Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Interpreting Anxiety: Where it comes from and how it varies across interpreters of different proficiency.

Jiahui Xiao
Institute of Education and Humanities
University of Wales Trinity Saint David

Supervised by: Dr. Gulsah Kutuk
Dr. Julia Barnes

Submitted in partial fulfilment for the award of the degree of
Professional Doctorate Programme in English Language
Education and English Literature

University of Wales Trinity Saint David
2025

Declaration

I declare that this thesis titled, “Interpreting Anxiety: Where it comes from and how it varies across interpreters of different proficiency” and the work presented in it are my own. I confirm that:

1. This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

2. All sources used are acknowledged as references in the Bibliography section of this thesis.

3. I hereby give consent for my thesis, if accepted, to be available for deposit in the University’s digital repository.

Signed:

Date: 28 February 2025

Acknowledgements

First and foremost, I would like to express my deepest gratitude to my supervisors, Dr. Gulsah Kutuk and Dr. Julia Barnes, for their continuous invaluable support and encouragement throughout this journey. Their insightful guidance and constructive feedback not only enriched the quality of this research but also broadened my perspectives in the field.

My sincere thanks also go to all members of the Doctoral College of UWTSD for organising various academic activities including training programmes for developing research skills and communication and networking events for building a supportive research community.

I am grateful to my colleagues and friends for providing academic supports and a stimulating and friendly environment that made these years both productive and enjoyable. Special thanks to Professor Liu Zhen, Professor Huang Min, Professor Zhang Zhigang, Mr. Dai Shunbin, Mr. Ma Wandi and Mr. Joshua Klenk for their friendship and for always being there to discuss ideas, share experiences, and offer insights and support.

Many thanks to my beloved families for their unconditional love. Undertaking a PhD can be a challenging endeavour, let alone to have two babies during this journey. Without their understanding and unwavering support, I would not be able to complete this thesis.

Additionally, I would like to take this opportunity to thank all the participants who generously volunteered to be part of this research. Undoubtedly, their willingness to assist and their important contributions were instrumental in bringing this research project to fruition.

Abstract

As a complex process of real-time language transformation, interpreting imposes significant cognitive demands due to its features such as time pressure, immediacy, lack of opportunities for revision, and uncertainty, making it highly anxiety-provoking. Despite its significant impact on interpreting performance, research on interpreting anxiety (IA), particularly its source reasons and levels across different proficiencies, remains limited. To address these issues, this thesis aims to explore the source factors and categorisations of IA in consecutive interpreting and how it is produced by developing an Interpreting Anxiety Source Model (IASM), and also investigate how IA varies in terms of different source categories in the preparation stage of interpreting across interpreters of different proficiency levels.

It focuses on Chinese-English interpreters including novice, proficient and professional levels, and employs an exploratory mixed-methods design incorporating both interviews and questionnaires. With 15 interviews, the thesis identifies four categories of IA sources: language knowledge, extralinguistic knowledge, interpreting skills, and stakeholder factors. Integrating this IA source categorisation with cognitive psychology theories, the thesis proposes the IASM, which emphasises the importance of interpreting self-efficacy (ISE) and coping resources in producing and moderating IA. The IASM is also validated via quantitative data.

Key findings from 268 questionnaires reveal significant negative correlations between IA and ISE across all four dimensions. Across three interpreter groups – novice, proficient, and professionals, IA tends to decrease with growing proficiency, with stakeholder factors most likely to induce anxiety among novices, deficiencies in interpreting skills among proficient interpreters, and concerns on extralinguistic knowledge among professionals. These insights highlight the need for tailored strategies targeting managing IA at different proficiency stages.

The outcomes of the research contribute to this interdisciplinary field as it explores IA sources, enhances the theoretical understanding of IA producing mechanisms, and offers practical implications for interpreting education and professional development.

Table of Contents

List of Figures

List of Tables

List of Abbreviations

ANOVA	Analysis of variance
AIIC	International Association of Conference Interpreters
A-state	State anxiety
A-trait	Trait anxiety
ATA	American Translators Association
ASQ-IPAT	Anxiety Symptom Questionnaire – Intensive Care Psychological Assessment Tool
CATTI	China Accreditation Test for Translators and Interpreters
CCA	Canonical correlation analysis
CDQ-IPAT	Clinical Depression Questionnaire – Intensive Care Psychological Assessment Tool
CEC	China International Evaluation on Language Capability
CI	Consecutive interpreting
CNKI	China National Knowledge Infrastructure
CPI	Cognitive psychology of interpretation
CTTIC	Canadian Translators, Terminologists and Interpreters Council
DPA	Data Protection Act
FLA	Foreign language anxiety
FLCAS	Foreign Language Classroom Anxiety Scale
GDPR	General Data Protection Regulation
IA	Interpreting anxiety
IASM	Interpreting Anxiety Source Model
ICAS	Interpreting Classroom Anxiety Scale
ISE	Interpreting Self-efficacy
MTI	Master's degree programme of translation and interpretation
UWTDS	University of Wales Trinity Saint David

Chapter 1 Introduction

This chapter aims to provide a general introduction to the current thesis. The chapter unfolds in four sections. Section 1.1 outlines the study's background, highlighting key research gaps and justifying the need for this research which aims to explore the sources and levels of interpreting anxiety among interpreters with varying degrees of proficiency. Section 1.2 defines the research context, specifying English and Chinese as the pair of languages to be researched, consecutive interpreting as the mode, and both interpreting learners and professionals as the subjects. Section 1.3 details the specific research questions and objectives. Finally, Section 1.4 presents the structure of the thesis.

