case, then it could apply to other cases (Blater & Haverland, 2012; Yin, 2009).

The attraction in this research to conduct a *causal-process tracing case-study* was that:

> the strength of the process-tracing method lies in its ability to provide depth and testable substance to theoretical causal explanations. …particularly, by applying the process-tracing method, case studies can test theoretical frameworks through a rigorous research design that ensures substantial empirical leverage (Ulriksen & Dadalauri, 2014: 3).

This point has relevance for this research design. This *case study* using a *causal-process tracing* was conducted with the aim of contributing to the theory testing and theory building in the field of research education. Case studies are used to elucidate the 'potential' outcomes and conduct "theory-testing" in education (Ulriksen & Dadalauri, 2014: 3).

This served the first goal of testing the theoretical assumptions of *conditional knowledge* (Paris, Lipson & Wixson, 1983) and its related conceptual constructs in international Chinese HDR students' research writing. However, it should be specified that the goal was not to verify that one is more applicable over the other, in all situations, relative to others.

In this case, the data analysis does not end with the testing of these theories. I go on to formulate a theoretic-pedagogical model to improve the students' *conditional knowledge* for creating the *micro-level coherence* in their research writing.

Layder (1993) differentiates theory-testing from theory-building types of research in terms of their uses of theories. This theory-testing type of empirical research offers a 'test' of theory by illustrating "the usefulness of general theory to the understanding of empirical data" (Layder, 1993: 37). In the theory-building type of research, general theories are employed to stimulate the formulation of the theoretical ideas

during fieldwork and data analysis (Layder, 1993). This study brings together the theory-testing and theory-building approaches to reveal conditions or mechanisms that lead to specific outcomes. A *causal-process tracing approach* from the theory-testing stage is used as a foundation for the theory-building stage.

4.3.2 Selection of theory

The expected outcomes of this theory-testing and theory-building research proejct were to reveal the conditions or mechanisms that lead to specific outcomes. This case study used a *causal-process tracing process* which made the explicit selection of theories to be tested necessary (Ulriksen & Dadalauri, 2014). In this study, as indicated in Chapter 3, the selection of the concepts of *conditional knowledge* (Paris, Lipson & Wixson, 1983); *schema theory* (Rumelhart, 1980), *cohesion* (Halliday & Hasan, 1985); *themes* and *thematic organisation* (Halliday & Matthiessen, 2004); and *thematic progression* (Eggins, 2004) preceded the examintion of the international Chinese HDR students' *conditional knowledge* for creating the *micro-level coherence* in their research writing. This theoretic-pedagogical framework was expected to maximise the analysis of the students' *conditional knowledge* for creating the *micro-level coherence* in research writing. As a critical case, the 'crucialness' of this case depended on "the 'likeliness' that it is congruent with the expectations that we can deduce from the selected theories" (Blater & Haverland, 2012: 25). The testing of these theoretical tools through this case study of international Chinese HDR students' research writing eventually led to the construction of a theoretically-informed and evidence-based pedagogical model. This model is presented in Chapter 9 in this thesis.

4.3.3 Selection of the case

Following the previous decision as to the type of case study to implement, is the requirement to consider the selection of the case. George and Bennett (2005: 69) contend that:

a well-defined research objective and an appropriate research strategy to achieve that objective should guide the selection and analysis of a single case or several cases within the class or subclass of the phenomenon under investigation.

In this regard, the case was chosen because it was interesting and because "ample data exist for studying" (George & Bennett, 2005: 69). Moreover, Poulis et al. (2013) advise against the rigid reliance on pre-determined steps which over-determines the structure of case study research. For instance, selection of cases is often a step regarded as pre-determined, fixed and completed before entering the field. This frequently pertains to the technique of random selection of cases, which aims to eliminate systematic biases by underpinning representativeness of typical cases (Fearon & Laitin, 2008).

Nevertheless, random selection of cases can cause practical difficulties. For example, a researcher may select cases which cannot provide sufficient high-quality data to generate a credible and comprehensive account (Blater & Haverland, 2012). The evidence a research can collect from such cases may be limited to simple description of the symptoms of the problem and frequency of occurrence (Flyvbjerg, 2006). This is more likely to be so with single-case designs. Moreover, there is a need for flexibility because a case may prove later to be different than what was thought at the beginning of a study (Yin, 2009). Prior understanding of the potential case is indispensable to minimise misrepresentation and maximise access to data collection (Yin, 2009).

When selecting a critical case, an evidence-driven method often helps. In this study, initial investigation was carried out to determine the selection of international Chinese HDR students' *conditional knowledge* for creating the *micro-level coherence* in research writing as the critical case to be studied. The researcher had access to a proliferation of journal articles on HDR students' research writing in higher education research in Australia and other countries. Some of these articles

researched Chinese HDR students' research writing from the perspective of Chinese writing style and unique culture (Singh & Han, 2009; Singh, 2011; Singh & Meng, 2013; Singh & Huang, 2013). However, expectations and understandings about the students' *conditional knowledge* for creating the *micro-level coherence* in their research writing increased the chances of maximising the utility of this study. The case studied in this thesis was introduced in Chapter 1. Here I explain why these students' *conditional knowledge* for creating *the micro-level coherence* in research writing constitutes a critical case for this study.

The investigation of these HDR students' *conditional knowledge* for creating the *micro-level coherence* through their research writing was conducted in a School of Education in an Australian university, where an increasing number of international students are enrolled in higher-degree-by-research, particularly a large number of students from China. Their difficulties in producing scholarly research texts are challenging existing HDR supervisory pedagogy in higher education in Australian universities. This made international Chinese HDR students' research writing an enticing case where the investigation of their *conditional knowledge* for creating the *micro-level coherence* could take into account the broad context of international HDR students' research writing in Australia and other countries.

This study of the students' *conditional knowledge* for creating the *micro-level coherence* through research writing used an approach with prospects for engaging this *conditional knowledge* and associated *schemas* in a *coherence* hierarchy. The students' texts and the corresponding supervisory on-script, focused corrective feedback are compared. This approach is based on the argument that *conditional knowledge* is schematic and strategic knowledge which offers a framework for identifying appropriate or otherwise, strategy choices when undertaking writing (Wang & Chen, 2014). As a research strategy for investigating HDR research writing in higher education, the *conditional knowledge* approach encourages supervisors to make explicit, the *conditional knowledge* students need for creating *coherence* in their research writing. This approach is also supportive of the application of

supervisor modelling of *conditional knowledge* for creating *coherence* by way of providing supervisory on-script, focused corrective feedback on students' draft texts. This case study valued the *conditional knowledge* possessed by both the students and their Western supervisor. Therefore, by adopting this approach, this study has the potential to enable supervisors and students to collaborate in advancing a successful research-writing pedagogy. This could help address the issue of the HDR students' lack of *conditional knowledge* for creating *coherence* in their research writing.

With these considerations in mind, the HDR students' *conditional knowledge* for creating the *micro-level coherence* was considered a very-likely case (if not a most-likely one) with regard to the dominant theoretic-pedagogical assumptions of *conditional knowledge* (Paris, Lipson & Wixson, 1983).

The testing of these theoretical anchor points was expected to yield the following generalisations: if the assumption of *conditional knowledge* applies in the international Chinese HDR research writing in higher education in this Australian University, then it probably applies to many other international HDR students who pursue their higher research degree in other Australian universities and even in other English-speaking countries, such as the United States and UK. If the assumption of the *conditional knowledge* does not apply in these HDR research writing, then it probably will not apply to many others. Alternative theoretic-pedagogical developments might then proceed from this study. The next section provides an account of the research design used in this study.

4.4 Research design

Initially, an explanation of why a flexible research design was selected is presented, followed by the exposition of the two-cycle research design. Finally a detailed explanation is provided of the series of research strategies embedded in the design which aimed to improve this study's validity and reliability.

4.4.1 A flexible research design

In this study the researcher selected a flexible research design. This means that the research design "emerge[d] and develop[ed] during data generation" and data analysis periods (Robson, 2002: 164). Buchanan and Bryman (2007: 483) argued for contextualisation of research designs which accommodate "naturally occurring and unavoidable influences … as they cannot simply be overcome through diligent planning". The reason for the selection of a flexible research design is that this study needed to accommodate the inevitable constraints that would be encountered during the research process. In this study the researcher had to interpret the constraints over the course of time. Griffiths (1998: 106) argued that "practical constraints always have an impact on what is researched and how. Researchers need to find ways of operating within and through the constraints". By way of ongoing decision-making about the research process, as this study progressed, the researcher worked to optimise the reliability of the findings by seeking a balance between the influences of various constraints.

The research reported in this thesis is based on an evolving case study. By the concept of evolving case, Ragin and Becker (1992) mean that over the course of a research project, case study investigators must iteratively swing between theory and evidence to inform their research design. In terms of this case study, I made necessary revisions by focusing on the most significant issues that emerged as the study proceeded, and it progressively took on a more robust and informed shape.

Necessary revisions were made to reshape the design of this study throughout the research process. Figure 4.1 shows the iterative nature of the research design that emerged during the course of this study. It illustrates the two Cycles of the research process, and their components. Cycle 1 is represented by arrowhead lines in green and Cycle 2 in red. The components in the second Cycle are in red words. The uni-directional lines around the diagram show the direction of each Cycle in the

research process. The bilateral arrows in the inner circle capture some of the complication of this research project.
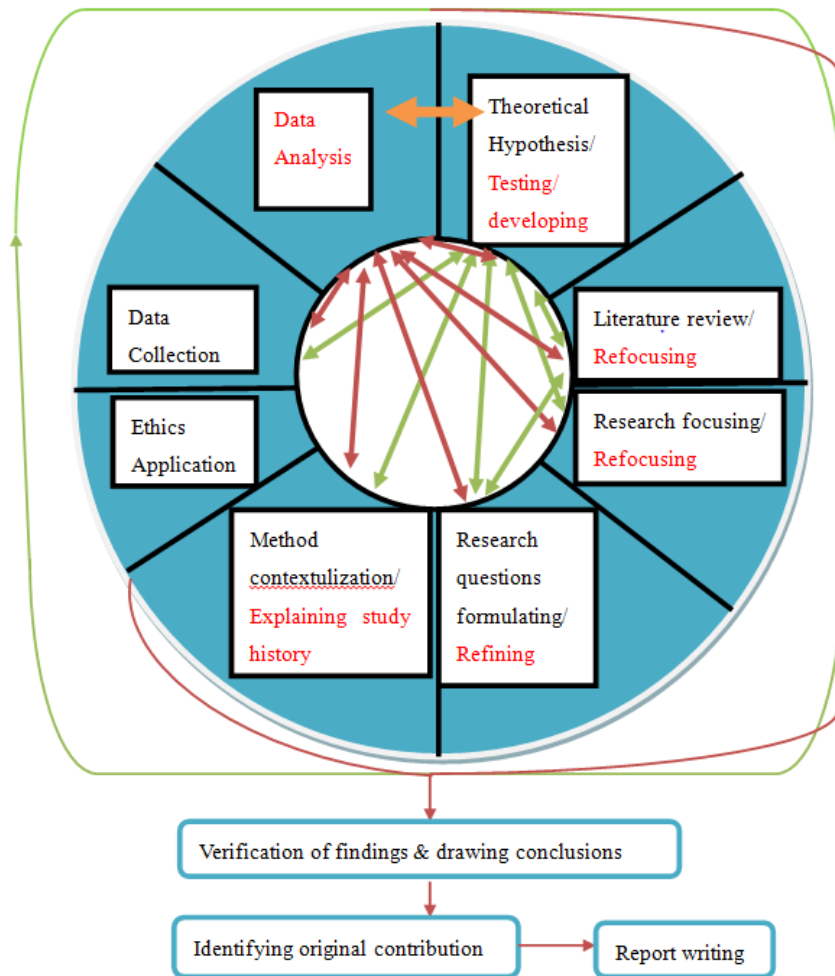
Figure 4.1 A two-cycle research design

The intention of this case study is to investigate the interrelationships among (a) international Chinese HDR students' conditional knowledge used in creating the micro-level coherence; (b) their choices of the coherence strategies used; and (c)

their supervisor's modelling of appropriate choices of coherence strategies via on-script focused corrective feedback on these students' draft research texts.

For the purpose of this research, data were collected from participants, namely, international Chinese HDR students who were pursuing a higher-degree-by-research in the School of Education in an Australian university and their supervisor/s. The core method for collecting data for this study was to obtain written texts and ethnographic documentation. Written texts in this study refer to the students' drafts of research texts which include the introductory chapters of their PhD dissertations and Masters theses, and PhD research proposals. Ethnographic documentation refers to the supervisor's on-script, focused corrective feedback on these students' research texts. By and large these data were well suited for interpreting the students' *conditional knowledge* and *schemas* for *coherence* strategy use in their research writing. This evidence has been analysed to investigate possibilities for creating a useful research writing pedagogy. It is expected to enhance students' research writing repertoire of the *micro-level coherence* creation through engaging supervisory on-script focused corrective feedback and *conditional knowledge* in their construction of coherence knowledge.

The development of this *research design* served as a blueprint for the conduct of this study. It guided the need to refine the research questions, choosing relevant data, deciding on the type of data to collect, and how to analyse that data. According to Robson (1993), *research designs* can either be fixed or flexible. This research has been flexible to allow the necessary intellectual freedom to work at different levels depending on the stage of the study. Based on this *flexible research design* (Robson, 2002), appropriate data analysis procedures were adopted for this research. Suitable means to display the data such as concept maps, tables and figures were used to aid the process of data reduction (Miles & Huberman, 1994).

The plan of this research project was designed to provide integrated, evidence-driven and theoretically informed analysis directed by the main research question: *How does*

international Chinese HDR students' coherence strategy usage reflect their conditional knowledge for creating the micro-level coherence in their research writing through engaging supervisory on-script focused corrective feedback?

The research design (see Figure 4.1) for the study reported in this thesis offers a refined version which was created during the initial stages of my research. The research plan, design and strategy were progressively refined on the basis of the literature review, the theoretic-pedagogical framework and testing the feasibility of this study to bring rigour to this research project.

The research design depicted here points to the strategies undertaken to complete this research project in ways intended to enhance its validity and answer the research questions. As with the research design, at similar stages during this research project, the main research question and the ten contributory research questions were progressively refined. For instance, the recent literature relating to *conditional knowledge* in ESL/EFL academic writing; *cohesion* and *coherence* in postgraduate students' thesis writing; supervisory on-script, focused corrective feedback in writing in supervision of international Chinese HDR students in an Australian university; and the theoretical concepts outlined in Chapter 3 assisted in refining the research questions. The literature pertinent to research methodology and research methods augmented the understanding of the processes for collecting and analysing data for this study. Together, all these sources of literature assisted the process of further refining the research questions and this study's design. The researcher also incorporated further revisions to the research design after the confirmation of candidature. The next stage that helped to refine the research design came when the researcher obtained ethics approval for this study. The ethical procedures of The *National Statement on Ethical Conduct in Human Research* (NSECHR, 2007) and the *University of Western Sydney Research Code Of Practice* helped improve the design of this research study.

After obtaining ethics approval (see Appendix I), data were collected from the participants, that is, volunteer international Chinese HDR students majoring in education in an Australian university, and their supervisor. Pseudonyms have been assigned to each of the participants. The documents collected were the students' research texts and the corresponding supervisory on-script focused corrective feedback provided by their Western supervisor.

As the data were collected, they were analysed using structural coding for the first cycle of data analysis. For the second cycle of data analysis, I employed pattern coding and explanation building. The last cycle involved content analysis, thematic analysis and theoretical (conceptual) analysis of the evidentiary excerpts. The results of these focuses of analysis were used to answer the research questions and determine what original contribution to knowledge, this thesis could make.

4.4.2 Reliability

The criterion of reliability directed my effortsto minimise errors and personal biases during the research process. The reliability of this research project can be actually tested by the extent to which later investigators can reach the same or similar conclusions if they follow the same procedures that are described here by the investigator (Yin, 2009). Valuing reliability reminded me of the need to pursue accuracy and fairness throughout this study.

In this case study, two strategies were used to enhance its reliability. The researcher used *different data generation methods* including written texts and ethnographic documentation (Paltridge, 2008). The researcher also *created a cases study database*, which involved producing tables, diagrams, and concept maps (Yin, 2009). All the raw data are stored electronically in a folder independent from the data analysis (Yin, 2009). Another folder contains files with progressive versions of the data analysis and report writing, all of which are arranged in chronological order. This database is

retrievable for future reference by other researchers or myself, albeit within the bounds of the ethics protocols established for this study.

4.4.3 Internal Validity

Internal validity was established by examining the causal connections and inferences that could be made in this case (Yin, 2009). The pedagogy of *supervisory modelling of appropriate schemas of micro-level coherence strategy practice matching* was used to check and reinforce internal validity. A variety of *supervisory modelling of appropriate schemas of coherence strategy practice for creating the micro-level coherence* were explored with respect to the students' uses of coherence strategies for creating the *micro-level coherence* in their research writing. The technique of *causal explanation* was then implemented to reinforce internal validity. That is, a set of causal links between the supervisory modelling of appropriate *schemas* for using coherence strategies for creating the *micro-level coherence* and the students' use of coherence strategy in creating the *micro-level coherence* was presumed, revised and refined as the research process unfolded. This escalated richness and nuance in the data analysis (Yin, 2009). Alternative and/or rival explanations were also acknowledged and tested.

4.4.4 External validity

As for the external validity, the researcher examined the generalisability of the findings from this case study. The generalisability of this case was increased by the strategic selection of the case, the HDR research writing program. Specifically, this case study uses analytical or theoretical generalisation rather than statistical generalisation: "in analytical generalisation, the investigator is striving to generate a particular set of [concepts as part of a] broader theory" (Yin, 2009: 43). The data analysed for this particular case study provides "theoretical insights which possess a sufficient degree of generality or universality to allow their projection to other contexts or situations" (Sim, cited in Robson, 2002: 177). This case study tested and

also generated conceptual tools which are potentially transferrable to similar studies of *conditional knowledge* for creating *coherence* in HDR research writing. A few innovative theoretical propositions were developed with regard to *conditional knowledge* and *coherence* knowledge produced in HDR research writing programs. Thus, the prospects for theoretical generalisation are grounded in rigorous procedures of theoretically informed data generation and analysis. Thus, it is anticipated that conceptual apparatus generated through this study regarding the use of *conditional knowledge* strategies for creating the *micro-level coherence* is likely to be transferrable to future research (see Chapter 9).

4.4.5 Triangulation

Triangulation is another strategy used to improve the quality of this research project by aiming for more rigorous results. It is "a means of cross-checking data to establish its validity" (Bush, 2007: 100). As a research method, *triangulation* was used to enhance the reliability of this study (Yin, 2009). *Triangulation* provided a strategy by which:

> evidence from several data generation forms (e.g., interviews, observations, documents) is juxtaposed to see whether they corroborate one another and thus establish and/or underscore a particular theme or finding (Wright, 2005: 105).

In this research I employed *data triangulation* and *theory triangulation* (Robson, 2002). Multiple sources of data, specifically, documents from the students and focused written corrective feedback from their supervisor were used. As indicated in Chapter 3, multiple theoretical tools were tested to analyse and explain the researched phenomenon under investigation, that is, the use of *conditional knowledge* for coherence strategies in research writing. These processes of working through diverse evidentiary sources and using multiple theoretical tools helped to enhance the rigour of this study. It also reduced bias or partiality on my part, and

enhanced the accuracy of the conclusions. These principles were followed throughout the research process. The next section details the research Ethics.

4.5 Research Ethics

This research project followed the ethical guidelines provided by the *National Statement on Ethical Conduct in Human Research* (NSECHR, 2007) and *University of Western Sydney Research Code of Practice*. The NSECHR (2007) states that human interactions, including the interactions involved in human research have ethical dimensions. The aim of the NSECHR (2007) is to

> promote ethically good human research" as research often involves public interactions involving researchers, participants and reviewers who foster research for the benefit of the community. Educational research can "give rise to important and sometimes difficult ethical questions about research participation (NSECHR, 2007: 1).

Further, it was understood that it was the responsibility of the researcher to see that all interactions were ethically acceptable to the Australian community (NSECHR, 2007). Specifically this applies to all dealings with research participants. Bearing this in mind, the researcher undertook precautionary measures by identifying the responsibilities as per the NSECHR (2007) to ensure that this research was ethically acceptable.

The following ethical issues were considered and incorporated into the design of this research project. The researcher has ensured the protection of the privacy of each of the participants (n = 7) who took part in this research by maintaining their anonymity and confidentiality. Prior to deciding on their participation in this study, potential participants were provided with information about the study and its research procedures including the purpose and the benefits it was expected to provide. The participants gave prior consent in the form of a voluntary decision to take part in the

research. None were coerced into doing so. Their participation in the research was entirely on a voluntary basis. As Block (2006: 71) states, "participant-generated data collection [has to] be done with the permission of all concerned and therefore the data [can] ethically be used by the researcher".

4.5.1 Participant consent process

Participants were provided with information about this research project. They were informed about the nature of the research including the research questions, although the researcher was careful not to provide too many details (Silverman, 2000). As part of the participant consent process, e-mails were sent to the potential participants explaining the nature of the research project, with the Participation Invitation Letters and Project Information Sheets for each of the potential participant groups attached. Upon agreeing to voluntarily participate in this research project, these potential participants were asked to contact the researcher directly via telephone or email. A Participant Consent Form was then forwarded to those interested in participating. Consent for participation in this research was sought and obtained from all participants.

4.5.2 Maintaining anonymity and privacy

The participants' privacy, confidentiality and anonymity continued to be paramount when conducting and reporting this research. Pseudonyms have been used for the participants and their university to ensure their non-identification by a third party. This concurs with Nespor's (2000: 546) recommendation that "researchers should withhold the real names and locations of the settings and participants they study". Participants' anonymity is usually seen as "an ethical issue, but like any representational strategy, it conceals assumptions about the nature of entities in the world and our relations with them" (Nespor, 2000: 546). "Place anonymisation", using pseudonyms has been employed to avoid "identifying geographical information" about the participants (Nespor, 2000: 546). Throughout the

evidentiary Chapters (4-8) pseudonyms have been used for the participants and locations to protect their privacy. In taking this position it was assumed that:

> (a) identification can harm, embarrass, or invade the privacy of participants (b) identifying settings and locations makes participants more easily identifiable, and (c) the use of pseudonyms and other anonymising techniques can avoid identification (Nespor, 2000: 546).

The evidence collected from participants has been stored in a safe location and procedures implemented continue to safeguard it. It will be stored in this safe location for five years after which time it will be destroyed. This includes all evidence about the research participants that is stored on computer files and the hard copies collected during the research project. Also the participants' personal information or names do not appear in any written, audio and video documents or publications. While all of these principles of ethics have been incorporated into the research design for this study, the key issue is that the researcher has and will continue to act "in the right spirit, out of an abiding respect and concern for one's fellow creatures" (NSECHR, 2007).

4.5.3 Participants' access to research outcomes

Each of the participants was informed that the results from the analysis of their draft research texts would be used in this thesis, a key outcome produced as a result of this research project. They were also advised that their documentation data would be used in other papers, formal presentations and publications. Papers arising from the thesis will be submitted for publication, but individual participants and their institutions would not be identified in any such reports. Participants will be advised of research publications through email if they have requested notification of this.

4.6 Data generation

In this study, the term *data generation* is used. The rationale behind using the term is that the concept *data generation* "encapsulate[s] the much wider range of relationships between higher education researcher, social [/educational] world and data which [higher education] research spans" (Mason, 2002: 52). This concept makes explicit my agency as a higher education researcher, "actively constructing knowledge about that [educational] world according to certain principles and using certain methods derived from their epistemological position" (Mason, 2002: 52). Data generation methods then included "intellectual, analytical and interpretive [activities rather than simple] technique or procedure for gaining data" (Mason, 2002: 52). This distinction is useful because later stages of data generation were informed by the data analysis undertaken earlier in this study.

4.6.1 Selection of research participants

The participants for this research were international Chinese HDR students in an Australian University in Sydney and their supervisor. That is, in this study, the researcher specifically focused on international Chinese HDR students (including both doctoral and master students) and their Western supervisor as the two participant groups. These HDR students were those who study for research degrees as 100 percent of their studies, and did not include students undertaking course work degrees. One of the reasons for this is that "it is only recently that the numbers of such students have been large enough for higher education institutions to consider them as a group" (Chung & Ingleby, 2011: 173).

The expected implications for selecting these participants were twofold. First, they were able to provide valuable evidence concerning international Chinese HDR students' *conditional knowledge* for creating the micro-level coherence in research writing in English as a foreign language in English-speaking learning contexts. Second, this evidence was useful for pedagogically assisting the HDR supervision of

HDR students in producing academically coherent research writing. Next, the participants were recruited.

4.6.2 Recruitment of participants

The participants were selected on the basis of voluntary participation. Participant information letters and participant consent forms were emailed to the potential participants who were international Chinese HDR students studying in education at an Australian university and their supervisor. After getting the permission of these students and their supervisor, a flyer was emailed to them explaining the project. The explanatory statement was attached to the invitation, which specified that those interested should read it before indicating their interest by email. It was explicitly stated that, while their participation would be valuable, they should not feel any obligation to participate. Those interested in participating contacted the researcher via email, expressing their agreement to participate in this current research. They provided their contact details and a signed consent form. Each participant provided one copy of his/her draft research text marked with supervisory on-script, focused corrective feedback.

Eventually, six international Chinese HDR students and their supervisor voluntarily participated in this research. These participants were divided into two groups, namely, Group 1 and Group 2.

Group 1- international Chinese HDR students

This group is comprised of six participants. This participant group formed a homogenous group of international HDR students with regard to the following aspects:

(1) their native language is Chinese;

(2) they had leant English as a foreign language;

(3) they were of similar language and instructional background;

(4) they were higher-degree-by-research students in the same disciplinary field

(Education);

(5) they were all supervised by the same native English-speaking Professor;

(6) their age ranges from 26 to 37;

(7) their IELTS scores were over 6.5; and

(8) they all received supervisory on-script focused corrective feedback on their draft research texts.

These characteristics of this group were relevant to the aims of the project. They provided the evidence for the investigation into how international Chinese HDR students' *conditional knowledge* for creating the micro-level coherence is used in their coherence strategy practice in research writing.

Group 2- Supervisor

The supervisor of Group 1 was the participant in Group 2. This participant is a native English speaker who supervised the participants in Group 1 and provided written corrective feedback on these HDR students' draft texts. For the purpose of this study, the introductory chapters of dissertations and theses, and research proposals were examined. The characteristics of this group pertained to the aims of this project as the evidence provided by this supervisor was necessary for the investigation of how supervisory on-script feedback helps to explore the HDR students' *conditional knowledge* for creating the micro-level *coherence* in their research writing.

4.6.3 Generating empirical evidence

Before data gathering was undertaken for this research, the research questions were refined further on the basis of the review of latest literature and the theoretic-pedagogical framework postulated in Chapters 2 and 3. The grounds for doing this were that the researcher wanted to ascertain the appropriateness of the research questions based on current knowledge to check the feasibility of the research in terms of available resources to gauge the best methods for conducting this study.

This thesis elaborates on the investigation of how international Chinese HDR students' conditional knowledge was reflected in creating the *micro-level coherence* through their research writing. This investigation was conducted in a faculty in a single university in Australia. The main research question addressed in the generation of empirical evidence for this study was:

How does international Chinese HDR students' coherence strategy usage reflect their conditional knowledge for creating the micro-level coherence in their research writing through engaging supervisory on-script focused corrective feedback?

To address the main research question posed for this study, ten contributory research questions were developed as follows:

1. How do international Chinese higher degree research students use coherence strategies to construe content schemas to create coherence at the intra-clausal level in their research writing?

2. Are these strategies used appropriately?

3. What are the characteristics of their inappropriate content schemas and conditional knowledge which affect the creation of the micro-level coherence?

4. Why are some coherence strategies used by these students in constructing their content schemas at the intra-clausal level inappropriate?

5. How does the supervisory on-script feedback provide modelling of conditional knowledge to correct these students' inappropriate content schemas for coherence creation at the intra-clausal level?

6. How do international Chinese HDR students use coherence strategies to construe their textual schemas for creating coherence at the intra-and-inter-clausal levels as well as at the intra-paragraph level in their research writing?

7. Are these strategies used appropriately?

8. What are the characteristics of their inappropriate textual schemas and conditional knowledge which affect their creation of the micro-level coherence?

9. Why are some coherence strategies used by the students in constructing textual schemas at the intra-and inter-clausal levels as well as at the intra-paragraph level inappropriate?

10. How does the supervisory on-script feedback provide modelling of conditional knowledge to correct the students' inappropriate textual schemas of coherence creation at these micro-levels?

These questions guided the generation of evidence, and were refined during the course of the project and are answered in the evidentiary Chapters (5-8). Through the exploration of these research questions, this thesis investigates international Chinese HDR students' *conditional knowledge* for creating the *micro-level coherence*, and the possibilities these suggest for HDR supervisory pedagogies to engage supervisor's modelling of *conditional knowledge* for enhancing the students' writing repertoire. The next section presents details of the data gathering method used in this study.

4.6.4 Documentation

In this study, documentation was adopted as the main data gathering method. The decision to use this method was based on the consideration of its pros and cons and the research focus. The research focus is the HDR students' *conditional knowledge* for creating the *micro-level coherence* in research writing. *Conditional knowledge* is "acquired knowledge activated in different situations" (Pintrich & Garcia, 1994: 115). In the case of research writing, the HDR students' *conditional knowledge* for creating the *micro-level coherence* is "the knowledge [the students] have about the conditions under which [they] can implement various [coherence] strategies" (Young & Fry, 2012: 1). This knowledge reflects their ability to determine when and where to use the newly acquired research writing strategies appropriately in a specific research writing situation. In this regard, questions were examined concerning what types of coherence strategies were used, whether they were used appropriately or inappropriately, why they were used appropriately or inappropriately, and what schematic patterns were organised by these HDR students in their written texts.

As far as *conditional knowledge* is concerned, methods widely employed in the research literature to collect data include interview, self-report, observation and protocols (Paris et al., 1983). There is no doubt that these methods can provide valuable evidence for understanding students' self-perceptions on the targeted research topic. For instance, protocols or self-report can reflect students' self-perceptions about their use of knowledge or skills (Paris et al., 1983). However, it has been noted that these methods also have their limitations. For instance, data collected through these methods may risk discrepancies between students' perceptions and their actual behaviour (Perry & Winne, 2006; Polettini, 2000; Valdez & Richardson, 1991; Winne & Jamieson-Noel, 2002). In other words, these methods often can explain neither the difficulties or successes students experience in the real sense, nor whether they have appropriately used strategies in their actual writing behaviour. This has been further confirmed by Yeh and Yang's (2011) findings that

the data from interview and observation methods can not be easily traced to the actual learning processes involved.

Considering the limitations of the above mentioned data collection methods, the documentation method has been widely employed to understand students' *conditional knowledge* reflected by their actual writing behaviours. In terms of research writing, various documents can be collected, such as students' written texts and *supervisor's* feedback. Students' written texts were collected as sources of evidence to better understand their actual writing behaviours, during their research training program. Such texts were expected to reflect whether they appropriately used or failed to use knowledge or skills to effect in the natural flow of their written language (Okasha & Hamdi, 2014; Paris et al., 1984; Raphael, Englert & Kirscher, 1989).

Further, students' written texts were examined for what the texts were like rather than why the students' used or failed to use knowledge (Starfield et al., 2014). The focus on documented written corrective feedback provided to the students gave direct access to whether they used, or failed to use, knowledge in their writing (Lee, 2013). Supervisory on-script focused written corrective feedback is used by higher degree research educators as an effective pedagogy to help reveal and explain why HDR students failed in using certain knowledge in their academic written texts (Morton, Storch & Thompson, 2014). That is to say, documentary evidence of supervisory focused written corrective feedback provides insights into the writing skills students have learnt (Starfield et al., 2014).

Taking the pros and cons of data collection methods in research on *conditional knowledge* and research writing into account, I adopted documentation as the data collection method. Two types of data were collected. One was international Chinese HDR students' written texts; the other was the corresponding supervisory on-script focused corrective feedback provided by their supervisor.

The rationale for adopting these two types of data was based on the features of these materials. Peräkylä (2005: 870) argues that as naturally occurring materials written texts should "…be understood as a continuum rather than a dichotomy". This assists educational researchers to identify methods used to collect these types of data. Moreover, naturally occurring "texts of this kind provide an abundance of evidence for educational researchers" (Peräkylä, 2005: 870), because written texts mediated much of educational life in modern universities (Coffey, 1999; Smith, 1999). In addition, analyses of students' written texts make it possible to examine how they employ various intellectual resources to express pragmatic meanings. Thus they can provide important insights into the complicated relationship between pragmatics and grammar (Kasper, 2009).

However, investigating how the *coherence* of a text is created requires laborious in-depth manual analysis. This time consuming work necessarily restricted the size of the data set that can be investigated in this study. The data set examined here consists of a relatively small sample of 6 draft research texts from international Chinese HDR students with their corresponding on-script, focused corrective feedback provided by their Western supervisor.

With the participants' permission, two PhD students' and two master students' first drafts of their introduction chapter, two PhD students' first drafts of their research proposal, and six texts of the corresponding focused written corrective feedback provided by the supervisor were collected. Each draft of the Introduction chapter and research proposal was approximately 12,000 words in length, and the supervisory on-script focused corrective feedback on each draft was around 3,000 words. Thus, the total words involved in these collected documents were approximately 90,000. Pseudonyms were assigned to these students, namely, Eve, Mia, Kim, Tom, Lily and Daisy. The data collected provided the basis for this study. Table 4.3 details the data collected.

Table 4.3 Data gathered for this study

Types of data	Data	Data collection procedures	Copies	Words
Written text	Introduction chapters and research proposal	*Relevant data collected from first drafts of doctoral dissertation, master thesis and research proposal*	**6**	*72,000*
Ethnographic data	Supervisory on-script focused corrective feedback	*Commentary on written texts provided by supervisor*	**6**	*18,000*

4.7 Data analysis and procedures

This section details the principles and procedures used for data analysis and interpretation. The collected data was not immediately available for analysis, but required processing. The following section explains units of analysis; the two procedures used for data coding; three procedures used for data analysis; and then the procedures involved in data display, drawing conclusions and verification.

4.7.1 Data reduction

Data reduction helped ease the overall burden of data analysis and simplified the work of data retrieval. Data reduction was undertaken before and after the data analysis. Making informed decisions about the research focus and questions, theoretic-pedagogical framework and the methods of data generation used in this study helped with the task of data reduction. The reduction of data continued until the completion of the final report.

During data analysis, data reduction was an analytical strategy embedded in the procedures of coding, data display, making clusters, making contrasts, writing memos and writing reports. Data reduction "sorts, focuses, discards, and organises data in such a way that 'final' conclusions can be drawn and verified" (Miles & Huberman, 1994: 11).

Two systems of data sorting were used in this study to manage and reduce data. The chronological system was used to organise the raw data sources: the files for each type of data were given structural codes to enable easy data retrieval (Bernard & Ryan, 2010). The format of the structural code assigned to the documents includes a tracking number, and keyword(s) to indicate the most significant content. The format of the structural code for the participants includes research fields and pseudonyms.

A thematic system was used to create and sort the evidentiary excerpts into units of analysis, namely the students' inappropriate uses of *coherence strategy* in creating the *micro-level coherence* in research writing. This included inappropriate strategies which resulted in HDR students' inappropriate *content schemas* and *textual schemas* for creating the *micro-level coherence*. These units of analysis proved to be manageable data chunks. Hyperlinks were created and used to suggest possible links between one data chunk and another. The structural codes were developed into a thematic system to enable an easy swing between the two systems. The next section provides an account of a unit of analysis.

4.7.2 Unit of analysis

A unit of analysis may be an individual, a group, an organisation, or it may be an event or some other phenomenon (Yin, 1994). The unit of analysis:

> identifies what constitutes a 'case, and a complete collection of data for
> one study of the unit of analysis forms a single case. It is related to the

way the major research question is initially defined and is likely to be at the level being addressed by the question (Yin, 1994: 21-24).

Moreover, as Darke et al. (1998: 280) underpin, "the unit of analysis must also provide for sufficient breadth and depth of data to be collected to allow the research question to be adequately answered".

Consideration of these conditions gave the researcher a scholarly basis to make an informed decision about an appropriate unit of analysis for this study. T-units were adopted as the basic unit of analysis. A t-unit is defined by Fries (1995: 318) as "a clause complex that includes one main independent clause together with all the hypotactic clauses which are dependent on it". The rationale behind this selection was that:

> Analyzing theme at the level of t-unit rather than the individual clause makes it easier to focus on patterns of thematic development in large amounts of text, and can also be justified on the grounds that the thematic structure of a dependent clause is often constrained by the independent clause (Fries & Francis, 1992: 50)

Considering the research focus on *conditional knowledge* for creating the *micro-level coherence* in research writing, each research text was divided into 't-units' at three levels, namely, the intra-clausal level, the inter-clausal level and the intra-paragraph level. T-units at the intra-clausal level consist of "an independent clause together with all hypostactically related clauses and words that are dependent on that independent clause" (Fries, 1995: 49), which include "one theme and rheme structure" (Halliday & Matthiessen, 2004: 98). Therefore, they have been treated as the unit of analysis in earlier studies of themes and rhemes. Moreover, using t-units as the unit for the analysis at the inter-clausal level and the inter-paragraph level is also advantageous. One of the advantages was that it allowed the researcher to decide whether a *textual theme* should be placed in an initial position in the *theme* or later in

the *rheme*, or whether the *theme/rheme progression* was already in an appropriate pattern. This would have been missed "if analysis was carried out on the clause level only" (Downing & Locke, 2006: 236). Therefore, the HDR students' research texts and the corresponding supervisory on-script feedback were divided on the basis of "t-units", namely, *theme* and *rheme* at three levels: the intra-clausal level, the inter-clausal level and the intra-paragraph level. The next section details data analysis techniques.

4.7.3 Data coding

This section explains two cycles of data-coding. In the first cycle of data-coding, *structural coding* was used, whereas *patterning coding* was implemented in the second cycle.

4.7.3.1 Structural coding

This section establishes the first-order procedures for the first cycle of data coding. *Structural coding* was used in this research to decode the students' draft research texts and their *supervisor's* on-script, focused corrective feedback regarding the students' use of *coherence* strategies in their research texts.

Structural coding was employed to label the emerging themes for easy access to any particular category. As a question-based code it has used as "a labeling and indexing device, allowing researchers to quickly access data likely to be relevant to a particular analysis from a larger data set" (Namey, Guest, Thairu & Johnson, 2008: 141). In this research, *structural coding* was used for both content-based and conceptual phrases representing a topic of inquiry. Data segments pertinent to the specific research question were identified and used to sort the written texts (Saldaña, 2015).

After data collection, the analysis was aimed at identifying the students' use of coherence strategies in their writing and whether or not these were appropriate, based on supervisory on-script focused written feedback.

The scrutiny of the parts of students' texts and supervisory feedback resulted in the development of two aspects of *coherence strategy use*, namely, *content schema* and *textual schema*. *Content schemas* encompassed two recurring themes; the content of *topical themes* and that of *rhemes* at the intra-clausal level; whereas *textual schemas* included four recurring themes, which were; *textual themes* at the inter-clausal level, *thematic organisation* at the intra-clausal level, *thematic organisation* at the inter-clausal level, and *thematic progression patterns* at the intra-paragraph level. In this study, the structural coding adhered to this process in which *conditional knowledge* for creating the *micro-level coherence* served as an overarching concept with *content schemas* and *textual schemas* serving as its two components and under these two component concepts were six recurring themes, as outlined above (see Table 4.4).

Table 4.4 Themes for structural coding of data collected for this study

General concept	Two component concepts	Recurring Themes
Conditional knowledge for creating the micro-level coherence	Content schemas	Topical theme
		Rheme
	Textual schemas	Textual theme at the inter-clausal level
		Thematic organisation at the intra-clausal level
		Thematic organisation at the inter-clausal level
		Thematic progression at the intra-paragraph level

4.7.3.2 Pattern coding and explanation building

This section explains the second cycle of data coding used in this study, that is, *Pattern coding and explanation building*.Given the first cycle coding, the question was 'how could I move to a deeper level?'–"that would be more general, and more explanatory, Just naming and classifying what is out there is not enough" (Miles & Huberman, 1994: 69). There was a need to better understand the recurring patterns and give plausible reasons for these.