1.1 Background and Research gap

Serving as a bridge across different languages and cultures in many occasions such as diplomacy, business, international trade, investment, and academic exchange, interpreting is an important process to convey information from source language to target language in a prescribed timeframe. Gerver (1971) describes the interpreting process as a "fairly complex form of human information processing involving the reception, storage, transformation, and transmission of verbal information" (p.viii). Distinguishing interpreting from other forms of translation, Kade (1968) highlights the here and now characteristic: the source language is presented once without opportunity for review, and the target language must be produced in real-time with minimal chance for correction or revision. This is not an easy task – interpreters need to juggle listening, memorising, note-taking, transforming and monitoring at almost the same time. In fact, interpreting is widely considered as a highly demanding task for its extreme cognitive load (Jimenez & Pinazo, 2001).

The extreme cognitive load, compounded by features of interpreting like uncertainty, time pressure, lack of revision opportunities, immediacy, and unfamiliar topics, renders interpreting a highly anxiety-inducing task. Empirical studies support this view, documenting high anxiety levels among both interpreting students (e.g., Gumul, 2020; Kang, 2012; Yu, 2020; etc.) and experienced professionals (e.g., Kurz, 2003; Pollack, 2005; NUPIT, 2004; Cooper et al., 1982; etc.). Moreover, interpreting anxiety is a significant element that cannot be ignored in the studies of interpreting. Many studies have proved that anxiety can exert impacts on interpreting competence and performance

quality (e.g., Alexieva, 1997; Moser-Merser, 2003), making the ability to manage such stressful feeling a crucial aspect for successfully carrying out interpretation tasks (e.g., Klonowicz, 1994; Moser-Mercer et al, 1998; Kurz, 2003; Pan & Min, 2017).

Moreover, the rise of artificial intelligence (AI) in interpretation and translation has intensified the need to reaffirm the value of human interpreters. While machine translation offers greater efficiency (Ding, 2025), human interpreters possess unique emotional depth and cultural understanding that enable them to empathise with speakers and grasp nuanced, emotion-loaded, or non-standard language (Qian et al., 2023). As such, managing human interpreters' emotional stability and psychological well-being, particularly addressing anxiety, which can affect both their mental health and performance, has become crucial in the era of AI and computer-aided translation.

However, despite its critical role in determining interpreting performance (Kurz, 2003), research on anxiety experienced during interpreting tasks, or interpreting anxiety (hereinafter referred as IA in this thesis), particularly its sources and mechanisms, remains limited. Recent research has been primarily centred on interpreting teaching, training, and interpreting process (Zhang & Liu, 2021), overlooking the psychological conditions of interpreters both at work and at learning. Although the first large-scale empirical study that investigated interpreting anxiety is believed to be conducted in the 1980s (Cooper, et al, 1982), the construct of interpreting anxiety remained ambiguous in the following two decades. Chiang's (2006) work was pivotal in distinguishing interpreting anxiety as a distinct theoretical construct, prior to which it was often conflated with similar concepts such as foreign language anxiety (Deng & Zhu, 2016).

Regarding IA source factors, researchers have debated it without having reached a conclusion so far (Deng, 2018; Jiménez Ivars and Pinazo, 2001), highlighting the need for further investigation. Although various factors, such as listening comprehension (Kang, 2010; Woolfolk, 2001), note-taking skills (Xu, 2016), public speaking abilities (Penny, 2000), and speech speed (Korpal, 2017), can induce IA, IA is often treated as a holistic concept in measurements, leaving IA induced by specific sources and its contribution to overall anxiety level underexplored. Furthermore, while existing studies identify many IA sources, they rarely provide a systematic way to explain the mechanisms through which these factors lead to IA (Deng, 2018), making the IA production

mechanism unclear. Consequently, a more comprehensive and systematic model explaining IA origins is needed.

To address the abovementioned gaps, this thesis aims to explore the sources of IA and the varying levels of IA induced by different source factors. Additionally, it endeavours to construct an IA Source Model (IASM) that elucidates both the origins and the mechanisms through which IA is produced. This approach enhances understanding of IA and offers practical insights into managing IA effectively.

1.2 Contextualising the thesis research

This thesis focuses on Chinese and English as the working language pair within the consecutive interpreting mode, where the interpreter translates after the speaker pauses. The study includes three subject groups covering both interpreting students and professionals. The rationale for the above choices is detailed below.

1.2.1 English and Chinese as the pair of languages in interpreting

This research centres on English and Chinese due to two primary reasons: linguistic considerations and China's unique context.