Pattern coding and explanation building was used as an analytical procedure, as a method for identifying the recurring patterns. Pattern codes are explanatory or inferred codes, ones that identify an emergent theme, configuration or explanation (Miles & Huberman, 1994; Saldaña, 2015; Yin, 1994). They were used to pull together much of the evidentiary material into more meaningful and parsimonious units of analysis. They were used as a meta-code (Miles & Huberman, 1994: 69). *Pattern coding* provided the researcher with a way of grouping themes into a smaller number of categories. Yin's (1994) analytic techniques of *pattern matching*[2] *and explanation-building* were employed for this purpose in the analysis of the evidence. This procedure was chosen based on Yin's advice (1994: 102) that data analysis consists of "examining, categorising, tabulating, or otherwise recombining the evidence to address the initial propositions of a study". This proved helpful in this study. With the emergent themes from the documentary evidence, the specific evidentiary excerpts from supervisory on-script focused written corrective feedback were examined and linked to the themes. Then explanations were generated in the narrative form to capture "theoretically significant propositions" (Yin, 1994: 110). *Pattern coding*[3] was used in this research as a "stimulus to develop a statement that

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[2] First is Yin's (2008) pattern matching logic helped in comparing a predicted pattern and an empirically based pattern. Yin (1994) analytic strategy deserves special attention because of its unique form of pattern-matching. Elements of explanation building explained a phenomenon so as to "stipulate a set of causal links about it" (Yin, 1994: 110).

[3] An example that Yin (1994: 111) states are the "causal links "that may "reflect critical insights into

describes a major theme, a pattern of action, a network of inter-relationships, or a theoretical construct from the data" (Saldaña, 2009: 154). Further, *pattern matching* was used to help "reduce amounts of data into smaller number of analytic units" (Miles & Huberman, 1994: 69). This *pattern coding* laid the groundwork for focused coding by "surfacing common themes and directional processes" (Miles & Huberman, 1994: 69).

Following the *structural coding* of students' texts and supervisory on-script focused written corrective feedback, *pattern coding and explanation building* of the data was undertaken. The aims were to identify any emergent themes and to configure an explanation of the structure identified through the *structural coding* of students' texts and supervisory on-script focused written feedback. Table 4.5 indicates the *pattern coding* identified within the students' texts and supervisory on-script feedback.

Table 4.5 Pattern coding focus of data collected for this study

Recurring patterns	Sub-categories of recurring patterns
Reference	The definite article
	The demonstrative pronoun "this"
	The pronominal reference
Lexical cohesion relative to domain-specific knowledge	Lexical collocation relative to domain specific knowledge
	General nouns
Conjunctions	Causal conjunctions
	Additive conjunctions

public policy process or into social science theory." The *iterative nature of explanationbuilding* is that a "series of iterations result in the final explanation" (Yin, 1994: 111).Pattern coding is a way of grouping those summaries into a smaller number of sets, themes, or constructs (Miles & Huberman, 1994: 69).

	Adversative conjunctions
	Concessive conjunctions
Theme structure	Theme / rheme sequence
Information structure	Given/New information
Thematic progression patterns	Linear theme pattern
	Constant theme pattern
	Multiple theme/split rheme pattern

4.7.3.3 Thematic analysis

Thematic analysis was selected as a data analysis method used in this study. This decision was made as "meanings are made by choosing, and therefore, interpretation of an actual linguistic choice is made against the background of potential, but not affected, alternative choices" (Martínez, 2003: 105). This method of analysis was used by Halliday and Matthiessen (2004) and Eggins (2004) to identify *themes* and *thematic progression patterns*. Therefore, in this research systemic functional linguistics (Halliday & Matthiessen, 2004) was engaged with thematic progression patterns (Eggins, 2004) as a *thematic analysis* method to analyse the appropriateness of the use of coherence strategies by the HDR students and the supervisory modelling of appropriate use of coherence strategies. The rationale for the selection of these thematic analysis methods in this research is that:

> theme analysis is a tool that can help [researchers] identify what meanings [HDR] students make prominent and which they bury or ignore. It helps to pinpoint the problem when texts seem incoherent or unfocused. It allows close text work at the sentence level to help doctoral writers understand how information develops and flows (Kamler & Thompson, 2014: 114).

The engagement of these procedures served the aim of identifying whether the *coherence* strategies were used appropriately? And/or whether the use of coherence strategies indicated the students' level and understanding of *conditional knowledge* for creating the micro-level coherence in their research writing?

Two rounds of *thematic analysis* were undertaken. They were conducted under the umbrella terms of *content schema* (see Chapters 5 and 6) and *textual schema* (see Chapters 7 and 8) respectively. They were established through the previous three processes of data analysis. The first round was conducted to analyse the uses of coherence strategies across the overall research texts to identify the types of appropriateness and inappropriateness in the use of *coherence* strategies (see Chapters 5 and 7). Coherence elements under the umbrella term *content schema* include *topical theme*, *rheme*, and *reference*, whereas coherence elements under the umbrella term *textual schema* include logical *sequence of theme and rheme*, *textual theme* and *thematic organisation* and *progression patterns*. A second round of analysis was conducted. This entailed analysing the evidentiary excerpts from both the students' research texts and the corresponding on-script corrective feedback provided by their supervisor (see Chapters 6 and 8).

4.7.3.4 Content analysis

In this research, *content analysis* was selected to further analyse the data. This method was chosen because *content analysis* of a text involves establishing categories and then counting the numbers of instances in which they are used in a text. The use of this method resulted in a numerical description of the key features of the texts (Joffe & Yardley, 2004). Flick (2009: 323) defines *content analysis* as:

> one of the classical procedures for analyzing textual material no matter where this material come from…one of its essential features is the use of categories, which are often derived from theoretical models: categories

are brought to the empirical material and not necessarily developed from it…the goal here is to reduce the material.

Content analysis was the method used to uncover content and internal features of the students' texts (Riff & Fico, 2014). It was particularly useful for uncovering a block of knowledge about text content and situations (Anderson, Pichert & Shirey, 1983; Carrell, 1983; Sun, 2014). By determining the frequency of the occurrence of particular categories, it was possible to establish key categories and then count the number of instances in which they were used in students' texts.

Two rounds of *content analysis* were conducted. The first round encompassed counting the numbers of appropriate *coherence* strategies used by the students in their research texts. This counting was based on the structure and patterns identified in the two cycles of data coding in the supervisory on-script focused corrective feedback and students' research texts (see Table 4.5). The second round of *content analysis* focused on the inappropriateness in coherence strategy use in the students' research texts (see Chapters 5 and 7).

4.7.3.5 Theoretical analysis

A theoretical code[4] "functions like an umbrella that covers and accounts for all other codes and categories formulated thus far ..." (Saldaña, 2009: 163). The theoretical analysis began with the identification of the primary themes in the research, that is, the *central* or *core conceptual* categories that emerged.

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[4]Saldaña, (2009: 163-164) explains that if Charmaz, (2006) calls "codes the "bones" that form the "skeleton" of our analysis, then think of the central or core category as the spine of that skeleton which supports the corpus, aligns it, and connects to everything else". The "Theoretical Coding integrates and synthesises the categories derived from coding and analysis" that creates theory (Saldaña, 2009: 164). A Theoretical Code specifies the possible relationships between categories and moves the analytic story in a theoretical direction (Charmaz, 2006: 63) cited in (Saldaña, 2009: 164).

On the basis of *structural coding*, *pattern coding and explanation building,* a theoretical analysis was conducted to examine the theoretic-pedagogical framework in Chapter 3. The analyses were condensed into a few key words. The core categories used to analyse the students' research texts and the supervisory feedback were concepts, namely, *content schema*, *textual schema, cohesion, topical theme, rheme, textual theme, thematic organisation,* and *thematic progression pattern.* The theoretic-pedagogical framework was tested and further developed based on a detailed study of key analytical concepts, namely, *conditional knowledge* (Paris et al., 1983), *content schema* and *textual schema* (Rumelhart, 1980), and *reference*, *lexical cohesion*, and *conjunction* (Halliday & Hasan, 1985), *topical theme*, *rheme*, *textual theme*, and *thematic organisation* (Halliday & Matthiessen, 2004), and *thematic progression patterns* (Eggins, 2004). The next section discusses the methods of data display used in this study.

4.7.4 Data display

The *data displays* aimed to provide a clear presentation of the primary evidence. Clear visual formats have been created to present evidence systematically so as to "draw valid conclusions and take needed action" (Miles & Huberman, 1994: 91). Four methods of *data display* have been used in the evidentiary chapters (see Chapters 5-8) of this thesis. These include individual evidentiary excerpt, tables and figures, diagrammatic representation, and concept maps. These data display formats represent the evidence clearly and facilitate meaning-making forreaders. The next section explains the methods used for drawing conclusions and verifying the research.

4.7.5 Drawing conclusion and verification

By way of multiple cycles of coding, selected data were condensed into comparable and manageable analytical units. This was a prerequisite for the data display

presented in the following evidentiary chapters (Miles & Huberman, 1994). This section specifies methods used for generating and verifying findings (see Table 4.6).

Table 4.6 The procedure of drawing conclusions and verifying findings

Methods	Explanations
Clustering	• Grouped the uses of coherence strategies by using a predetermined conceptual classifications of content schemas and textual schemas as umbrella terms • Developed a typology of appropriate and inappropriate content schemas of coherence strategy use through content and thematic analyses • Developed a typology of appropriate and inappropriate textual schemas of coherence strategy use through
Noting relations between variables	• Detected relations between the uses of coherence strategies and content schemas • Established relations between the uses of coherence strategies and content schemas • Detected relations between the uses of coherence strategies and textual schemas • Established relations between the uses of coherence strategies and textual schemas • Detected relations between conditional knowledge for creating micro-level coherence and appropriate/inappropriate schemas constructed by the uses of coherence strategies • Established relations between conditional knowledge for creating micro-level coherence and appropriate/inappropriate schemas constructed by the uses of coherence strategies
Making conceptual coherence	• Established key findings • Related findings to evidence • Identified corresponding issues in literature • Established a coherent and meaningful connection between data and concepts

Drawing conclusions in this study involved a process of making meaning of the data once it had been fully analysed. This process involved "the interpretive effort from the description of patterns and relationships to higher levels of abstraction, subsuming the particulars into the general" (Whittemore & Knafl, 2005: 551). The theoretic-pedagogical model developed was continually revised in order to be inclusive of as much data as possible (Miles & Huberman, 1994). The conclusions generated were tested and confirmed to make sure they were "valid, repeatable and right" (Miles & Huberman, 1994: 245). In drawing conclusions, the focus was on the HDR students' uses of coherence strategies and how these strategies modulated their *conditional knowledge* to enable them to create the *micro-level coherence* (see Chapters 5-8). The researcher went through an interactive process mediating between the data and findings. The highly-intensive analysis helped to establish a coherent set of findings that can be justified in relation to the data excerpts.

4.8 Conclusion

This chapter has explained issues relating to the research methodology and justified the research design and research procedures applied in this study. The exploratory methodological orientation was explained and nuanced distinctions were drawn between the traditional exploratory approach to research and an exploratory-interpretive approach employed here. The tactics of researching from a textographical position were discussed. This chapter also outlined the flexible research design used for this case study. The research design for this study was explained and justified, along with the principles and procedures for data collection, analysis and display. Ethical issues were addressed and approaches to verifying the findings were also explained.

CHAPTER FIVE

Content and thematic analyses of content schemas for creating coherence at the intra-clausal level

5.1 Introduction

Chapter 5 presents the first part of the findings obtained from the first round of content and thematic analyses of the evidence gathered from Chinese Higher Degree Research (HDR) students' research writing and their supervisor's on-script feedback. These findings provide the basis for identifying the existing issues regarding HDR students' conditional knowledge and appropriate content schemas required for creating the micro-level coherence in their research writing.

In order to identify the existing issues, this chapter investigates international Chinese HDR students' conditional knowledge for creating the intra-clausal level coherence from the perspective of *content schema*. This chapter also tests the concepts of *text-based coherence* (Johns, 1986), *conditional knowledge* (Paris et al., 1983), *content schema* (Rumelhart, 1980), *reference, lexical cohesion*, *the definite article*, *the demonstrative pronoun, the pronominal reference, lexical collocation relative to domain specific knowledge* and *general nouns* (Halliday & Hasan, 1985), and *topical theme and rheme* (Halliday & Matthiessen, 2004). Section 5.2 analyses evidence of students' coherence strategies used in research writing in relation to *content schemas*.

Section 5.3 provides a content analysis of coherence strategies inappropriately used in students' texts in relation to their content schemas. Section 5.4 presents content and thematic analyses of the types of inappropriateness in the uses of reference and lexical cohesion. Section 5.5 depicts the construction and effects of inappropriate content schemas for creating the intra-clausal level coherence. Section 5.6 presents the construct of conditional knowledge in terms of creating the intra-clausal level coherence. Section 5.7 concludes this chapter.

5.2 Identifying a typology of coherence strategy use from the perspective of content schema

This section presents and analyses the coherence strategies used by international Chinese HDR students in their research writing, in terms of *content schema*. In each of the three subsections, the percentages, subtypes of reference and lexical cohesion, and the frequency of their occurrences are presented. The umbrella concepts of topical theme and rheme are used to analyse students' content schemas for creating the intra-clausal level coherence in their research texts (see Table 5.1).

Table 5.1 Content schemas and coherence strategies

Topical theme	• Reference
Rheme	• Lexical collocation relative to domain-specific knowledge
	• General nouns

5.2.1 Types of topical theme used in students' texts

A topical theme is the first word carrying meaning in a clause in an experiential sense. It is characterised by a word referring to a participant, process or circumstance which

is incorporated in every clause and is the starting point for the message (Halliday & Matthiessen, 2004). In terms of appropriateness or otherwise, topical themes used in students' overall texts were identified as two types: vague topical themes and appropriate topical themes.

As shown in Table 5.2, there are 856 topical themes used in students' overall texts. Appropriate topical themes took the largest proportion (N=431, 51%) which outnumbered that of inappropriate topical themes (N=425, 49%). It is surprisingly noted that despite 51% of the topical themes being used appropriately, a large proportion of themes (N=425, 49%) were vaguely used.

Table 5.2 Occurrence frequencies and percentages of topical theme used in students' texts by type

Type	Frequency	Percentage
Vague topical theme	425	49%
Appropriate topical theme	431	51%
Total	856	

The findings indicate that these particular HDR students tended to inappropriately employ a large portion of vague topical themes in their research writing. This result reveals that these Chinese HDR students, as advanced English learners, still were challenged by topical themes in their research writing. This seems to be confirmed by Wei's (2013: 42) report that Chinese students "write on a somewhat vague and general level, often mak[e] sweeping statements".

5.2.2 Types of rheme used in students' texts

Rheme refers to the remainder of the sentence in which is the theme is developed (Halliday & Matthiessen, 2004). In terms of appropriateness or otherwise, the rhemes used in students' research texts were categorised into three types: appropriate rheme, vague rheme, and undeveloped rheme.

As shown in Table 5.3, the total number of the rhemes used in students' texts is 1,009: 159 of these were used appropriately; 573 were used vaguely; and 277 lacked development. In effect, only 16% of the rhemes were used appropriately, while a large proportion of the rhemes were used inappropriately, either vaguely (57%) or undeveloped (27%).

Table 5.3 Occurrence frequencies and percentages of the rhemes used in students' texts by type

Type	Frequency	Percentage
Appropriate rheme	159	16%
Vague rheme	573	57%
Undeveloped rheme	277	27%
Total	1,009	

This finding reveals that these particular HDR students were inclined to use the rheme inappropriately in their research writing. The large proportion of rhemes used inappropriately by these HDR students indicates a need for further support in this area of their research writing.A similar issue had also been found with advanced EFL learners from other countries. Arunsirotalso's (2013: 171) report that Thai EFL learners made problematic use of rhemes through what was termed creating an "empty rheme". Likewise, AL Bakaa (2014: 69) reported that Iraqi bilingual postgraduate students had the problem of "the lack of further rheme development" through their writing in English.

5.2.3 Types of cohesive devices used in students' texts

Cohesive devices are useful in the English language. Conjunctions, transitional phrases, synonyms and pronouns are used to express ideas in a cohesive manner (Halliday, 1976). Cohesive devices used in constructing the topical theme and the rheme in students' texts were analysed and two types were identified (see Table 5.4). As indicated in Table 5.4, reference and lexical cohesion are two types of cohesive

devices used by the student participants. *Reference* was the most frequently used cohesive device (N=1478), while *lexical collocation* (N=1314) was a close second. This finding is supported by Yao's (2014) finding that reference and lexical cohesion are the primary coherence elements used by Chinese EFL student writers.

Table 5.4 Occurrence frequencies and percentages of cohesive devices used in students' texts by type

Type		Frequency	Percentage
Reference		1,478	50%
Lexical cohesion		1,214	45%
	Total	2,692	

5.2.3.1 Subtypes of *reference* used in students' texts

Reference refers to "a semantic relation whereby information needed for the interpretation of one item is found somewhere in the text" (Carroll, 1999: 158). *Reference* used in students' texts was identified into three types, namely: the definite article, the demonstrative pronoun and pronominal reference. Table 5.5 presents the frequency of use for each sub-type within *reference*.

As revealed in Table 5.5, the definite article (N=1,266, 48.6%), the demonstrative pronoun (N=1,218, 46.6%) and pronominal reference (N=125, 4.8%) are the three types of endophoric references used in these HDR students' research texts. Among these, the definite article took the largest percentage (48.6%). Shirazi and Shabanluie (2014) found that English learner writers frequently use the definite article in their writing. Also, Ürkmez's (2014: 13) study of non-native English writers' use of the definite article found that EFL student writers "tend to use the definite article 'the' more frequently than any other articles". The results of this study reveal that these particular HDR students used the definite article slightly more frequently than the demonstrative pronoun in their research texts.

Table 5.5 Occurrence frequencies and percentages of subtypes of reference used in students' texts

Type	Subtype	Frequency	Percentage
Reference	The definite article	1,266	48.6%
	The demonstrative pronoun	1,218	46.6%
	The pronominal reference	125	4.8%
	Total	2,609	

5.2.3.2 Subtypes of lexical cohesion relative to domain-specific knowledge used in students' texts

Lexical cohesion is the connectivity derived from the semantic relationship created by specific lexical items (Halliday & Hasan, 1985). It includes two categories: lexical reiteration and lexical collocation. With respect to these two categories, two subtypes were found in students' texts: general nouns and lexical collocation related to their domain-specific knowledge.

As shown in Table 5.6, there are great differences between the frequencies of occurrence of these two types of lexical cohesion. Lexical collocation related to domain-specific knowledge took the largest percentage (N=1063, 86.4%). In contrast, general nouns took 13.6% (N=167). This result indicates that lexical cohesion related to domain-specific knowledge were frequently used in these students' research texts, with general nouns less frequently used. Similarly, Hyland and Tse (2007: 247) report that students in different areas tend to select different word combinations which form "a variety of subject-specific literacies". Therefore, this result suggests that due to the complexity of lexical collocation in domain-specific areas, there is the need for these HDR students to develop more restricted, discipline-based lexical repertoires to create coherence in their research writing.

Table 5.6 Occurrence frequencies and percentages of subtypes of lexical cohesion used in students' texts

Type	Subtype	Sub-subtype	Frequency	Percentage
Lexical cohesion	Lexical reiteration	General nouns	167	13.6%
	Lexical collocation	Lexical collocation relating to disciplinary knowledge	1,063	86.4%
		Total	1,230	

5.3 Inappropriate uses of coherence strategies in students' content schemas

This section provides a content analysis of students' inappropriate uses of coherence strategies identified in Section 5.2. In each of the two subsections below, the occurrence frequencies and percentages of inappropriate uses of subtypes of reference and lexical cohesion are analysed using concepts of the topical theme and the rheme (as initially outlined in Table 5.1).

Reference and lexical collocation signal the organisation of information (Halliday & Hasan, 1985). Inappropriate uses of reference and lexical collocation break "the connectivity of ideas in discourse and sentences to one another in text, thus creating the flow of information in a unified way" (Hinkel, 2003: 279). Table 5.7 summarises the occurrence frequencies and percentages of inappropriate use of reference and lexical cohesion related to domain-specific knowledge in students' texts. Inappropriate use of *lexical cohesion* related to domain-specific knowledge, was most often used incorrectly (N=381, 30.9%); whereas, inappropriate uses of *reference* was noted to be 14.8% (N=387).

Table 5.7 Occurrence frequencies and percentages of inappropriate use of reference and lexical cohesion related to domain-specific knowledge used in students' texts

Type	Total	Frequency of inappropriate use	Percentage
Reference	2,609	387	14.8%
Lexical cohesion	1,230	381	30.9%

The findings indicate that these HDR students tended to inappropriately use reference and lexical collocation related to domain-specific knowledge in their research writing. Specifically, lexical cohesion related to domain-specific knowledge posed the biggest challenge. This result differs from Huang et al.'s (2013: 548) report that "common specialized collocations and usages [used by English learner writers] … make their writing… professional in their own domain(s)". It reveals that the large number of lexical collocations inappropriately used by these international Chinese HDR students made research writing less professional and incoherent.

5.3.1 Inappropriate uses of reference

Reference frequently used in written discourse includes the definite article, the demonstrative pronoun and pronominal reference (Halliday & Hasan, 1985). These three types of reference were also widely used in these HDR students' texts (see Table 5.5). However, inappropriate uses of these types of reference were found. Table 5.8 summarises the occurrence frequencies and percentages of inappropriate uses of reference in students' texts. Inappropriate use of the definite article was recorded as the largest percentage (N=228, 58.9%), followed by those of the demonstrative pronoun (N=134, 34.6%). Inappropriate usage of the pronominal reference occupied the lowest percentage (N=25, 6.5%).

Table 5.8 Occurrence frequencies and percentages of inappropriate uses of

sub-subtypes of reference in students' texts

Type	Sub-subtype	Frequency	Percentage
Reference	The definite article	228	58.9%
	The demonstrative pronoun	134	34.6%
	Pronominal reference	25	6.5%

These findings indicate that the HDR students in this research tended to inappropriately use the definite article, the demonstrative pronoun, and the pronominal reference in their research writing. In particular, they confronted greater difficulty in appropriately using the definite article and the demonstrative pronoun. This is confirmed by Quan and Weisser's (2015: 43) research finding that Chinese English learners "not only overuse *the*…but also potentially do not distinguish properly between definite and indefinite reference". A similar finding is also mentioned in Świątek's (2015) report that the definite article and zero article are very difficult for English learners to use in their writing in English. Therefore, this result reveals that these international Chinese HDR students as advanced English learners also confronted the greatest difficulties with the definite article in creating the micro-level coherence at their novice research writing stage.

5.3.2 Inappropriate uses of lexical cohesion related to domain-specific knowledge

Halliday and Matthiessen (2004: 535) assert that "lexical cohesion operates within the lexis and is achieved through the choice of lexical items". Inappropriate choices of lexical items related to domain-specific knowledge undermine cohesion and coherence in a text. Instances of inappropriate uses of lexical cohesion related to domain-specific knowledge were found in the students' texts under examination.

Table 5.9 summarises the occurrence frequencies and percentages of these inappropriate uses of lexical cohesion. As seen from this Table, two types of lexical

cohesion were inappropriately used by these HDR students. These were general nouns and lexical collocation related to domain-specific knowledge. Lexical collocation relating to domain-specific knowledge recorded the largest percentage, (33.1%), vastly outnumbering that of general nouns (17.9%).

Table 5.9 Occurrence frequencies and percentages of inappropriate uses of subtypes of lexical cohesion related to domain-specific knowledge in students' texts

Type	Sub-subtype	Frequency	Percentage
Lexical cohesion relative to domain-specific knowledge	General nouns	30	17.9%
	Lexical collocation relating to domain-specific knowledge	351	33.1%

The findings indicate that these HDR students had the inclination to inappropriately use general nouns and lexical cohesion related to domain-specific knowledge in their research writing. This is, to a certain degree, supported by Huang et al.'s (2013: 542) research that domain-specific collocation in English is a challenge for most of the EFL students in EAP writing, due to the "uneven distributions and difference in lexical collocation". Moreover, "generalization without elaboration" on general nouns reported by Taraha (2014: 22) also seems to confirm the finding that these HDR students had difficulties in coping with the use of general nouns in their research writing. Thus, this result reveals that at their novice writing stage, these particular HDR students were not equipped with the necessary "discipline-based lexical repertoire" (Hyland & Tse, 2007: 235).

5.4 A typology of inappropriate uses of reference and lexical cohesion

This section presents the content analysis of inappropriate uses of reference and thereby verifies the analysis presented in Section 5.3. In each of the following two subsections, the occurrence frequencies and percentages of inappropriate uses of reference and lexical cohesion are analysed using the concepts of the topical theme

and the rheme. Together these constitute the content schemas for setting up textual coherence (see Table 5.1).

5.4.1 Types of inappropriateness in reference use

Types of inappropriate uses of reference vary among different English learner writers. In terms of these particular international Chinese HDR students, the results from content analysis of their inappropriate uses of reference were identified as five categories:

(1) underuse of the definite article;

(2) overuse of the definite article;

(3) misuse of the definite article with pronominal reference;

(4) overuse of pronominal reference; and

(5) misuse of the determiner "this" with the definite article.

These types of inappropriate uses of reference failed to interpret the corresponding referent which appears in a neutral or near distance, or within nominal group in a text (Eggins, 2004). The results obtained from the content analysis of each type of these inappropriate uses are respectively presented in the following subsections.

5.4.1.1 Underuse of the definite article

Underuse of the definite article undermines the unity of content in the topical theme and the rheme in students' research writing (see Tables 6.3 & 6.4 in Chapter 6). A complete summary of the proportions of the definite article underused in their texts is presented in Table 5.10. Underuse of the definite article took 7% (N=94) of the total number of reference used in students' overall texts. There is a difference in the

proportions of the definite article underused in the topical theme and the rheme. The definite article in the rheme (N=65, 8%) is more frequently used than that in the topical theme (N=29, 6%).

Table 5.10 Occurrence frequencies and percentages of underuse of the definite article in students' texts

Position	Frequency	Percentage
Topical theme position	29	6%
Rheme position	65	8%
Total	94	7%

The findings indicate that these particular HDR students tended to underuse the definite article in both constructing the topical theme and the rheme in their research texts. Specifically, their underuse of the definite article in the rheme was higher than in the topical theme. This result is partially supported by the findings from previous studies that advanced English learners also erroneously use the articles in their academic writing (Chrabaszcz & Jiang, 2014; Granger, 1996; Lee, 2013; Lu, 2013; Sun, 2014). Moreover, this also seems to be confirmed by "Ø is generally over-used by writers" proposed by Crompton (2011: 16). Accordingly, this result suggests that there is a need for supervisor writing support to help these HDR students avoid underuse of the definite article in constructing the topical theme and the rheme in their research writing.

5.4.1.2 Overuse of the definite article

Overuse of the definite article causes vagueness in interpreting key elements in students' texts (see Tables 6.5 & 6.6 in Chapter 6). The proportions of their overuse of the definite article are summarised in Table 5.11. As shown in this Table, overuse of the definite article accounted for 10% (N=134) of the total number of reference use in the students' texts. A difference is noted in the proportions of the definite article overused in the topical theme and the rheme. The percentage of the definite

article overused in the rheme (N=103, 12%) is larger than that in the topical theme (N=31, 7%).

Table 5.11 Occurrence frequencies and percentages of overuse of the definite article in students' texts

Position	Frequency	Percentage
Topical theme position	31	7%
Rheme position	103	12%
Total	134	

The findings indicate that these particular HDR students tended to overuse the definite article in both the topical theme and rheme in their research writing. In particular, they tended to conduct this overuse more frequently in the rheme construction than in the topical theme. This result reveals that these students had difficulties in appropriately selecting and organising information to the theme and the rheme. A "non-native sound" reflected by an overuse of high frequency vocabulary, as proposed by Herriman (2011: 1), seems to confirm this. Thus, this result suggests that it is necessary to provide these particular HDR students with supervisory writing support for appropriate use of the definite article in organising information in the topical theme and the rheme in their reseach writing.

5.4.1.3 Misuse of the demonstrative pronoun with pronominal reference

Misuse of the demonstrative pronoun with pronominal reference causes misinterpretation of the referent in a near distance with that within nominal groups in students' texts (see Tables 6.7 & 6.8 in Chapter 6). A summary of the proportions of misuse of the demonstrative with pronominal reference presented in students' text is presented in Table 5.12. As can be seen in this Table, misuse of the demonstrative pronoun with pronominal references accounted for 3% (N=38) of the total number of reference use by these HDR students. There is also a difference in the proportions of this misuse in the topical theme and the rheme. The misuse more frequently occurred

in the rheme (N=27, 3%) than in the topical theme (N=11, 2%).

Table 5.12 Occurrence frequencies and percentages of misuse of the demonstrative pronoun with pronominal reference in students' texts

Position	Frequency	Percentage
Topical theme position	11	2%
Rheme position	27	3%
Total	38	

The findings indicate that these international Chinese HDR students tended to misuse the demonstrative pronoun with pronominal references in both constructing the topical theme and the rheme in their research writing. Specifically, they frequently misused the demonstrative pronoun with pronominal reference in the rheme. This is supported by related research that found "instances of articles being used where the syntax of the noun phrase required something else, for example a possessive or demonstrative" (Crompton, 2011: 18). Sun (2014: 1476-1478) also reports that "misuse of the determiners is the most frequent grammatical errors in Chinese students' writing…and even advanced learners often make many errors in their use". As such, this result suggests that supervisory writing support for the appropriate use of the demonstrative pronoun and pronominal reference is necessary for helping these students produce coherent research texts, in particular at their novice writing stage.

5.4.1.4 Overuse of pronominal reference

Overuse of pronominal reference out of nominal groups causes mismatches between the reference and the corresponding referent in students' texts (see Tables 6.9 & 6.10 in Chapter 6). Table 5.13 summarises the proportions of overuse of pronominal reference in students' overall texts. As shown in this Table, overuse of pronominal reference was recorded for 2% (N=25) of the total number of reference overuse by these students. There is a small difference in the proportions of pronominal reference

overused in the topical theme and the rheme. The proportion of this overuse in the topical theme is only slightly higher (N=12, 3%) than that in the rheme (N=13, 2%).

Table 5.13 Occurrence frequencies and percentages of overuse of pronominal reference in students' texts

Position	Frequency	Percentage
Topical theme position	12	3%
Rheme position	13	2%
Total	25	

The findings indicate that these HDR students tended to overuse a certain portion of pronominal reference in their research writing. This result reveals that these students had difficulty in appropriately dealing with pronominal reference in organising information in the topical theme and the rheme in their research writing. Bestgen, Granger and Thewissen (2012: 132) reported that English learners made "unclear pronominal reference…and erroneous demonstrative determiners". Not supprisingly, the appropriate use of reference, for instance, pronominal as a feature that "the raters took into account when assessing the quality of the essays, as accuracy was part of the criteria they had to rate, along with elements pertaining to complexity and coherence and cohesion" (Bestgen, Granger & Thewissen, 2012: 133).

Therefore, these results suggest that supervisory writing support for appropriate use of pronominal reference is necessary for these particular HDR students at their novice research writing stage.

5.4.1.5 Misuse of the determiner with the definite article

Misuse of the determiner with the definite article fails to distinguish referent in near distance from the one in neutral distance in students' texts (see Tables 6.11 & 6.12 in Chapter 6). The proportions of misuse of these two types of reference are summarised in Table 5.14. As showin in this Table, misuse of the determiner 'this'

with the definite article resulted in 4% (N=50) of the total use of reference. A difference (3%) is noted in the proportions of this misuse occurring in the topical theme and in the rheme. This misuse occurred more frequently in the topical theme (N=26, 6%) than in the rheme (N=24, 3%).

Table 5.14 Occurrence frequencies and percentages of misuse of the determiner with the definite article in students' texts

Position	Frequency	Percentage
Topical theme position	26	6%
Rheme position	24	3%
Total	50	

The findings indicate that these HDR students tended to misuse the determiner with the definite article in both the topical theme and rheme positions in their research writing. Specifically, they were inclined to misuse the determiner with the definite article in constructing the topical theme. This result is particularly in agreement with the findings that advanced English learners misuse the demonstrative pronoun with the definite article hindering "appropriate constituents [from]…creating links with discourse old information" (Mellos, 2011: 40). This result thus reveals that these particular HDR students need supervisory writing support for appropriate use of the determiner and the definite article to coherently organise information in the topical theme and the rheme in their research text.

5.4.2 Types of inappropriateness in lexical cohesion

Lexical cohesion is the connectivity derived from the semantic relationship created by specific lexical items that help to create textual coherence (Halliday & Matthiessen, 2004). It operates within the lexis and is achieved through the choice of lexical items. Yet, inappropriate choice of lexical items related to domain-specific knowledge causes cohesion failure in students' texts (see Tables 6.13 and 6.14 in Chapter 6). The results from the content analysis of their inappropriate use of lexical

cohesion were identified as belonging to two categories:

(1) misuse of lexical collocation pertaining to domain-specific knowledge; and

(2) insufficient elaboration of general nouns.

The detailed results obtained from the content analysis of these two categories are respectively depicted in the following subsections.

5.4.2.1 Misuse of lexical collocation pertaining to domain-specific knowledge

The misuse of lexical collocation pertaining to domain-specific knowledge results in incoherence in students' texts (see Tables 6.13 and 6.14 in Chapter 6). Table 5.15 presents the proportions of their misuse of lexical collocation pertaining to domain-specific knowledge. As can been seen in this Table, 351 (19%) of lexical collocation related to domain-specific knowledge were misused. There is a huge difference (15%) in the proportions of this misuse in the topical theme and the rheme. This misuse occurred more frequently in the rheme (N=260, 26%) than in the topical theme (N=91, 11%).

Table 5.15 Occurrence frequencies and percentages of misuse of lexical collocation pertaining to domain-specific knowledge in students' texts

Position	Frequency	Percentage
Topical theme position	91	11%
Rheme position	260	26%
Total	351	

The findings demonstrate that these HDR students tended to misuse lexical collocation related to domain-specific knowledge in their writing. Particularly, they were inclined to most frequently misuse lexical collocation pertaining to domain-specific knowledge in the topical theme. This result reveals that these

particular students had difficulty using lexical collocation related to domain-specific knowledge to select and organise information in the topical theme and also in the rheme. It also demonstrates that these students lacked the "discipline-based lexical repertoire" required for their research writing (Hyland & Tse, 2007: 235). This result is partially supported by Huang, el al.'s (2014: 542) report that "uneven distributions and difference in lexical collocation" is a challenge for most of advanced English learner writers.

5.4.2.2 Insufficient elaboration of general nouns

Insufficient elaboration of general nouns also causes incoherence in students' texts (see Tables 6.15 & 6.16 in Chapter 6). Table 5.16 summarises the proportions of general nouns which were insufficiently elaborated on, in students' overall texts. As shown in Table 5.16, 30 (18%) general nouns were not sufficiently elaborated on, by these HDR students. A difference of 10% is noted in the proportions of general nouns insufficiently elaborated on, in the topical theme and the rheme. The proportion of general nouns insufficiently elaborated on, is higher in the topical theme (N=17, 24%) than in the rheme (N=13, 14%).

Table 5.16 Occurrence frequencies and percentages of insufficient elaboration of general nouns in students' texts

Position	Frequency	Percentage
Topical theme position	17	24%
Rheme position	13	14%
Total	30	

The findings reveal that these particular HDR students were inclined to insufficiently elaborate on general nouns in the topical theme and the rheme in their research writing. In particular, they most frequently did not elaborate on general nouns in the topical theme. This finding is partially supported by Tahara's (2014) report that English learners' use of general nouns was not appropriate and led to their tendency

to making errors in their written English.

The next section presents the findings relating to the construction of inappropriate content schemas of coherence strategies used in these students' research writing.

5.5 Construction of content schemas

The following two subsections provide an account of the characteristics of students' content schemas needed for creating the micro-level coherence in research writing. The first subsection depicts their inappropriate content schemas including vague topical theme, vague rheme and undeveloped rheme used in their texts. The second subsection accounts for their conditional knowledge for creating the micro-level coherence in their research writing from the perspective of content schema.

5.5.1 Inappropriate content schemas for creating the micro-level coherence

Inappropriate content schema is a type of block of knowledge that cannot reflect "the background knowledge relative to content domain of the text" (Garning, 2014: 7). The concept of content schema was tested in this chapter in relation to the micro-level coherence created in these HDR students' research writing. The results obtained show that students' inappropriate content schemas are constructed through an array of coherence strategies inappropriately used by students when selecting and organising information in the topical theme and the rheme in their research writing (see Figures 5.1, 5.2 and 5.3).

Figure 5.1 illustrates the distribution of students' inappropriate uses of the topical theme and the rheme when the content schemas are constructed inappropriately. An uneven distribution is noted among vague topical theme, vague rheme and undeveloped rheme in students' inappropriate content schemas. The most frequently used is vague rhemes (57%) which is followed by the use of vague topical themes (49%). However, the least used is undeveloped rheme (27%). It is worth noting that

the proportions of vague rheme and undeveloped rheme took the majority of appropriateness in their content schemas.

The findings indicate that these HDR students tended to use vague topical theme, undeveloped rheme and vague rheme in their research writing. Particularly, inappropriate uses of the rheme took up a large part of the inappropriateness in their content schemas. This seems to suggest that students' inappropriate uses of the rheme predict the majority of incoherence in their research texts. This result is supported by AL Bakaa's (2015) report that vague topical theme, lack of rheme development and vague rheme frequently occur in English learners' academic texts. This result also seems to be confirmed by Alvin's (2015) report that the issues of incoherence, vague topical themes and undeveloped rhemes were evident in EFL students' academic texts.
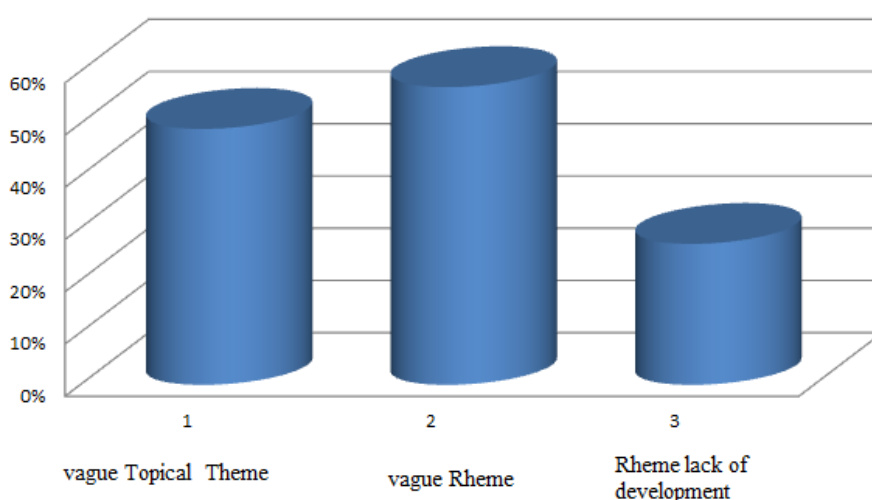
Figure 5.1 Distribution of inappropriate uses of the topical theme and the rheme in students' content schemas for creating the micro-level coherence

Figure 5.2 depicts the distribution of seven types of inappropriate uses of coherence in students' content schemas. M*isuse of lexical collocation pertaining to domain-specific knowledge* recorded the largest percentage (19 %) of the total

number of inappropriate uses of lexical cohesion related to domain-specific knowledge in students' texts. In contrast, *overuse of pronominal reference* registered the least percentage (3%) of the total number of inappropriate uses of reference. Another high percentage (18%) is *insufficient elaboration of general nouns.* Following are *overuse of the definite article* (10 %) and *underuse of the definite article* (7%). *Misuse of the demonstrative with pronominal referen*ce (3%) and *misuse of the determiner 'this' with the definite article* (4%) also took a part in accounting for students' inappropriate content schemas which challenge micro-level coherence in their written texts.
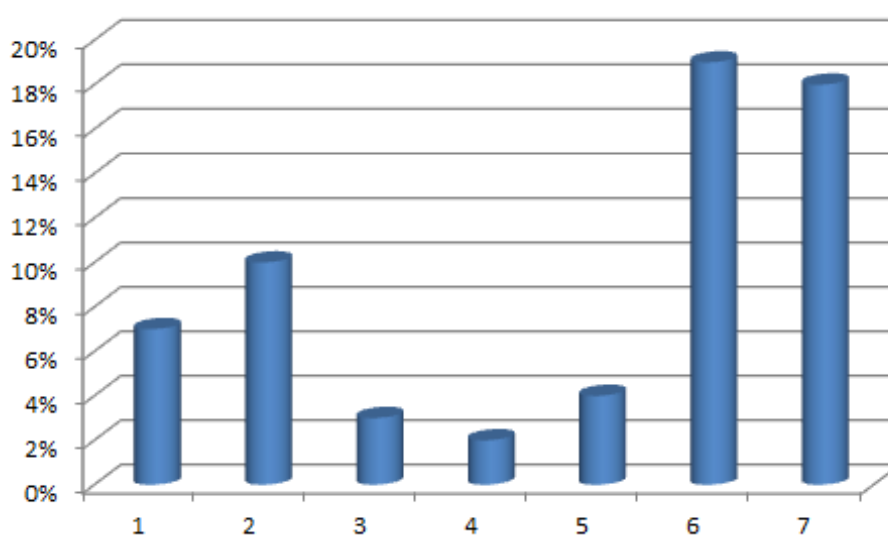
Figure 5.2 Distribution of inappropriate uses of reference and lexical cohesion in students' content schema for creating the micro-level coherence

Note: 1.underuse of the definite article "the"; 2.overuse of the definite article "the"; 3.misuse of the demonstrative with pronominal reference; 4.overuse of pronominal reference; 5.misuse of the determiner "this" with definite article "the"; 6.misuse of lexical collocation pertaining to domain-specific knowledge; 7.insufficient elaboration of general nouns (see Section 5.3)

5.5.1.1 Characteristics of vague topical theme used in students' texts

Figure 5.3 summarises the distribution of inappropriate uses of coherence strategies in vague topical theme in students' construction of content schemas. As shown in this Table, a large difference (20%) is noted in the proportions of *insufficient elaboration of general nouns* and *misuse of the demonstrative with pronominal reference*. The former took the highest percentage (24%), whereas the latter registered the lowest (2%). Another high percentage (17%) was found with *overuse of the definite article.* In contrast, *misuse of the demonstrative with pronominal reference* took the lowest percentage (2%). The third highest percentage (11%) was recorded for the *misuse of lexical collocation pertaining to domain-specific knowledge.* This was followed by the underuse *of the definite article* (7%), *overuse of pronominal reference* (6%) and *misuse of the determiner with the definite article* (6%). Each played a similar part in causing vague topical themes in students' texts. Apart from these, o*veruse of pronominal reference* took a second lowest percentage (3%) of the total of inappropriate usage of reference, leading to vague topical theme.
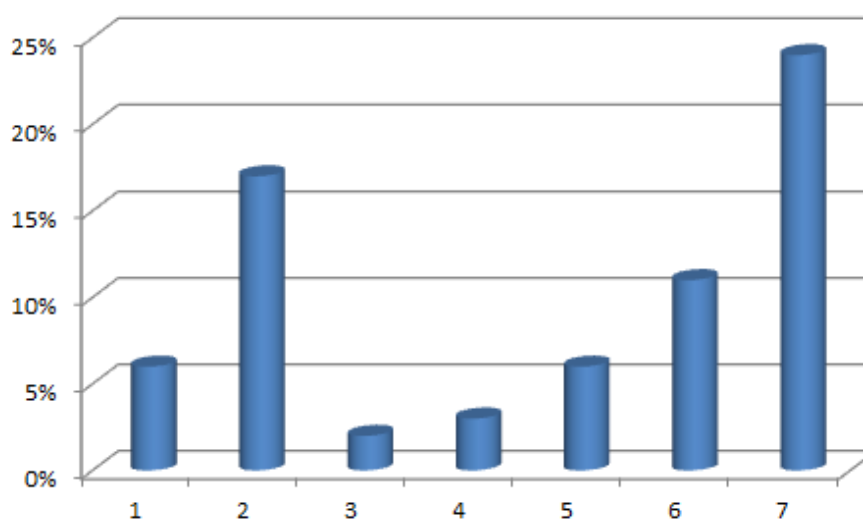
Figure 5.3 Distribution of inappropriate uses of reference and lexical cohesion in the vague topical theme in students' texts

Note: 1.underuse of the definite article "the"; 2.overuse of the definite article "the"; 3.misuse of the demonstrative with pronominal reference; 4.overuse of pronominal reference; 5.misuse of the determiner "this" with definite article "the"; 6.misuse of lexical collocation pertaining to domain-specific knowledge; 7.insufficient elaboration of general nouns

5.5.1.2 Characteristics of vague rheme used in students' texts

Figure 5.4 presents the distribution of the seven types of inappropriate uses of reference and lexical cohesion related to domain-specific knowledge in vague rheme in students' construction of content schema. There is a great difference (24%) in the proportions of *misuse of lexical collocation pertaining to domain-specific knowledge* and o*veruse of pronominal reference*. The former accounted for the largest percentage (26%); whilst the latter recorded the lowest percentage (2%). Higher percentages of misuse were also found with *insufficient elaboration of general nouns* (14%), *overuse of the definite article* (12 %), and *underuse of the definite article* (8%). In addition, a similar lower proportion (3%) was found with *misuse of the demonstrative with pronominal reference*, and *misuse of the determiner with definite article*.
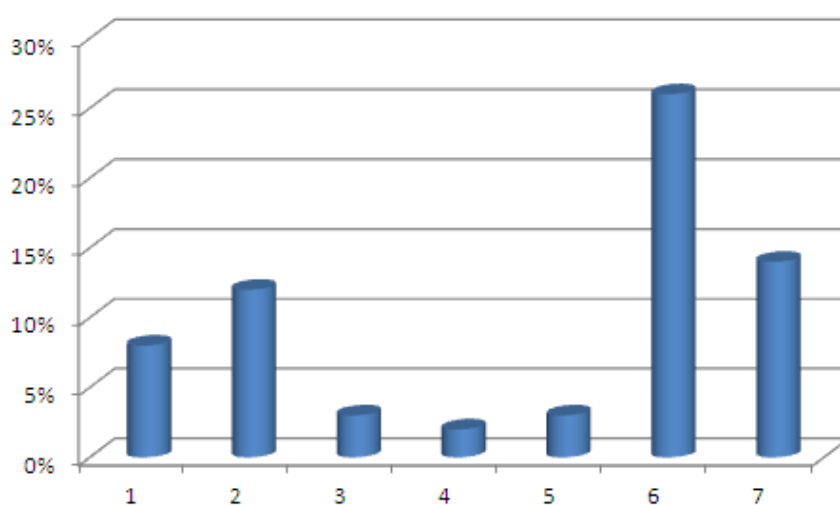
Figure 5.4 Distribution of inappropriate uses of reference and lexical cohesion in vague rheme in students' texts

Note: 1.underuse of the definite article "the"; 2.overuse of the definite article "the"; 3.misuse of the demonstrative with pronominal reference; 4.overuse of pronominal reference; 5.misuse of the demonstrative "this" with definite article "the"; 6.misuse of lexical collocation pertaining to domain-specific knowledge; 7.insufficient elaboration of general nouns

5.5.1.3 Characteristics of undeveloped rheme

Figure 5.5 shows the distribution of the inappropriate uses of lexical cohesion related to domain-specific knowledge in undeveloped rheme in students' construction of content schemas. A large proportion (95%) of the inappropriate usage was found in *misuse of lexical collocation related to domain-specific knowledge*. These errors far outnumbered those of *insufficient elaboration of general nouns* (6%) of inappropriate uses of general nouns in the rheme position in these students' texts.
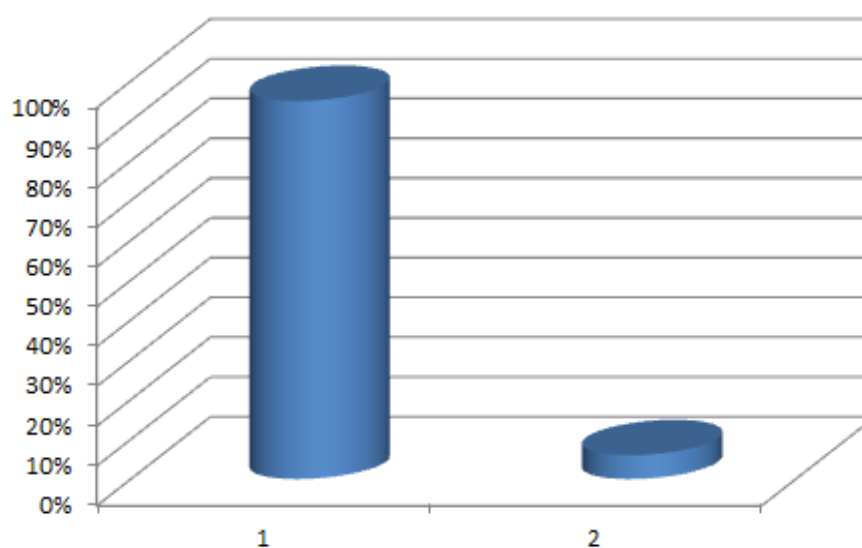
Figure 5.5 Distribution of two types of inappropriate uses of lexical cohesion relative to domain-specific knowledge in undeveloped rheme in students' texts

Note: 1. misuse of lexical collocation relative to domain-specific knowledge (95%); 2. insufficient elaboration of general nouns (6%)

5.5.2 Conditional knowledge required for creating the micro-level coherence

Despite inappropriate content schemas mentioned in the above subsections, the results obtained also show that these students had some appropriate content schemas, that is, *conditional knowledge. Conditional knowledge* required for creating the micro-level coherence from the perspective of text content refers to students' knowing when and where to use coherence strategies appropriately to construct the objects, events and situations to achieve the micro-level coherence in their research writing. This was evident by their appropriate use of the topical theme and the rheme in creating the micro-level coherence in their texts.

Figure 5.6 indicates the distribution of appropriate uses of the topical theme and the rheme in students' conditional knowledge. As evidenced in Figure 5.16, there is a huge difference (35%) in the proportions of the topical theme and the rheme

appropriately used by students. 51% of the topical themes were used appropriately; whereas, the percentage of the rhemes used appropriately was only 16%.
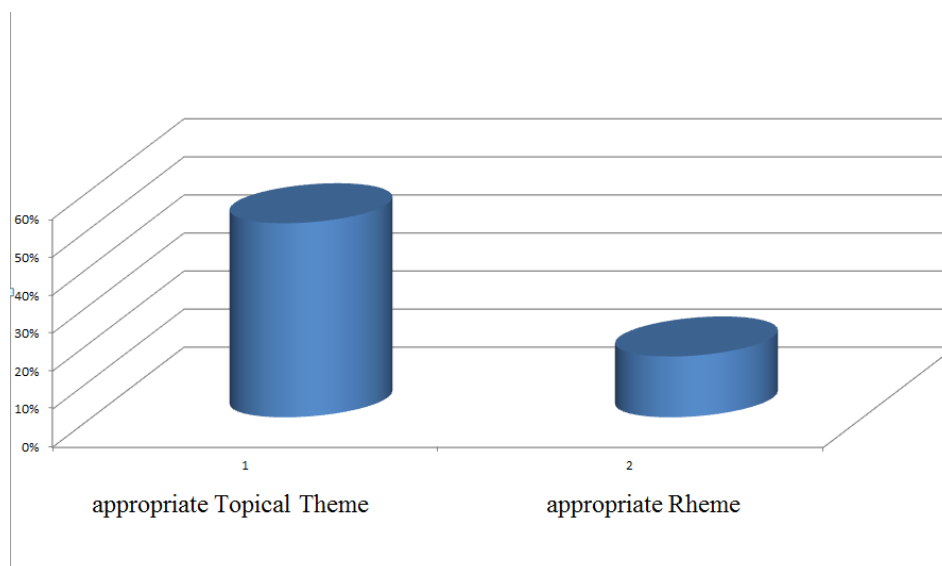
Figure 5.6 Distribution of appropriate uses of the topical theme and the rheme in students' content schemas for the micro-level coherence

The findings demonstrate that these HDR students had low conditional knowledge for creating the micro-level coherence in their research writing. In particular, they lacked the conditional knowledge necessary for constructing the topical theme and the rheme. Al Bakaa (2015) reports that conditional knowledge as strategic knowledge made English learner writers know when it is wise to use writing skills and the lack of conditional knowledge results in their failure in using writing strategies appropriately.

Dresel et al. (2015) also assert that students with high conditional knowledge identified a wide variety of strategies as suitable for relevant specific learning situations (see Chapter 6). Therefore, this result suggests that supervisory writing support is necessary for these HDR students to help them enhance their conditional knowledge for creating the micro-level coherence in their research writing.

5.6 Conclusion

This chapter has provided content and thematic analyses of these international Chinese HDR students' content schemas used in creating the micro-level coherence in their research writing. A typology of coherence strategies was developed using the concept of content schema, which includes reference, lexical cohesion, topical theme and rheme as key subsidiary concepts. Subtypes of reference and lexical cohesion used by these students in their research writing were identified. Specifically, those that included the definite article, the demonstrative pronoun, and pronominal reference were examined. Subtypes of lexical cohesion were also identified, including lexical collocation related to domain-specific knowledge and general nouns. These coherence strategies constituted these students' content schemas for creating the micro-level coherence through their research writing.

However, not all these coherence strategies were used appropriately. Vague topical theme, vague rheme and undeveloped rheme were identified in these students' texts. Manifestations of these inappropriate uses were identified as two categories, namely, reference and lexical cohesion. In terms of inappropriate reference use, five types were identified: 1) underuse of the definite article; 2) overuse of the definite article; 3) misuse of the definite article with pronominal reference; 4) overuse of pronominal reference; and 5) misuse of the determiner 'this' with the definite article.

With respect to inappropriate uses of lexical cohesion, two types were identified, namely, 1) misuse of lexical collocation pertaining to domain-specific knowledge; and 2) insufficient elaboration of general nouns.

These HDR students' conditional knowledge for creating micro-level coherence through their research writing was analysed in terms of the appropriate content schema identified in their texts. These HDR students' conditional knowledge was evident in the appropriate use of topical theme (51%) and rheme (16%). However, their inappropriate content schema affected coherence construction in their research

texts. This was characterised by their use of vague topical theme (49%), vague rheme (57%) and undeveloped rheme (27%) in their texts.

Four tendencies were found in these students' inappropriate content schemas. These were:

1) a high tendency to inappropriately use the definite article, which led to most of the inappropriate uses of topical theme and rheme;

2) a high tendency to insufficiently elaborate on general nouns, which contributed to most of the inappropriate uses of topical theme;

3) a high tendency to misuse lexical collocation pertaining to domain-specific knowledge, which resulted in most of the inappropriate uses of rheme; and

4) a high tendency to the misuse of lexical cohesion related to domain-specific knowledge, which led to most of the undeveloped rheme.

This chapter has presented the identified issues of inappropriate content schemas existing in these HDR students' research writing. Chapter 6 provides more detailed analyses of evidence of both text-based and reader-based coherence. Thematic and constrastive analyses of evidentiary excerpts from these HDR students' research writing and the corresponding supervisory on-script feedback provide a basis for exploring the issue of coherence in their research writing

CHAPTER SIX

Thematic and contrastive analysis of excerpts of content schemas for creating the intra-clausal level coherence

6.1 Introduction

This chapter analyses evidentiary excerpts from students' research texts concerning their inappropriate content schemas and problems with their intra-clausal coherence creation. Students' inappropriate content schemas are contrasted with their supervisor's modelling of appropriate content schemas identified through supervisory on-script corrective feedback. Specifically, this chapter examines *text-based coherence* (Johns, 1986), *reader-based coherence* (Fleckenstein, 1992), *conditional knowledge* (Paris et al., 1983), *content schema* (Rumelhart, 1980), *cohesion* (Halliday & Hasan, 1985), and *topical theme* and *rheme* (Halliday & Matthiessen, 2004). Section 6.2 summarises the types of inappropriate content schemas and the intra-clausal incoherence identified in the students' texts. Sections 6.3 and 6.4 present the thematic and contrastive analyses of the evidentiary excerpts of students' inappropriate uses of reference and lexical cohesion related to domain-specific knowledge and the corresponding supervisory on-script corrective feedback. Section 6.5 contrasts students' inappropriate content schemas to the appropriate content schemas provided to them through their supervisor's on-script feedback. Section 6.6 concludes this chapter.

6.2 Types of inappropriate content schemas and the intra-clausal incoherence in students' texts

This section offers the thematic and contrastive analyses of students' inappropriate content schemas and associated problems with creating the intra-clausal coherence in their research writing. Evidentiary excerpts from students' research texts and their supervisor's on-script corrective feedback are analysed contrastively, focusing on students' inappropriate content schemas and incoherence identified in the topical theme and the rheme in their research texts. These evidentiary excerpts are presented in two separate parts. Part one analyses evidence of inappropriate content schemas and incoherence elements (see Chapter 5) extracted from students' original texts. In part two, the evidentiary excerpts are from the supervisor's corresponding feedback to the students' texts. In terms of the two subsections, one provides the summary of the types of inappropriate uses of *reference* in the students' texts. The other summarises the types of students' inappropriate content schemas associated with lexical cohesion relative to domain-specific knowledge in their research texts.

6.2.1 Summerising the types of inappropriate uses of *reference* in students' texts

Table 6.1 summarises the types of students' inappropriate uses of *reference* and the corresponding evidence extracted from both students' original texts and their supervisor's on-script focused corrective feedback. As shown in this Table, there are five types of inappropriate uses of *reference* identified through the analysis of ten samples of evidence taken from students' original texts and their supervisor's on-script focused corrective feedback. These evidentiary excerpts were labelled from 1 to 10 based on their association to students' inappropriate uses of *reference* (see Section 6.3).

Table 6.1 Types of students' inappropriate uses of reference and the

corresponding evidence

Type	Evidence	
	Students' original text	**Supervisor' feedback**
1) Underuse of the definite article	Evidence 1 and 2	
2) Overuse of the definite article	Evidence 3 and 4	
3) Misuse of the definite article with pronominal reference	Evidence 5 and 6	
4) Misuse of the determiner with the definite article	Evidence 7 and 8	
5) Overuse of pronominal reference	Evidence 9 and 10	

Table 6.2a presents the types of coherent issues associated with students'
inappropriate uses of *reference* and the corresponding evidence extracted from
students' research texts and their supervisor's on-script corrective feedback. As
shown in Table 6.2a, there are two types of the intra-clausal coherence issues
identified in the ten evidentiary samples labelled from 1 to 10 (see Table 6.1). The
evidence samples are recategorised under the terms, *vague topical theme* and *vague
rheme* (see Section 6.3).

Table 6.2a Types of coherent issues associated with students' inappropriate uses

of reference and the corresponding evidence

Type	Evidence
Vague topical theme	Evidence 1, 3, 5,7, and 9
Vague rheme	Evidence 2, 4, 6, 8, and10

6.2.2 Summarising the types of inappropriate content schemas associated with lexical cohesion related to domain-specific knowledge in students' texts

Table 6.2b presents the types of students' inappropriate content schema associated with *lexical cohesion* related to domain-specific knowledge and the corresponding evidence taken from both students' texts and their supervisor's on-script corrective feedback. As shown in Table 6.2b, there are two types of inappropriate uses associated with *lexical cohesion* relative to domain-specific knowledge in the students' research writing. Also, six pieces of corresponding evidence excerpts are labelled from 11 to 16 in this Table (see Section 6.4).

Table 6.2b Types of students' inappropriate content schemas associated with inappropriate lexical cohesion related to domain-specific knowledge and the corresponding evidence

Type	Manifestation	Evidence	
		Student's text	Supervisor's feedback
Lexical cohesion relative to domain-specific knowledge	1) Misuse of lexical collocation relative to domain-specific knowledge	Evidence 11, 12 and 13	
	2)Insufficient elaboration of general nouns	Evidence 14, 15 and 16	

As shown in Table 6.2c, there are three types of coherent issues associated with the students' inappropriate uses of *reference* identified in their content schemas. Six pieces of corresponding evidence, which are labelled from 11 to 16 in Table 6.2a, are recategorised here, according to these three types of coherence issues (see Section 6.4).

Table 6.2c Types of the intra-clausal coherence issues associated with inappropriate uses of reference in students' texts

Type	Evidence
Vague topical theme	Evidence 11 and 12
Vague rheme	Evidence 13 and 14
Undeveloped rheme	Evidence 15 and 16

6.3 Thematic and comparative analyses of inappropriate uses of *reference* in the topical theme and the rheme in students' texts

This section offers the thematic and contrastive analyses of students' inappropriate uses of *reference* in the *topical theme* and the *rheme* in their research writing. Evidentiary excerpts of five types of inappropriate usage (see Table 6.1) are analysed comparatively. Each sample of evidence is analysed two fold: part one showing evidentiary excerpts of students' inappropriate uses of *reference* and part two showing their supervisor's corresponding feedback to students' texts. Each of the five subsections is labelled with each of the five types of inappropriateness in *reference* used by students.

Topical theme is the first word or phrase carrying meaning in an experiential sense, realised by a participant, process or circumstance (Halliday & Hasan, 1985). It is incorporated in every clause and anchors the starting point of the message (Bloor & Bloor, 2013). It is always realized by one of the following: subject, predicator, complement, or circumstantial adjunct and is always the first of these constituents in the clause (Bloor & Bloor, 2013). *Rheme* is "part of the assembly of the new

information that the text offers" (Cummings, 2003: 133). It follows the theme in a clause (Halliday & Hasan, 1985). The construction of the *topical theme* and the *rheme* comprises the uses multiple elements, such as *reference*. *Reference* is defined as:

> a relationship between things, or facts (phenomena, or metaphenomena);
> it may be established at varying distances, and although it usually serves
> to relate single elements that have a function within a clause (processes,
> participants, circumstances) (Halliday & Matthiessen, 2004: 536).

Inappropriateness in *reference* use in constructing the *topical themes* and the *rhemes* causes vagueness in information organisation in a text. Five types of inappropriate uses of *reference* in constructing the *topical themes* and the *rhemes* were identified in students' texts (see Tables 6.1 and 6.2a). The results obtained from the thematic and comparative analyses of examples of these five types are presented respectively in the following subsections.

6.3.1 Underuse of the definite article

The definite article is one type of reference that can help identify the referent that situates in a neutral distance (Eggins, 2004). Witte and Flaigley (1981: 191) state that the definite article occurs "when one item in a text points to another element [in a near distance] for its interpretation". In this regard, the appropriate use of the definite article signals the organisation of information in a text anaphorically, which creates grammatical cohesion (Halliday, 1976). Conversely, an underuse of the definite article tends to result in vagueness in identifying anaphor-antecedent relations as well as incoherence in a text (Eggins, 2004). For instance, when underuse of the definite article occurs in the topical theme and the rheme, it may produce vague topical theme and vague rheme. Instances of vague topical theme and vague rheme associated with inappropriate uses of *reference* were found in students' research texts.

6.3.1.1 Underuse of the definite article in vague topical theme

Evidence 1 was an excerpt from Mia's initial draft of thesis introductory Chapter and her supervisor's on-script corrective feedback. It exemplifies how Mia's underuse of the definite article in constructing topical themes caused vagueness in the content of topical themes in her research writing.

Evidence 1

> **<u>Student's original text</u>**: …photographs are presented photo novels with vignettes…
>
> **<u>Student's text marked with supervisor's feedback:</u>** …The photographs are presented photo as photo novels with vignettes…

Source: Excerpt from Mia's thesis introductory Chapter

The highlighted word *"the"* in the second part of Evidence 1, <u>Student's text marked with supervisor's feedback,</u> points to Mia's underuse of the definite article "*the*" in front of "*photographs"*. The effect that this underuse brought to coherence of Mia's text is depicted in Table 6.3.

Table 6.3 presents a thematic analysis of the <u>Student's original text</u> in Evidence 1. It explains how the coherence of Mia's text was negatively influenced by her underuse of the definite article in the topical theme in her research text. This excerpt is composed of one theme-rheme clause. The topical theme of this clause is "*Photographs*" while the rheme of this clause is "*are presented photo novels with vignettes*". The definite article, "*the*", was underused in front of the topical theme, "*photographs*". According to Halliday and Hasan (1985), the definite article is an anaphoric signal that is used to create grammatical cohesion. This underuse led to cohesion failure in identifying an anaphor-antecedent relationship between the topical theme and the previous clause in Mia's text. Accordingly, this failure to establish cohesion generated the vague topical theme in Mia's text.

Table 6.3 Thematic analysis of vague topical theme associated with Mia's underuse of the definite article

The theme-rheme structure		
	Topical theme	**Rheme**
Clause	↓Photographs	are presented as photo novels with the vignettes
	The	
	↓	
	cohesion failure in identifying anaphor-antecedent relation with the preceding	

Table 6.4 presents a thematic analysis of the <u>Mia's text marked with supervisor's focused written corrective feedback</u> in Evidence 1. With respect to Mia's coherence error, her supervisor's feedback provided a focused correction by adding the definite article to the topical theme in Mia's text. That is, the definite article "*the*" was added to "*photographs*" in the topical theme part of the clause. In contrast to Mia's underuse of the definite article, this addition strengthened the anaphor-antecedent relationship between the topical theme and the previous clause in Mia's text.

Table 6.4 Thematic analysis of vague topical theme associated with Mia's underuse of the definite article marked with her supervisor's feedback

The theme-rheme structure		
	Topical theme	**Rheme**
Clause	The photographs	are presented as photo novels with the vignettes
	↓	
	signalling an anaphor-antecedent relation with the preceding clause	

The findings identified in Mia's text indicate that these particular international Chinese HDR students like Mia tended to underuse the definite article in the topical theme in their research writing (see Table 5.10 in Chapter 5). In English, the definite article is used to point to another element appearing at a neutral distance to assist with coherence (Halliday & Matthiessen, 2004). Mia's underuse of the definite article in the topical theme caused vague interpretation of another element located at a neutral distance in her text. Specifically, this underuse led to inappropriateness in identifying anaphor-antecedent relations in her text. The result reveals that these HDR students, like Mia, had difficulty in appropriately using the definite article when introducing given information in the topical theme in their research writing. This suggests the importance of increasing:

> English learners' understanding of how themes contribute to the method of development in texts so that they could benefit from an increased awareness of how Themes may be used to manage the build-up of information as it accumulates in their texts (Wei, 2013: 2207).

6.3.1.2 Underuse of the definite article in vague rheme

Evidence 2 was an excerpt from Daisy's initial draft Master thesis introductory Chapter and her supervisor's on-script corrective feedback. It exemplifies how Daisy's underuse of the definite article in constructing the rhemes caused vagueness in the content of these rhemes in her research text.

Evidence 2

> **Student's original text**:…I was seconded to the division of Study Abroad at China Scholarship Council, Ministry of Education, P.R. China. During my work there from 2007 to 2009, I was in charge of a few scholarship programs such as state-sponsored visiting scholar's programs,

U.S.A-China Fulbright program, Canada-China scholar exchange program.

Student's text marked with supervisor's feedback:…I was seconded to the division of Study Abroad at <u>the</u> China Scholarship Council, Ministry of Education, P.R. China. During my work there from 2007 to 2009, I was in charge of a few scholarship programs such as state-sponsored visiting scholar's programs, <u>the</u> U.S.A-China Fulbright program, and <u>the</u> Canada-China scholar exchange program.

Source: Excerpt from Daisy's draft Master thesis.

As noted from the <u>Student's text marked with supervisor's feedback</u> in Evidence 2, the highlighted words, "*the*", marked with the supervisor' on-script corrective feedback points to Daisy's underuse of the definite article '*the*' respectively in front of "*China Scholarship Council*", "*U.S.A-China Fulbright program*" and "*Canada-China scholar exchange program*". The effect this underuse has on the coherence of her text is further elaborated in Table 6.5.

Table 6.5 shows that this excerpt of text from the <u>Student's original draft</u> is composed of two theme-rheme clauses: clause 1 and clause 2. The theme of clause 1 is "*I*" while the rheme of this clause is "*was seconded to the division of Study Abroad at China Scholarship Council, Ministry of Education, P.R. China*. The definite article was underused in front of "*China Scholarship Council, Ministry of Education, P.R. China*" in the rheme of clause 1. As Eggins (2004) states, the definite article is one type of *reference* that can help identify the referent that situates in a neutral distance. Underuse of the definite article in this excerpt caused a cohesion failure to identify the unique referent for "*China Scholarship Council, Ministry of Education*". The same problem was also found in the rheme in clause 2. The definite article '*the*'' was underused in front of "*U.S.A-China Fulbright program*" and "*Canada-China scholar*

exchange program" respectively. Daisy's underuse of the definite article led to vague rheme and incoherence in her text.

Table 6.5 Thematic analysis of underuse of the definite article

in the rheme in Daisy's text

	The theme-rheme structure	
	Topical theme	**Rheme**
Clause 1	I	was seconded to the division of Study Abroad at China
		the
Clause 2	During my work there from 2007 to 2009,	Scholarship Council, Ministry of Education, P.R. China. I was in charge of a few scholarship programs such as state-sponsored visiting scholars programs, U.S.A-China
		the
		Fulbright program, and Canada-China scholar exchange program.
		the → cohesion failure in identifying the unique referent

Table 6.6 presents a thematic analysis of the Student's text marked with the supervisor's feedback from Evidence 2. With respect to Daisy's coherence error, her supervisor's feedback provided her with a focused correction. The correction is the addition of the definite article to the rhemes in clause 1 and clause 2 in Daisy's text. That is, the definite article was added in front of "*China Scholarship Council, Ministry of Education, P.R.China*" in clause 1 as well as to "*U.S.A-China Fulbright program*" and "*Canada-China scholar exchange program*" in clause 2. This addition strengthened the connectedness between the rhemes and the environment relating to Daisy's text.

Table 6.6 Thematic analysis of vague rheme associated with Daisy's underuse of the definite article marked with her supervisor's feedback

		The theme-rheme structure	
	Topical theme	**Rheme**	
Clause 1	I	was seconded to the division of Study Abroad at the China Scholarship Council, Ministry of Education, P.R. China.	
Clause 2	During my work there from 2007 to 009,	I was in charge of a few scholarship programs such as state-sponsored visiting scholars programs, the U.S.A-China Fulbright program, and the Canada-China scholar exchange program.	

identifying the unique referent

The findings identified in Daisy's text indicate that these international Chinese HDR students, like Daisy, tended to underuse the definite article '*the*' in constructing the rheme in their research texts (see Table 5.10 in Chpater 5). Their underuse of the definite article violated the Given-New information and thematic structure systems (Halliday & Matthiessen, 2004). Consequently, it caused the issue of vague rhemes in their research writing. This result reveals that these HDR students, like Daisy, lacked appropriate content schemas that could help them create the micro-level coherence with appropriate *reference* use at their novice writing stage.

6.3.2 Overuse of the definite article

Overuse of the definite article fails to signal an anaphoric *reference* in a text (Halliday & Hasan, 1985). The issue of overusing the definite article in the construction of the *topical themes* and the *rhemes* was identified in these international Chinese HDR students' research texts.

6.3.2.1 Overuse of the definite article in vague topical theme

Evidence 3 was an excerpt from Eve's initial draft of her PhD research proposal and her supervisor's on-script corrective feedback. It exemplifies Eve's overuse of the

definite article in constructing topical themes and how this overeruse caused vagueness in the content of her research text.

Evidence 3

> **Student's original text:** Therefore, the Chinese indigenous knowledge possessed by individuals is rooted in a tripartite knowledge system. Further, the individuals' experiences including their education as well as work, domestic as well as abroad and the perceptions of the society and world change involved Chinese indigenous knowledge….

> **Student's text marked with supervisor's feedback:** Therefore, the Chinese indigenous knowledge possessed by individuals is rooted in a tripartite knowledge system. Further, ~~the~~ individuals' experiences including their education as well as work, domestic as well as abroad and their perceptions of the society and world change involved Chinese indigenous knowledge….

Source: Excerpt from Eve's draft PhD research proposal

The highlighted word *"the"* in the Student's original text in Evidence 3 indicates Eve's overuse of the definite article in the topical theme in her research text. As shown in this evidentiary excerpt from Eve's text, the definite article was overused in front of the plural count nouns, *"individuals' experiences"*. Given that no reference to "*individuals' experiences*" was made in the preceding clause in Eve's text, her use of the definite article in front of "*individuals' experiences*" is redundant. This redundancy is verified by a thematic analysis of the Student's original text in Evidence 3 in Table 6.7.

As shown in Table 6.7, two theme-rheme clauses constitute Eve's text: clause 1 and clause 2. The theme in clause 1 is "*therefore, the Chinese indigenous knowledge*

possessed by individuals" while the rheme of this clause is "*is rooted in the tripartite knowledge system*". As for clause 2, its theme is "*Further, the individuals' experiences including…world change*" and its rheme is "*involved Chinese indigenous knowledge*". The use of the definite article "*the*" in front of the expression "*individuals' experiences*" in clause 2 indicated an anaphor-antecedent relation between the topic theme in clause 2 and the content of the preceding clause. The *definite article* helps identify the referent that situates in a neutral distance in the text (Eggins, 2004). However, no definite referent to the reference, "*the individuals' experiences*", was found in clause 1. As such, the definite article "*the*" was overused in front of "*individuals' experiences*". This overuse caused vague cohesion between clause 1 and clause 2 as well as the vague topical theme in clause 2.

Table 6.7 Thematic analysis of vague topical theme associated with Eve's overuse of the definite article

A thematic analysis of the Student's text marked with supervisor's feedback from Evidence 3 is presented in Table 6.8. Given Eve's coherence error, her supervisor's feedback provided a correction by deleting the definite article from the topical theme in her text. That is, the definite article "*the*" was deleted from the plural count nouns "*the individuals' experiences*" in the topical theme position of clause 2. In doing so, zero article is put in front of the proper name "*individuals' experiences*". In contrast to Eve's overuse of the definite article, this deletion reduced vagueness of the topical theme and strengthened the coherence between clause 1 and clause 2 in Eve's text.

Table 6.8 Thematic analysis of vague topical theme associated with Eve's

overuse of the definite article marked with her supervisor's feedback

	The theme-rheme structure	
	Theme (textual theme + topical theme)	**Rheme**
Clause 1	Therefore, the Chinese indigenous knowledge possessed by individuals	is rooted in a tripartite knowledge system.
Clause 2	Further, ~~the~~ individuals' experiences including their education as well as work, domestic as well as abroad and the perceptions of the society and world change	involved Chinese indigenous knowledge….
	zero article with proper names	

The findings identified in the analysis of Eve's text demonstrate that these particular international Chinese HDR students, for whom Eve is an example, tended to overuse the definite article in the topical theme in their research writing (see Table 5.11 in Chapter 5). Eve's overuse in the topical theme position caused redundant cohesion which contributed to incoherence in her text. Overuse of the definite article found with these Chinese HDR students, like Eve, seems to be related to absence of the definite article in Chinese. This is partially supported by findings of some researchers who reported that English learners, whose first language lacks the use of articles, tend to overuse the definite article in their writing in English (Arabi & Ali, 2015; Chondrogianni et al., 2015; Ürkmez, 2014). This result reveals that these international Chinese HDR students, whose first language lacks the article, were inclined to overuse the definite article in their research writing. Morever, it also suggests that these HDR students need more help with appropriate *reference* use when commencing their research writing at their novice stage.

6.3.2.2 Overuse of the definite article in vague rheme

Evidence 4 is an excerpt from Tony's initial draft of his Master thesis introductory Chapter and his supervisor's on-script corrective feedback. It exemplifies how his

overuse of the definite article in constructing rhemes causes vagueness in the content of these rhemes in his research writing.

Evidence 4

> **<u>Student's original text</u>:** When I decided to pursue doctoral research, I selected the strategic leadership for internationalizing higher education as my research focus.

> **<u>Student's text marked with supervisor's feedback</u>**: When I decided to pursue doctoral research, I selected ~~the~~ strategic leadership for internationalizing higher education as my research focus.

Source: Excerpt from Tony's initial draft Master thesis

The highlighted *"the"* in this evidentiary excerpt shows that Tony overused the definite article "*the*" in the rheme position in his research text. As noted in this <u>Student's original text</u>, the definite article "*the*" was overused in front of the proper noun, *"strategic leadership"*. Given that no reference for "*strategic leadership*" was found in the preceding clause in Tony's text, his use of the definite article "*the*" in front of "*strategic leadership*" is redundant. This redundancy is verified by a thematic analysis of the <u>Student's original text</u> from Evidence 4 in Table 6.9.

As shown in Table 6.9, two theme-theme clauses constitute the <u>Students' original text</u> in Evidence 4, namely, clause 1 and clause 2. The theme in clause 1 is "*When I*" and the rheme is "*decided to pursue doctoral research*". As for clause 2, its theme is "*I*" and its rheme is "*selected the strategic leadership for internationalizing higher education as my research focus*". The use of the definite article "*the*" in front of "*strategic leadership*" formed an anaphoric reference to refer to what is mentioned in the preceding clause. This is because the definite article signals "a semantic relation whereby information needed for the interpretation of one item is found somewhere in

the text" (Carroll, 1999: 158). However, no corresponding referent to "*the strategic leadership*" was found in clause 1. As such, the definite article "*the*" was overused in front of "strategic leadership" in Tony's text.

Table 6.9 Thematic analysis of vague rheme associated with Tony's overuse of the definite article

Table 6.10 presents a thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 4. Deletion of the definite article "*the*" from the rheme of clause 2 was marked by the supervisor as feedback. This is because a zero article should be put in front of abstract nouns to configure new information for a text (Halliday & Matthiessen, 2004). In this regard, Tony's supervisor suggested that he use a zero article in front of "*strategic leadership*" to keep its inherent meaning in his text. In contrast to Tony's overuse of the definite article, this deletion showed the inherent meaning of "*strategic leadership*" throughout Tony's text.

The findings from Tony's text indicate that these particular international Chinese HDR students, like Tony, tended to overuse the definite article in constructing the rheme in their research writing (see Table 5.11 in Chaper 5). This is partially supported by Arabi et al. (2015) who found that the definite article is often incorrectly used in front of abstract nouns by English learner writers. The result reveals that these HDR students had difficulty in elaborating new information in the rheme position in their research texts. Moreover, the result also suggests that these HDR students need help with building their conditional knowledge for the micro-level coherence creation through using the definite article appropriately in their research writing.

Table 6.10 Thematic analysis of vague rheme associated with Tony's overuse of the definite article marked with his supervisor's feedback

	Topical theme	The theme-rheme structure
		Rheme
Clause 1	When I	decided to pursue doctoral research,
Clause 2	I	selected ~~the~~ strategic leadership for internationalizing higher education as my research focus.

zero article with proper noun

6.3.3 Misuse of the demonstrative with pronominal reference

Pronominal refers to personal reference, which functions within nominal groups (noun phrases), while the demonstrative pronoun is referenced by means of its location, on a scale of proximity (Halliday & Hasan, 1985). Misuse of the demonstrative with pronominal reference in the construction of topical themes tends to cause incoherence and vagueness in a text. The issue of misusing the demonstrative with pronominal reference was found in these HDR students' research texts.

6.3.3.1 Misuse of the demonstrative with pronominal reference in vague topical theme

Evidence 5 was an excerpt from Kim's initial draft PhD research proposal and his supervisor's on-script corrective feedback. It exemplifies how Kim's misuse of the demonstrative with pronominal reference in the construction of topical themes caused vagueness in the content of these topical themes in his text.

Evidence 5

> **Student's original text:** With the dramatic increase in international student mobility and university collaborations, the impact of national

cultures on international education has drawn much more attention in recent years (Hassam, 2007; Eldridge & Cranston, 2009; Wang, 2012; Nie, 2012). They highlight the impact of national cultures and values as being important for cross-cultural leadership involved in international education.

Student's text marked with supervisor's feedback: With the dramatic increase in international student mobility and university collaborations, the impact of national cultures on international education has drawn much more attention in recent years (Hassam, 2007; Eldridge & Cranston, 2009; Wang, 2012; Nie, 2012). ~~They~~ These highlight the impact of national cultures and values as being important for the cross-cultural leadership involved in international education.

Source: Excerpt from Kim's draft PhD research proposal

The highlighted words, *"they"* and *"these",* in this evidentiary excerpt indicate Kim's misuse of the demonstrative with pronominal in the topical theme in his text. As shown in the Student's original text from Evidence 5, the pronominal "*they*" was used instead of the demonstrative "*these*" in the topical theme position at the beginning of the second clause. This misuse is clearly identified by a thematic analysis of the Student's original text from Kim's research text in Table 6.11.