Firstly, with the current mainstream interpreting research in the west mainly focuses on English and other languages among European countries, there is a lack in the research of Chinese as one of the languages in interpretation (Deng, 2018; Kang, 2011). Most European languages belong to the Indo-European language family that shares linguistic and cultural similarities, whereas Chinese language belongs to the Sino-Tibetan language family (LaPolla, 2019). It is believed that different levels of similarity between languages would lead to different cortical processing during translation and interpretation (Shinozuka, et al, 2021), and interpreting between language families poses more challenges than within the same language family (Avo translations, 2019). Additionally, as a tonal language, Chinese has been voted as one of the hardest languages to translate into and from English by many surveys (e.g., Racoma, 2018; Avo translations, 2019, etc.). Consequently, investigating IA within Chinese-English interpretation is particularly valuable.

Secondly, understanding the interpreting education and practice landscape in China is

essential, with research on anxiety in English-Chinese interpretation being especially beneficial for educational development. China's national strategies such as "Belt and Road Initiatives" and "Tell China's Stories Well" have increased its participation in multilateral organizations and international affairs, boosting demand for professional interpreters (Zhong, 2019). Enhanced global value chains also create numerous business opportunities, driving up the need for skilled interpreters capable of handling diverse settings like government's formal conferences, enterprise's commercial collaborations, cultural exchanges, etc. (China Translation Association, 2025). To address this need, China's Ministry of Education introduced the Bachelor's degree programme of translation in 2006 and the Master's degree programme of translation and interpretation (MTI) in 2007 (Wang & Mu, 2012), for the purpose of further developing interpreting education in China. However, despite the expansion in student numbers, the translation and interpreting programmes in China, at postgraduate level in particular, are still at the exploration stage and not producing enough high-quality talents that meet the needs of the market (Wang, 2016; Yu, 2012; Shi & Niu, 2020). Given the cognitive demands of interpreting (Riitta et al, 2000) and anxiety's impact on quality (Moser-Merser, 2003), examining IA levels and sources across interpreters of various proficiency can highlight differences in their abilities and features, enabling more targeted learning strategies to manage IA and facilitating interpreting education.

Furthermore, a thorough examination of the causes of anxiety among English-Chinese interpreters can contribute to their psychological wellbeing and commitment to the profession. It is because, with better understanding of the causes of anxiety, it is able to find effective ways to address them. According to the *2025 Development Report on China's translation industry*, the number of interpreters and translators in China reached 6.8 million in 2024, with English being the most widely used foreign language (China Translation Association, 2025). Considering the prevalence of anxiety in interpreting (Wang, 2018; Ravakhah et al., 2015; Wang, 2021), addressing this issue is vital for such a large workforce. Anxiety and related negative emotions are significant factors leading to decreased motivation or career giving-up among interpreting learners (Zhang & Deng, 2025), exacerbating talent shortages. Therefore, situating this research within China not only advances interpreting education and practice but also improves interpreters' psychological wellbeing and the profession's sustainability.

1.2.2 Consecutive interpreting as the work mode to be researched

As an important working mode of interpreting, consecutive interpreting (CI) refers to the situation where the interpreter starts to translate from source language to target language when the speaker stops after every few sentences. In this form, the source language from the speaker and the translated target language from the interpreter will proceed one after another consecutively. In many cases, interpreters need to resort to note-taking to help memorise the source information (Kuang & Zheng, 2022).

This thesis research narrows down to CI because of its widespread usage and high possibility of triggering anxiety, particularly among junior interpreters (Yu, 2023). Firstly, CI is an important and the most widely used working modes in interpreting, especially in those very formal cross-cultural occasions such as international high-level talks, business negotiations, press conferences, etc. (Fang, 2018). Given its extensive usage, the thesis conclusion can be applied to a wider range. Secondly, in Chinese universities, CI forms the foundational module in interpreting programmes at both undergraduate and postgraduate's level (Deng, 2018). Unlike simultaneous interpreting (SI), which is another popular interpreting mode where interpretation occurs concurrently with the speaker and requires specialised equipment, CI serves as the ground and basis for students before they advance to SI (Zhong, 2019). Also, evidence suggests that junior interpreters, especially students, are more prone to anxiety during interpreting tasks (Riccardi et al., 1998; Arnaiz-Castro & Pérez-Luzardo Díaz, 2016). Therefore, since CI is the primary focus for junior interpreting students, examining IA within this mode is particularly relevant for understanding student learners' experiences and emotional challenges in interpreting.

1.2.3 Both interpreting students and professionals as research subjects

A notable gap in existing research on interpreting anxiety (IA) within China is the predominant focus on student interpreters, with professional interpreters rarely included as subjects, limiting the generalisability of their findings (Deng, 2018). Reasons for this imbalance include the relatively easier access to students and the scarcity of professional interpreters (Su, 2020). Consequently, IA has been examined primarily from the perspective of student learners, leaving unclear whether interpreters at different levels of expertise perceive IA similarly. For example, as interpreters progress from beginners to professionals through training and practice, questions such as whether they experience

different levels of IA, or whether they have different major sources of IA worth to be investigated. Understanding these differences can inform more targeted support for each group.

This research aims to address this gap by examining how IA varies among interpreters at different proficiency levels, including both students and professionals. The inclusion of multiple groups—novice, proficient, and professional interpreters—allows for a more nuanced understanding of IA's variation throughout interpreters' development.

Moreover, within the students' group, the thesis distinguishes between undergraduate and postgraduate interpreting students. In addition to the commonly used dichotomy of novice and professional groups (e.g., Liang, 2021; Zhong, 2016; Yang & Deng, 2011; etc.), this research incorporates an intermediate group corresponding to Master's program students (see Section 3.4.1). This three-group comparison provides more precise and tailored insights into interpreting training for both undergraduate and postgraduate students. By involving all stages—novice, proficient and professional interpreters—it becomes possible to observe IA trends across the natural progression of interpreters' competence development.

To sum up, this thesis investigates the sources and levels of anxiety experienced in Chinese-English consecutive interpreting among novice, proficient, and professional interpreters. By exploring how IA levels and sources change with increasing proficiency, the research aims to enhance understanding of IA sources and mechanisms, offering insightful and tailored implications for interpreting training and education. Detailed research questions and objectives are outlined in the next section.

1.3 Research Questions and objectives

1.3.1 Research Questions

As discussed above, there are three major research gaps. Firstly, while many studies (e.g., Deng, 2018; Kang, 2010; Chaing, 2006, etc.) have empirically examined the relations between certain stressors and interpreters' anxiety level, the mechanisms through which IA is produced remain unclear. Secondly, most existing studies focus on overall interpreting anxiety levels and treat it as a holistic concept without examining the contribution of individual sources (e.g., Woolfolk, 2001; Penny, 2000; Korpal, 2017, etc.).

Understanding which sources are more impactful can help instructors target training more effectively. Thirdly, there is a heavy focus on student interpreters, particularly in China with Chinese-English as the language pair in research (Deng, 2018), due to students' easier access (Su, 2020), while professional interpreters are underrepresented, and comparisons across proficiency levels remain limited.

To address the abovementioned research gaps, four research questions are formulated in this thesis research.

Research Question 1: What are the sources of interpreting anxiety (IA)?
Research Question 2: What are the processes through which IA emerges?
To comprehend interpreting anxiety (IA), it is essential to first explore its origins, identifying what triggers IA among interpreters. This foundational step involves two critical aspects: identifying the sources of IA ("what") and understanding how these sources translate into anxiety ("how"). Specifically, this entails exploring the factors contributing to anxiety in consecutive interpreting and the mechanisms through which these factors manifest as emotional responses.

Research Question 3: Within each group of interpreters, what is the IA level induced by each source in the pre-stage?
Research Question 4: How does IA level from different sources vary in the pre-stage across interpreters of different proficiency?
Moving from investigating the origin of IA, the next step is to understand what it looks like among interpreters by measuring its overall level and the level induced by specific sources. In quantifying IA levels and their sources among interpreters, it is also important to consider IA variations across different competency levels. Investigating whether IA levels correlate with proficiency and how they evolve with expertise development not only addresses the research gap of lacking contrast between interpreting students and professionals, but also provides valuable insights into interpreter education and training.

Given the focus of the thesis and one of the research gaps regarding lacking stage-specific discussion of IA, among the two typical stages of interpreting (pre-stage and while-stage, see more details in Section 2.1.3), the final two research questions focus specifically on the pre-stage of interpreting. This is a stage referring to the period after an interpreting

task has been assigned but before the actual interpreting process begins (See Section 2.1.3). Focusing on the pre-stage reveals unique insights. This is because, firstly findings of interview in this research (see Section 4.4.3) indicate that IA levels during the pre-stage are likely to be higher than that during the interpreting process itself, and secondly, existing studies rarely distinguish or investigate pre-stage IA (see Section 2.1.3). Therefore, concentrating on the pre-stage is both timely and necessary. Having said that, investigating IA levels during the task execution phase (while-stage) is suggested as a potential direction for future research (see section 8.4.2).

1.3.2 Research objectives

As the research questions being highlighted above, to address each of them, there are four specific research objectives which is elaborated below.

1.3.2.1 Exploring IA source factors and categorisations

To address the first research question and understand the sources of IA, it is crucial to gather comprehensive and grounded data, incorporating both existing literature and first-hand experiences from interpreters. The first objective of the research is to explore and identify as many potential IA source factors as possible, ensuring that the collected data are extensive and grounded in real-world insights. Furthermore, given the multitude of potential IA source factors, it is crucial to systematically and scientifically categorise them, making the IA source categorisation important and necessary.

1.3.2.2 Developing an IA Source Model (IASM)

The second research question focuses on the mechanisms through which identified source factors transform into interpreting anxiety. This involves creating a systematic IA Source Model (IASM), which can take the readers inside the minds of interpreters and provide a methodical explanation of how stimuli lead to anxious emotions during interpreting tasks. Building this model requires a thorough review of relevant anxiety theories and integrating findings from the first research question since the stimuli source factors are also part of the overall explanation of where IA comes from. The existing research (e.g., Lee, 2017; Jiménez Ivars et al, 2014; Bates, 2016, etc.) demonstrates close relationships between interpreting self-efficacy and interpreter's anxiety, and in the proposed IASM, the mediating role of interpreting self-efficacy is examined in the producing mechanism of IA. Last but not least, to ensure robustness, the IASM must be validated using

quantitative data, and the validation process can be incorporated into the studies that answering research question 3 and 4.