As shown in Table 6.11, this excerpt consisted of two theme-rheme clauses (clause 1 and clause 2). In terms of clause 1, its theme is "*With the dramatic ... collaborations*", while its rheme is "*the impact of national ...Nie, 2012)"*. In terms of clause 2, its theme is "*they*" and its rheme is "*highlight… international education"*. The pronominal "*they*" in the topical theme position in clause 2 signalled an anaphor-antecedent relationship with the content of clause 1. Generally, the anaphor-antecedent relationship signaled by the pronominal should occur within nominal groups to signal a personal reference (Halliday & Hasan, 1985). However,

clause 1 is not a nominal group for a person, so the pronominal *"They"* which functions as a personal reference is not the proper pro-form for the content of clause 1. In other words, the semantic connectedness between *"they"* and the content of clause 1 is not presented by the use of the pronominal "*they*". Therefore, Kim's inappropriate use of the pronominal "*they*'' led to vagueness in the topical theme in clause 2, which caused incoherence in his research text.

Table 6.11 Thematic analysis of vague topical theme associated with Kim's misuse of the demonstrative with pronominal reference

Table 6.12 presents a thematic analysis of the <u>Student's text marked with the supervisor's feedback</u> from Evidence 5. In view of Kim's coherence error demonstrated in Table 6.11, the replacement of *"they"* with *"these"* was marked in his supervisor's feedback. This replacement is based on the scale of proximity location between referent and reference (Halliday & Hasan, 1985). Given the identifiable referent, the whole of clause 1, the demonstrative, *"these"*, should be used to show an anaphor-antecedent relation between the topical theme of clause 2 and the whole content of clause 1. As such, the pronominal "*they*" was replaced by the demonstrative "*these*" in the topical theme position in clause 2. In contrast to Kim's misuse, this replacement eliminated the vagueness of the topical theme in clause 2 and strengthened cohesion between these two clauses in this excerpt.

Table 6.12 Thematic analysis of vague topical theme associated with Kim's misuse of the demonstrative with pronominal reference marked with his supervisor's feedback

The findings identified in Kim's text demonstrate that these particular international Chinese HDR students, like Kim, were inclined to confuse the use of the demonstrative with the pronominal in their research writing (see Table 5.12 in Chapter 5). Specifically, Kim's misuse of the pronominal with the demonstrative in the topical theme position caused disconnectedness between the referent and reference, which led to incoherence in his texts. This is partially supported by Cho and Shin (2014) who report that English learners are inclined to inappropriately use demonstratives in their academic writing in English. Moreover, it also aligns with Yao's (2015) report that Chinese students as English learners have coherence issues such as misusing reference in their academic writing in English. Thus, this result reveals that these HDR students, like Kim, as advanced English learners had difficulty in appropriately using pronominal and the demonstratives to set up coherence in their research texts at their novice writing stage.

6.3.3.2 Misuse of the demonstrative with pronominal in vague rheme

Evidence 6 was an excerpt from Eve's initial draft of PhD research proposal and her supervisor's on-script corrective feedback. It exemplifies how her misuse of the demonstrative with pronominal reference in the construction of the rhemes caused vagueness in the content of these rhemes in her research writing.

Evidence 6

> **Student's original text**: Sociocultural perspective of literacy has EC educators use different forms of texts and children learn from <u>it</u> through participating sociocultural activities (Perez, 2004).

> **Student's text marked with supervisor's feedback**: Sociocultural perspective of literacy has EC educators use different forms of texts and children learn from ~~it~~ <u>these</u> through participating sociocultural activities (Perez, 2004).

Source: Excerpt from Eve's PhD research proposal

The highlighted words, *"it"* and *"these",* in this evidentiary excerpt show Eve's misuse of the demonstrative with pronominal in the rheme position in her research writing. As shown in the <u>Students' original text</u> in Evidence 6, the pronominal "*it*" was replaced with the demonstrative "*these*" after the proposition "*from*". This misuse is demonstrated by a thematic analysis of this <u>Students' original text</u> in Table 6.13.

Table 6.13 shows that two theme-theme clauses constitute this excerpt of text, namely, clause 1 and clause 2. As for clause 1, its theme is "*Sociocultural perspective of literacy*", while its rheme is "*has EC educators use different forms of texts*". In terms of clause 2, its theme is "*and children*" and its rheme is "*learn from it*

through participating sociocultural activities (Perez, 2004)". The pronominal "*it*" in the rheme in clause 2 and the phrase "*different forms of texts*" in clause 1 formed an anaphor-antecedent relation. As Halliday and Hasan (1985) state, the pronominal is used for personal reference within nominal groups (noun phrase) rather than reference to location. However, the pronominal *"it"* is not the proper pro-form for "*different forms of texts*". In other words, the semantic connectedness between *"it"* and "*different forms of texts*" is not signalled by the use of the pronominal "*it*". This revealed inappropriateness in pronominal use in the rheme in clause 2. This inappropriateness resulted in a vague rheme in clause 2 and a coherence break between these two clauses in Eve's text.

Table 6.13 Thematic analysis of vague rheme associated with Eve's misuse of the demonstrative with pronominal reference

	The theme-rheme structure	
	Topical theme	**Rheme**
Clause 1	Sociocultural perspective of literacy	has EC educators use different forms of texts
Clause 2	and children	learn from it through participating sociocultural activities (Perez, 2004).
		reference → mismatch ← referent

Table 6.14 presents a thematic analysis of Eve's text marked with her supervisor's feedback from Evidence 6. As to Eve's coherence error demonstrated in Table 6.13, the replacement of *"it"* with *"these"* was marked in her supervisor's feedback. This replacement is based on the scale of proximity location between the referent and reference (Halliday & Hasan, 1985). Given the identifiable referent, *"different forms of texts"* in clause 1, the demonstrative, *"these"*, should be used to show an anaphor-antecedent relation in Eve's text. Accordingly, the pronominal *"it"* was replaced by the demonstrative *"these"* in the rheme in clause 2. In contrast to Eve's misuse, this replacement eliminated the vagueness of the rheme in clause 2 and established semantic connectedness between these two clauses in this excerpt.

Table 6.14 Thematic analysis of vague rheme associated with Eve's misuse of the demonstrative with pronominal reference marked with her supervisor's feedback

The findings from Eve's writing sample demonstrate that these international Chinese HDR students, like Eve, tended to misuse the demonstrative with pronominal in their research writing (see Table 5.12 in Chapter 5). This is partially supported by Cho and Shin (2014) who found that English learner writers tend to inappropriately use demonstratives in their academic writing in English. This result reveals that these HDR students confronted challenges in appropriately using the demonstrative and pronominal reference in the rheme position in their research writing. This finding is also confirmed by Yao's (2015) report that Chinese students had problems of misusing reference in their academic writing in English.

6.3.4 Misuse of the determiner with the definite article

The determiner and the definite article function differently in constructing the topical theme. The determiner *"this"* helps identify the referent in a near distance, while the definite article helps identify the referent that is situated at a neutral distance (Eggins, 2004). Misuse of the determiner with the definite article can cause misinterpretation in identifying the referent. The issue of misusing the determiner *"this"* with the definite article in constructing the topical theme was found in these international Chinese HDR students' research texts.

6.3.4.1 Misuse of the determiner with the definite article in vague topical theme

Evidence 7 was extracted from Eve's initial draft of PhD research proposal and her supervisor's on-script corrective feedback. It exemplifies how Eve's misuse of the determiner *"this"* with the definite article resulted in vagueness in topical theme in her research writing.

Evidence 7

> **Student's original text**: A three dimensional conception of indigenous knowledge is constructed from a collective perspective. Therefore, based on the three-dimension concept, indigenous knowledge may be defined as the knowledge system originating from a certain society.
>
> **Student's text marked with supervisor's feedback:** A three dimensional conception of indigenous knowledge is constructed from a collective perspective. Therefore, based on ~~the~~ this three-dimension concept, indigenous knowledge may be defined as a knowledge system originating from a certain society.

Source: Excerpt from Eve's draft PhD research proposal.

As noted in this evidentiary excerpt, the highlighted words, *"the"* and *"this"*, indicate Eve's misuse of the determiner *"this"* with the definite article in the topical theme in her research writing. That is, the highlighted definite article *"the"* in the Student's original text in Evidence 7 was misused with the demonstrative *"this"* in the topical theme position. This misuse is verified by a thematic analysis of the Student's original text from Eve's research text in Table 6.15.

Table 6.15 shows that this evidentiary excerpt is composed of two theme-rheme clauses: clause 1 and clause 2. With respect to clause 1, its theme is *"A three*

dimensional conception of indigenous knowledge" and its rheme is "*is…perspective*". In clause 2, its theme is "*Therefore, based…concept*", while its rheme is "*indigenous knowledge … society*". In the topical theme in clause 2, the definite article "*the*" was used by Eve to modify "*three-dimension concept*" to provide a reference for "*a three dimensional conception of indigenous knowledge*" in the theme part of clause 1. The reference "*the three dimension-concept*" and its referent "*a three dimensional conception of indigenous knowledge*" appear in two adjacent clauses, which shows a near locational distance. Yet, a near locational distance like this should be signalled by the determiner "this" rather than the definite article (Eggins, 2004). In this regard, the determiner "*this*" should be used in front of "three dimension concept" in the topical theme of clause 2 to identify the referent in a near locational distance. However, instead of using the determiner "this", Eve inappropriately used the definite article in front of "three dimension concept". This inappropriate use caused vagueness in the topical theme in clause 2 and incoherence between the two clauses in this excerpt.

Table 6.15 Thematic analysis of vague topical theme associated with Eve's misuse of the determiner with the definite article

Table 6.16 depicts a thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 7. With respect to Eve's coherence error demonstrated in Table 6.15, the definite article in the topical theme in clause 2 was replaced by the determiner *"this"* in her supervisor's feedback. This replacement is based on the

scale of proximity of location between the referent and reference (Holliday & Hasan, 1985). Given a near locational distance between a referent and its reference in adjacent clauses, the determiner, *"this"*, is supposed to be used in front of *"three dimensional concept"* in the topical theme in clause 2 to show an anaphor-antecedent relation with "*a three dimensional conception*" in clause 1. As such, the definite article, *"the"*, was substituted by the determiner "*this*" in the topical theme in clause 2. In contrast to Eve's misuse, this replacement suggested in her supervisor's feedback clarified semantic connectedness between these two clauses in this excerpt.

Table 6.16 Thematic analysis of vague topical theme associated with Eve's misuse of the determiner with the definite article marked with her supervisor's feedback

The analysis of Eve's text indicate that these international Chinese HDR students, like Eve, had an inclination to misuse the determiner *"this"* with the definite article in their research writing (see Table 5.14 in Chapter 5). Specifically, this misuse in the topical theme undermined the theme clarity and generated incoherence in the research writing. Similarly, Bao (2015) also found that the determiner "this" with the definite article was frequently misused in Chinese students' academic writing in English. Therefore, this result reveals that these HDR students whose native language does not distinguish the definite article from the determiner had difficulty in differing the determiner "this" from the definite article in their research texts.

6.3.4.2 Misuse of the determiner with the definite article in vague rheme

Evidence 8 was extracted from Lily's initial draft of PhD thesis introductory Chapter and her supervisor's on-script corrective feedback. It exemplifies how her misuse of the determiner "this" with the definite article in constructing the rheme resulted in vagueness in the content of her research text.

Evidence 8

> **Student's original text**: Once literacy was defined as *the skills of reading and writing* (Freebody, 2007). In recent decades as technology has developed, literacy is now defined as more than the traditional notion as involving more forms of texts and social communication, culture and knowledge (Wickens & Sandlin, 2007).
>
> **Student's text marked with supervisor's feedback**: Once literacy was defined as *the skills of reading and writing* (Freebody, 2007). In recent decades as technology has developed, literacy is now defined as more than ~~the~~ this traditional notion as involving more forms of texts and social communication, culture and knowledge (Wickens & Sandlin, 2007).

Source: Excerpt from Lily's draft PhD thesis.

The highlighted words, *"the"* and *"this",* in Evidence 8 point to Lily's misuse of the determiner with the definite article in the rheme in her research text. Given the anaphor-antecedent relation in adjacent clauses (Halliday & Hasan, 1985), the definite article "the" in the Student's original text in this excerpt, was misused with the determiner "this". This misuse is demonstrated by a thematic analysis of the Student's original text in Table 6.17.

Table 6.17 shows that this excerpt of text is composed of two theme-rheme clauses: clause 1 and clause 2. In terms of clause 1, its theme is "*once*" and its rheme is "*literacy was ... writing*". As for clause 2, its theme is "*In recent ... developed*", while its rheme is "*literacy is ... knowledge (Wickens & Sandlin, 2007)*". In the rheme in clause 2, the definite article "*the*" was utilised by Lily to modify "*traditional notion*" to provide a reference for "*the skills of reading and writing*" in the rheme in clause 1. The reference "*the traditional notion*" and its referent "*the skills of reading and writing*" appear respectively in two neighboring clauses. That is, the reference and its referent were in a near locational position. However, a near locational position between a reference and its referent can not be shown by the definite article "*the*" but by the determiner "*this*" (Holliday & Hasan, 1985). This suggests that the use of the definite article in the rheme in clause 2 is inappropriate. This inappropriateness gave rise to the vague rheme of clause 2 and incoherence in Lily's text.

Table 6.17 Thematic analysis of vague rheme associated with Lily's misuse of the determiner with the definite article

Table 6.18 presents a thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 8. The replacement of the definite article "*the*" with the determiner "*this*" was marked by the supervisor as corrective feedback. This replacement is based on the scale of proximity location between referent and reference. In a near locational distance, a referent and its reference need to appear in

adjacent clauses (Halliday & Hasan, 1985). In this regard, the demonstrative, *"this"*, is supposed to be used in front of *"traditional notion"* in the rheme in clause 2 to show an anaphor-antecedent relation with *"literacy…writing"* in clause 1. As such, the definite article *"the"* was replaced by the demonstrative *"this"* in the rheme in clause 2 marked by the supervisor. In contrast to Lily's misuse, this substitution reduced vagueness in the rheme in clause 2 and reinforced cohesion between these two clauses in this excerpt.

Table 6.18 Thematic analysis of vague rheme associated with Lily's misuse of the determiner with the definite article marked with her supervisor's feedback

The findings identified in Lily's text indicate that these international Chinese HDR students, exemplified by Lily tended to misuse the determiner *"this"* with the definite article *"the"* in constructing the rheme in their research writing (see Table 5.14 in Chapter 5). This is partially supported by Eggins (2004) who contends that a writer, being unclear about the proximity in location between the reference and its referent, can inadvertently barricade the establishment of coherence in his/her writing. Thus, this result reveals that these HDR students confronted difficulties in deciphering the proximity in location between the reference and its referent in their research writing. It also suggests that these students need supervisory writing support to help them learn the appropriate content schema for using the definite article and the determiner at their novice writing stage.

6.3.5 Overuse of pronominal reference

Pronominal, as a personal reference, functions within nominal groups (noun phrases) (Halliday & Hasan, 1985). The match between the pronominal reference and its antecedents helps to create coherence in a text (Halliday & Matthiessen, 2004). Conversely, mismatches or inappropriate uses of pronominal reference undermine the anaphora-antecedent relationship in a text. The issue of overusing personal reference in constructing topical themes was found in these international Chinese HDR students' research texts.

6.3.5.1 Overuse of pronominal reference in vague topical theme

Evidence 9 was extracted from Daisy's initial draft Master thesis introductory Chapter and her supervisor's on-script corrective feedback. This evidence exemplifies how Daisy's overuse of personal reference resulted in vagueness in the topical theme in her research writing.

Evidence 9

> **<u>Student's original text</u>**:...Mestenhauser and Ellingboe<u>'s</u> (2005), <u>in their</u> proposed assessment guidelines, highlight the role of university leaders in terms of decision making, strategic planning and leading change…

> **<u>Student's text marked with supervisor's feedback</u>**:..Mestenhauser and Ellingboe's (2005)~~, in their~~ proposed assessment guidelines highlight the role of university leaders in terms of decision making, strategic planning and leading change…

Source: Excerpt from Daisy's initial draft Master thesis.

As shown in <u>Student's original text</u> in this evidentiary excerpt, the highlighted parts, "*'s*" and *"in their"*, indicate that Daisy overused the pronominal in the topical theme in her research writing. This misuse is demonstrated by a thematic analysis of the <u>Student's original text</u> from Evidence 9 in Table 6.19.

Table 6.19 indicates that this excerpt of text is composed of one theme-rheme clause. The theme is "*Mestenhauser and Ellingboe (2005), in their proposed assessment guidelines*" and the rheme is "*is...perspective*". In the topical theme, there existed an overlapping of the referent "*Mestenhauser and Ellingboe (2005)*" and its reference, the pronominal *"their"*. Given that reference "may be established at varying distances" (Halliday & Matthiessen, 2004: 536), it is an interpretation of one item found somewhere in the text (Carroll, 2004). That is, the reference and its referent occur in different positions in a text. However, the pronominal *"their"* used in the topical theme position in this excerpt occurred in the same position with its referent, "*Mestenhauser and Ellingboe (2005)*", which generated an erroneous cohesion that resulted in redundancy of the topical theme. This redundancy consequently caused vagueness in the topical theme and incoherence in Daisy's text.

Table 6.19 Thematic analysis of vague topical theme associated with Daisy's overuse of pronominal reference
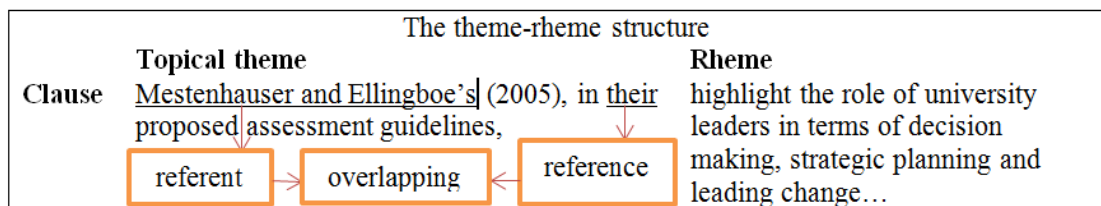
Table 6.20 depicts a thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 9. With regard to Daisy's overlapping reference and its referent in the same topical theme position, deletion of the pronominal *"their"* was marked with her supervisor's feedback. In contrast to Daisy's cohesion error in her

text, this deletion removed the redundant inter-clausal cohesion and reduced vagueness in the topical theme in this excerpt from Daisy's text.

Table 6.20 Thematic analysis of vague topical theme associated with Daisy's overuse of pronominal reference marked with her supervisor's feedback

	The theme-rheme structure	
	Topical theme	**Rheme**
Clause	Mestenhauser and Ellingboe's (2005), in their proposed assessment guidelines.	highlight the role of university leaders in terms of decision making, strategic planning and leading change…
	clear referent	

The findings from the analysis of Daisy's text indicate that these international Chinese HDR students, like Daisy, tended to overuse pronominal reference in their research writing (see Table 5.13 in Chapter 5). As Halliday and Matthiessen (2004) state, mismatches between pronominal references and their antecedents barricade the textual coherence creation in a text in English. The mismatch between anaphor pronominal and its antecedent, as found in Daisy's text in Evidence 9, undermined the theme clarity and generated incoherence in their research texts. Similar findings were also obtained by O'Brien (2015) who found that English learner writer students tended to overuse pronominal in their academic writing in English. Thus, this result suggests that supervisory writing support is necessary for these HDR students, in their novice rsearch writing stage, to help them enhance their conditional knowledge for pronominal reference use in the topical theme.

6.3.5.2 Overuse of pronominal reference in vague rheme

Evidence 10 was extracted from Mia's initial draft of PhD thesis introductory Chapter and her supervisor's on-script corrective feedback. It exemplifies how her overuse of personal reference in constructing the rheme resulted in vagueness in her research writing.

Evidence 10

> **<u>Student's original text</u>**: These will assist early childhood <u>educators</u> to reconsider their roles and the role of family engagement in <u>their</u> children's literacy learning.
>
> **<u>Student's text marked with supervisor's feedback</u>**: These will assist early childhood <u>educators</u> to reconsider their roles and the role of family engagement in ~~their~~ children's literacy learning.

Source: Excerpt from Mia's draft PhD thesis.

As noted in this evidentiary excerpt, the highlighted words, *"educator"* and *"their"*, show Mia's overuse of pronominal reference in the rheme in her research writing. The pronominal, *"their"*, was redundantly used in front of *"children's literacy learning"* in <u>Student's original text</u> from Mia's text. This overuse is demonstrated by a thematic analysis of the <u>Student's original text</u> in Table 6.21.

Table 6.21 shows that one rheme-rheme clause constitutes this excerpt of text. The theme of this clause is "*These*" while the rheme is "*will assist … learning*. In the rheme, the highlighted personal pronoun "*their*" was placed in front of "*children's literacy learning*" as the reference of *"educators"*. Then cohesion was established between *"their"* and *"educators"*. However, in terms of *"children's literacy learning", "children"* here, it referred to a general scope, rather than these *educators' children*. Mia's overuse of the personal reference *"their"* in the rheme position caused semantic ambiguity and obscured the rheme development in her text.

Table 6.21 Thematic analysis of vague rheme associated with Mia's overuse of pronominal reference

		The theme-rheme structure
	Topical theme	**Rheme**
Clause	These	will assist early childhood educators to reconsider their roles and the role of family engagement in their children's literacy learning.

referent → Semantic ambiguity ← reference

Table 6.22 provides the thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 6.21. The deletion of the personal reference *"their"* which preceded *"children's literacy learning"* was marked with the supervisor's feedback. In contrast to Mia's overuse of pronominal reference, this deletion released the confinement of the personal reference *"their"* from *"children's literacy learning"* establishing it as a general reference. As such, the ambiguous semantic connectedness between the referent *"educators"* and *"their"* was eliminated.

Table 6.22 Thematic analysis of vague rheme associated with Mia's overuse of the pronominal reference marked with her supervisor's feedback

		The theme-rheme structure
	Topical theme	**Rheme**
Clause	These	will assist early childhood educators to reconsider their roles and the role of family engagement in ~~their~~ children's literacy learning.

zero article with proper noun

The findings from Mia's text indicate that these international Chinese HDR students, like Mia, tended to overuse pronominal reference in constructing the rheme in their research writing (see Table 5.13 in Chapter 5). This result reveals that these

international Chinese HDR students' content schemas for pronominal use in coherence creation are not appropriate. Their inappropriate uses of pronominal reference barricaded coherence creation in their texts. As Halliday and Hasan (1985) state, mismatches between the anaphor pronominal and its antecedent undermine the anaphora-antecedent relation in a text and undermines its coherence. Thus, this suggests that it is neccesay for supervisors to provide these HDR students with conditional knowledge for pronominal reference use, at their novice writing stage.

6.4 Thematic and contrastive analyses of inappropriate content schema of lexical cohesion related to domain-specific knowledge

This section provides the thematic and contrastive analyses of students' inappropriate lexical cohesion related to domain-specific knowledge in their research writing. Evidentiary excerpts of three types of inappropriate uses of lexical cohesion (see Table 6.2) are analysed contrastively. Each piece of evidence entails two parts; part one showing evidentiary excerpts of students' inappropriate uses of lexical cohesion, and part two showing their supervisor's corresponding feedback to students' texts. Each of the subsections is labelled with each of the three types of inappropriateness in lexical cohesion used by students.

Vague topical theme means that the content of the topical theme is too vague to explicitly introduce a topic. Whereas vague rheme refers to the rheme whose content is vague in introducing new information to develop the theme in a clause. There are various factors that contribute to vague topical theme and vague rheme in a text.

Besides inappropriate uses of reference discussed in Section 6.4, inappropriate uses of lexical cohesion were also found to be associated with vagueness in the topical theme and the rheme in students' research texts. This inappropriatenessencompasses two aspects, namely, misuse of lexical collocation relative to domain-specific knowledge and insufficient elaboration of general nouns.

6.4.1 Misuse of lexical collocation related to domain-specific knowledge

Lexical cohesion related to domain-specific knowledge refers to the connectivity derived from the semantic relationship created by specific lexical items related to domain-specific knowledge that help to create the coherence of a text (Halliday & Matthiessen, 2004). It operates within the domain-specific lexis and is achieved through the choice of lexical items (Myers, 1991). Inappropriate uses of lexical collocation related to domain-specfic knowledge result in incoherence in a text. Instances of inappropriate uses of lexical collocation related to domain-specific knowledge in constructing the topical themes and the rhemes were identified in these HDR students' texts.

6.4.1.1 Misuse of lexical collocation related to domain-specific knowledge in vague topical theme

Evidence 11 was an excerpt from Kim's initial draft of PhD research proposal and his supervisor's on-script corrective feedback. It exemplifies how Kim's misuse of lexical collocation related to domain-specific knowledge in constructing the content of the topical themes caused incoherence of text organisation in his research writing.

Evidence 11

> **Student's original text**: In this era of globalisation, more universities are striving to internationalize their education.

> **Student's text marked with supervisor's feedback**: In this era of contemporary globalisation, more universities are striving to internationalize their education.

Source: Excerpt from Kim's draft PhD research proposal.

The highlighted words in this evidentiary excerpt show Kim's misuse of lexical collocation related to domain-specific knowledge in his research writing. As these highlighted parts show, Kim misused *"contemporary globalization"* with *"globalization"* in his text. The effect that this misuse had on coherence of his text is demonstrated by a thematic analysis of the <u>Student's original text</u> in Table 6.23.

As shown in Table 6.23, a theme-rheme clause constitutes this excerpt of text. The theme of this clause is *"In this …globalization"* while the rheme is *"more…education."* The highlighted word "*globalization*" in the topical theme introduces a general topic instead of a notion related to domain-specific knowledge of Education. Lack of specific lexical items related to domain-specific knowledge fails to create the coherence in a text (Halliday & Matthiessen, 2004). Misuse of *"globalization"* with specific lexical items related to domain-specific knowledge obscured the given information in the topical theme in this text. Consequently, it failed to set up an appropriate connection with information conveyed in the rheme in this text.

Table 6.23 Thematic analysis of vague topical theme associated with Kim's misuse of lexical collocation related to domain-specific knowledge
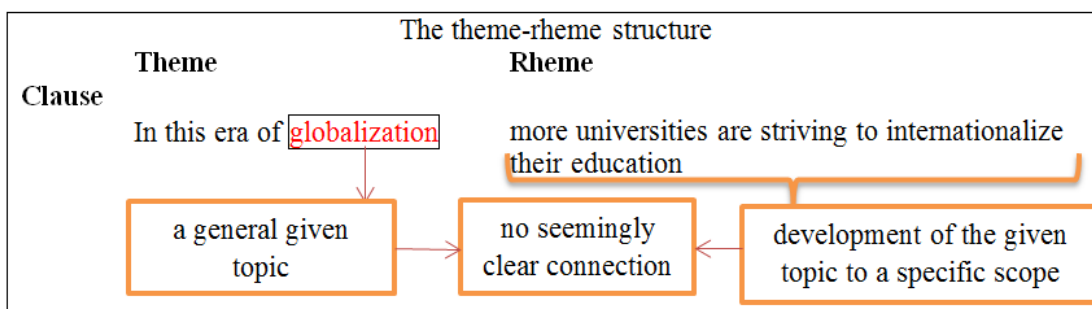
Table 6.24 presents a thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 11. With respect to Kim's misuse of lexical collocation, his supervisor's feedback provided him with a focused correction. That is, *"contemporary"* was added in the front of *"globalization"* to form an appropriate

lexical collocation for Kim's text. Specific lexical items related to domain-specific knowledge help create the coherence in a text (Halliday & Matthiessen, 2004). This addition shows the hyponym relation between the topical theme and the rheme within the same domain-specific scope. As such, this appropriate lexical collocation between *"contemporary"* and *"globalization"* marked with the supervisor's feedback eliminated vagueness in the topical theme caused by Kim's misuse of *"globalization"* in his text.

Table 6.24 Thematic analysis of vague topical theme associated with Kim's misuse of lexical collocation related to domain-specific knowledge marked with his supervisor's feedback
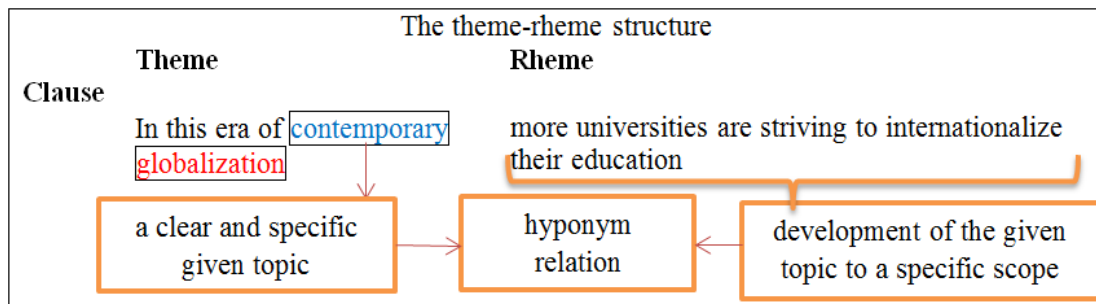
The findings from the analysis of Kim's text demonstrate that these international Chinese HDR students, like Kim, were inclined to misuse lexical collocation related to domain-specific knowledge in constructing the topical theme in their research writing (see Table 5.15 in Chapter 5). This result reveals that these HDR students confronted significant challenges in appropriately using lexical collocation related to domain-specific knowledge in their research writing. This seems to be confirmed by Huang et al.'s (2013) report that Chinese student-writers frequently experience difficulties in coping with lexical collocation related to domain-specific knowledge in their academic writing in English. This result thus suggests that these particular HDR students need supervisory writing support, aimed at developing their conditional knowledge for setting up lexical coherence related to *domain* specific knowledge, at their novice writing stage.

6.4.1.2 Misuse of lexical collocation related to domain-specific knowledge in vague rheme

Evidence 12 was an excerpt from Eve's initial draft of her PhD research proposal and her supervisor's on-script corrective feedback. It exemplifies how her misuse of lexical collocation related to domain-specific knowledge in constructing the rheme led to incoherent text organisation in her research writing.

Evidence 12

> **Student's original text**: Instead, it is shared by all the third world countries that are both economically and intellectually dependent on <u>the giant powers</u>.

> **Student's text marked with supervisor's feedback**: Instead, it is shared by all the third world countries that are both economically and intellectually dependent on ~~the giant powers~~ <u>Euro-American intellectual powers</u>.

Source: Excerpt from Eve's PhD research proposal

As noted in this excerpt, the highlighted words show Eve's misuse of lexical collocation related to domain-specific knowledge in the rheme position in her text. That is, *"the giant powers"* was misused and was replaced by *"Euro-American intellectual powers"*. The effect of this misuse on the coherence of her text is verified through a thematic analysis of Eve's text in Table 6.25.

Table 6.25 shows that this excerpt of text is comprised of a theme-rheme clause. The theme of this clause is *"Instead, it"*, while the rheme is *"is…giant powers."* The phrase, *"the giant powers"*, in the rheme showed no relation to domain-specific knowledge in Eve's text. That is, it conveyed a vague idea about who the *"giant*

powers" were. This vague idea consequently obscured the given information in the rheme in Eve's text.

Table 6.25 Thematic analysis of vague rheme associated with Eve's misuse of lexical collocation related to domain-specific knowledge

		The theme-rheme structure
	Theme	**Rheme**
Clause	Instead, it	is shared by all the third world countries that are both economically and intellectually dependent on the giant powers .
		concept irrelative to domain-specific knowledge

Table 6.26 provides a thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 12. Considering Eve's misuse of lexical collocation, a more specific domain-knowledge related term was corrected via her supervisor's feedback. That is, the phrase *"the giant powers"* in the rheme was suggested to be replaced by *"Euro-American intellectual powers"*. Appropriate choice of lexical items pertaining to specific knowledge helps to set up coherence in a text (Halliday & Matthiessen, 2004). Therefore, this replacement pointed to a specific concept related to domain-specific knowledge, in order to clarify the vague idea conveyed by *"the giant powers"* in Eve's text.

Table 6.26 Thematic analysis of vague rheme associated with Eve's misuse of lexical collocation related to domain-specific knowledge marked with her supervisor's feedback

		The theme-rheme structure
	Theme	**Rheme**
Clause	Instead, it	is shared by all the third world countries that are both economically and intellectually dependent on ~~the giant powers.~~ Euro-American intellectual powers.
		concept relative to domain-specific knowledge

The findings identified through the analysis of Eve's text show that these international Chinese HDR students, like Eve, tended to misuse lexical collocation related to domain-specific knowledge in constructing the rheme in their research writing (see Table 5.15 in Chapter 5). This result reveals that these HDR students had difficulties in making appropriate choices of lexical collocations related to their domain-specific knowledge. This result is confirmed by Huang, el al.'s (2014: 542) finding of advanced English learner writers' "uneven distributions and difference in lexical collocation" in their writing. It also suggests that these students need supervisory writing support for enhancing their "discipline-based lexical repertoire" required for their research writing (Hyland & Tse, 2007: 235).

6.4.2 Insufficient elaboration of general nouns

General nouns refer to abstract nouns which play the role of pronouns or demonstratives in discourse. These nouns have a discourse marking role (Halliday & Hasan, 1985). Appropriate elaboration of general nouns helps to create coherence, whereas insufficient elaboration of these nouns causes incoherence in a text, such as vague theme and vague rheme. Instances of insufficient elaboration of general nouns in the topical theme and the rheme were identified in these HDR students' research writing.

6.4.2.1 Insufficient elaboration of general nouns in vague topical theme

Evidence 13 was an excerpt from Eve's initial draft of PhD research proposal and her supervisor's on-script corrective feedback. It exemplifies how her insufficient elaboration of general nouns led to vague topical theme and incoherence in her research text.

Evidence 13

> **<u>Student's original text</u>:** To explore the <u>value</u> of <u>sociocultural approach</u> to young children's literacy learning when considered related to a global/local contexts, this study addresses the following four problems.

> **<u>Student's text marked with supervisor's feedback</u>**: To explore the <u>value <s>of</s> engaging EC educators in employing sociocultural approach</u> to young children's literacy learning when considered related to a global/local contexts, this study addresses the following four problems.

Source: Excerpt from Eve's draft PhD research proposal.

The highlighted words, *"value", "EC educators in employing" and "sociocultural approach"*, in this excerpt show insufficient elaboration of the general nouns related to domain-specific knowledge in Eve's research text. Specifically, the elaboration of general noun *"value"* in the <u>Student's original text</u> is not sufficient to convey the necessary information in the topical theme. This insufficient elaboration consequently caused vagueness in the topical theme of this text. The effect on the coherence of Eve's text is thematically analysed in Table 6.27.

Table 6.27 shows that a theme-rheme clause constitutes this excerpt of text. The theme is *"To… context"* while the rheme is *"this …problem."* The highlighted general noun *"value"* in the topical theme was not sufficiently elaborated to relate to domain-specific notions in Eve's text. General nouns are conceptual shells for complex, proposition-like pieces of information (Halliday & Hasan, 1985); however, information conveyed by *"of … a global/local contexts"* in the topical theme is not sufficient to elaborate on the concept of *"value"* relating to domain-specific knowledge. This resulted in the topical theme of Eve's text being unclear.

Table 6.27 Thematic analysis of vague topical theme associated with Eve's

insufficient elaboration of general nouns

Clause	The theme-rheme structure	
	Theme	**Rheme**
	To explore the value of sociocultural approach to young children's literacy learning when considered related to a global/local contexts,	this study addresses the following four problems.
	an insufficient elaboration of general noun 'value' in the topical theme	

Table 6.28 provides a thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 13. With regard to Eve's insufficient elaboration of the general noun *"value"* in the topical theme, a more specific elaboration of this word was suggested in her supervisor's feedback. That is, the domain-knowledge related term *"engaging EC educators"* was suggested by her supervisor with more sufficient elaboration of the general noun, *"value"*. This elaboration ensured the topical theme conveyed clearer information in relation to the domain-specific knowledge of *"Early childhood education"*.

Table 6.28 Thematic analysis of vague topical theme associated with Eve's

insufficient elaboration of general nouns marked

with her supervisor's feedback

Clause	The theme-rheme structure	
	Theme	**Rheme**
	To explore the value of engaging EC educators in employing sociocultural approach to young children's literacy learning when considered related to a global/local contexts,	this study addresses the following four problems.
	Sufficient elaboration of the general noun 'value' through relating it to domain-specific knowledge	

The findings from Eve's text indicate that these international Chinese HDR students, like Eve, tended to insufficiently elaborate on general nouns in the topical theme in their research writing (see Tables 5.9 and 5.16 in Chpater 5). This result reveals that these students confronted difficulties in appropriately using domain-specific knowledge to sufficiently elaborate on general nouns in their research writing. This result is supported by Laso and John's (2013) research that reported English learner writers experience difficulties in elaborating general nouns in domain-specific texts in their writing in English. Thus, this result suggests that these HDR students as advanced English learner writers need their supervisor's support to learn the effective use of domain-specific knowledge to sufficiently elaborate general nouns, at their novice writing stage.

6.4.2.2 Insufficient elaboration of general nouns in vague rheme

Evidence 14 was an excerpt from Eve's initial draft PhD research proposal and her supervisor's on-script corrective feedback. It exemplifies how Eve's insufficient elaboration of general nouns led to incoherent text organisation in her research writing.

Evidence 14

> **Student's original text**: This chapter explains the research focus of this study and presents the research problems of this research project and their relationship to the research questions.

> **Student's text marked with supervisor's feedback**: This chapter explains the research focus of this study and presents the research problems of this research project addressed in the research reported in this thesis and their relationship to the research questions.

Source: Excerpt from Eve's draft PhD research proposal

The highlighted words in this excerpt show Eve's insufficient elaboration of general nouns related to domain-specific knowledge. That is, the elaboration of the general noun "*problems*" in the Student's original text in this evidence was insufficient to convey explicit information to produce coherence in the rheme. The effect of this insufficient elaboration on the coherence of Eve's text is verified through a thematic analysis of the Student's original text from this evidence in Table 6.29.

Table 6.29 shows that this evidentiary excerpt consists of a theme-rheme clause. The theme of this clause is *"This chapter"* while the rheme is *"explains ...research questions."* The highlighted general noun *"problems"* in the rheme position was not sufficiently elaborated in relation to domain-specific knowledge. This insufficient elaboration gave rise to an introduction of ageneral topic rather than a specific one, related to domain-specific knowledge. Thereby, it failed to establish a connection between the preceding clause and the rheme in this excerpt.

Table 6.29 Thematic analysis of vague rheme associated with Eve's insufficient elaboration of general nouns

Clause	Theme	Rheme
		The theme-rheme structure
	Theme	**Rheme**
	This chapter	explains the research focus of this study and presents the research problems of this research project and their relationship to the research questions. ↓ insufficient elaboration of the general noun 'problems' that causes ambiguity

Table 6.30 presents a thematic analysis of the Student's text marked with supervisor's feedback from Evidence 14. Considering the coherence vagueness caused by Eve's insufficient elaboration of *"problems"* in the rheme, a more sufficient elaboration relative to domain-specific knowledge was suggested by her supervisor's feedback. That is, *"addressed in the research project reported in this thesis"* was added after the general noun *"problems"* to sufficiently elaborate the content of this general noun

in the rheme. This addition renders more clarity to the content of the rheme in Eve's text.

Table 6.30 Thematic analysis of vague rheme associated with Eve's insufficient elaboration of general nouns marked with her supervisor's feedback

The findings from the analysis of Eve's text indicate that these international Chinese HDR students, like Eve, tended to insufficiently elaborate on general nouns in the rheme in their research writing (see Table 5.16 in Chapter 5). This result reveals that these HDR students confronted significant challenges in using domain-specific knowledge to elaborate general nouns. This is supported by the findings of previous studies (Hinkel, 2003; Laso et al., 2013; Wei & Lei, 2011) that general nouns are employed by English learners in their writing without sufficient elaboration. This result then suggests that these HDR students as advanced English learner writers need supervisory writing support to develop the skill of sufficiently elaborating general nouns using domain-specific knowledge in their research writing.

6.4.3 Undeveloped rheme

An undeveloped rheme means that the content of the rheme lacks new information to develop the theme (Halliday & Matthiessen, 2004). Instances of undeveloped rheme associated with misuse of lexical collocation related to domain-specific knowledge and insufficient elaboration of general nouns were identified in students' texts.

6.4.3.1 Misuse of lexical collocation related to domain-specific knowledge in undeveloped rheme

Evidence 15 is an excerpt from Kim's initial draft of his PhD research proposal and his supervisor's on-script corrective feedback. It exemplifies how Kim's misuse of lexical collocation related to domain-specific knowledge in developing the content of the rheme resulted in incoherent text organisation in his text.

Evidence 15

> **Student's original text**: Few in-depth studies have linked such topics as ethos, value and rationality with the international education.
>
> **Student's text marked with supervisor's feedback**: Few in-depth studies have linked ~~such topics~~ as the concepts of ethos, value and rationality with strategic leadership of the international education partnership.

Source: Excerpt from Kim's draft PhD research proposal.

The highlighted words in this excerpt show Kim's misuse of lexical collocation related to domain-specific knowledge in the rheme position in his research writing. As noted, the expressions, *"such topics as"* and *"the international education",* were misused by Kim with *"the concepts of"* and *"the strategic leadership of international education"* respectively. This misuse is explored through a thematic analysis of the Student's original text from Evidence 15 in Table 6.31.

Table 6.31 shows that this evidentiary excerpt consists of a theme-rheme clause. The theme of this clause is *"Few in-depth studies"* while the rheme is *"have…international education."* In the rheme, the lexical collocations, *"such topics as"* and "*rationality with the international education*", were misused by Kim in terms

of domain-specific knowledge. This misuse resulted in the failure to introduce new inforamtioin in the rheme. Thereby, the failure in introducing new imfromation related to domain-specific knowledge in the rheme barricated the development of the theme in this excerpt of text.

Table 6.31 Thematic analysis of undeveloped rheme associated with Kim's misuse of lexical collocation related to domain-specific knowledge

Table 6.32 presents a thematic analysis of the Student's text marked with his superior's feedback from Evidence 15. In view of Kim's misuse of lexical collocation in the rheme, a replacement of the misuse of lexical collocation with appropriate domain-specific knowledge was marked with his supervisor's feedback. That is, "*such topics as*" was replaced by "*the concepts of*"; whereas, "*the international education*" was substituted by "*the strategic leadership of international education partnership*". In regard to coherence vagueness caused by Kim's misuse, more specific domain-knowledge related terms "*the concepts of*" and "*the strategic leadership of international education partnership*" were substituted. In doing so, the theme was fully developed in the revised rheme.

Table 6.32 Thematic analysis of undeveloped rheme associated with Kim's misuse of lexical collocation related to domain-specific knowledge marked with his supervisor's feedback

The findings identified in Kim's text indicate that these particular international Chinese HDR students tended to inappropriately use lexical collocation related to domain-specific knowledge in rheme development in their research writing (see Table 5.15 in Chapter 5). This result indicates that these students had difficulties with appropriately using domain-specific knowledge to develop the rheme. This is partially supported by Huang et al.'s (2013) report that Chinese student writers frequently experience challenges in using lexical collocation related to domain-specific knowledge in their academic writing in English. Therefore, this result suggests that:

it is challenging for non-native speaker writers [such as international Chinese HDR students] to acquire phraseological competence in academic writing English and develop a good knowledge of domain-specific collocation patterns (Laso & John, 2013: 307).

6.4.3.2 Insufficient elaboration of general nouns in undeveloped rheme

Evidence 16 is an excerpt from Eve's initial draft PhD research proposal and her supervisor's on-script corrective feedback. It exemplifies how Eve's insufficient elaboration of general nouns in rheme development led to incoherence in her text.

Evidence 16

Student's original text: …This study investigated the following question in Chapter 6…

Student's text marked with supervisor's feedback: …This study investigated the following question which is addressed in Chapter 6…

Source: Excerpt from Eve's draft PhD research proposal.

The highlighted words show Eve's insufficient elaboration of general nouns related to domain-specific knowledge in rheme development in her research text. That is, the elaboration of general noun *"question"* in the Student's original text in Evidence 16 was insufficient to develop information in the rheme. This insufficient elaboration is verified through a thematic analysis of the Student's original text in Table 6.33.

Table 6.33 shows that this excerpt is comprised of a theme-rheme clause. The theme of this clause is *"This study"* while the rheme is "*investigated …Chapter 6*." The general noun "*question*" in the rheme was not sufficiently elaborated in relation to domain-specific notion. Thereby, it gave rise to the issue of undeveloped rheme in Eve's text.

Table 6.33 Thematic analysis of undeveloped rheme associated with Eve's

insufficient elaboration of general nouns

Clause	The theme-rheme structure	
	Theme	**Rheme**
	This study	investigated the following question in Chapter 6…
		insufficient elaboration of the general noun 'question'

Table 6.34 provides a thematic analysis of the Student's text marked with supervisor's feedback from Evidence 16. Considering the coherence vagueness caused by Eve's insufficient elaboration of *"question"* in the rheme, a more sufficient elaboration in relation to domain-specific knowledge was marked with her supervisor's feedback. That is, the expression *"which is addressed"* was added to the general noun *"question",* which rendered the rheme fully developed in Eve's text.

Table 6.34 Thematic analysis of undeveloped rheme associated with Eve's

insufficient elaboration of general nouns marked with her supervisor's feedback

Clause	The theme-rheme structure	
	Theme	**Rheme**
	This study	investigated the following question which is addressed in Chapter 6…
		sufficient elaboration of the general noun 'question' relative to domain-specific knowledge

The findings identified from the analysis of Eve's text indicate that these international Chinese HDR students, like Eve, tended to insufficiently elaborate general nouns in rheme development in their research writing (see Table 5.16 in Chapter 5). This is in agreement with the findings of Wei and Lei (2011) who found that there is often insufficient use of general nouns in the doctoral dissertations of Chinese English learner writers. Likewise, Davoudi and Behshad's findings (2015)

also showed that Iranian English learner writers committed collocation errors such as general nouns in their writing in English.

6.5 Contrast between students' inappropriate content schemas and their supervisor's modelling of appropriate content schemas for creating the micro-level coherence

This section gives an account of the differences between these HDR students' inappropriate content schemas and their supervisor's modelling of appropriate content schemas for creating micro-level coherence. Each of the two subsections focuses in turn, on students' inappropriate content schemas for creating the micro-level coherence and their supervisor's modelling of appropriate strategies.

6.5.1 The HDR students' inappropriate content schemas for creating the micro-level text-based coherence

The HDR students' content schemas for creating the micro-level text-based coherence refer to a type of block of knowledge the HDR students have, about text content construction at the micro-level in their research writing. It is the internal model of the writing situations they face in terms of constructing the content of their text using appropriate vocabulary and grammar at the intra-clausal level (Anderson, Pichert & Shirey, 1983; Sun, 2014). Appropriate content schemas help students create coherence through using appropriate vocabulary at the intra-clausal level. Figure 6.1 illustrates these international Chinese HDR students' inappropriate content schemas for creating the micro-level text-based coherence.

As illustrated in Figure 6.1, these HDR students' inappropriate content schemas for creating the micro-level *text-based* coherence encompasses two aspects: the topical theme and the rheme. In terms of the construction of these two aspects, inappropriate reference use and lexical cohesion are the two major elements employed by these students. Their inappropriate reference use includes five types, namely: 1) underuse

the definite article; 2) misuse the determiner *'this'* with the definite article; 3) overuse the definite article; 4) overuse the demonstrative with pronominal reference; and 5) overuse the pronominal. Their inappropriate lexical cohesion included misuse of lexical collocation relative to domain-specific knowledge and insufficient elaboration of general nouns.
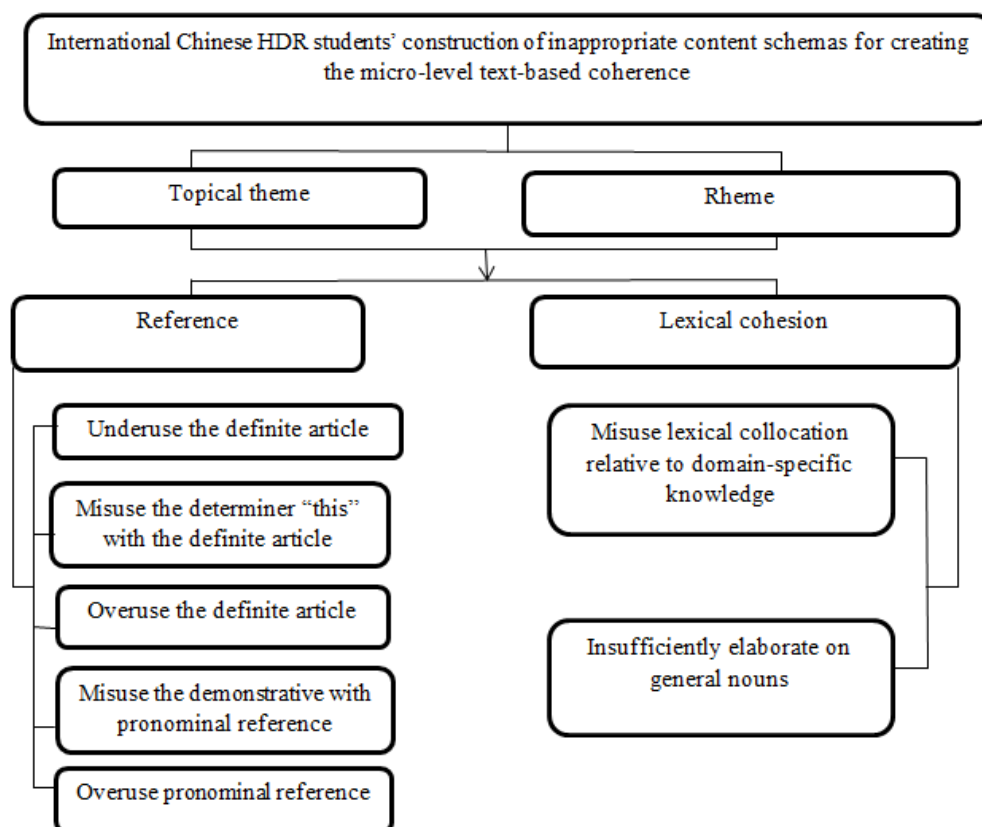
Figure 6.1 The construct of HDR students' inappropriate content schemas for creating the micro-level text-based coherence

6.5.2 The supervisor's modelling of appropriate content schemas for creating the micro-level reader-based coherence

The supervisor's modelling of appropriate content schemas for creating the micro-level reader-based coherence refers to a collection of the supervisor's

knowledge about text content modelled through supervisory on-script feedback. It presents the meaning aspect of writer-reader interaction and integrates the expectation of the supervisor as a reader, with text realisation in the students' research writing (Fleckenstein, 1992; Louwerse, 2001; O'Brien, 1995). In view of these HDR students' inappropriate content schemas, their supervisor modelled *conditional knowledge* for creating the micro-level coherence from a reader-based perspective. This type of *conditional knowledge* is constructed by different types of schemas which are appropriately constructed in actual strategy implementation in research writing (Pintrich & Garcia, 1994; Sun, 2014). Figure 6.2 illustrates the supervisor's modelling of appropriate content schemas for creating the micro-level reader-based coherence.

As illustrated in Figure 6.2, the supervisor's modelling of appropriate content schemas for creating the micro-level coherence emcompasses reference use and lexical cohesion in the case of constructing topical theme and the rheme in research writing. With regard to these students' inappropriate content schemas (see Figure 6.1), their supervisor's corresponding on-script feedback provided them with the modelling of *conditional knowledge*. In view of the students' inappropriate reference use (see Figure 6.1), five appropriate coherence strategies were modelled with their supervisor's on-script feedback. These strategies are: 1) use the definite article signalling an anaphor-antecedent relation; 2) use the determiner 'this' to identify the referent in a near distance; 3) use zero article in front of abstract nouns to configure new information for a text; 4) use the demonstrative pronoun by means of location; and 5) match pronominal reference with nominal groups as their antecedents to create coherence. As for the students' inappropriate uses of lexical cohesion, two strategies were marked with their supervisor's feedback. These strategies are, namely: 1) use hyponym or specific concepts relative to domain-specific knowledge to clarify the topical theme or the rheme, and 2) extend the elaboration of general nouns with domain-specific knowledge to develop their content.
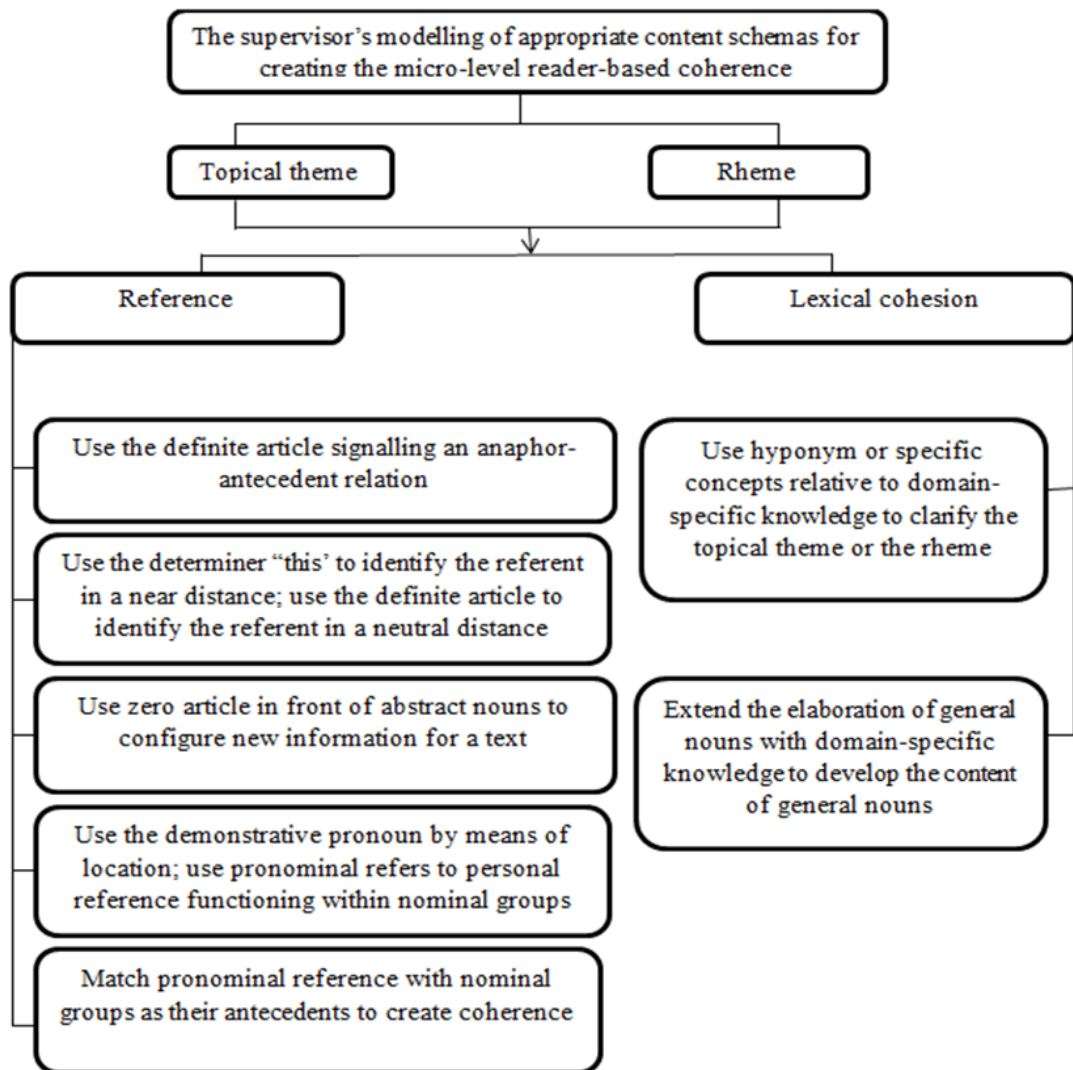
Figure 6.2 The construct of the supervisor's modelling of appropriate content schemas for creating the micro-level reader-based coherence

These findings indicate there are discrepancies between these HDR students' inappropriate content schemas and their supervisor's modelling of appropriate content schemas for creating the micro-level coherence. These discrepancies reveal that these HDR students' content construction in the case of text realisation did not integrate with reader expectation (Fleckenstein, 1992; Louwerse, 2001; O'Brien, 1995). They lacked the *conditional knowledge* required for creating content

coherence in their research writing. Their lack of the conditional knowledge for creating content coherence consequently led to their failure to strategically choose coherence strategies to fit into specific situations in their research writing. Therefore, this result suggests that these HDR students need their supervisor's' writing support to help them enhance their *conditional knowledge* for creating the micro-level coherence in their research writing. As Schraw and Gutierrez (2015) report, teachers' writing support such as on-script feedback plays a positive role in modelling the *conditional knowledge* for facilitating the creation of coherent texts.

6.6 Conclusion

This chapter provided the thematic and contrastive analyses of evidentiary excerpts of the students' inappropriate content schemas and their supervisor's modelling of appropriate content schemas for creating micro-level coherence. These thematic and contrastive analyses focused on the students' text-based coherence and their supervisor's reader-based coherence. Discrepancies between the two demonstrate that these HDR students lacked *conditional knowledge* for creating the micro-level coherence in their research writing.

These HDR students' lack of *conditional knowledge* for creating the micro-level coherence was also demonstrated in terms of text-based coherence and reader-based coherence. With respect to text-based coherence, five types of inappropriate uses of reference and two types of inappropriate uses of lexical cohesion were identified (see Figure 6.1). Whereas, with reader-based coherence, five types of appropriate uses of reference and two types of appropriate uses of lexical cohesion were demonstrated (see Figure 6.2).

Chapter 7 provides the content and thematic analyses of these HDR students' textual schemas for creating micro-level coherence in their research writing. It develops a typology of situations in which their textual schemas for creating the micro-level coherence in their research texts are comprised of the coherence strategies they use.

Their use of these coherence strategies is analysed. Furthermore, their inappropriate textual schemas and *conditional knowledge* for creating the micro-level coherence are characterised.

CHAPTER SEVEN

Content and thematic analyses of textual schemas for creating coherence at the intra-and inter-clausal and intra-paragraph levels

7.1 Introduction

Chapter 7 presents the second part of the findings obtained from the second round of content and thematic analyses of evidence from Chinese Higher-Degree-by-Research (HDR) students' research writing and their supervisor's on-script feedback. These findings provide a basis for identifying the existing issues regarding these HDR students' conditional knowledge and inappropriate textual schemas for creating the micro-level coherence in their research writing.

In order to identify the existing issues, this chapter investigates these international Chinese HDR students' conditional knowledge for creating the intra- and inter-clausal and intra-paragraph level coherence from the perspective of textual schema. This chapter also tests the concepts of *text-based coherence* (Johns, 1986), *reader-based coherence* (Fleckenstein, 1992), *conditional knowledge* (Paris et al., 1983), *textual schema* (Rumelhart, 1980), *conjunction* (Halliday & Hasan, 1985), *textual themes*, *thematic organisation* and *information structure* (Halliday & Matthiessen, 2004), and *thematic progression* (Eggins, 2004). Section 7.2 analyses the evidence of students' coherence strategies used in their research writing in

relation to their textual schemas. Section 7.3 outlines students' inappropriate uses of coherence strategies under their textual schemas. Section 7.4 presents a typology of students' inappropriate uses of coherence strategies. Section 7.5 characterises students' inappropriate textual schemas for creating micro-level coherence. Section 7.6 characterises students' conditional knowledge for creating the intra- and inter-clausal and intra-paragraph level coherence. Section 7.7 concludes this chapter.

7.2 Identifying a typology of coherence strategies from the perspective of textual schema

This section presents and analyses coherence strategies used by these HDR students in their research writing in terms of their textual schemas. In each of the three sections, the proportions of subtypes of conjunction, thematic organisation, and thematic progression patterns are presented. The umbrella concepts of textual theme, thematic organisation, and thematic progression patterns are used to analyse the textual schemas used by these students for establishing the intra- and inter-clausal and intra-paragraph level coherence in their research writing (see Table 7.1)

Table 7.1 Textual schemas and coherence strategies

Textual Theme at the inter-clausal level	- Causal conjunctions - Additive conjunctions - Adversative conjunctions - Concessive conjunctions
Thematic organisation at the intra-clausal and inter-clausal levels	- Theme structure - Information structure
Thematic progression patterns at the intra-paragraph level	- Constant theme pattern - Linear theme pattern - Multiple theme/split rheme pattern

7.2.1 Types of textual theme used in students' texts

A textual theme is a structural element such as conjunctions and relatives occurring at the beginning of the clause. Inappropriate uses of textual themes fail to relate a clause to the preceding clause in the same sentence or the same clause complex (Halliday, 1994). In terms of appropriateness or otherwise, textual themes used in students' overall texts were able to be classified into two types, namely, appropriate textual theme and inappropriate textual theme.

As shown in Table 7.2, there were 131 textual themes used in students' overall texts. There is a significant difference (54%) in the proportions of appropriate textual themes and inappropriate textual themes used by the student participants. The former took 82% (N=94) of the total number; whereas, the latter occupied 28% (N=37). It is noted that except for a small portion, the majority of textual themes were used appropriately by these students.

Table 7.2 Occurrence frequencies and percentages of textual theme used in students' texts by type

Type	Number	Percentage
Appropriate textual theme	94	82%
Inappropriate textual theme	37	28%
Total	131	

These findings indicate that these HDR students tended to be able to appropriately use textual themes in their research writing. This result demonstrates that they did not confront huge challenges in dealing with textual themes in their texts. Despite this, however, the small proportion of textual themes used inappropriately by these HDR students suggests that some students still confronted certain difficulties in using textual theme in certain circumstances in their research writing (see Chapter 8). This fits with the finding that "learners of English as a foreign language (EFL learners) have difficulty in utilizing conjunctions in their writing" (Hamed, 2014: 108).

Table 7.3 summarises the proportions of subtypes of textual themes used in students' overall texts. As shown in this Table, textual themes used by these students were able to be sorted into four subgroups, namely, causal, coordinating, adversative and concessive conjunctions. Among these, causal conjunction was the most frequently used as textual themes (n=44, 34%). Next most frequent were adversative conjunctions (n=38, 29%). Additive conjunctions were the third most frequent (n=32, 24%). Finally, concessive conjunctions were the least frequently used (n=17, 13%). These findings indicate that these international Chinese HDR students used quite a few conjunction categories to link clauses in their research writing. This result aligns with Zhang's (2014: 82) report that there was a considerable proportion of "conjunction category" use by Chinese postgraduates as textual themes in their academic writing.

Table 7.3 Occurrence frequencies and percentages of subtypes of textual themes used in students' texts

Subtype	Frequency	Percentage
Causal conjunctions	44	34%
Additive conjunctions	32	24%
Adversative conjunctions	38	29%
Concessive conjunctions	17	13%
Total	131	

7.2.2. Types of thematic organisation at the intra-clausal level in students' texts

Thematic organisation at the intra-clausal level refers to the message structure in a clause which consists of a theme combined with a rheme, with the structure being expressed by order (Halliday & Matthiessen, 2004). In terms of appropriateness or otherwise, thematic organisation presented at the intra-clausal level in students' overall texts was sorted into two types: appropriate and inappropriate thematic organisation.

A complete summary of the proportions of these two types of thematic organisation is presented in Table 7.4. The total of theme-rheme clauses employed by these students is 856. A substantial difference (78%) is noted in the proportions of appropriate thematic organisation compared to inappropriate thematic organisation. Despite a small proportion (N=96, 11%) of inappropriate thematic organisation at the intra-clausal level, the majority of thematic organisation use at the intra-clausal level were noted to be appropriate (N=760, 89%).

These findings show that these HDR students tended to be able to appropriately organise the majority of messages in the theme-rheme sequence at the intra-clausal level in their research writing. Despite this, however, the small proportion of theme-rheme clauses inappropriately organised suggests that some of these HDR students still confronted certain challenges in dealing with thematic organisation at the intra-clausal level. This seems to be in line with Arunsirot's (2013: 170) report that English learner writers had problems when "the new theme is introduced in the text causing a lack of organisational skill in writing".

Table 7.4 Occurrence frequencies and percentages of thematic organisation at the inter-clausal level used in students' texts by type

Type	Frequency	Percentage
Appropriate theme organisation	760	89%
Inappropriate theme organisation	96	11%
Total	856	

7.2.3 Types of thematic progression patterns at the intra-paragraph level used in students' texts

Thematic progression refers to the way in which the theme of a clause picks up, or repeats a meaning from a preceding theme or rheme (Paltridge, 2006). The thematic progression is the key way to create information flow in a text. According to Eggins (2004), there are three forms of thematic progression: constant theme, linear theme,

and multiple theme/split rheme patterns. In terms of appropriateness or otherwise, thematic progression patterns at the intra-paragraph level in students' overall texts were able to be categorised into two types, namely; appropriate and inappropriate thematic progression patterns.

Table 7.5 summarises the proportions of these two types of thematic progression patterns used in students' overall texts. The total of thematic progression patterns used was 159. Among these, 55% (N=87) were used appropriately; whereas, 45% (N=73) were used inappropriately. These findings indicate that these HDR students tended to inappropriately use a considerable proportion of thematic progression patterns at the intra-paragraph level in their research writing. This result reveals that around half of the time, the students experienced difficulty in creating information flow at the intra-paragarph level in their research writing. This seems to be confirmed by Guan's (2015: 344) report that "Abundant passages and paragraphs appear unnatural and loose" in Chinese advanced English learner writers' academic English texts. Thus, this result suggests that the development of ideas at the intra-paragarph level in research writing is challenging for these particular HDR students at their novice writing stage.

Table 7.5 Occurrence frequencies and percentages of thematic progression patterns at the intra-paragraph level in students' texts by type

Type	Frequency	Percentage
Appropriate thematic progression patterns	87	55%
Inappropriate thematic progression patterns	72	45%
Total	159	

Table 7.6 displays a summary of the proportions of constant theme, linear theme and multiple theme/split rheme patterns used in students' overall texts. As shown in this Table, the total number of thematic progression patterns used was 159. Among these, constant theme patterns accounted for the largest proportion (n=82, 52%), followed by linear theme patterns. However, multiple theme/split rheme patterns recorded the

lowest proportion (N=41, 26%). These findings indicate that these particular HDR students tended to use contant theme patterns more frequently than linear theme pattens and multiple theme/split rheme patterns in their research writing. This result is similar to Rahmawati and Kurniawan's (2015: 92) report that "constant theme is the type of thematic progression pattern that mostly used by the [EFL] students in writing (52.64%)". This result also indicates that there was no lack of linear and multiple theme patterns in their research writing. This, to a certain degree differs from Rahmawati and Kurniawan's (2015: 95) report that they observed a "lack of linear and multiple theme" in English learners' academic writing in their study.

Table 7.6 Occurrence frequencies and percentages of thematic progression patterns used in students' texts by type

Type		Frequency	Percentage
Constant theme pattern		82	52%
Linear theme pattern		41	26%
Multiple theme/split rheme	pattern	36	22%
	Total	159	

7.3 Inappropriate uses of coherence strategies in students' textual schemas

This section provides a content analysis of students' inappropriate uses of coherence strategies identified in Section 7.2. In each of the three subsections below, the proportions of inappropriate uses of textual theme, thematic organisation and thematic progression patterns used by these students are analysed using the concepts of conjunction; theme structure; information structure; constant theme, linear theme and multiple theme/split rheme patterns (see Table 7.1).

7.3.1 Inappropriate textual theme at the inter-clausal level in students' texts

A textual theme functions to relate a clause to the preceding clause in the same sentence or the same clause complex (Halliday, 1994). Textual themes which are not

appropriately used may destroy meaning of the writer's discourse (Bloor & Bloor, 2013). Inappropriate uses of textual themes used at the inter-clausal level in students' overall texts were identified as consisting of four categories, namely: causal, adversative, additive, and concessive conjunctions.

Table 7.7 summarises the proportions of inappropriate usage of these four categories of conjunctions as textual themes in students' texts. Inappropriate usage of causal conjunctions accounted for the largest percentage (N=11, 8.3%), followed by those of adversative conjunction (N=9, 7%) and additive conjunction (N=9, 7%). The lowest frequency was found for the inappropriate use of concessive conjunction (N=1, 0.7%). These findings indicate that causal conjunction posed the most difficulty for these particular HDR students while concessive conjunction posed the least challenge for them in their research writing. This result contrasts with Hamed's (2014: 108) finding that "the adversative conjunctions posed the most difficulty for the [English] learners, followed by additives and causals".

Table 7.7 Occurrence frequencies of inappropriate uses of conjunction in students' texts by category

Category	Frequency	Percentage
Causal conjunction	11	8.3%
Adversative conjunction	9	7%
Additive conjunction	9	7%
Concessive conjunction	1	0.7%

7.3.2 Inappropriate thematic organisation at the intra-and inter-clausal levels in students' texts

Inappropriate thematic organisation means the message structure in a clause which doen not consist of a theme combined with a rheme and the structure is not expressed

by order (Halliday & Hasan, 1985). Issues of inappropriate thematic organisation at the intra-and inter-clausal levels were found in students' overall texts.

Table 7.8 presents a complete summary of the types and proportions of inappropriate uses of thematic organisation in students' overall texts. As shown in this Table, two types of inappropriate uses of thematic organisation were identified, namely: inappropriate theme-rheme sequence at the intra-clausal level and long theme-rheme clause at the inter-clausal level. Long theme-rheme clause recorded a slightly higher proportion (N=56, 6%) when compared to the reversed rheme-theme patterns (N=37, 4%).

These findings indicate that these particular HDR students tended to inappropriately make few errors in thematic organisation in their research writing, including some inappropriate theme-rheme sequences and long theme-rheme clauses. This result reveals that these HDR students had minor problems with topic development and text flow in their research writing. This seems to be less significant than Arunsirot's (2013: 2) report that advanced English learner writers experience "difficulties with topic development and text flow" in their academic writing in English.

Table 7.8 Occurrence frequencies and percentages of inappropriate thematic organisation at the intra-and inter-clausal levels in students' texts by type

Type	Frequency	Percentage
Inappropriate rheme-theme sequence at the intra-clausal level	37	4%
Long theme-rheme clause at the inter-clausal level	56	6%
Total	93	

7.3.3 Inappropriate thematic progression pattern at the intra-paragraph level in students' texts

Inappropriate thematic progression at the intra-paragraph level is the way in which the theme of a clause does not pick up, or reiterate a preceding theme or rheme in that clause within a paragraph (Paltridge, 2006). Inappropriate uses of three types of thematic progression patterns at the intra-paragraph level were found in students' texts concerning constant theme pattern, linear theme pattern and multiple theme/rheme patterns.

Table 7.9 summarises the proportions of inappropriate uses of thematic progression patterns in students' overall texts. Inappropriate constant theme patterns recorded the highest proportion (N=31, 19%), followed by inappropriate linear theme patterns (N=24, 15%). Inappropriate multiple theme/split rheme patterns registered the least proportion (N=17, 11%). These findings indicate that these students tended to inappropriately use a certain proportion of thematic progression patterns in their research writing. This result further indicates that these HDR students experienced certain difficulties in using thematic progression patterns at the intra-paragraph level at their novice writing stage. This seems to be confirmed by the finding of Mellos (2011) who reported that English learner writers tended to reiterate themes in a way that made the text difficult to follow and lack development.

Table 7.9 Occurrence frequencies and percentages of inappropriate uses of thematic progression patterns at the intra-paragraph level in students' texts by type

Type	Frequency	Percentage
Inappropriate constant theme pattern	31	19%
Inappropriate linear theme pattern	24	15%
Inappropriate multiple theme/split rheme pattern	17	11%
Total	72	45%

7.4 A typology of manifestations of inappropriate coherence strategies in students' textual schemas

This section presents a content analysis of the manifestations of inappropriate uses of coherence strategies in students' textual schemas and thereby verifies the analysis presented in Section 7.3. In each of the following four subsections, the proportions of inappropriate uses of textual themes, thematic organisation at the intra-and inter-clausal levels and thematic progression patterns at the intra-paragraph level are analysed using the concepts of theme structure, information structure and thematic progression (see Table 7.1).

7.4.1 Types of inappropriateness in textual theme at the inter-clausal level

Inappropriate uses of textual themes fail to connect textual units (Halliday & Matthiessan, 2004). Types of inappropriate uses of textual themes vary among English learner writers. In terms of these international Chinese HDR students, the results from a content analysis of their inappropriate uses of textual themes at the inter-clausal level identified as consisting of three categories, namely: misuse of textual theme, underuse of textual theme, and overuse of textual theme (see Table 7.10).

A complete summary of the frequencies and percentages of these three categories is presented in Table 7.10. Overuse of textual theme (13%) was the most frequent issue found in these students' texts, which is followed by underuse of textual theme (8%). However, misuse of textual theme was the least frequent misuse (N=9, 7%). These findings indicate that a small proportion of textual themes were inappropriately used at the inter-clausal level by these HDR students in their research writing. This result reveals that these students did not have too much difficulty in using conjunctions as textual themes. This contrasts with the finding of Hamed (2014: 108) who reported that "learners of English as a foreign language have difficulty in using conjunctions in their writing". However, it is worth noting that this small proportion of

inappropriate uses of textual themes used by these students partially contributed to incoherence in their research text. This point is elaborated on in Chapter 8.

Table 7.10 Occurrence frequencies of inappropriate uses of textual theme in students' texts by type

Type	Frequency	Percentage
Misuse of textual theme	9	7%
Underuse of textual theme	10	8%
Overuse of textual theme	17	13%
Total	36	

7.4.2 Types of inappropriate thematic organisation at the intra-clausal level in students' texts

Inappropriate theme-rheme sequence can cause a problem with communication in a text and causes a failure to develop the theme (Halliday, 1994). The results from the content analysis of inappropriate theme-rheme sequence used in these students' texts identified two subcategories, namely: the reversed rheme-theme sequence and occupation of the rheme position by given information (see Table 7.11).

Table 7.11 summarises the proportions of these two types of inappropriate uses of thematic organisation at the intra-clausal level in students' overall texts. As shown in this Table, the reversed rheme-theme sequence and occupation of the rheme position by given information recorded identical proportions (N=37, 4%) of the total of theme-rheme clauses used in students' texts. These findings indicate that these HDR students tended to inappropriately organise a small proportion of messages in the theme and the rheme at the intra-clausal level in their research writing. For instance, they used the theme and the rheme in reverse by putting the rheme in the position of the theme; or, they put given information in the position where new information should have been located. This result suggests that these students experienced certain difficulties in organising messages at the intra-clausal level in their research writing.

This result is agreement with the findings of Fang and Li (2015: 266) who reported that as Chinese English learners did not know how to organise sentences, "it is difficult for them to form coherent discourse although they master lots of material".

Table 7.11 Occurrence frequencies and percentages of inappropriate thematic organisation at the intra-clausal level in students' texts by type

	Type	Frequency	Percentage
1	The reversed rheme-theme Sequence	37	4%
2	Occupation of the rheme position by given information	37	4%

7.4.3 Types of inappropriate thematic organisation at the inter-clausal level in students' texts

Inappropriate thematic organisation at the inter-clausal level fails to signal connectivity of topic between clauses (Bloor & Bloor, 2013). The results from the content analysis of inappropriate thematic organisation at the inter-clausal level in students' texts identified two subcategories, namely: long sentence with a vague topical theme or multiple rhemes and lack of topical theme as given information connecting preceding clause (see Table 7.12).

A summary of the proportions of these two types of inappropriate thematic progression patterns at the inter-clausal level in students' overall texts is presented in Table 7.12. As can be seen in this Table, long sentences with a vague topical theme or multiple rhemes accounted for a higher proportion (N=56, 6%) than lack of topical theme as given information, connecting a preceding clause (N=37, 4%). These findings indicate that these HDR students tend to inappropriately organise messages at the inter-clausal level in their research writing on occasions. For instance, they used a certain proportion of long clauses with vague topical themes or multiple rhemes; and also some sentences they used in their texts lacked a topical theme as given information. This is somewhat confirmed by Fang and Li's (2015: 266) report

that Chinese English learners sometimes "cannot apply sentences into a coherent discourse".

Table 7.12 Occurrence frequencies and percentages of inappropriate thematic organisation at the inter-clausal level in students' texts by type

	Type	Frequency	Percentage
1	Long clause with vague topical theme or multiple rhemes	56	6%
2	Lack of a topical theme as given information connecting preceding clause	37	4%

7.4.4 Types of inappropriate thematic progression patterns at the intra-paragraph level in students' texts

Inappropriate thematic progression patterns at the intra-paragraph level fail to create unity and connectedness between individual sentences within a paragraph (Halliday & Matthiessen, 2004). The results from the content analysis of inappropriate thematic progression patterns at the intra-paragraph level in students' texts identified three subgroups: constant theme pattern, linear theme pattern and multiple theme/rheme patterns.

7.4.4.1 Constant theme pattern

A constant theme pattern means the pattern in which theme 1 or rheme 1 is repeated in the beginning of next clause (Paltridage, 2006). The results obtained from the content and thematic analyses of students' inappropriate uses of constant theme pattern identified five types, namely: 1) constant theme pattern with vague topical theme, 2) constant theme pattern with vague theme, 3) constant theme pattern with empty theme, 4) constant theme pattern with underuse of textual theme, and 5) constant theme pattern with long clause (see Table 7.13).

As shown in Table 7.13, constant theme pattern with vague topical theme took the highest proportion (n=10, 6.3%), followed by constant theme pattern with vague rheme and constant theme pattern with long clause which accounted for an identical proportion (n=7, 4.4%). Constant theme pattern with underuse of textual theme took the third place in proprortion (N=6, 3.7%). Constant theme pattern with empty rheme held the lowest portion (N=4, 2.5%). These findings indicate that these international Chinese HDR students tended to use a certain proportion of inappropriate constant theme patterns in their research writing. This result reveals that their inappropriate use of constant theme pattens was found to be associated with their problems in constructing appropriate topical theme, rheme and textual theme in their research texts.

Table 7.13 Occurrence frequencies and percentages of inappropriate constant theme pattern at the intra-paragraph level in students' texts by type

	Type	Frequency	Percentage
1	Constant theme/rheme pattern with vague topical theme	10	6.3%
2	Constant theme/rheme pattern with vague rheme	7	4.4%
3	Constant theme/rheme pattern with empty rheme	4	2.5%
4	Constant theme/rheme pattern with underuse of textual theme	6	3.7%
5	Constant theme/rheme pattern with long clause	7	4.4%

7.4.4.2 Linear theme pattern

Linear theme pattern refers to the way in which rheme 1 is repeated as theme 2 in the next clause. The results obtained from the content and thematic analyses of students' inappropriate uses of linear theme pattern identified five subgroups: 1) linear theme pattern with vague topical theme, 2) linear theme pattern with vague rheme, 3) linear theme pattern with empty rheme, 4) linear theme pattern with underuse of textual theme, and 5) linear theme pattern with long clause (see Table 7.14).

As shown in Table 7.14, linear theme pattern with vague rheme occupied the largest proportion (n=9, 5.7%), followed by linear theme pattern with underuse of textual theme and linear theme pattern with long clause which accounted for an identical proportion (n=6, 3.7%). However, linear theme pattern with vague topical theme and linear theme pattern with empty rheme recorded the least proportion of errors (N=3, 1.9%). These findings indicate that these international Chinese HDR students were inclined to use a certain proportion of inappropriate linear theme patterns in their research writing. This result reveals that their inappropriate use of linear theme pattens were found to be associated with their problems in managing topical theme, rheme and textual theme in their research texts.

Table 7.14 Occurrence frequencies and percentages of inappropriate uses of

	Type	Frequency	Percentage
1	Linear theme pattern with vague topical theme	3	1.9%
2	Linear theme pattern with vague theme	9	5.7%
3	Linear theme pattern with empty theme	3	1.9%
4	Linear theme pattern with the underuse of textual theme	6	3.7%
5	Linear theme pattern with long clause	6	3.7%

linear theme pattern at the intra-paragraph level in students' texts by type

7.4.4.3 Multiple theme/split rheme pattern

In a multiple theme/split rheme pattern, a rheme may include some different information which may be recounted as a theme in some subsequent clauses (Paltridge, 2006). The results obtained from the content and thematic analyses of students' inappropriate uses of multiple theme/split rheme pattern resulted in five categories being identified, namely: 1) multiple theme/split rheme pattern with vague topical theme, 2) multiple theme/split rheme pattern with vague theme, 3) multiple theme/split rheme pattern with empty theme, 4) multiple theme/split rheme pattern

with underuse of textual theme, and 5) multiple theme/split rheme pattern with long clause (see Table 7.15).