1.3.2.3 Designing a tool for measuring IA level

For Research Questions 3 and 4, both involve assessment of IA levels, the foundational objective is to design a reliable measurement tool. The design of such tool is grounded in a dual imperative: it needs to meet the general established psychological research standards and protocols, while also addressing the unique context and specific aims of this study.

To fulfil the former requirement, the instrument adheres to core psychometric criteria including reliability, validity, and generalisability, which are widely recognized as essential for ensuring the trustworthiness and applicability of research findings (Carrig & Hole, 2011, Price, 2015). To be specific, reliability ensures that the tool produces consistent results across repeated experiments (Downing, 2004). Validity confirms that the instrument actually measures the intended construct (Cook & Beckman, 2006). Generalisability supports the extension of findings beyond the research sample to broader populations (Crossley et al, 2002), enhancing the practical implications of this study.

In addition to standard research criteria, the design of the IA measurement tool must also respond to the specific objectives of this research. Two major research gaps identified above include the lack of research on specific IA source dimensions (e.g., Woolfolk, 2001; Penny, 2000; Korpal, 2017, etc.) and comparisons across proficiency levels (Deng, 2018; Su, 2020). Given that, the IA measuring tool needs to incorporate different IA source dimensions, enabling the segmentation of overall interpreting anxiety. This allows for a more nuanced analysis of how different aspects of the interpreting process contribute to anxiety, directly supporting the aims of Research Question 3. In the meanwhile, given that Research Question 4 of this study seeks to compare IA across novice, proficient, and professional interpreters, the measurement tool also needs to be inclusive in design—capable of capturing anxiety experiences across varying levels of expertise. This inclusivity ensures that the items are relevant and interpretable to all participant groups, avoiding bias toward any single proficiency level. By designing items that are contextually flexible across proficiency levels, the tool supports meaningful cross-group comparisons.

Last but not least, ethical compliance is an integral component of research (Simelane-Mnisi, 2018). For example, informed consent and data confidentiality need to be reflected in the measuring tool.

To conclude, while designing the measuring tool of IA, the following five criteria need to be taken into consideration. (1) Validity and Reliability: This should be a quantitative tool that can collect precise and reliable data reflecting IA levels and variation patterns among research subjects. (2) Generalisability: In order to have a more generalised conclusion of IA level and its variation, it is necessary to have a large number of participants. Therefore, the IA measuring tool should facilitate broad participation through easy integration into questionnaires, enhancing generalisability. (3) Source Segmentation: It needs to reflect different IA source categories identified in the first research question, making sure the IA levels from specific source categorisations are measured instead of only measuring the overall level, and therefore addressing this research gap. (4) Inclusivity: To ensure comparability across novice, proficient, and professional groups of interpreters, the items in the measurement need to be inclusive and compatible to scenarios in three groups. (5) Ethical Compliance: The IA measuring tool should adhere to ethical standards to protect participants from potential harm.

1.3.2.4 Compare IA levels and sources within and across different interpreter proficiency levels

This objective aligns with Research Questions 3 and 4, focusing on comparing IA levels and sources within and across interpreter proficiency levels. Utilising the above-developed measurement tool, this step involves two major analyses:

Intra-group Analysis

Measure IA levels from specific dimensions within each interpreter group. It enables the researcher to grasp a comprehensive picture of each group interpreters' current condition of IA level, and more specifically, the IA level from the dimension of each source category. By collecting the data, it helps the researcher understand, for a certain group of interpreters, which source factors have the highest propensity to trigger IA, or which source factors weight more in contributing IA, addressing Research Question 3.

Inter-group Analysis

Compare IA levels and their sources across novice, proficient, and professional interpreters. Through inter-group comparison, it allows the researcher to find out the tendency of IA level and its source dimensions while interpreters' competence and expertise are being developed. It addresses Research Question 4, fulfils the research gap of lacking group contrast and offers tailored educational recommendations.

In summary, by systematically investigating IA sources and categorisations, developing a robust model reflecting IA producing mechanisms, designing a proper measurement tool to quantify IA, and conducting comparative analyses, this research aims to provide valuable insights into IA in terms of its levels and sources, as well as its management across different proficiency levels.

1.4 Thesis Structure

This thesis comprises eight chapters, structured to systematically address all research questions and objectives. The relationships among research questions, research objectives, chapters and studies are illustrated in the following figure 1.1. For a more detailed theoretical roadmap, see Section 3.3.3.4.

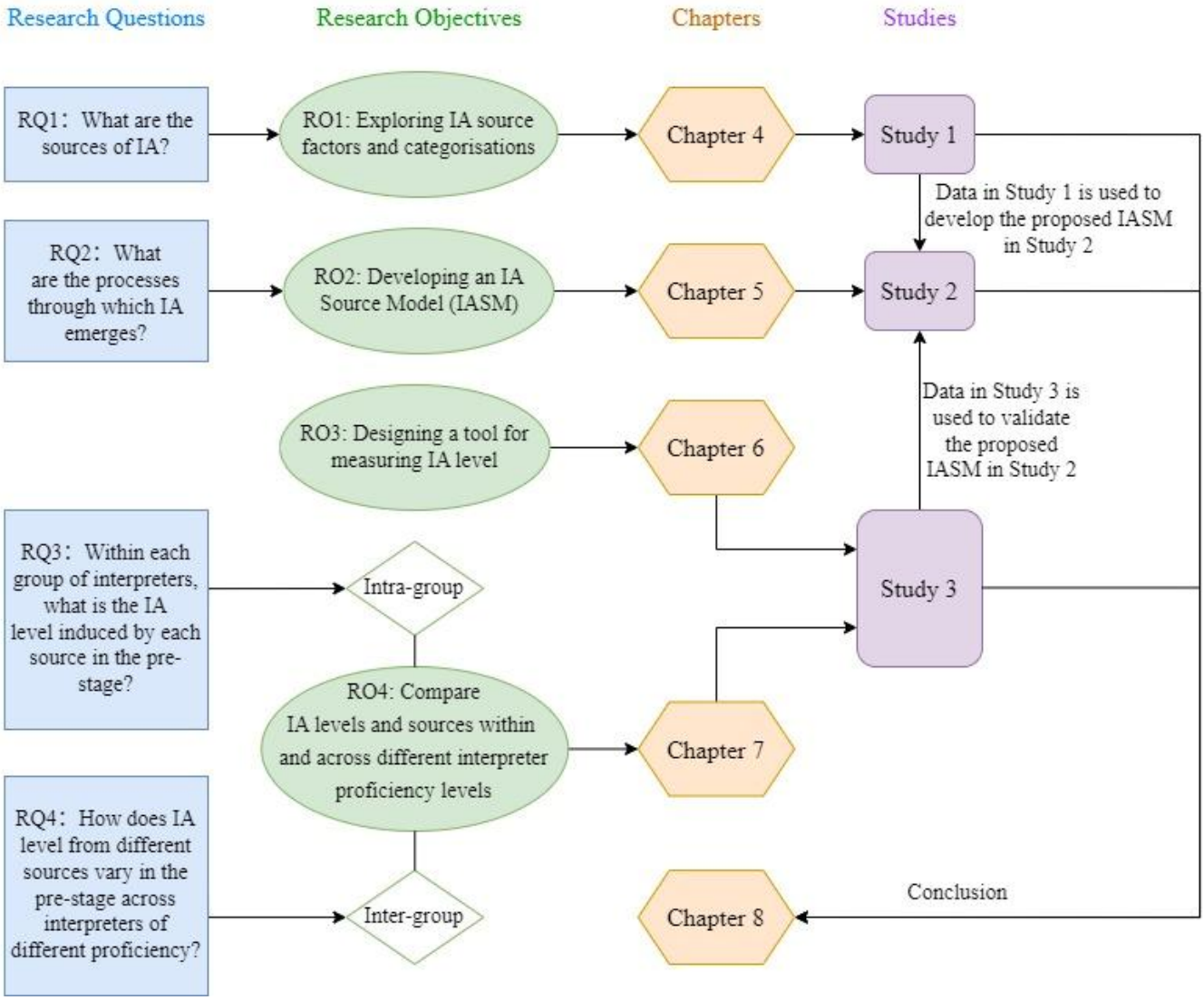


Figure 1.1: Thesis Structure Roadmap

Chapter 1: **Introduction.** It sets the stage by outlining the background and research gap, positioning of the research, alongside its research questions and objectives.

Chapter 2: Literature review. It provides a comprehensive review of existing literature, offering theoretical and empirical support for the current study.

Chapter 3: Methodology. It illustrates the methodological approach, including research philosophy and paradigm, research approach, research strategies and specific methods employed in each study, data collection and analysis, as well as ethical considerations.

Chapter 4: Interview and qualitative data analysis. Utilising interviews and grounded theory, this chapter forms Study 1 which explores IA source factors and categorisations, addressing the first research question and objective.

Chapter 5: Developing Interpreting Anxiety Source Model. This chapter forms Study 2. By applying the foundational theories to interpreting studies, Interpreting Anxiety Source Model (IASM) is proposed, which aims to explain the potential root causes and mechanisms of IA production and variation, answering the second research question and fulfilling the second research objective.

Chapter 6: Scales design. This chapter focuses on designing a reliable tool for measuring IA levels, aligning with the third research objective and also constituting the first part of Study 3.

Chapter 7: Questionnaire and quantitative data analysis. As the second part of Study 3, this chapter employs questionnaires with the above-designed scales measurement, collects and analyse the data on IA levels and sources within and across interpreter groups, addressing Research Questions 3 and 4 and the final research objective 3. This chapter also tests the validity of IASM.

Chapter8: General discussions and conclusions. The final chapter synthesises the findings, discusses the contributions and limitations of the thesis, and suggests directions for future studies.