As can be seen in Table 7.15, multiple theme/split rheme pattern with vague topical theme and multiple theme/split rheme pattern with vague rheme recorded the identical highest proportion (n=5, 3.1%). Second to these two types are multiple theme/split rheme pattern with the underuse of textual theme and multiple theme/split rheme pattern with long clause which took the identical proportion (n=4, 2.5%). The least frequently misused category was multiple theme/split rheme pattern with empty rheme (n=2, 1.3%). These findings indicate that these international Chinese HDR students had the tendency to use a certain/small proportion of inappropriate multiple theme/split rheme pattern in their research writing. This result reveals that their inappropriate uses of multiple theme/split rheme pattern were found to be associated with their problems in correctly using topical theme, rheme and textual theme in their research texts.

Table 7.15 Occurrence frequencies and percentages of inappropriate uses of multiple theme/split rheme patterns at the intra-paragraph level in students' texts by type

Type	Frequency	Percentage
1 Multiple theme/split rheme pattern with vague topical theme	5	3.1%
2 Multiple theme/split rheme pattern with vague rheme	5	3.1%
3 Multiple theme/split rheme pattern with empty rheme	2	1.3%
4 Multiple theme/split rheme pattern with the underuse of textual theme	4	2.5%
5 Multiple theme/split rheme pattern with long clause	4	2.5%

In the next section, the construction of the students' inappropriate textual schemas of coherence strategies used in their research writing is presented.

7.5 Construction of textual schemas

This section is comprised of two subsections, each providing an account of the characteristics of students' textual schemas for creating the micro-level coherence in research writing. The first subsection depicts their inappropriate use of textual schemas including inappropriate textual theme, thematic organisation at the intra- and inter-clausal levels, and thematic progression patterns at the intra-paragraph level. The second subsection provides an account of the students' conditional knowledge for creating the micro-level coherence in their research writing from the perspective of textual schema.

7.5.1 Inappropriate textual schemas for creating the micro-level coherence in students' texts

Inappropriate textual schema is a type of knowledge block that fails to reflect the discourse structures and forms in terms of organisation in a text (Garning, 2014; Singhal, 1998). The concept of textual schema was tested in this chapter in relation to the micro-level coherence created in these HDR students' research writing. The results obtained show that students' inappropriate textual schemas are constructed through an array of coherence strategies inappropriately used by students when selecting and organising information in the topical theme and the rheme at the intra- and inter-clausal and intra-paragraph levels in their research writing (see Figure 7.1).

Figure 7.1 depicts the distribution of students' inappropriate uses of textual theme, thematic organisation and thematic progression patterns in the construction of their inappropriate textual schemas. An uneven distribution is noted among these three types of inappropriate uses. The most frequently misused was inappropriate thematic progression patterns at the intra-paragraph level which recorded the largest

proportion (46%), followed by students' inappropriate uses of textual themes at the inter-clausal level (28%). However, the least frequently misused item was inappropriate thematic organisation at the intra-clausal and inter-clausal levels (10%).

These findings demonstrate that these Chinese HDR students were inclined to inappropriately use textual theme, inappropriate thematic organisation and inappropriate thematic progression patterns in their research writing. Particularly, inappropriate uses of thematic progression pattern at the intra-paragraph level caused the most difficulty for students with their inappropriateness in their textual schema use. This result reveals that these HDR students had difficulties in dealing with information structures in their research writing. For instance, their miscellaneous thematic progression patterns led to their lack of the development of ideas in their research text. This result suggests that "there is a need for coaching in thematisation, based on our students' apparent inadequate familiarity with English information structure" (Hawes & Thomas, 2012: 182).
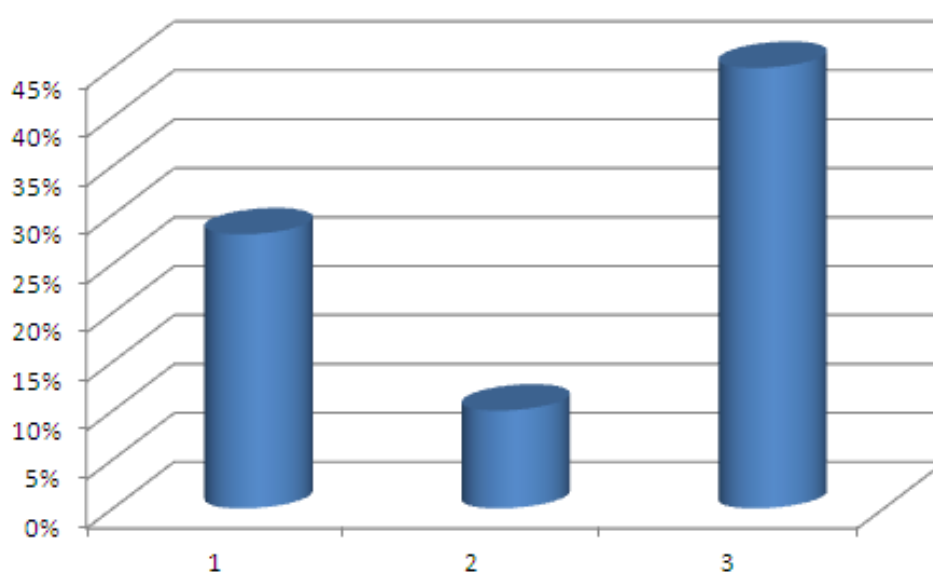
Figure 7.1 Distribution of inappropriate uses of textual theme, thematic organisation and thematic progression patterns presented in students' textual schemas for creating the micro-level coherence

Note: 1. textual themes at the inter-clausal level (28%) 2. thematic organisation at the intra- and inter-clausal level (10%) 3. thematic progression patterns at the intra-paragraph level (45%)

7.5.2 Characterising students' conditional knowledge for creating the micro-level coherence from the perspective of textual schema

Despite inappropriate textual schemas mentioned in the above subsection, the results obtained also show that these students had some appropriate textual schemas, that is, *conditional knowledge. Conditional knowledge* required for creating the micro-level coherence *from the perspective of text schema,* refers to students' knowing when and where to use coherence strategies appropriately to organise information to achieve the micro-level coherence in their research writing.

Figure 7.2 depicts the distribution of appropriate uses of textual theme, thematic organisation and thematic progression pattern in students' *conditional knowledge*. As indicated in Figure 7.2, an uneven distribution is noted among these three types of appropriate uses. The most frequently used was appropriate thematic organisation at the intra-clausal and inter-clausal levels (90%), which is followed by appropriate use of textual themes at the inter-clausal level (82%). However, the least frequently used is appropriate thematic progression patterns at the intra-paragraph level (45%).
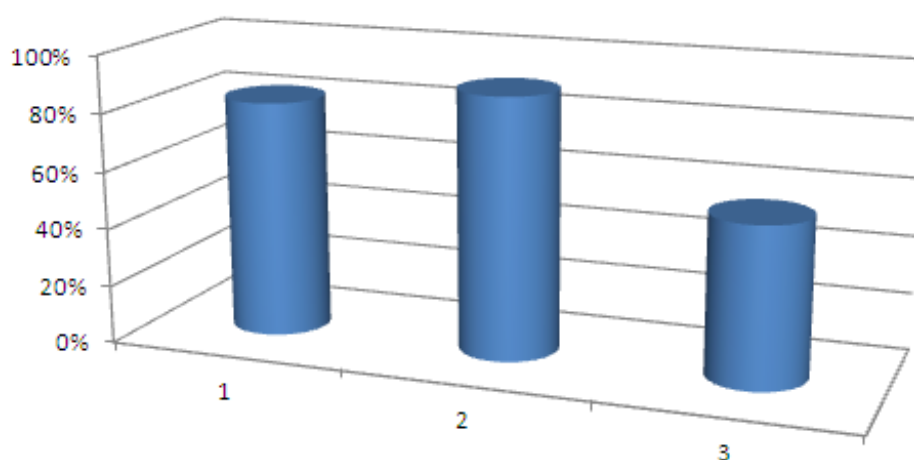
Figure 7.2 Distribution of appropriate uses of textual theme, thematic organisation and thematic progression patterns presented in the students' appropriate textual schemas for creating the micro-level coherence

Note: 1.Textual themes 2.Thematic organisation 3.Thematic progression pattern

These findings demonstrate that these international Chinese HDR students did not have much difficulty in using textual theme and thematic organisation, but confronted a greater challenge in coping with thematic progression pattern in their research writing. Specifically, thematic progression pattern at the intra-paragraph level posed the most difficulty. This result reveals that these international Chinese HDR students' *conditional knowledge* concerning construction of textual schemas

were not sufficient to help them produce the appropriate micro-level coherence in their research writing. Thus, this result suggests that these HDR students need supervisory writing support for building up their *conditional knowledge* for creating the micro-level coherence in their research writing.

7.6 Conclusion

In this chapter, content and thematic analyses were conducted on coherence strategies used by these HDR students to construct textual schemas for creating the micro-level coherence in their research texts. This chapter developed a typology of coherence strategies under the umbrella concept of textual schema, which included textual themes, thematic organisation, and thematic progression patterns. Textual themes were identified as four subgroups: causal, additive, adversative, and concessive conjunctions. Thematic organisation included two subgroups: theme structure and information structure. Thematic progression patterns involved three subgroups: constant theme pattern, linear theme pattern, and multiple theme/split rheme patterns. These coherence elements and their subgroups constituted these HDR students' textual schemas for creating the micro-level coherence in their research writing.

However, not all these coherence elements were appropriately used by these HDR students in creating the micro-level coherence in their research writing. Manifestations of these inappropriate uses were classified into three categories, namely, inappropriateness in textual theme at the inter-clausal level and inappropriateness in thematic organisation at the intra- and inter-clausal levels, and inappropriateness in thematic progression patterns at the intra-paragraph level.

With respect to manifestations of inappropriate textual themes at the inter-clausal level, three categories were identified: 1) misuse of textual theme, 2) underuse of textual theme; and 3) overuse of textual theme. Regarding manifestations of thematic organisation at the intra- and inter-clausal levels, four types were identified (the first

two types at the intra-clausal level and the last two at the inter-clausal level): 1) the reversed rheme-theme sequence; 2) occupation of the rheme position by given information, 3) long clause with vague topical theme/multiple rheme; and 4) lack of topical theme as given information connecting to the preceding clause.

In terms of thematic progression patterns at the intra-paragraph level, fifteen types were identified: namely, 1) constant theme/rheme pattern with vague topical theme; 2) constant theme/rheme pattern with vague rheme; 3) constant theme/rheme pattern with empty rheme; 4) constant theme/rheme pattern with underuse of textual theme; 5) constant theme/rheme pattern with long clause; 6) linear theme pattern with vague topical theme; 7) linear theme pattern with vague rheme; 8) linear theme pattern with empty rheme; 9) linear theme pattern with underuse of textual theme; 10) linear theme pattern with long clause; 11) multiple theme/split rheme pattern with vague topical theme; 12) multiple theme/split rheme pattern with vague rheme; 13) multiple theme/split rheme pattern with empty rheme; 14) multiple theme/split rheme pattern with underuse of textual theme; 15) multiple theme/split rheme pattern with long clause.

The participating HDR students' conditional knowledge for creating the micro-level coherence was found to be characterised by the distribution of textual theme, thematic organisation and thematic progression patterns in constructing textual schemas in their research writing. The conditional knowledge of these HDR students' was comprised of thematic organisation (90%), textual theme (82%) and thematic progression pattern (55%). Moreover, these students' inappropriate textual schemas were characterised by the distribution of their inappropriate uses of textual theme at the inter-clausal level, thematic organisation at the intra- and inter-clausal levels and thematic progression pattern at the intra-paragraph level. Frequencies of misuse were recorded as 28% inappropriate uses of textual themes at the inter-clausal level, 10% inappropriate thematic organisation at the intra- and inter-clausal level and 46% inappropriate thematic progression patterns at the intra-paragraph level in these students' research texts.

Two tendencies were found in the inappropriate textual schemas constructed by these HDR students. These were:

1) a high tendency to use long clauses with vague topical theme/multiple rheme, which caused most of their inappropriate uses of thematic organisation at the inter-clausal level; and 2) a high tendency to use constant theme patterns with vague topical themes took the largest percentage in their research texts.

This chapter has presented the identified issues of inappropriate textual schemas existing in these HDR students' research writing repertoires. Chapter 8 provides more detailed analyses of the evidence of both text-based and reader-based coherence. Thematic and constrastive analyses of evidentiary excerpts from these HDR students' research writing and their supervisor's on-script feedback provide the basis for exploring the inappropriate uses of coherence elements in their constructed texts.

CHAPTER EIGHT

Contrastive and thematic analysis of excerpts of textual schemas for creating the intra- and inter-clausal and intra-paragraph level coherence

8.1 Introduction

Chapter 8 analyses the evidentiary excerpts of the students' inappropriate textual schemas and the problems these schemas caused with creating the intra-and inter-clausal, and intra-paragraph level coherence in research writing. The students' inappropriate textual schemas are contrasted with their supervisory modelling of appropriate textual schemas marked with supervisory on-script feedback. This chapter tests the concepts of *text-based coherence* (Johns, 1986), *reader-based coherence* (Fleckenstein, 1992), *conditional knowledge* (Paris et al., 1983), and *textual schema* (Rumelhart, 1980). It also examines the concepts of *conjunction* (Halliday & Hasan, 1985), *textual themes* and *thematic organisation* (Halliday & Matthiessen, 2004), and thematic progression (Eggins, 2004). Section 8.2 summarises several types of inappropriate textual schemas and incoherences identified in students' texts. Section 8.3 presents the thematic and contrastive analyses of evidentiary excerpts showing students' inappropriate uses of textual theme and their supervisor's corresponding feedback. Section 8.4 contrasts students' inappropriate uses of thematic organisation at the intra- and inter-clausal levels to

appropriate textual schemas presented by their supervisor's feedback. Section 8.5 contrasts students' illogical thematic progression patterns at the intra-paragraph level to appropriate textual schemas presented by their supervisor's feedback. Section 8.6 contrasts students' inappropriate textual schemas to their supervisor's modelling of appropriate textual schemas for creating micro-level coherence. Section 8.7 concludes this chapter.

8.2 Types of inappropriate textual schemas and associated incoherence issues in students' texts

This section offers the thematic and contrastive analyses of evidence of these HDR students' inappropriate textual schemas for creating the intra-clausal, the inter-clausal, and the intra-paragraph level coherence in their researtch wrtiting. Specifically, these evidentiary excerpts from students' texts and their supervisor's on-script corrective feedback are analysed by focusing on three types of inappropriate textual schemas, namely, inappropriate textual theme, inappropriate thematic organisation, and inappropriate thematic progressions pattern (see Chapter 7). Each of the three subsections is labelled with each of these three types of inappropriate textual schemas.

8.2.1 Summarising the types of inappropriate textual theme used in students' texts

Table 8.1 presents the types of inappropriate textual theme at the inter-clausal level used by students and the corresponding evidentiary excerpts. Two types of inappropriate textual themes are identified: 1) empty textual theme and 2) vague textual theme. Two pieces of corresponding evidence are also figured as Evidence 17 and 18 in this Table.

Table 8.1 Types of inappropriate textual themes at the inter-clausal level used in students' texts and the corresponding evidence

Type	Evidence
Empty textual theme	Evidence 17
Vague textual theme	Evidence 18

8.2.2 Summarising the types of inappropriate uses of thematic organisation at the intra-and inter-clausal levels used in students' texts

Table 8.2 presents three types of inappropriate thematic organisation at the intra-and inter-clausal level used by students in their research writing. These are: 1) the reversal of theme-rheme sequence; 2) occupation of the rheme position by given information; and 3) long sentence. The corresponding evidentiary excerpts from these students' research texts and their supervisor's corresponding on-script feedback are recorded as Evidence 19, 20 and 21 in this Table.

Table 8.2 Types of inappropriate thematic organisation at the inter-clausal level used in students' texts and the corresponding evidence

	Type	Evidence	
		Students' original text	Supervisor' feedback
1)	The reversal of theme-rheme sequence	Evidence 19	
2)	Occupation of the rheme position by given information	Evidence 20	
3)	Long sentence	Evidence 21	

8.2.3 Summarising the types of inappropriate thematic progression patterns at the intra-paragraph level used in students' texts

Table 8.3 presents two types of inappropriate thematic organisation at the intra-paragraph level used by students in their research writing. These two types are:

1) inappropriate thematic progression pattern; and 2) illogical organisation of points. A piece of corresponding evidence extracted from one student's text and their supervisor's on-script feedback is labelled as Evidence 22 in this Table.

Table 8.3 Types of inappropriate thematic organisation at the intra-paragraph level used in students' texts and the corresponding evidence

Type	Evidence
1) Inappropriate thematic progression patterns	Evidence 22
2) Illogical organisation of points	

8.3 Thematic and contrastive analyses of inappropriate textual theme at the inter-clausal level used in students' texts

This section contrasts and analyses the students' inappropriate uses of textual theme and their supervisor's on-script corrective feedback. Each of the two subsections is labelled with each of these two types of inappropriate textual theme at the inter-clausal level.

8.3.1 Empty textual theme associated with underuse of conjunction

A textual theme refers to a clause element at the initial position. Appropriate uses of textual themes help to structure the text by developing links to other clauses and can be assisted by the use of conjunctions (Halliday & Hasan, 1985). For instance, appropriate use of an adversative conjunction as a textual theme at the initial position of a clause performs the function of signalling a contrastive relationship between this clause and the adjacently preceding one (Halliday & Hasan, 1985). Conversely, underuse of an adversative conjunction at the initial position of a clause results in an empty textual theme. This empty textual theme causes incoherence in a text (Halliday & Hasan, 1985). Instances of empty textual theme associated with underuse of conjunction were found in these students' texts.

Evidence 17 was extracted from Eve's initial draft of PhD research proposal and her supervisor's on-script corrective feedback. It demonstrates how her underuse of the adversative conjunction *"however"* as a textual theme led to incoherence in her text.

Evidence 17

> **<u>Student's original text</u>**: Qian was a great scientist who made invaluable contributions to missile and rocketry research and development in both China and the US. He repeatedly asked the question, "Why our institutions of higher learning are unable to cultivate first class talent?"

> **<u>Student's draft marked with supervisor's feedback</u>**: Qian was a great scientist who made invaluable contributions to missile and rocketry research and development in both China and the US. <u>However</u> he repeatedly asked the question, "Why our institutions of higher learning are unable to cultivate first class talent?"

Source: Excerpt from Eve's draft PhD research proposal.

The highlighted word*"however"* in the <u>Student's text marked with supervisor's feedback</u> in Evidence 17 shows that Eve underused the adversative conjunction *"however"* between the two clauses in her text. This underuse caused the issue of incoherence in her text. The effect of this issue on coherence of Eve's text is verified by the thematic analysis of the <u>Student's original text</u> in Table 8.4.

Table 8.4 shows that this excerpt of text is composed of two theme-rheme clauses, namely, clause 1 and clause 2. The topic theme of clause 1 is *"Qian",* while the rheme of this clause is *"was a great …US"*. The topical theme of clause 2 is *"he"* while the rheme of this clause is *"repeatedly asked… talent?"*. There was no textual theme between these two clauses signalling their semantic connection. This phenomenon of empty textual theme made these two clauses more like automatically

dependent sentences rather than two constituent clauses and this consequently resulted in incoherence in Eve's text.

Table 8.4 Thematic analysis of empty textual theme associated with Eve's underuse of conjunctions

	Theme	Rheme
Theme – Rheme structure		
	Theme	**Rheme**
Clause 1	"Qian"	"was a great scientist who made invaluable contributions to missile and rocketry research and development in both China and the US."
Clause 2	"he"	"repeatedly asked the question, "Why our institutions of higher learning are unable to cultivate first class talent?"."

Table 8.5 presents the thematic analysis of the Student's text marked with supervisor's feedback from Evidence 17. In light of Eve's coherence error in her text, her supervisor provided her with feedback by adding *"however"* in front of the topical theme in clause 2. As Halliday and Matthiessen (2004) state, the clause-initial position is the most common for *"however"* signaling an adversative relation. Given the adversative relationship between thse two clauses, the textual theme *"however* was added in front of "*He*" to form a multiple theme in clause 2. This addition established a connection between clause 2 and its preceding clause.

Table 8.5 Thematic analysis of empty textual theme associated with Eve's

underuse of conjunctions marked with her supervisor's feedback

	Textual Theme	Topical Theme	Rheme
The theme – rheme structure			
Clause 1		"Qian"	"was a great scientist who made invaluable contributions to missile and rocketry research and development in both China and the US."
Clause 2	However,	"he"	"repeatedly asked the question, "Why our institutions of higher learning are unable to cultivate first class talent?"".

The findings from the analysis of Eve's text indicate that these international Chinese HDR students, like Eve, had the inclination to underuse textual theme in their research writing (see Tables 7.2 and 7.7 in Chapter 7). This result is partially supported by Arabi and Ali's (2015: 91) report that "Regarding inter-sentential textual coherence, it was generally vitiated by such factors as students' poor handling of conjunctions" in their writing in English. This result reveals that these HDR students, of whom Eve represents, confronted challenges in creating the micro-level coherence with conjunctions in their research writing. Therefore, this suggests that these students need help with appropriate uses of textual themes at their novice writing stage.

8.3.2 Vague textual theme with overuse of additive conjunction

As mentioned above, a textual theme refers to "a conjunction [which] is [a] word or group that either links (paratactic) or binds (hypotactic) the clause in which it occurs structurally to another clause" (Halliday & Matthiessen, 2004: 81). It is aided by the function of conjunctions to structure the text by developing links to other clauses. Inappropriate use of a textual theme causes vagueness in showing relations between two adjacent clauses. Instances of vague textual theme associated with overuse of additive conjunctions were found in these HDR students' research writing.

Evidence 18 was extracted from Mia's initial draft of PhD thesis introductory Chapter and her supervisor's on-script corrective feedback. It exemplifies how vague textual theme associated with Mia's overuse of conjunctions resulted in incoherent text organisation in her research writing.

Evidence 18

> **<u>Student's original text:</u>** This reflects the vertical or hierarchical power relations among the various epistemological systems (the indigenous and the western), <u>and</u> this hierarchy is implicated in the connection between science and imperialism, colonialism and industrial capitalism (Evering, 2012, p.362).

> **<u>Student's text marked with supervisor's feedback:</u>** This reflects the vertical or hierarchical power relations among the various epistemological systems (the indigenous and the western. ~~and~~ This hierarchy is implicated in the connection between science and imperialism, colonialism and industrial capitalism (Evering, 2012, p.362).

Source: Excerpt from Mia's draft PhD thesis.

The highlighted part in the <u>Student's text marked by supervisor's feedback</u> in Evidence 18 shows that the additive textual theme *"and"* was overused by Mia in her text. The negative effect of her overuse of the conjunction on coherence in her text is demonstrated by the analysis of the <u>Student's original draft</u> in Table 8.6.

As shown in Table 8.6, this excerpt of text comprises two theme-rheme clauses, namely, Clause 1 and Clause 2. The topic theme of Clause 1 is *"This",* while the rheme of this clause is *"reflects … (the indigenous and the western)".* The theme of Clause 2 is *"and this hierarchy"* which is a multiple theme comprising a textual theme *"and"* and a topical theme *"this hierarchy".* The rheme of this clause is *"is… (Evering, 2012: 362)".* Semantically, there was no additive relation between these two clauses, because the content of Clause 2 did not repeat and underpin the key point mentioned in Clause 1. However, the textual theme *"and"* was used by Mia in front of the topical theme in Clause 2 to show an additive relation between these two clauses. This inappropriate use disobeyed the functions of an additive textual theme in English that introduce units to repeat and underpin the key point previously mentioned in the text (Halliday & Hasan, 1976).

Table 8.6 Thematic analysis of vague textual theme associated with Mia's overuse of additive conjunction

The theme-rheme structure		
	Theme	**Rheme**
Clause 1	This	reflects the vertical or hierarchical power relations among the various epistemological systems (the indigenous and the western)
Clause 2	and this hierarchy	is implicated in the connection between science and imperialism, colonialism and industrial capitalism (Evering, 2012, p. 362)

Table 8.7 shows the thematic analysis of the <u>Student's texts marked with supervisor's feedback</u> from Evidence 18. In light of Mia's inappropriate use of the textual theme *"and"* in organising her text, her supervisor's feedback provided her with a correction by deleting the overused textual theme *"and"*. This change made the anaphor-antecedent relation between the theme of Clause 2 *"This hierarchy"* and *"the vertical or hierarchical power relations"* in the rheme of Clause 2 clearer in Mia's text.

Table 8.7 Thematic analysis of vague textual theme associated with Mia's overuse of additive conjunction marked with her supervisor' feedback

The theme-rheme structure	
Theme	**Rheme**

| **Clause 1** | This | reflects the vertical or hierarchical power relations among the various epistemological systems (the indigenous and the western) |
| **Clause 2** | This hierarchy | is implicated in the connection between science and imperialism, colonialism and industrial capitalism (Evering, 2012, p. 362) |

The findings from the analysis of Mia's text indicate that these international Chinese HDR students, like Mia, were inclined to overuse certain textual themes in their research writing (see Tables 7.2 & 7.7 in Chapter 7). In particular, their overuse of textual theme led to vagueness in structuring their research texts. This result reveals that these HDR students had difficulty in appropriately using conjuctions functioning as textual themes in their research writing. This is supported by Ebrahimi and Khedri's (2015: 252) report that:

> this overuse may indicate their greater tendency to writer more argumentative and factual texts using plenty of conjunctions, coordinators and subordinators functioning as textual theme to link each clause to the surrounding text and context.

Therefore, this result suggests that it is necessary for supervisors to provide these HDR students with writing support to develop their skills to appropriately use textual theme at their novice writing stage.

8.4 Thematic and contrastive analyses of inappropriate thematic organisation at the intra- and inter-clausal levels used in students' text

This section provides thematic and contrastive analyses of inappropriate uses of thematic organisation at the intra- and inter-clausal levels used by these students in their research writing. The first subsection analyses thematic organisation at the intra-clausal level; the second provides an analysis of thematic organisation at the inter-clausal level.

8.4.1 Thematic organisation at the intra-clausal level

These particular HDR students' coherence errors associated with thematic organisation were analysed on the basis of two analytical systems: *thematic structure* and *information structure*. Thematic structure is concerned with "the organisation of a clause which consists of theme and rheme to form a message" (Rahmawati & Kurniawan, 2015: 89). In a *thematic structure*, the theme as the first constituent of a clause is the point of departure of the message to lead to the topic in the process of communication, while the rheme is the new message following the starting point in a clause to develop the theme (Halliday, 1994). In contrast, *information structure* refers to information comprised of two categories: *new information* and *given information*. In English, coherence within a sentence is indicated by *given-new information*. New information is introduced by indefinite expressions and subsequently referred to by definite expressions (Brown & Yule, 1983; Halliday & Hasan, 1985). Two types of inappropriate thematic organisation were found in the participating students' text, namely, the reversed rheme-theme sequence and occupation of the rheme position by given information.

8.4.1.1 The reversed rheme-theme sequence

The reversed rheme-theme sequence means the rheme which develops the theme is used as the point of departure of the message, followed by the theme as the

remainder of a clause. However, as Bloor and Bloor (2013: 73) note "All full clauses have thematic structure". In the thematic structure, the theme as the first constituent of a clause is the point of departure of the message to lead to the topic in the process of communication, while the rheme contains new messages following the starting point in a clause to develop the theme (Halliday, 1994). In other words, a clause consists of a theme combined with a rheme and the structure is expressed by ordering the theme followed by the rheme. Yet, inappropriate use of the theme-rheme sequence such as the reversed rheme-theme sequence results in incoherent text organisation. Instances of inappropriate uses of thematic organisation at the intra-clausal were found in these HDR students' texts.

Evidence 19 was extracted from Eve's initial draft of her PhD research proposal and her supervisor's on-script corrective feedback. It demonstrates how the reversed rheme-theme sequence resulted in incoherent text organisation in her research writing.

Evidence 19

> **Student's original text:** The research background, aim, significance and questions are briefly introduced in the section, which provides a general description of this research.

> **Student's text marked with supervisor's feedback:** ~~The research background, aim, significance and questions are briefly introduced in the section, which~~ To provide~~s~~ a ~~general~~ brief description of ~~this~~ my proposed research, the research background, aim, significance and questions are briefly introduced in this section.

Source: Excerpt from Eve's draft PhD research proposal.

The deleted parts in the Student's text marked with supervisor's feedback in Evidence 19 show that the reversed rheme-theme sequence was used by Eve in her text. Her use of the reversed rheme-theme sequence caused incoherence in her text. The effect of the reversed rheme-theme sequence on coherence of her text is verified by the thematic analysis of the Student's original text in Table 8.8.

As shown in Table 8.8, this excerpt of text is a theme-rheme clause. The topic theme of this clause is *"The research background… in the section",* while the rheme is *"which provides ...this research".* It is evident that the theme developed was introduced by the rheme in the text. In such a structure, the theme and the rheme were reversed in order, which worked against the conventional ordering of the theme followed by the rheme as is usually the case in English (Halliday & Matthiessen, 2004). This reversed rheme-theme structure caused vagueness in the topic introduction in Eve's text.

Table 8.8 Thematic analysis of the reversed rheme-theme sequence in Eve's text

The theme-rheme structure		
	Theme	**Rheme**
Clause	The research background, aim, significance and questions are briefly introduced in the section	which provides a general description of this research.

Table 8.9 presents the analysis of thematic organisation of the Student's text marked with supervisor's feedback from Evidence19. In view of Eve's inappropriate use of

theme structure in her text, her supervisor's feedback provided her with a focused correction to change the reversed rheme-theme structure into the theme-rheme format. This is based on the principle that "a clause consists of a Theme accompanied by a Rheme; and the structure is expressed by the order—whatever is chosen as the Theme is put first" (Halliday & Matthiessen, 2004: 65). In contrast to the reversed rheme-theme structure used by Eve, the revised theme-rheme structure suggested with her supervisor's feedback provided specific advice on her error.

Table 8.9 Thematic analysis of Eve's use of reversed rheme-theme sequence marked with her supervisor' feedback

The theme-rheme structure		
	Theme	**Rheme**
Clause	To provide a brief description of my proposed research,	The research background, aim, significance and questions are briefly introduced in the section which.

The findings from the analysis of Eve's text indicate that these HDR students like Eve tended to reverse the order of the theme and the rheme in their research writing (see Table 7.11 in Chapter 7). This result reveals that these HDR students as advanced English learners were confronted with challenges in appropriately organising messages at the intra-clausal level in their research writing. This result is supported by Hyland's (2004) report that English learners lack the knowledge about

what kind of information to place in the theme and how it is being developed. Therefore, this result suggests that these HDR students need writing support on how to appropriately organise the message structures in their research writing at their novice stage.

8.4.1.2 Occupation of the rheme position by given information

The order of *given information* and *new information* is critical for creating coherent texts. According to Halliday and Hasan's (1985) notion of *information structure*, information is comprised of two categories: new information and given information. In English, *new information* is introduced by indefinite expressions and subsequently referred to by definite expressions (Brown & Yule, 1983; Halliday & Hassan, 1985). Appropriate use of *given-new information* functions to keep connectivity of a topic, whereas inappropriate information structure causes coherence breaks in a text. Instances of inappropriate handling of given-new information were found in these international Chinese HDR students' research writing.

Evidence 20 was extracted from Kim's initial draft of his PhD research proposal and his supervisor's on-script corrective feedback. It exemplifies how the rheme position occupied by given information led to incoherence in Kim's text.

Evidence 20

> **Student's original text:** In many cases, the internationalization of higher education is not only an individual activity or university initiative, but is advocated, promoted and sponsored by the governments as matter of national long-term development strategies.

> **Student's text marked with supervisor's feedback:** In many cases, the internationalization of higher education is not only an individual activity

or university initiative, but is advocated, promoted and sponsored by ~~the~~ governments as matter of national long-term development strategies.

Source: from Kim's draft PhD research proposal

The deleted definite article in the <u>Student's text marked with supervisor's feedback</u> in Evidence 20 shows the occupation of the rheme position by *given information* in Kim's text. This occupation is associated with Kim's overuse of the definite article in the rheme position which made the rheme a *given information* rather than *new information.* The negative effect of this overuse on the information flow of Kim's text is demonstrated by the thematic analysis of information structure of the <u>Student's original text</u> in Table 8.10.

Table 8.10 shows that this excerpt of text comprises one theme-rheme clause. The topic theme of this clause is *"In many cases",* while the rheme of this clause is *"the internationalization…strategies".* In the rheme position, two pieces of given information were employed, namely, "*the internationalization of higher education*" and "*the governments*". The first given information was mentioned previously in Kim's text. Therefore, it was appropriately used as a piece of given information in this excerpt of text. However, as for the second given information *"the governments"*, it is new information but introduced as given information by Kim through putting the definite article in front of *"governments"* in the rheme position. This worked against the principle that in English, new information is introduced by indefinite expressions and subsequently referred to by definite expressions (Brown & Yule, 1983; Halliday & Hasan, 1985).

Table 8.10 Thematic analysis of occupation of the rheme position by given information in Kim's text

The theme-rheme structure		
	Theme	**Rheme**
Clause	In many cases,	the internationalization of higher education is not only an individual activity or university initiative, but is advocated, promoted and sponsored by the governments as matter of national long-term development strategies.

Table 8.11 presents the thematic analysis of *information structure* of the Student's text marked with supervisor's feedback from Evidence 20. In view of Kim's inappropriate organisation of information in his text, his supervisor's on-script feedback provided him with the correction by deleting the definite article in front of *"governments"* in this excerpt. This deletion changed the given information "*the governments*" into new information. This change made the message properly organised and kept the connectivity of the topic in the text.

Table 8.11 Thematic analysis of occupation of the rheme position by given information in Kim's text marked with his supervisor' feedback

The theme-rheme structure		
	Theme	**Rheme**
Clause	In many cases,	the internationalization of higher education is not only an individual activity or university initiative, but is advocated, promoted and sponsored by governments as matter of national long-term development strategies.

The findings from the analysis of Kim's text indicate that these international Chinese HDR students, like Kim, were inclined to inappropriately organise the information in their research writing (see Table 7.11 in Chpater 7). Specifically, their inappropriateness in overusing the definite article in the rheme position made it erroneously occupied by given information. This result reveals that these HDR students lacked the knowledge about, the theme falling "within the Given, while the New" information should be falling within the rheme (Halliday & Matthiessen, 2004: 93). Therefore, this result suggests that it is necessary to provide these HDR students with supervisory writing support acknowledging their difficulty with managing information flow in the rheme position in their research writing.

8.4.2 Thematic organisation at the inter-clausal level

Thematic organisation at the inter-clausal level refers to connectivity of the topic between clauses. It is concerned with the ordering of information contained in the themes and rhemes across clauses. According to Bloor and Bloor (2013), in thematic structures in many clauses, there is a parallel equivalent between the theme, on one hand, and rheme, on the other. However, inappropriate thematic organisation at the inter-clausal level can break the parallel equivalent between theme and rheme in a text. Two types of inappropriate uses of thematic organisation at the inter-clausal level were found in these HDR students' research texts. These were, long sentences with vague topical theme/multiple rheme and lack of topical theme as *given information* connecting the preceding clause.

8.4.2.1 Long sentences with vague topical theme/multiple rheme

Long sentences refer to sentences which lack texture. Texture is critical for creating cohesion in English. Halliday and Matthiessen (2004: 579) identified two features as "those which combine to make up textual resources of the lexicogrammar of English". One is *textual features* which include thematic structure (for example, theme and rheme), information structure and focus (for example, given and new). The other is *cohesive features* which include conjunction, reference and lexical cohesion. These features work together to create coherent clauses. In other words, the lack of these features tends to create wordy long sentences. Instances of long sentences were found in these international Chinese HDR students' research writing. These were associated with the issues of empty topical theme, underuse of textual theme, and empty rheme.

Evidence 21 was extracted from Kim's initial draft of his PhD research proposal and his supervisor's on-script corrective feedback. It shows how long sentences used by Kim led to incoherent text organisation in his research writing.

Evidence 21

> **Student's original text:** In spite of critiques on leadership for being management-oriented and ignoring the roles of individual actors in the organizational change, the primary importance of educational leadership for the success of any educational institution and educational reform is universally recognized.

> **Student's text marked with supervisor's feedback:** ~~In spite of~~ Critiques on leadership <u>raise concerns about it</u> being management-oriented and ignoring the roles of individual actors in the organizational change. <u>However,</u> the ~~primary~~ importance of educational leadership for the success of any educational institution and educational reform is universally recognized.

Source: Excerpt from Kim's research PhD proposal

The deleted and edited parts in the <u>Student's text marked with supervisor's feedback</u> in Evidence 21 show that Kim had used inappropriate thematic organisation of messages in his text. Specifically, his inappropriate thematic organisation points to the issues of empty topical theme and underuse of textual theme, which resulted in a long sentence. The negative effect of Kim's use of a long sentence in his text is demonstrated by the thematic analysis of the <u>Student's original text</u> in Table 8.12.

As shown in Table 8.12, this excerpt of text comprises one theme-rheme clause. The theme of this clause is *"In spite ...change",* while the rheme is *"the primary ... recognized."* There were many messages piled in the theme, such as *"critiques on leadership"*, *"being management-oriented"* and *"ignoring the roles of individual actors in the organizational change"*. These ongoing messages obscured the focus of the theme and broke the connectivity of the topic of this text.

Table 8.12 Thematic analysis of long sentences with vague topical theme/multiple rheme in Kim's text

The theme-rheme structure		
	Theme	**Rheme**
Clause	In spite of critiques on leadership for being management-oriented and ignoring the roles of individual actors in the organisational change,	the primary importance of educational leadership for the success of any educational institution and educational reform is universally recognized.

Table 8.12 presents the thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 21. In view of Kim's use of an overly long sentence in his text, his supervisor's on-script feedback provided him with the correction of changing this long sentence into two theme-rheme clauses. Specifically, the original theme "*In spite of critiques … in the organizational change*," was transformed into a theme-rheme clause, Clause1, "*Critiques on of leadership … in the organizational change*". This transformation made the message properly and clearly organised in Clause 1. Moreover, an adversative textual theme *"however"* was added in front Clause 2, which pointed to the adversative relation between these two theme-rheme clauses. In doing so, the connectivity of the topic was kept in Kim's text.

Table 8.13 Thematic analysis of long sentences with vague topical theme/multiple rheme in Kim's text marked with his supervisor' feedback

The theme-rheme structure		
	Theme	**Rheme**
Clause 1	Critiques on leadership	raise concerns about it being management-oriented and ignoring the roles of individual actors in the organizational change
Clause 2	However, the importance of educational leadership for the success of any educational institution and educational reform	is universally recognized.

The findings proposed from the analysis of Kim's text indicate that these international Chinese HDR students, like Kim, tended to use long sentences to inappropriately organise their text in their research writing (see Table 7.12 in Chapter 7). This result reveals that these HDR students lacked appropriate textual schemas for creating texture to "make up textual resources of the lexicogrammar of English" in their texts (Halliday & Matthiessen, 2004: 579). Specifically, they had difficulties in appropriately dealing with the inter-clausal level thematic organisation to create texture in their writing. As such, this result suggests that it is necessary to provide these students with supervisory writing support to develop students' skills to appropriately organise the inter-clausal level texture at their novice writing stage.

8.4.2.2 Lack of topical theme as Given information connecting the preceding clause

A topical theme is the first word or phrase carrying meaning in an experiential sense, realised by a participant, process or circumstance (Halliday & Matthiessen, 2004). According to Halliday and Matthiessen (2004: 79), the guiding principle of thematic structure is this:

> the Theme contains one, and only one of experiential elements. This means that Theme of a clause ends with the first constituent that is participant, circumstance or process, we refer to this constituent, in its textual function as the topical theme.

A topical theme is incorporated in every clause and anchors the starting point of the message and establishes semantic connection with previously mentioned messages (Bloor & Bloor, 2013). Lack of a topical theme as *given information* between theme-rheme clauses can "disrupt coherence and confuse the reader" (Kamler & Thomson, 2007: 124). Instances of lack of topical theme between theme-rheme clauses were found in these international Chinese HDR students' research text.