Chapter 2 Literature Review

This chapter aims to provide an in-depth review of theories and concepts adopted in the current thesis research, integrating perspectives from both psychology and linguistics as it is an interdisciplinary study. This chapter is organised into four sections. Section 2.1 is an overview of the research on interpretation which discusses the definition, scope, cognitive process and key competencies involved in interpreting. Section 2.2 provides overview of anxiety research, and fundamental questions such as anxiety's definition, source origins, and theoretical models are explored. By bridging interpreting and anxiety research together, Section 2.3 sets the stage for understanding interpreting anxiety. It outlines the definition, source stressors, classifications and variation of interpreting anxiety, laying the groundwork for the current thesis research to further investigate the sources and levels of interpreting anxiety among interpreters of different proficiency levels. At the end, the chapter concludes by identifying the research gaps and highlighting the original contributions of this thesis research in Section 2.4.

2.1 Overview of interpreting research

Interpreting is an important activity to convey information from one language to another, and it is defined as a "fairly complex form of human information processing involving the reception, storage, transformation, and transmission of verbal information" (Gerver, 1971: p.viii). The history of interpreting activity can be traced back to long ago, but despite the long years in practice, it was not until the 1920s that interpreters were recognised as a specialised profession (Pöchhacker, 2004). This is because interpreters were in great need in many international conference settings after the World War I. The research of modern interpreting has then been developed since 1960s along with the boom of psychology, cognition as well as many other related disciplines (Pöchhacker, 2004).

As illustrated in Chapter 1, this research focuses on the work mode of consecutive interpreting (CI), the most widely used working mode where the interpreter starts to translate from source language to target language when the speaker stops after every few sentences (Maulida & Saehu, 2022). This section begins by presenting an overview of CI research. It then delves into understanding CI's scope, cognitive working procedures, and key competencies.

2.1.1 Development of CI research

There are four main stages in the development of interpreting research. The earliest description of interpreting process is believed to be the one proposed by Herbert (1952), in which he outlined three key stages in interpreting: understanding, conversion and delivery. This early "guidebook" approach, based on interpreters' professional experience, is linked with the socio-professional underpinnings, marking the first phase of interpreting research (Pöchhacker, 2004). Though research at that time attempted to capture the main components in interpreting, it is too general and mainly developed through experience and reflection but lack of explication (Pöchhacker, 2004)

In the second phase which is around 1960s and 1970s, scholars introduced experimental psychology into interpreting process studies. For example, Barik (1973) utilised experimentally-generated interpreting data to analyse qualitative-linguistic features such as linguistic errors, pausing and time lag. Gerver (1971), one of the key figures of psychological interpreting research, studied divided attention in interpreting process which he asserted involving reception, storage, transformation, and transmission of verbal information. His experiments (Gerver, 1969, 1974) revealed that interpreting performance could be affected by factors like noise, input speed and interpreters' memory. Those researches highlighted the psychological demands of interpreting studies and laid foundational insights into its cognitive challenges.

The third phase which is most famously represented by Seleskovitch who brings interpreting research into a more cognitive analysis of the task. Seleskovitch's (1978) Triangular Model introduced three main steps involved in interpreting process – comprehension, deverbalisation and reformulation, and she emphasised that the core of interpreting is to understand the sense of an utterance rather than literal translation. This concept became foundational in the Interpretive Theory of Translation, influencing interpreting and translation education in many leading schools like ESIT[1]. The high level of abstraction of this triangular model gives great deal of room for more elaboration particularly in terms of the cognitive analysis of interpreting process (Pöchhacker, 2004).

Following this vein, more cognitive mechanism notions such as attention threshold,

[1] ESIT: École supérieure d'interprètes et de traducteurs, Université Paris III - Sorbonne Nouvelle

memory structures, cognitive load and processing capacity have been put forward, and other disciplines such as psychology and neuroscience have been integrated into the study of interpreting (Xu, 2007). Such inter-disciplinary studies have also become characteristic of the fourth phase of the research in this field, and it has particularly speeded up the cognitive turning of interpreting studies (Zhang & Chai, 2008). Within these inter-disciplinary studies in interpreting research, there are two primary research branches (Pöchhacker, 2016):

(1) Effort allocation and cognitive load in interpreting process. Gile (1991) posits that the challenges in interpreting not stem from word-for-word or syntactic translation, but rather, from the simultaneous management of multiple tasks. Given the limited cognitive resources of interpreters, key concepts such as "cognitive capacity", "cognitive management", and "effort allocation" have been researched among scholars (Gile, 1999; Dam, 2004). Moreover, since interpreting is a high-speed and cognitively demanding activity (Zhang, 2012), how to reduce interpreters' cognitive load and therefore enhance interpreting performance becomes an important research topic (Xu, 2008). For example, many studies researched on factors influencing interpreting cognitive load, such as bilingual proficiency (Pöchhacker, 2016), working memory (Zhang, 2012), interpreting experience (Dragsted & Hansen, 2009), speed and accent of the source language (Sabatini, 2000), complexity of the source text (Wu, 2019), note-taking methods (Gao, 2019), language directionality (Chang & Schallert, 2007), etc.