Evidence 22 is an excerpt from Eve's initial draft of her PhD research proposal and her supervisor's on-script corrective feedback. It exemplifies how the lack of a topical theme between theme-rheme clauses led to incoherent text organisation in Eve's research writing.

Evidence 22

> **Student's original text:** This might be a 'necessary' state of affairs, but it makes China dependent on these sources of theory, rather than becoming a theory producer. The voices from the minority and the disadvantaged

students have been overwhelmingly suppressed in the academic communities.

Student's text marked with supervisor's feedback: This might be a 'necessary' state of affairs, but it makes China dependent on these sources of theory, rather than becoming a theory producer. <u>Despite claims about</u> <u>internationalization education</u>, the voices from the minority and the disadvantaged students have been ~~overwhelmingly suppressed~~ marginalized in ~~the~~ Euro-American academic communities.

Source: Excerpt from Eve's draft PhD research proposal

The deleted and inserted parts in the <u>Student's text marked with supervisor's feedback</u> in Evidence 22 show that Eve's had made the error of non-use of topical theme as given information in her text. The negative effect of non-use of topical theme as given information in Eve's text is demonstrated by the thematic analysis of the <u>Student's original text</u> in Table 8.14.

As shown in Table 8.14, this excerpt of text comprises one clause complex and one rheme-rheme clause, namely, clause 1, clause 2 and clause 3. In clause 1, the theme is "*this*", while the rheme is "*might be a 'necessary' state of affairs*". As for clause 2, the theme is *"but it"* which consists of a textual theme and topical theme; and the rheme is *"makes China dependent on these sources of theory, rather than becoming a theory producer"*. The theme of clause 3 is *"The voices from the minority and the disadvantaged students"* and its rheme is *"have been overwhelmingly suppressed in the academic communities."* It is noted that there is a clear information exchange between clause 1 and clause 2 marked by reference, *"it"*, and an adversative relation signalled by the textual theme, *"but"*. However, there is no information exchange between the preceding clause complex (clause 1 and clause 2) and clause 3. This is because the theme of clause 3, *"The voices from the minority and the disadvantaged students",* is not *given information* but *new information*. This lack of *given*

information in the topical theme of clause 3 resulted in its disconnectedness with the preceding clauses in Eve's text.

Table 8.14 Thematic analysis of lack of topical theme as Given information connecting preceding clause in Eve's text

The theme-rheme structure			
		Theme	**Rheme**
Clause complex	**Clause 1**	This	might be a 'necessary' state of affairs,
	Clause 2	but it	makes China dependent on these sources of theory, rather than becoming a theory producer.
	Clause 3	The voices from the minority and the disadvantaged students	have been overwhelmingly suppressed in the academic communities.

Table 8.15 presents the thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 22. In view of Eve's non-use of given information in the topical theme, her supervisor's on-script feedback provided her with a focused correction. That is, "*Despite claims about internationalizing education,*" was added in front of the original theme-rheme clause as a topical theme. This addition not only introduced background knowledge about the rheme in clause 3, but also established a clear concessive relation between clause 3 and the previous clause complex. Moreover, the original clause 3, "*the voices ... academic*

communities" was changed into the rheme of the newly transformed clause 3. This transformation pointed to the extension or development of the newly added topic theme of clause 3.

Table 8.15 Thematic analysis of lack of topical theme as Given information connecting preceding clause in Eve's text marked with her supervisor's feedback

The theme-rheme structure			
		Theme	**Rheme**
Clause complex	**Clause 1**	This	might be a 'necessary' state of affairs,
	Clause 2	but it	makes China dependent on these sources of theory, rather than becoming a theory producer.
	Clause 3	Despite claims about internationalization education,	the voices from the minority and the disadvantaged students have been marginalized in Euro-American academic communities.

The findings from the analysis of Eve's text indicate that these international Chinese HDR students, like Eve, tended to ignore topical theme as given information in organising the messages in their research writing (see Table 7.12 in Chapter 7). Their non-use of topical theme as given information did not fit into Halliday and Matthiessen's (2004: 79) "guiding principle of thematic structure" where the topical theme is in the initial position to establish semantic connection with previously mentioned messages. This result reveals that these students lacked *conditional*

knowledge for organising messages through appropriate thematic choices. As Eggins (2004: 321) asserts,

> The most striking contribution of Thematic choices is to the internal cohesion of the text: skillful use of Thematic selection results in a text which appears to 'hang together and make sense.

Therefore, this result suggests that these HDR students need supervisory writing support to develop the skills to appropirate incorporate given information in topical theme in a clause at their novice writing stage.

8.5 Thematic and contrastive analyses of manifestations of illogical thematic progression pattern at the intra-paragraph level in students' texts

This section provides thematic and contrastive analyses of illogical thematic progression patterns at the intra-paragraph level used by these international Chinese HDR students in their research writing. A contrast is made between students' texts and the corresponding on-script feedback from their supervisor.

Thematic progression refers to the way in which the theme of a clause may acknowledge, or repeat, a meaning from a preceding theme or rheme (Paltridge, 2006). According to Eggins (2004), there are three types of thematic progression patterns: multiple theme/split rheme pattern, linear or zigzag theme pattern, and constant theme/rheme pattern.

1) Multiple theme/split rheme pattern is explained as the thematic progression where the item in the theme of the first clause functions as a hyper theme, as an element from which the theme of subsequent clauses is derived. In a multiple theme or split rheme progression pattern, a rheme may include a number of different pieces of

information, each of which may be taken up as the rheme in a number of subsequent clauses. This type of pattern can be indicated as:
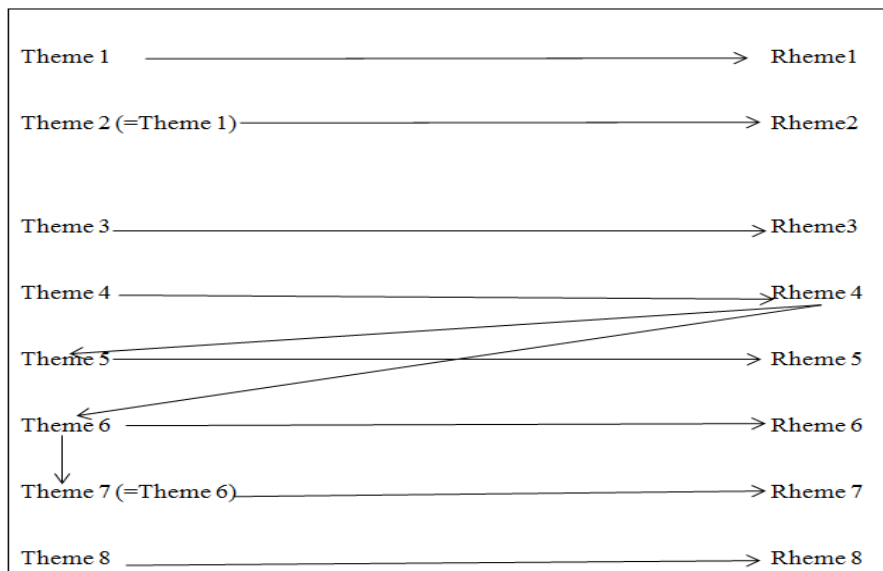
Figure 8.1 Diagramatical representation of multiple theme or split rheme progression pattern

Example of multiple theme:

The mother and the child made a plan. She first found the wolf and tore his stomach, and the child brought some stones to fill the wolf's stomach (Ebrahimi & Ebrahimi, 2012: 214).

Example of split rheme:

Once upon a time there was a goat that lived with her children. The goat wanted to go to buy some food. The children promised her that they won't open the door for the wolf (Ebrahimi & Ebrahimi, 2012: 214).

2) A linear theme pattern refers to the subject matter in the rheme of the previous clause is taken up in the theme of a following clause (Paltrdiage, 2000). That is, the

rheme 1 is repeated as the theme 2 in the next clause. This type of pattern can be indicated as:
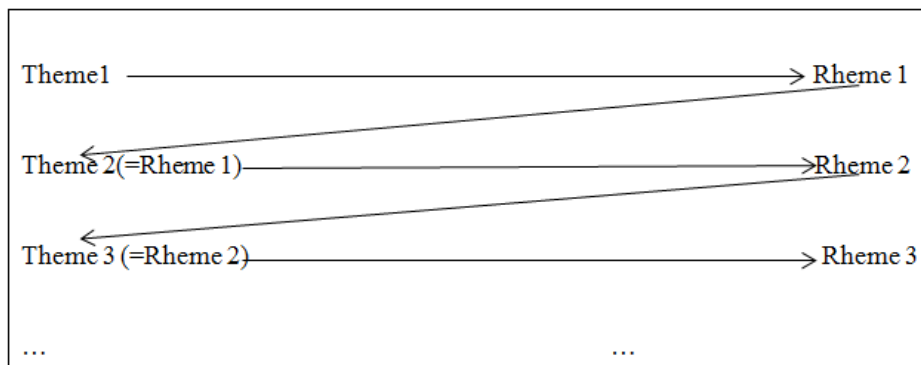
Figure 8.2 Diagramatical representation of linear theme pattern

Example of a linear theme pattern:

> On the other day, the mouse went to the shoemaker. The shoemaker accepted to sew his tail if the mouse brings him some sewing-cotton from the carpet maker. The carpet maker listened to the mouse's story and promised to help him (Ebrahimi & Ebrahimi, 2012: 213).

3) Constant theme reiteration refers to the patterns in which theme 1 or rheme 1 is repeated in the beginning of next clause (Paltridage, 2006). It indicates that each clause has information to discuss. This type of pattern can be indicated as:
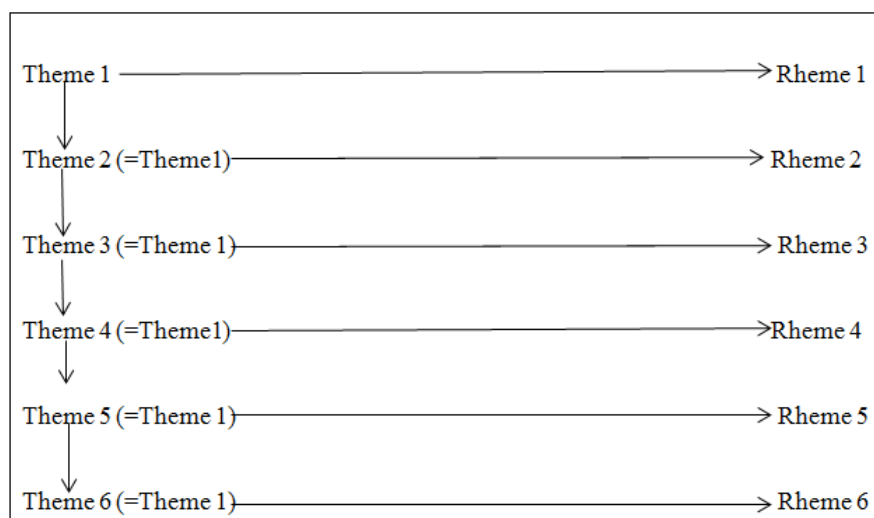
Figure 8.3 Diagramatical representation of constant theme/rheme pattern

Example of constant theme pattern:

> The children saw the black feet of the wolf and feared, and they did not
> open the door. They told the wolf that you are not our mother (Ebrahimi
> & Ebrahimi, 2012: 213).

Illogical thematic progression patterns were found in these international Chinese
HDR students' research writing. Evidence 23 was extracted from Mia's initial draft
of PhD thesis introductory Chapter and her supervisor's on-script corrective
feedback. It exemplifies how illogical thematic progression pattern used by Mia led
to incoherent text organisation in her research writing.

Evidence 23

> **Student's original text:**

> Many studies show the importance and benefits for young children to
> participate in high quality early childhood education (ECE) programs,
> especially "the effects on children from socio-economically

disadvantaged families" (Burger, 2010, P. 140). <u>Some studies </u>report the positive effects ECE programs in children's further education, social, health and working (Baxter & Hand, 2013). <u>Some studies</u> investigate the cost-effectiveness of financial investment on ECE programs (Reynolds & Temple, 2008). <u>However, the ECE </u>are those "that traditionally have received the least attention from the education world" (Davis, 2009, p.3). <u>Therefore, it</u> is necessary to make efforts to research on the ECE program for young children in disadvantaged communities. <u>There is an international attention</u> on the "literacy and numeracy of young children, particularly those from the hardest-to-reach families" (Fleer& Raban, 2007, p.3).

<u>Student's text marked with supervisor's feedback:</u>

~~Many~~ Various studies show the importance and benefits to ~~for~~ young children ~~to~~ of ~~participate~~ participating in high quality early childhood education (ECE) programs (add reference,).~~especially "the~~ It affects ~~on~~ "children from socio-economically disadvantaged families" (Burger, 2010, P. 140). However, they are not the ones "that traditionally have received the least attention from the education world" (Davis, 2009, p.3). Some studies report the positive effects ECE programs ~~in~~ for children's ~~further~~ future education, social, health and working (Baxter & Hand, 2013). Some studies ~~investigate~~ argue for the cost-effectiveness of financial investment ~~on~~ in ECE programs (Reynolds & Temple, 2008). ~~However, the ECE are those "that traditionally have received the least attention from the education world" (Davis, 2009, p.3).~~ There is an international attention on the "literacy and numeracy of young children, particularly those from the hardest-to-reach families" (Fleer & Raban, 2007, p.3). Therefore, it is necessary to ~~make efforts to~~ research efforts to improve ~~on the~~ ECE ~~program~~ for young children in disadvantaged communities. ~~There is an international attention on the "literacy and numeracy of young children, particularly those from the hardest-to-reach families" (Fleer & Raban, 2007, p.3).~~

Source: Excerpt from Mia's draft PhD thesis.

Table 8.16 presents the thematic analysis of the <u>Student's original text</u> in Evidence 23. As shown in this Table, this excerpt of text is composed of six theme-rheme clauses. Among these clauses, one split rheme pattern was used by Eve from rheme 4 to two subsequent themes 5 and 6. That is, rheme 4 included different pieces of information, each of which was taken up as the theme in subsequent clauses 5 and 6. Moreover, one linear pattern from rheme 3 to rheme 4 was found. That is, the subject matter in the rheme of clause 3 was taken up in the rheme of the adjacent clause, clause 4. In addition, two incorrect progressive sequences were found between these two patterns. One is between clauses 3 and 4; and the other is between clauses 5 and 6. Since clause 4 provided given information for rhemes 2 and 3, it should be in front of clause 2 rather than after clause 3. This does not abide the principle for information structure that in English, coherence within a sentence is indicated by given-new information (Halliday & Matthiessen, 2004). In this sense, the split theme pattern and the linear pattern used between these clauses were inappropriate in this text. In addition, no patterns were found among the first three clauses. Specifically, there was no cross-referential progression among the themes and the rhemes of these clauses. Therefore, they seemed much more like independent ideas illogically distributed throughout Mia's text. This illogical progression of the three clauses occasioned the vagueness in both the topic conveyed by the themes and focuses conveyed by the rhemes. A semantic gap was found between clauses 6 and 5 showing no information exchange between them, however, the textual theme *"therefore"* was used between them indicating a cause-effect relationship. These complex illogical thematic progression patterns used by Mia led to the reader's inability to comprehend the focus topic of her text. Accordingly, the overall effect of this illogical pattern of clauses employed in Mia's draft rendered her text incoherent. This incoherence is clearly verified by the thematic analysis of the <u>Student's draft text marked with supervisor's feedback</u> in Table 8.17.

Table 8.16 Thematic analysis of theme progression patterns used in Mia's text

Table 8.17 presents the thematic analysis of the <u>Student's text marked with supervisor's feedback</u> from Evidence 23. As shown in this Table, the supervisor's on-script feedback suggested Mia change her illogical thematic progression patterns into two linear theme patterns and one constant pattern. First, the wrong sequences in clauses 4 and 6 were readjusted. Specifically, clause 4, *"<u>However, the ECE</u> are those "that traditionally ...the education world" (Davis, 2009, p.3)."* was moved to the front of clause 2, *"<u>Some studies</u> report the positive ...working (Baxter & Hand, 2013)."* Moreover, clause 6, *"<u>There is an international attention</u> on the "literacy ... families"(Fleer& Raban, 2007, p.3)."* was moved to the front of clause 5, *"<u>Therefore, it</u> is ... communities."* These adjustments changed the illogical progression patterns in Mia's draft into logical ones. More specifically, a linear progression pattern was employed from clause 1 to clause 3, a constant theme pattern was moved from clause 3 to clause 5 and a linear progression pattern was deleted from clause 5 and moved to clause 7. In contrast to Mia's illogical organisation of her text, the revised thematic progression patterns marked with her supervisor's feedback ensured the messages were coherently organised in her text.

Table 8.17 Thematic analysis of theme progression patterns used in Mia's text marked with her supervisor's feedback

Supervisor's feedback to the draft
Clause 1:Theme 1 ─────────────────────→ Rheme 1
Various show…program
Clause 2:Theme 2 ←──── ─────────────→ Rheme 2
It affects…families
Clause 3:Theme 3 ← ─────────────────→ Rheme 3
However are…world
Clause 4:Theme 4 ─────────────────→ Rheme 4
Some report…working
Clause 5:Theme 5 ─────────────────→ Rheme 5
Some argue…programs
Clause 6:Theme 6 ← ───────────────→ Rheme 6
There is…families
Clause 7:Theme 7 ← ─────────────────→ Rheme 7
Therefore is…communities
Multiple theme/rheme progression pattern

The findings from the analysis of Mia's text indicate that these international Chinese HDR students, like Mia, tended to use inappropriate thematic progression patterns and illogical organisation of points in their research writing (see Tables 7.13, 7.14 and 7.15 in Chapter 7). This result reveals that these HDR students had inappropriate textual schemas for thematic organisation at the inter-clausal level. Kamler and Thompson (2014: 114) report that:

> when doctoral writers are not sure exactly what they are saying and what they are not, or when they don't feel they have the authority to publicly commit to a particular point of view, the Thematic structure of their paragraphs may be really difficult for a reader to navigate. Central meanings can get buried and paragraphs can seem to be about everything or nothing."

O'Mathony et al. (2013: 5) report that HDR students made errors at "linking ideas, and sentence structure. Alvin contends (2015: 308) that increasing "an awareness of the role of topical themes and the typical thematic patterns in

scholarly articles is useful in helping students better understand the norms of scholarly writing". Therefore, the result of this finding suggests that these HDR students need supervisory writing support for appropriately employing thematic patterns to organise messages in their research writing.

8.6 Contrast between students' inappropriate textual schemas for creating the micro-level coherence and their supervisor's modelling of appropriate textual schemas presented via supervisory on-script feedback

This section gives an account of the differences between the participating HDR students' inappropriate textual schemas and their supervisor's modelling of appropriate textual schemas for creating micro-level coherence. The first subsection presents the analysis and findings of students' inappropriate textual schemas for creating the micro-level coherence in their research writing. The second subsection presents their supervisor's modelling of appropriate textual schemas for creating the micro-level coherence.

8.6.1 The HDR students' inappropriate textual schemas for creating the micro-level text-based coherence

The HDR students' textual schemas for creating the micro-level text-based coherence refer to a collection of their knowledge about text structure and organisation of ideas in their research writing. Appropriate textual schemas for creating the micro-level text-based coherence help writers deal with the internal structure of the text, including organisation and level of formality/register (Fleckenstein, 1992; Garning, 2014; O'Brien, 1995; Singhal, 1998). Inappropriate textual schemas for creating the micro-level text-based coherence were found in these students' research writing. The construction of their inappropriate textual schemas is presented in Figure 8.1.

As shown in Figure 8.1, these international Chinese HDR students' inappropriate textual schemas for creating the micro-level text-based coherence were noted in four situations. These were: textual theme at the inter-clausal level, thematic organisation at the intra-clausal level, thematic organisation at the inter-clausal level, and thematic progression patterns at the intra-paragraph level.

In terms of textual theme, they tended to not use textual theme signalling clausal relations and overused textual theme showing no clausal relations (see Table 7.10). As for thematic organisation at intra-clausal level, they were inclined to use the reversed rheme-theme sequence and occupy the rheme with given information (see Table 7.11). With respect to thematic organisation at the inter-clausal level, these students tended to use long sentences and not use topical theme as given information between theme-rheme clauses (see Table 7.12). In terms of thematic progression patterns at the intra-paragraph level, they had the tendency to use thematic progression patterns which were associated with the wrong Theme/Given-Rheme/New sequence of messages (see Tables 7.13, 7.14 and 7.15).
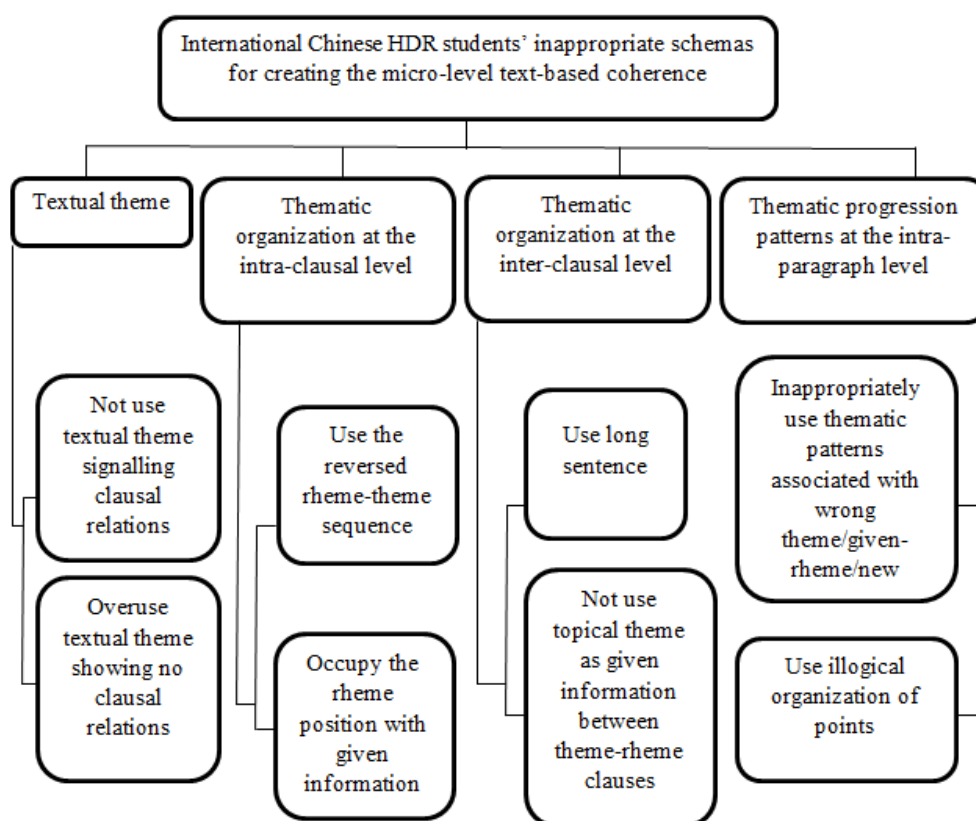
Figure 8.4 The construct of the HDR students' inappropriate textual schemas for creating the micro-level text-based coherence

8.6.2 The supervisor's modelling of appropriate textual schemas for creating the micro-level reader-based coherence

The supervisor's modelling of appropriate textual schemas for creating the micro-level reader-based coherence refers to the *supervisor's* knowledge about text structure and organisation of ideas modelled through the on-script feedback written on students' research text. It shows the meaningful aspect of writer-reader interaction and integrates the expectations of the supervisor as a reader with text realisation in students' research writing (Fleckenstein, 1992; Louwerse, 2001; O'Brien, 1995). In view of these HDR students' inappropriate textual schemas, their supervisor modelled *conditional knowledge* for creating the micro-level coherence from a

reader-based perspective through on-script feedback. This type of *conditional knowledge* is constructed by different types of schemas which are appropriately constructed in actual strategy implementation in research writing (Pintrich & Garcia, 1994; Sun, 2014). Figure 8.2 illustrates the supervisor's modelling of appropriate textual schemas for creating the micro-level reader-based coherence.

With regard to these students' inappropriate textual schemas (see Figure 8.1), their supervisor's corresponding on-script feedback provided them with the modelling of necessary *conditional knowledge*. As shown in Figure 8.2, the supervisor's modelling of appropriate textual schemas for creating the micro-level coherence encompassed four situations. These situations are: textual theme, thematic organisation at the intra-clausal level, thematic organisation at the inter-clausal level, and thematic progression patterns at the intra-paragraph level. In light of students' inappropriate uses of textual theme (see Figure 8.1), two strategies were modelled by their supervisor through the on-script feedback: 1) use textual theme signalling clausal relations; and 2) do not use textual theme showing no clausal relations.

As for the students' inappropriate thematic organisation at intra-clausal level (see Figure 8.1) two strategies were modelled: 1) obey the ordering of theme-rheme sequence; and 2) put given information in the theme and new information in the rheme. With respect to students' inappropriate thematic organisation at the inter-clausal level (see Figure 8.1), two strategies were modelled. These were: 1) combine textual features and cohesive features; and 2) use topical theme as given information to semantically connect adjacent theme-rheme clauses. In view of students' inappropriate thematic progression patterns at intra-paragraph level (see Figure 8.1), two strategies were also modelled, namely: 1) use thematic progression patterns with theme-rheme sequenced clauses; and 2) use strategic theme patterning.
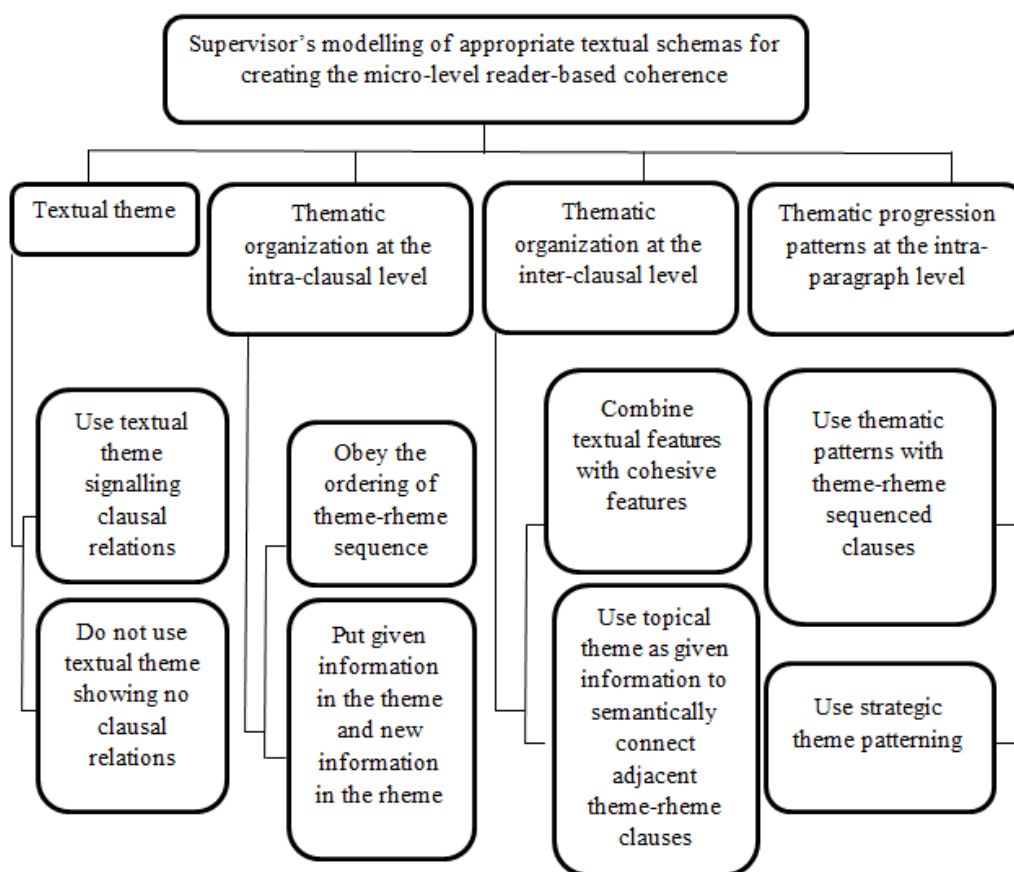
Figure 8.5 The construct of the supervisor's modelling of appropriate textual schemas for creating the micro-level reader-based coherence

These findings indicate that there are discrepancies between these international Chinese HDR students' inappropriate textual schemas and their supervisor's modelling of appropriate textual schemas for creating the micro-level reader-based coherence. This result reveals that these HDR students' texture construction in the case of text realisation did not align with reader expectation (Fleckenstein, 1992; O'Brien, 1995; Louwerse, 2001) and they lacked *conditional knowledge* for creating textual coherence. Uesaka and Manalo (2007) argue that *conditional knowledge* can support learners' strategic choices fitting into specific situations in cognitive activity, such as research writing. These HDR students' lack of the *conditional knowledge* necessary for creating textual coherence consequently led to their failure to

strategically choose coherence strategies to fit into the specific situations in their research writing. Therefore, this result suggests that *supervisor's* writing support is necessary for these HDR students to help them enhance their conditional knowledge development for creating micro-level coherence in their research writing.

8.7 Conclusion

This chapter provided thematic and contrastive analyses of evidentiary excerpts of the students' inappropriate textual schemas for creating micro-level coherence. Thematic and contrastive analyses focused on these HDR students' inappropriate uses of the text-based features of coherence and their supervisor's modelling of appropriate textual schemas reflected through on-script feedback. The analytical results point to the discrepancies between the students' inappropriate textual schemas and their supervisor's modelling of appropriate textual schemas.

These discrepencies indicate that these HDR students lacked the *conditional knowledge* necessary for creating the micro-level coherence at their novice writing stage. Their lack of conditional knowledge for creating the micro-level coherence was identified in four situations, namely, textual theme, thematic organisation at the intra-clausal level, thematic organisation at the iner-clausal level and thematic progression patterns at the intra-paragraph level (see Figure 8.1). In light of these students' lack of conditional knowlege, their supervisor's corresponding on-script feedback modelled the conditional knowledge with eight appropriate coherence strategy uses (see Figure 8.2).

The following chapter summarises the findings emerging from the quantitative and qualitative analyses throughout Chapters 5 to 8. Based on the findings in these evidentiary chapters, some final conclusions are drawn and suggestions for future research are provided.

CHAPTER NINE

Conditional knowledge-based strategy choice for the micro-level coherence creation in research writing

9.1 Introduction

This study investigated international Chinese HDR students' *conditional knowledge* created through their research writing. Specifically, it focused on the building of students' repertoires of strategic coherence use in research writing. The primary focus has been whether and how these students use *conditional knowledge* to create *micro-level coherence*. This study extended, deepened and widened the pedagogical concerns of higher education researchers (Kamler & Thomson, 2014). In doing so, it went beyond researching *text-based coherence*. It did so focusing on how supervisors can help HDR students make appropriate choices of coherence strategies to develop *text-based* and *reader-based coherence*. What justified this focus, and consequently warranted this investigation were the marginal statuses (a) of research in this area; (b) research with this level of students and (c) the students studying in this particular country (Kamler & Thomson, 2014; Han, 2012a; Singh, 2009, 2011). International HDR students' *conditional knowledge* required for creating the *micro-level coherence* has been underresearched and its potential is still to be realized in research education programs.

In this endeavor, the study provides a model of *conditional knowledge* for creating *text-based* and *reader-based coherence* at the micro-level in research writing. This model was developed through a case study that involved collecting, mapping, categorizing and conceptualizing international Chinese HDR students' choice of coherence strategies and their supervisor's modelling of appropriate and possible *coherence* strategies. This effort, as discussed in Chapters 3 and 4, differs from the approaches used in previous explorations of *conditional knowledge* (Okasha & Hamdi, 2014). The bulk of this thesis has been dedicated to demonstrating the moment when *text-based coherence* and *reader-based coherence* are able to be accommodated through engaging written texts of students and their supervisor's on-script focused corrective feedback.

This feedback was necessary to help build these HDR students' *conditional knowledge* for creating the *micro-level coherence* in their research writing. In this study the dual engagement was the preference rather than analyzing evidence of *text-based coherence* concepts and theories. What mattered then, in this investigation, was the analysis of evidence of the characteristics and effects of *conditional knowledge*. This evidence was integrated into a model of *conditional knowledge* for creating the *micro-level coherence* in HDR research writing. This study thus offers new grounds for formulating an alternative approach to educating HDR candidates in research writing based on the concept that *conditional knowledge* informs *coherence*. In doing so, this study addresses some of the limitations of text-based, writer-focused coherence in such programs.

Text produced by HDR students:

text-based coherence

Appropriate coherence strategy use in research writing

➕

Inappropriate coherence strategy use in research writing

Verify

Identify

Supervisory on-script focused corrective feedback:

Reader-based coherence

Modelling of conditional knowledge

Conditional knowledge for creating the micro-level coherence

Appropriate content schemas

Appropriate textual schemas

Appropriate content schemas

Appropriate textual schemas

Topical theme	Rheme

Reference	Lexical cohesion

The definite article

The demonstrative pronoun

Pronominal reference

Lexical collocation

Lexical reiteration

Textual theme at the intra-clausal level

Thematic organization at the intra- and inter-clausal levels

Thematic progression patterns at the intra-paragraph level

Conjunction:

Causal

Additive

Adversative

Concessive

Theme structure

Theme/rheme sequence

Information structure

Constant theme pattern

Linear theme pattern

Multiple theme/split rheme pattern

Figure 9.1 The refined theoretical framework for this thesis

Figure 9.1 displays the refined theoretical framework arising from this study. The empirical findings and theoretical contributions of this study are coded in red and black. These will be explained in detail in the next two sections. The analysis of the

evidence was undertaken by way of engaging the concepts of *text-based coherence* and *reader-based coherence*. This procedure enabled the researcher to analyze choices of coherence strategies in both the students' texts and their supervisor's feedback. The concept of *conditional knowledge* was employed to uncover how these HDR students construct and use knowledge as reflected in their appropriate uses or otherwise of their choices of coherence strategies. Further, the concepts of *content* and *textual schemas* were used to test the schematic characteristics of *conditional knowledge*. The concepts of *topical theme* and *rheme* were also used to analyse the appropriateness of *content schemas* constructed by these HDR students' choices of coherence strategies. Concepts of *reference* and *lexical cohesion* were also employed to examine the appropriateness of the content of *topical theme* and *rheme*. In addition, the concepts of *textual theme*, *thematic organisation* and *thematic progression patterns* were also included to investigate the appropriateness of tex*tual schemas* constructed by the HDR students and their supervisor through their choices of *coherence* strategies in research writing.

The evidence from this study shows that international HDR students' *conditional knowledge* for creating the *micro-level coherence* in their research texts can be construed schematically and hierarchically. The *content* and *textual schemas* are the first layer of the key constituents required for them to realize cohesion, in and through research writing (see Chapters 5 and 7). The second layer of constituents included *topical theme* and *rheme*, and *textual theme*. Thematic organisation at the intra-and inter-clausal levels, and thematic progression patterns at the intra-paragraph level are especially important in this regard. The third layer of constituents was composed by *references*, *lexical cohesion relative to domain-specific knowledge* and *conjunctions*. The complexity of examining cohesive research writing at this level also requires attention to *theme structure*, *information structure*, *linear theme pattern*, *constant theme pattern*, and *multiple theme/split rheme patterns*. The fourth layer of constituents included the use of the *definite article*, the *demonstrative pronoun "this"*, *pronominal reference*, *theme/rheme sequence*, and *Given/New*

information. This model makes explicit the complex array of *conditional knowledge* required by HDR students to affect cohesion in their research writing.

These findings have been the basis for formulating my model of international Chinese HDR students' *conditional knowledge* for creating the *micro-level coherence* in and through research writing. I call this approach a *conditional knowledge*-based strategy for creating *micro-level coherence*. Further, this model can be used to develop an alternative supervisory pedagogy. The pedagogy recognizes and mobilizes supervisor's modelling of *conditional knowledge* for HDR students' *conditional knowledge* construction which in turn would build HDR's capacity for research writing. These findings will be further tested and developed in my future research. The next two sections provide a detailed account of the key findings from this study.

9.2 Summary of key findings: International Chinese HDR students' conditional knowledge for creating the micro-level coherence in research writing

This study mapped, analyzed, categorized, and conceptualized HDR students' *conditional knowledge* and the appropriateness or otherwise of the *schemas* they used in creating the *micro-level coherence* in and through their research writing. It was found that these particular students' choices of coherence strategies reflected the limitations of their *conditional knowledge* in this regard, thereby undermining their research capabilities. The analysis also revealed their appropriate and inappropriate construction of *content* and *textual schemas*. The details of the findings from the evidentiary chapters are depicted in Figure 9.1. The answers to the contributory research questions are grounded in the resulting findings from the analysis of evidence and are described below.

Contributory research questions 1 to 3 (see Chapter 5) are:

1. *How do international Chinese HDR students use coherence strategies to construe their content schemas to create coherence at the intra-clausal level in their research writing?*

2. *Are these strategies used appropriately?*

3. *What are the characteristics of their inappropriate content schemas and conditional knowledge which affect their creation of the micro-level coherence?*

International Chinese HDR students constructed their *content schemas* for creating the *micro-level coherence* using both appropriate and inappropriate coherence strategies. Some coherence strategies were appropriately used by the students in certain situations. They constructed appropriate *content schemas* to create the *micro-level coherence*, that is, *conditional knowledge*; whereas some coherence strategies were inappropriately used which resulted in their construction of inappropriate *content schemas*. That is, the appropriate strategies implemented enabled them to use their *conditional knowledge* to create *coherence*. However, the inappropriately used strategies involved inappropriate *content schemas* which then resulted in breaks in the *coherence* of their texts. The inappropriate coherence strategies were distributed across the topical theme and the rheme in these students' texts. Manifestations of these inappropriate uses were also classified into two categories, namely, inappropriateness in *reference use* and inappropriateness in *lexical cohesion*. In terms of manifestations of inappropriate *reference use*, five types were identified, namely:

(1) Underuse of the definite article;

(2) Overuse of the definite article;

(3) Misuse of the definite article with pronominal reference;

(4) Overuse of pronominal reference; and

(5) Misuse of the determiner "this" with the definite article.

With respect to manifestations of *lexical cohesion*, two types were identified, namely:

(1) Misuse of lexical collocation pertaining to domain-specific knowledge; and

(2) Insufficient elaboration of general nouns.

These HDR students' *conditional knowledge* and inappropriate *content schemas* for creating the *micro-level coherence* in their research writing was characterized respectively by appropriateness and otherwise of the distribution of coherence strategy used, across the *topical theme* and the *rheme* writing. The *conditional knowledge* of these HDR students was constructed by the use of appropriate topical themes (51%) and rhemes (6%). However, the inappropriate use of *content schemas* meant the attempts to create coherence by these students through their research writing were characterised by inappropriate topical themes and rhemes including vague topical themes (49%), vague rhemes (57%) and undeveloped rhemes (27%). The inappropriate use of the above meant that the students' texts were incoherent.

Four tendencies were found regarding the inappropriate *content schemas* constructed by the HDR students who participated in this tudy. First, there was a high tendency to inappropriately use the *definite article* which led to most of the inappropriate uses of *topical themes* and *rhemes*. Second, there was a noted tendency for the students to not use the elaboration of *general nouns* sufficiently. This error in their research writing resulted in most of the inappropriate examples of *topical theme* misuse by

these students. Third, they had a high tendency to misuse *lexical collocation pertaining to domain-specific knowledge*. As a consequence, this led to the inappropriate use of *rheme* by these students. Fourth, they also had a high frequency of misusing *lexical cohesion relative to domain-specific knowledge*. The result was the undeveloped *rheme*s in the students' construction of *content schemas* and thus the inability to create *coherence* in and through their research writing.

Now I turn to contributory research questions 4 to 5 (see Chapter 6). They are:

4. *Why are some coherence strategies used by these students in constructing their content schemas at the intra-clausal level, inappropriate?*

5. *How does the supervisory on-script feedback provide modelling of conditional knowledge to correct these students' inappropriate content schemas for coherence creation at the intra-clausal level?*

The analysis of evidence which has addressed these two contributory questions was from two perspectives, namely, *text-based coherence* and *reader-based coherence*. Discrepancies between these two perspectives on *coherence* were verified by contrasting the students' construction of inappropriate *content schemas* and supervisory modelling of the construction of appropriate *content schemas* for creating *micro-level coherence* in research writing. These discrepancies confirmed that these HDR students lacked the *conditional knowledge* necessary for creating *coherence* among *topical themes* and *rhemes*. This impacted negatively on the *micro-level coherence* of their research writing. In turn, these problems contributed to their inappropriate uses of *coherence* strategies, and hence undermined the integrity of their research writing.

These HDR students lacked *conditional knowledge* for creating *coherence* in using *topical themes* and *rhemes* at the micro-level in their research writing. This finding was verified from two angles, namely, *text-based coherence* and *reader-based*

coherence. In terms of *text-based coherence*, five types of inappropriate uses of *reference* and two types of inappropriate uses of *lexical cohesion* were identified. These were associated with vague *topical themes*, vague *rhemes* and undeveloped *rhemes*. These students' inappropriate *content schemas* failed to create *coherence* in their texts (see answers to contributory questions 1 to 3).

With respect to *reader-based coherence*, five types of appropriate uses of *reference* and two types of appropriate uses of *lexical cohesion* were shown. These were associated with creating appropriate *topical themes* and *rhemes*. Constructing appropriate *content schemas* for creating the *micro-level coherence* was modelled by supervisory on-script feedback on these students' texts. These types of appropriate uses were, namely:

(1) Use the definite article in front of countable nouns signaling an anaphor-antecedent relation;

(2) Use the determiner "this" to identify the referent in close proximity, and use the definite article to identify the referent at a neutral distance;

(3) Use zero article in front of abstract nouns to configure new information for a text;

(4) Use the demonstrative pronoun by means of location, and use pronominal words when referring to a personal reference, which functions within nominal groups;

(5) Match pronominal references with the nominal group as their antecedents to create coherence;

(6) Use hyponym or specific concepts relative to domain-specific knowledge to clarify topical theme or rheme; and

(7) Extend the elaboration of general nouns with domain-specific knowledge to develop the information involved in the content of general nouns.

Now I turn to summarising the key findings for contributory research questions 6 to 8 (see Chapter 7):

6. *How do international Chinese HDR students use coherence strategies to construe their textual schemas for creating coherence at the intra- and inter-clausal levels as well as at the intra-paragraph level in their research writing?*

7. *Are these strategies used appropriately?*

8. *What are the characteristics of their inappropriate textual schemas and conditional knowledge which affect their creation of micro-level coherence?*

International Chinese HDR students constructed their *textual schemas* for creating the *micro-level coherence* with both appropriate and inappropriate coherence strategies. That is to say, some coherence strategies were appropriately used in certain situations in constructing *textual schemas* for creating the *micro-level coherence*. However, some coherence strategies were inappropriately used by these students leading them to misconstruct *textual schemas*. The appropriate coherence strategies they used helped them to construct *conditional knowledge* and create *textual coherence*. In contrast, the inappropriately used coherence strategies meant that they constructed inappropriate *textual schemas* which resulted in breaks in the *coherence* of their texts.

The analysis which addressed these three contributory research questions was used to develop a typology of coherence strategies using the concept of *textual schemas*. This typology included *textual theme*, *thematic organisation*, and *thematic*

progression patterns. Subtypes of these coherence strategies were also identified. *Textual themes* included a range of *conjunctions*, namely, *causal*, *additive*, *adversative*, and *concessive conjunctions*. *Thematic organisation* included *theme* and *information structure*. *Thematic progression patterns* involved patterns using *constant, liner,* and *multiple themes or split rheme patterns*. These coherence strategies and their subtypes constituted these HDR students' *textual schemas* which they used for creating the *micro-level coherence* in their research writing.

Not all these coherence strategies were appropriately used by these international Chinese HDR students for creating the *micro-level coherence* in their texts. Manifestations of these inappropriate uses were grouped into three categories. There were inappropriateness in *textual themes* at the inter-clausal level and inappropriateness in *thematic organisation* at the intra-and inter-clausal levels; and inappropriateness in *thematic progression patterns* at the intra-paragraph level. In terms of manifestations of inappropriate textual *theme* at the inter-clausal level, three types were identified, namely:

(1) misuse of textual theme;

(2) underuse of textual theme; and

(3) overuse of textual theme.

With respect to manifestations of *thematic organisation* at the intra- and inter-clausal levels, four types of inappropriateness usage were identified. The first two types were at the intra-clausal level and last two were at the inter-clausal level:

(1) the reversed rheme-theme sequence;

2) occupation of the rheme position by given information;

(3) long clause with vague topical theme/multiple rheme; and

(4) lack of topical theme as given information connecting the preceding clause.

In terms of *thematic progression patterns* at the intra-paragraph level, fifteen types of inappropriate usage were identified, namely:

(1) constant theme/rheme pattern with vague topical theme;

(2) constant theme/rheme pattern with vague rheme;

(3) constant theme/rheme pattern with empty rheme;

(4) constant theme/rheme pattern with the underuse of textual theme;

(5) constant theme/rheme pattern with long clause;

(6) linear theme pattern with vague topical theme;

(7) linear theme pattern with vague rheme;

(8) linear theme pattern with empty rheme;

(9) linear theme pattern with the underuse of textual theme;

(10) linear theme pattern with long clause;

(11) multiple theme/split rheme pattern with vague topical theme;

(12) multiple theme/split rheme pattern with vague rheme;

(13) multiple theme/split rheme pattern with empty rheme;

(14) multiple theme/split rheme pattern with the underuse of textual theme; and

(15) multiple theme/split rheme pattern with long clause.

Conditional knowledge for creating the *micro-level coherence* was characterized by *textual theme*, *thematic organisation* and *thematic progression patterns* in these students' research texts. The appropriateness of their construction of *textual schemas* for creating *coherence* was affected by their knowledge of these. The HDR students' *conditional knowledge* was comprised of *thematic organisation* (90%), *textual themes* (82%) and *thematic progression patterns* (55%). Inappropriate textual schemas constructed by these students in their texts were characterized by the distribution of inappropriate uses of *textual themes* at the inter-clausal level; *thematic organisation* at the intra- and inter-clausal levels; and *thematic progression patterns* at the intra-paragraph level. Characteristically, there was a 28% inappropriate use of textual themes at the inter-clausal level; 10% inappropriate use of thematic organisation at the intra- and inter-clausal levels; and 46% inappropriate use of thematic progression patterns at the intra-paragraph level in these students' texts.

Two tendencies were found in the inappropriate *textual schemas* constructed by these HDR student participants. First, there was a major tendency by the students to use long setences with vague topical theme/multiple rheme. This led to most of the inappropriate uses of *thematic organisation* at the inter-clausal level in their texts. Second, there was also a high inclination for the students to use *constant theme pattern* with vague topical theme. These constituted the highest percentage. There were problems with the *linear theme pattern with vague rhemes*, *multiple theme/split rheme pattern having vague topical themes* and *multiple theme/split rheme pattern with vague rhemes*. These took an equal highest percentage of the problems. These

problems led to most of the inappropriate uses of *thematic progression patterns* at the intra-paragraph level in the students' texts.

Finally I turn to the last two of the contributory research questions 9 to 10 (see Chapter 8):

9. *Why are some coherence strategies used by the students in constructing their textual schemas at the intra- and inter-clausal levels as well as at the intra-paragraph level inappropriate?*

10. *How does the supervisory on-script feedback provide modelling of conditional knowledge to correct the students' inappropriate textual schemas and encourage coherence creation at these micro-levels?*

In accordance with the research plan, the analysis of the evidence addressing these two contributory research questions was from the perspectives of *text-based coherence* and *reader-based coherence*. Discrepancies between these two forms of *coherence* were identified by an analysis which contrasted the students' construction of inappropriate *textual schemas* and the supervisory modelling of the construction of appropriate *textual schemas* for creating *coherence*. These discrepancies verified that these HDR students lacked *conditional knowledge* necessary for creating *micro-level coherence*. This problem occurred in the students' uses of *textual themes* at the inter-clausal level; their *thematic organisation* at the intra- and inter-clausal levels; and their *thematic progression patterns* at the intra-paragraph level. Together these problems contributed to their inappropriate use of coherence strategies in their research writing.

With respect to *text-based coherence*, eight types of inappropriate writing were identified regarding the use of *textual theme*, *thematic organisation* at the intra- and inter- clausal levels and *thematic progression* at the intra-paragraph level. These were:

(1) non-use of textual themes to signal clausal relations;

(2) overuse of textual themes showing no clausal relations;

(3) the reversed rheme-theme sequence;

(4) occupation of the rheme position by given information;

(5) long sentence/s;

(6) non-use of topical theme as 'given' information between theme-rheme clauses;

(7) inappropriate use of thematic progression patterns associated with wrong theme/given-rheme/new sequence; and

(8) illogical organisation of points.

With respect to *reader-based coherence*, eight types of appropriate strategy use were verified concerning the use of *textual theme*; *thematic organisation* and *thematic progression patterns*. These were identified by the examples of modelling appropriate *content schemas* for creating *coherence,* through supervisory on-script feedback on students' texts. These types of appropriate uses were, namely:

(1) the use of a textual theme, signalling clausal relations;

(2) non-use of a textual theme showing no clausal relations;

(3) the ordering of theme-rheme sequences;

(4) 'given' information in the theme position and new information in the rheme position;

(5) combining both textual and cohesive features together to create coherent texts;

(6) the use of topical themes as 'given' information semantically connecting theme-rheme clauses;

(7) the use of thematic progression patterns with theme-rheme sequenced clauses; and

(8) strategic theme patterning.

The next section provides a discussion of the key elements to include when formating a concept of *conditional* and *schematic knowledge* for creating *the micro-level coherence* in research writing.

9.3 Formulating a conception of conditional knowledge necessary for creating the micro-level coherence in HDR students' research writing

This section addresses the need to account for the relationship between *conditional knowledge*, *schema*, *coherence* strategy choices, and *supervisory on-script focused corrective feedback*. Further, this section also reinforces the value of researching international Chinse HDR students' *conditional knowledge* necessary for creating the *micro-level coherence* in their research writing. The key purpose for doing so is to assist such HDR students to produce consistently coherent written products.

The concept of *conditional knowledge* and its necessity for creating *micro-level coherence* in research writing has to accommodate different representations of knowledge. *Schema* represents:

knowledge at all levels-from ideologies and cultural truths to knowledge about the meaning of a particular word, to knowledge about what patterns

of excitations are associated with what letters of the alphabet (Rumelhart, 1980: 41).

It has been categorized into *appropriate content schemas* and *appropriate textual schemas*. *Content schema* refers to "the background knowledge relative to content domain of the text" (Garning, 2014: 7). *Textual schemas* refer to knowledge about discourse structures and forms, in terms of organisation, language structure, grammar, vocabulary and level of formality/register (Garning, 2014; Singhal, 1998). Thus, *conditional knowledge* represents the activation of appropriate *schemas*, that is, "the knowledge stored dynamically in cognitive representations (schemas) that are activated in different situations or tasks" (Pintrich & Garcia, 1994: 115). In effect, it is knowledge that "guarantee[s] that [learners] will apply strategies appropriately" (Paris et al., 1984: 1241). That is to say, *conditional knowledge* supports learners' strategic choices regarding the forms of writing needed to fit into specific situations or contexts. This is a cognitive skill (Uesaka & Manalo, 2007). Thus, concepts of *conditional knowledge* and *schema* mean working to verify the presupposition that appropriateness or otherwise of HDR students' coherence strategy choice for research writing is informed by appropriate schematic knowledge structure. That is, *conditional knowledge* and appropriate *schemas* (see Chapter 1).

The conception of *conditional knowledge* necessary for creating the *micro-level coherenc*e in international HDR students' research writing recognises the similarities between coherence in writing and *text-based* and *reader-based coherence* in research writing. Coherence in writing is defined as

> how the parts of a piece of writing are linked together to form a whole—the extent to which it is perceived to 'hang or link together' to form an integrated whole rather than being a set of unrelated sentences (Garning, 2014: 3).

This definition demonstrates the internal features of a text which underpin and indicate an HDR student's familiarity with both the *content* and *textual schemas*. Both are of importance for the production of research writing (Carrell, 1985; Hamed et al., 2014). However, this definition neglects *reader-based* features of coherence in creating a text. That is to say, this definition ignores the fit between the reader's and the writer's content and *textual schemas* concerning reading and writing of the text (Garning, 2014).

In this study, *text-based* and *reader-based coherence* in research writing have been used to investigate internal features of texts produced by these students with the fit between their *schemas* and the supervisory modeling of appropriate *schemas* via on-script focused corrective feedback. Thus, *conditional knowledge* necessary for creating the *micro-level coherence* in research writing has been analysed from this dual perspective. This move is important for integrating the concepts of *conditional knowledge*, *schemas*, *text-based* and *reader-based* perspective in informing HDR students' strategy choices for creating *the micro-level coherence* in their research writing. Such knowledge can help international HDR students develop the strategic coherence practices to construct appropriately *content* and *textual schemas* so as to achieve *text-based* and *reader-based micro-level coherence* in their research writing.

9.4 Conditional knowledge-based strategy usage necessary for creating micro-level coherence

Conditional knowledge-based pedagogies are necessary to educate HDR students to create the *micro-level coherence* in their research writing. This *conditional knowledge* is recognized in an interactive model developed through this study of the texts produced by HDR students and the corresponding supervisory on-script corrective feedback on these texts (see Figure 9.2). The interaction between the students' texts and their supervisor' corresponding feedback to these texts indicates that there were similarities and discrepancies between the two. The similarities reveal that these students' appropriately used some coherence strategies. Their appropriate

uses of coherence strategies reflected the *conditional knowledge* necessary for creating *coherence* in their research writing. The discrepancies between the two indicate that these students lacked the *conditional knowledge* necessary for creating *coherence* in certain situations in their research writing. The evidence demonstrates that these students had problem with *coherence* creation. They needed pedagogical intervention to correct their inappropriate *schemas* construed by their inappropriate uses of coherence strategies for creating *micro-level coherence*. This problem was addressed by the supervisor thourgh modelling of *conditional knowledge* that these HDR students lacked in their research writing. This supervisor pedagogy corrected the students' inappropriate uses of coherence strategies and built these HDR students' capacity for research writing.

Therefore, here I propose an interactive model of the students' texts and the supervisory focused corrective feedback on the texts (see Figure 9.2). In this model the students' inappropriate *schemas* constructed by their inappropriate uses of coherence strategies are corrected by the *conditional knowledge-based coherence* strategy modelled by the supervisory on-script feedback. These corrections can help students reconceptualise the creation of the *micro-level coherence* in their research writing. This resconceptualised *micro-level coherence* can help them abstain from a *text-based* approach and develop an integrated *text-based* and *read-based approach*. Thus, what is of valued in this model is that this interactivity. This model recognises the significance of engaging with *conditional knowledge* through contrasting the students' texts with supervisory on-script feedback. In doing so, the supervisor's feedback and the students' *conditional knowledge* are married to develop the students' capabilities for research writing.
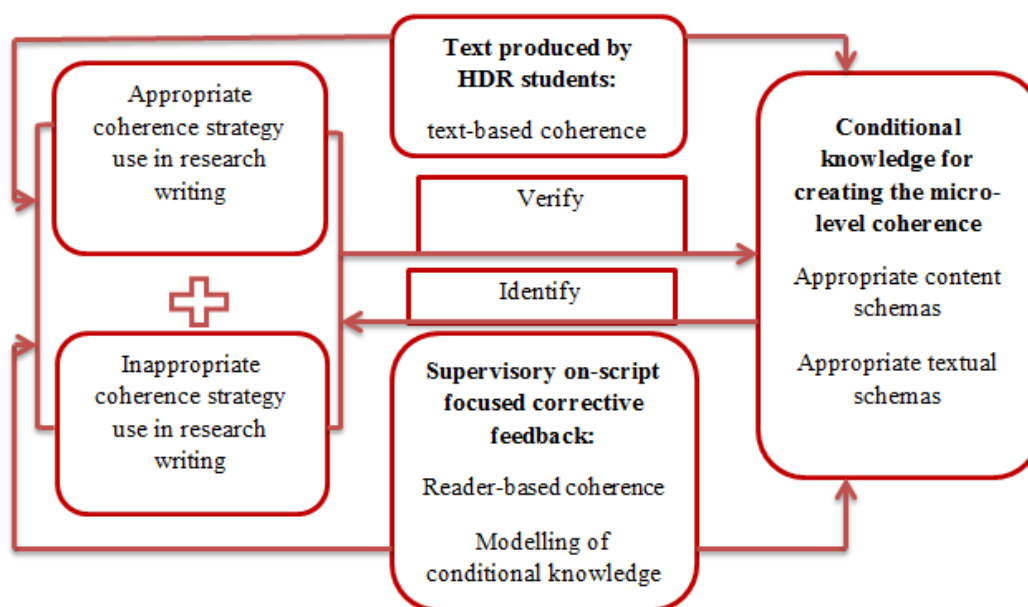
Figure 9.2 An interactive model of the HDR students' text and their supervisor's focused corrective feedback

This conceptualisation of *conditional knowledge-based coherence* strategy practice and its necessity for creating the *text-based and reader-based coherence at the micro-level* through research writing will be further tested and developed in my future research.

9.4.1 The construct of international Chinese HDR students' conditional knowledge for creating the micro-level coherence in their research writing

The analysis of the evidence in this study contributed to the development of a theoretically informed, evidence-driven account of international HDR students' *conditional knowledge* for creating the *micro-level coherence* in research writing (see Figures 5.1 in Chapter 5 and 7.1 in Chapter 7). Figure 9.3 illustrates the overall account of the construction of international Chinese HDR students' *conditional knowledge* for creating the *micro-level coherence* in their research writing.

Based on the analysis of the evidence in this case study, here I propose pedagogy to enable the construction of *conditional knowledge* for the *micro-level coherence* as an approach to reconceptulising students' education in research writing. As illustrated in Figure 9.3, the construction of *conditional knowledge* for the *micro-level coherence* in research writing is schematic and hierarchical in nature. This construct captures "the dimension of knowledge when to invoke strategies" (Garner, 1990: 518). It is the knowledge learners "have about the conditions under which [learners] can implement various cognitive strategies" (Young & Fry, 2012: 1). This knowledge comprises two conditions, namely, *appropriate content schemas* and *textual schemas*. As noted, *content schemas* refers to "the background knowledge relative to content domain of the text" (Garning, 2014: 7), which include *topical theme* and *rheme*. Likewise, the *textual schemas* involve three coherence elements, namely, *textual theme*, *thematic organisation at the intra-and inter-clausal levels*, and *thematic progression patterns at the intra-paragraph level*. The distributions and appropriate deployment of these coherence strategies reveal the students' *conditional knowledge* for their coherence strategy choice in their research writing.
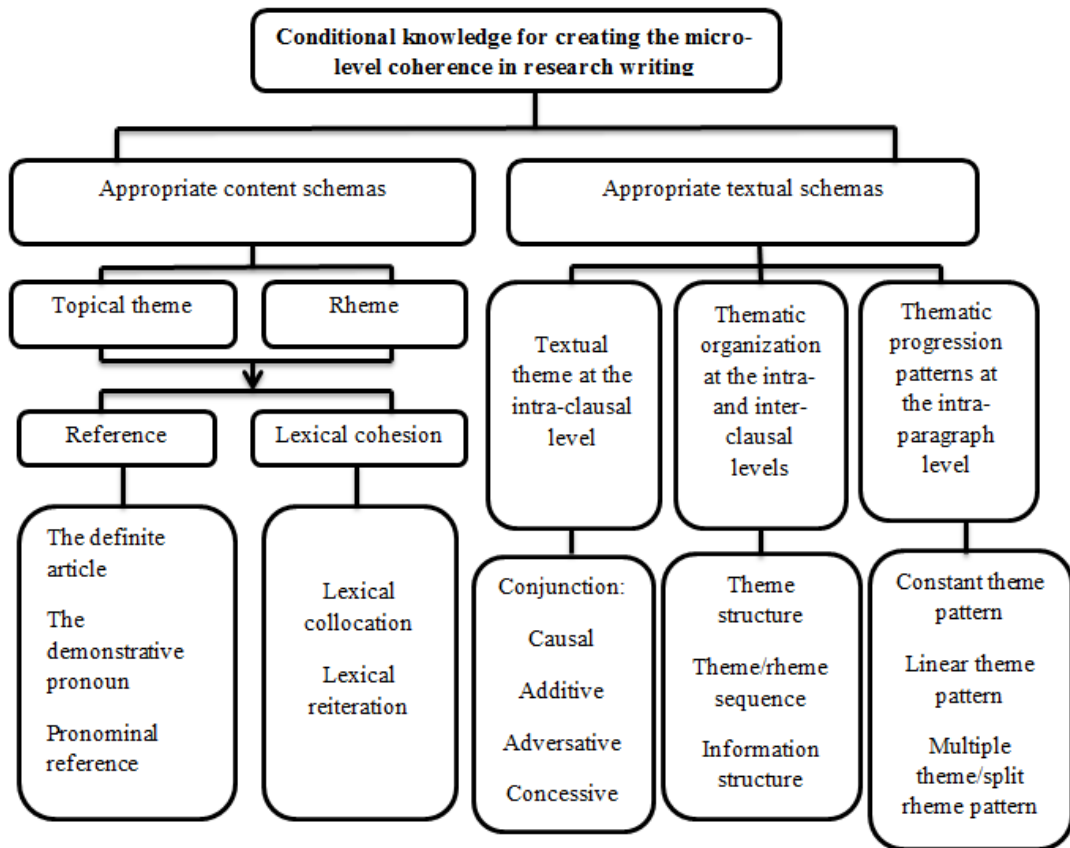
Figure 9.3 The construct of international Chinese HDR students' conditional knowledge for creating the micro-level coherence in their research writing

This construction of international Chinese HDR students' *conditional knowledge* for creating the *micro-level coherence* in research writing will be further tested and developed in my future research.

9.4.2 The construct of international Chinese HDR students' inappropriate schemas for creating the micro-level text-based and reader-based coherence in research writing

The analysis of the evidence regarding international Chinese HDR students' uses of inappropriate coherence strategies contributes to their inappropriate *schemas* for creating the *micro-level coherence* in their research writing (see Chapters 6 and 8).

Figure 9.4 illustrates the construction of students' appropriate *schemas* for creating the *micro-level text-based* and *reader-based coherence* in their research writing.

Therefore, grounded on the analysis of the evidence of this case study, I propose this as a model for pedagogy to help these international Chinese HDR students reconceptulise their construction of the *text-based and reader-based micro-level coherence* through their research writing. As illustrated in Figure 9.4, to do so these students need to construct *content schemas* for creating the *text-based micro-level coherence* that encompass two aspects, namely, *topical theme* and *rheme*. In terms of *topical theme* and *rheme*, two categories of *coherence* are involved, specifically, *reference* and *lexical cohesion*. With regard to *reference use*, these HDR students tended to underuse the definite article; misuse the determiner "this" with the definite article; overuse the definite article; misuse the demonstrative with pronominal reference; and overuse pronominal reference. As for the use of *lexical cohesion*, these students were inclined to misuse lexical collocation relative to domain-specific knowledge, and insufficiently elaborate on general nouns at their novice writing stage.

The students' *inappropriate textual schemas* which undermine creating the *text-based coherence* occur in four situations, namely, *textual theme*, *thematic organisation* at the intra-clausal level, *thematic organisation* at the inter-clausal level; and *thematic progression patterns* at the intra-paragraph level. In terms of *textual theme*, the students tended to not use textual theme signaling clausal relations and overuse of textual theme showing no clausal relations. As for *thematic organisation* at the intra-clausal level, they were inclined to use the reversed rheme-theme sequence and occupy the rheme position with given information. With respect to *thematic organisation* at the inter-clausal level, these students tended to use long sentence and not use topical theme as given information between theme-rheme clauses. As to *thematic progression patterns* at the intra-paragraph level, they inappropriately used thematic progression patterns associated with wrong Theme/Given-Rheme/New sequence of message.

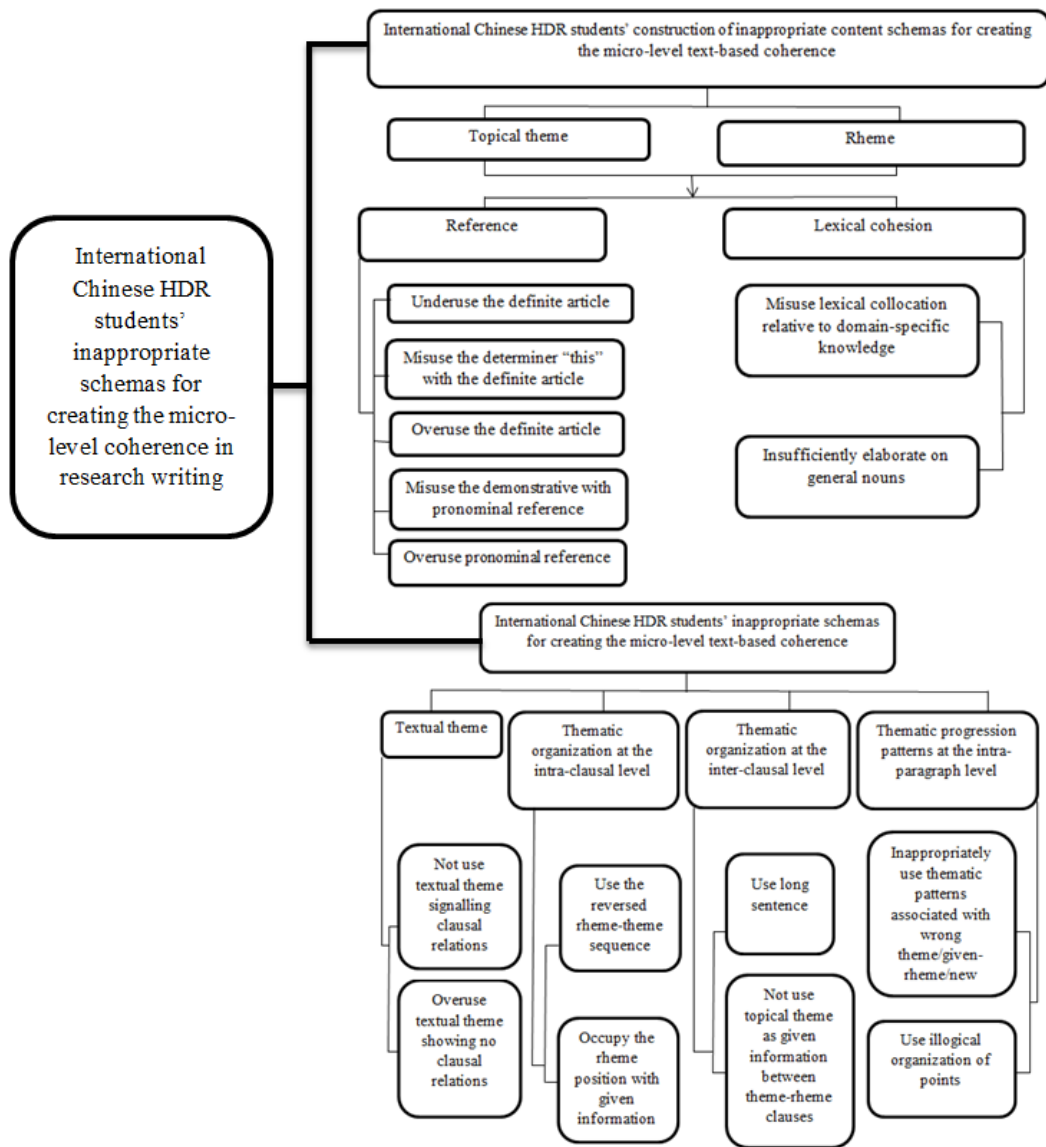**Figure 9.4 The construct of international Chinese HDR students' inappropriate schemas for creating the micro-level text-based coherence in their research writing**

The pedagogy supports international Chinese HDR students to construct appropriate *schemas* for creating the *micro-level text-based and reader-based cohernce* in their reseach writng. This pedagogy will be further tested and developed in my future research.

9.4.3 The construct of supervisory modelling of conditional knowledge for creating the micro-level reader-based coherence

Evidence regarding supervisory on-script corrective feedback contributed to the development of the supervisory pedagogy for modelling the *conditional knowledge* for successfully creating the *micro-level reader-based coherence* (see Chapters 6 and 8). Figure 9.5 illustrates the key elements in the construction of the supervisor's modelling of *conditional knowledge* required for creating the *micro-level reader-based coherence*.

Thus, on the basis of the analysis of the evidence in this case study, I propose a reconceptulization of supervisory pedagogy to help students appropriately produce the *micro-level reader-based coherence* in their research writing (see Figure 9.5). As illustrated in this figure, the construction of the supervisor's modelling of appropriate *schemas* for creating the *micro-level reader-based coherence* encompasses two key aspects, namely, appropriate *content schemas* and *textual schemas*. Both are necessary for students to understand when creating the *micro-level coherence* in research writing. The appropriate *content schemas* are composed of two categories relating to *coherence*, namely, *reference* and *lexical cohesion.* In terms of *reference use*, five strategies were found to contribute to the construction of *appropriate content schemas*, namely:

(1) using the definite article signaling an anaphor-antecedent relation;

(2) using the determiner "this" to identify the referent in a near distance;

(3) using zero article in front of abstract nouns to configure new information for a text;

(4) using the demonstrative pronoun by means of location; and

(5) matching pronominal references with nominal group as their antecedents to create coherence.

As for the use of *lexical cohesion*, two strategies were identified, namely:

(1) using hyponym or specific concepts relative to domain-specific knowledge to clarify topical themes or rhemes, and

(2) extending the elaboration of general nouns with domain-specific knowledge to develop the information involved in the content of general nouns.

In addition, the supervisor's modelling of appropriate *textual schemas* of *reader-based coherence* encompassed four categories, namely, *textual theme*; *thematic organisation* at the intra-clausal level; *thematic organisation* at the inter-clausal level, and *thematic progression patterns* at the intra-paragraph level. These strategies have been developed in the light of these HDR students' inappropriate *textual schemas* of *text-based coherence* illustrated in Figure 8.9. In terms of *textual theme*, two key strategies were identified as contributing to the construction of *appropriate textual schemas*, namely:

(1) using textual theme signaling clausal relations; and

(2) non- use of textual theme showing no clausal relations.

As for *thematic organisation* at the intra-clausal level, two strategies were needed, namely:

(1) obeying the ordering of theme-rheme sequence and

(2) putting 'given' information in the theme position and new information in the rheme position.

Strategies to be used for *thematic organisation* at the inter-clausal level included:

(1) combining both textual and cohesive features together to create; and

(2) using topical theme as given information to semantically connect adjacent theme-rheme clauses.

Strategies required for *thematic progression patterns* at the intra-paragraph level included:

(1) using thematic progression patterns with theme-rheme sequenced clauses; and
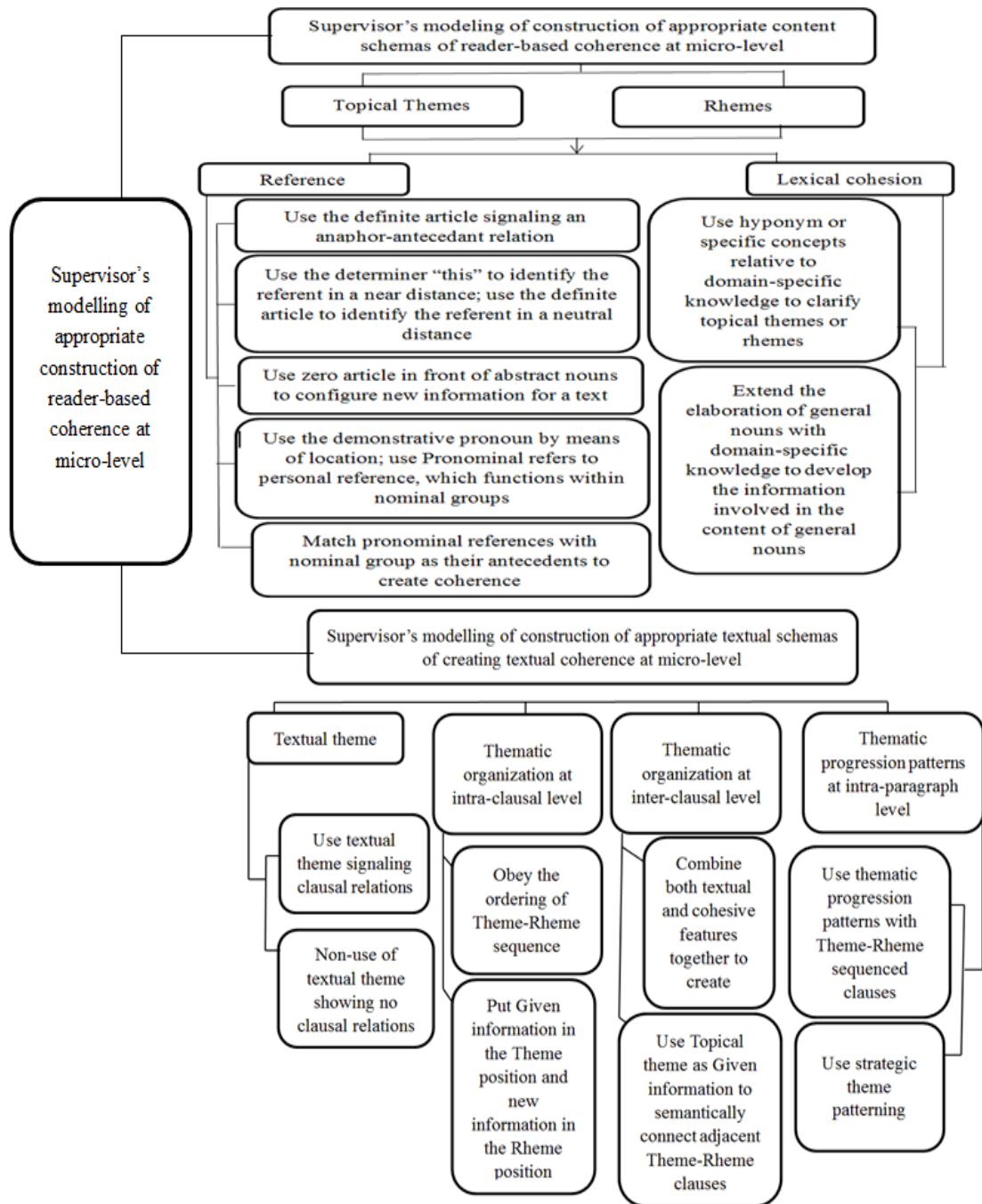
(2) using strategic theme patterning.

Figure 9.5 The construct of the supervisor' modelling of appropriate schemas for creating the micro-level reader-based coherence in research writing

This construction of the supervisor's modelling of appropriate *schemas* for creating the *micro-level reader-based coherence* in research writing will be further tested in my future research.

9.5 Recommendations for future research

This thesis analysed and conceptualized international Chinese HDR students' *conditional knowledge* and *schemas* for creating *the micro-level coherence* in their research writing. The students' research writing was contrasted with their supervisor's modelling of the *conditional knowledge* for creating the *micro-level coherence* (see Chapters 5, 6, 7 and 8). The analysis of the evidence of this study revealed that supervision of HDR students' research writing faced pedagogical opportunities and challenges in providing these students with appropriate writing support to help them produce coherent research texts. Below is a list of theoretically-informed evidence-driven questions arising from this study that can inform further research into how to engage pedagogically, supervisory on-script focused corrective feedback in order to enhance international HDR students' *conditional knowledge* for creating *coherence* in research writing.

1. How is conditional knowledge for creating the macro-level coherence constructed by international HDR students in their research writing? How does their conditional knowledge differ from their supervisor's modelling of conditional knowledge for creating the macro-level coherence in research writing?

2. How are content and textual schemas of macro-level coherence constructed from the text-based level by international HDR students in their research writing? How do their schemas differ from their supervisor's modelling of construction of appropriate content and textual schemas for creating the macro-level coherence from a reader-based perspective?

3. What risks do supervisors of international HDR students face when engaging the idea of conditional knowledge and schemas required for creating the macro-level coherence as they begin to embed them within their own supervisory pedagogies?

4. What are the strengths and weaknesses of engaging conditional knowledge and schemas for creating coherence with supervisory feedback into the supervisory of international HDR students?

The student/supervisor pedagogical interactions established in research writing could be further researched. A significant research focus might be to make pedagogical plans that integrate international HDR students' and their *supervisor's conditional knowledge* for creating the *micro-level coherence* into research writing instruction and supervision. *Conditional knowledge* and *schemas* for creating the *micro-level coherence* in research writing provide communication channels in HDR supervision for sharing knowledge between students and supervisors. Through the dialogue produced based on the students' draft research texts and corresponding supervisory on-script focused corrective feedback, further pedagogical possibilities arise. These ideas need to be investigated further to explore student-supervisor engagement, including the development of educational plans. Further evidence is needed with regards to identifying effective ways of integrating students' *conditional knowledge* and *schema-based* coherence strategy choices into the supervision of international HDR students. Moreover, further research into the *conditional knowledge* and *schemas* for creating the *text-based* and *reader-based coherence* in research writing needs to be more fully investigated. This is especially so, regarding supervisor's modelling as revealed through their supervisory on-script focused corrective feedback. In particular, it is necessary to investigate how the enhancement of the HDR students' *conditional knowledge* for *creating macro-level coherence* through research writing can contribute to the production of their coherent scholarly research texts.

9.6 Reflections on research capabilities development

Undertaking this thesis was a great journey when considering the original meaning of the word *theory*. This process enabled me to develop the research attributes which are required by the University of Western Sydney (UWS, 2013) in order to conduct a Doctor of Philosophy research proejct. I learnt to conduct more nuanced analyses of data via searching for and addressing rebuttals and counter-claims in both the literature and the evidence. I improved my mastery of academic English to assist in making my arguments more focused, coherent, and scholarly. In addition, I have learnt to communicate with others and to express myself more effectively by way of reading, listening, speaking and writing in English in various contexts. I have become a much more self-reliant learner and independent researcher. Further, I have acquired the skills to access, evaluate and utilize relevant research literature to address research problems and to broaden and progress my learning. I have developed in-depth knowledge of research methodology, conditional and schema knowledge required for making appropriate coherence strategy choices and producing coherent research texts. In addition, I have improved my understanding of how this knowledge can be linked to the field of research writing in higher education research, and HDR supervisory pedagogy. I, as a higher degree research candidate, understand the relevance of my chosen field of study. In particular, I have developed a scholarly appropriation of the use of conditional knowledge, schemas and supervisory feedback in supervision of international Chinese HDR students' research writing. Now I am interested in developing and broadening this focus for all HDR students' writing pedagogy in all forms. This is because I have integrated theoretical and practical knowledge in these areas and applied critical, reflective, and creative skills to make informed decisions. I comprehend the value of practicing ethical research, intellectual integrity, and professionalism as a researcher and language educator. All these research attributes will be useful and helpful for my teaching and research in the future. The findings and conclusion may also shed light on ESL/EFL pedagogical practices of research writing and language instruction practices.

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APPENDIX ONE   Ethics Approval

Locked Bag 1797
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University of
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ORS Reference: H10466 13/019154

HUMAN RESEARCH ETHICS COMMITTEE

9 December 2013

Professor Michael Singh
Centre for Educational Research

Dear Michael,

I wish to formally advise you that the Human Research Ethics Committee has approved your research proposal H10466 "Metacognitive Awareness and Its Relation to Self-regulation and Written Corrective Feedback in Thesis Writing: A Case Study of ESL Higher Degree Research Students in Australian Universities", until 31 January 2016 with the provision of a progress report annually and a final report on completion.

Conditions of Approval

1. A progress report will be due annually on the anniversary of your approval date.

2. A final report will be due at the expiration of your approval period as detailed in the approval letter.

3. Any amendments to the project must be approved by the Human Research Ethics Committee prior to the project continuing. Amendments must be requested using the HREC Amendment Request Form:
http://www.uws.edu.au/__data/assets/pdf_file/0018/491130/HREC_Amendment_Request_Form.pdf

4. Any serious or unexpected adverse events on participants must be reported to the Human Ethics Committee as a matter of priority.

5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the Committee as a matter of priority

6. Consent forms are to be retained within the archives of the School or Research Institute and made available to the Committee upon request

Please quote the registration number and title as indicated above in the subject line on all future correspondence related to this project. All correspondence should be sent to the email address humanethics@uws.edu.au.

This protocol covers the following researchers:
Michael Singh, Jinghe Han, Zhihong Zhang

Yours sincerely

A/Professors Debbie Horsfall and Federico Girosi

Deputy Chairs,
Human Researcher Ethics Committee