(2) Interpreting psychology. This branch examines where psychological states such as anxiety, confidence, motivation come from and how they influence interpreter's behaviours (e.g., Roziner & Shlesinger 2010; Dong 2018; Deng & Zhu, 2016; etc.). With the professionalisation of interpreting and the increased demand for interpreters training, more and more scholars emphasise the important role that psychological-emotional factors play in interpreting cognitive process research (Bontempo & Napier 2011; Pöchhacker, 2011). Kang (2014) proposed the concept of "cognitive psychology of interpreting" which provides a new paradigm in interpreting studies. Given the importance of psychological-emotional factors in interpreting training and this field of study, this thesis research focuses on anxiety state in particular and aims to investigate the source and level of interpreter's anxiety experienced in interpreting.

2.1.2 Features of consecutive interpreting

Research on the cognitive psychology of interpreting integrates theoretical perspectives from cognitive science and psychology, viewing interpreting as a process where interpreters utilise cognitive mechanisms to process information. Therefore, the features of interpreting help explain the cognitive and psychological distinctions in the interpreting process. As illustrated in the following, there are three main features of interpreting:

(1) Immediacy. In interpreting, spoken information is transient, requiring interpreters to react swiftly, process information in real-time, and produce output instantly to ensure continuous and smooth cross-linguistic communication (Pöchhacker, 2016). Ferreira and Patson (2007) introduced the "good enough processing" hypothesis to explain how interpreters manage multiple cognitive systems simultaneously for immediate processing. Chmiel et al (2020) also stress that interpreters have to give real-time response under significant cognitive and time pressure.

(2) Multi-tasking. Interpreting involves the simultaneous execution of multiple tasks, necessitating the ability to handle various operations concurrently, such as shared attention among listening comprehension, memorising, note-taking, and speaking, resistance to interference, and psycholinguistic synchronisation (Pöchhacker, 2016). These capabilities are essential for managing the multifaceted demands of the interpreting process.

(3) Extreme cognitive load. The multiplicity inherent in interpreting naturally results in a high cognitive load, where limited mental resources must be efficiently allocated among various cognitive operations. Gile (2009) employs the term “cognitive saturation” to describe such extreme cognitive load experienced by interpreters, indicating the point at which they reach their maximum capacity and can no longer manage additional cognitive demands. This feature leads to characteristics such as high-speed processing, coordination, efficiency, underscoring the demanding nature of the interpreting process (Xu, 2008).

The abovementioned features highlight the uniqueness of interpreting, and also explain its nature of anxiety-provoking from the cognitive perspective, making the cognitive psychology a crucial focus in interpreting studies. The current thesis research is situated

at this intersection, focusing on understanding the source factors and producing mechanism of interpreting anxiety.

2.1.3 Preparation and cognitive process of consecutive interpreting

In this thesis research, it is critical to clarify the stages and procedures involved in an interpreting task. An interpreting task typically comprises two primary stages: the pre-interpreting preparation stage and while-interpreting stage, which is elaborated in details in the following. Understanding these stages is crucial for comprehensively addressing the sources and impacts of anxiety in interpreting.

2.1.3.1 Pre-stage of interpreting

The scope of Interpreting activity begins with pre-interpreting preparation, as this is a typical professional norm of interpreters (AIIC, 2014), Pöchhacker (2015) confirms that the preparation stage is integral to the standard workflow.

Academics discuss the notion of pre-interpretation preparation from different dimensions. Bao (1996) states that interpreting preparation should involve studying relevant terminology and concepts, along with psychological and material readiness. Often the interpreters need to prepare a list of bilingual glossaries of relevant terminologies (Zhan & Ru, 2022). Zhang (2003) divides the preparation into broad and narrow senses, which refers to interpreters' preparation for all future possible interpreting jobs and specifically for the next upcoming task respectively. Dong (2007) similarly distinguishes between long-term and short-term preparation: Long-term preparation entails continuous knowledge accumulation and regular practice, whereas short-term preparation focuses on familiarizing oneself with the topic, related knowledge, and the speaker's style for the immediate task. Similarly, Setton and Dawrant (2016)'s classification of event preparation and topic preparation also follows the same logic. Despite different terminologies, there is a consensus that preparing the relevant knowledge and skill is an indispensable part for effective interpreting.

As the anxiety of interpreting researched in this thesis pertains to the state anxiety linked to a specific task or situation, this thesis adopts the narrow sense of pre-interpreting preparation. The term "pre-stage" thus used to refer to the period from when an interpreter is assigned with a certain task to the moment right before the source speech starts.

The important role pre-interpreting preparation plays in successfully completing an interpreting task is widely recognised in both academic and professional communities (Xu, 2018: 53). Without adequate task-related knowledge, comprehending the source speech becomes challenging, which, however, is essential for smoothly producing accurate rendition (Bao, 2011). Moreover, interpreters struggle to apply appropriate interpreting strategies without familiarity with the topic (Setton & Dawrant, 2016: 339). This argument is evidenced by Liu's (2007: 75) empirical study which reveals that more preparation facilitates easier comprehension and production during interpreting.

However, despite the importance of preparation, the pre-stage has often been overlooked in research. A search on China's largest academic database, CNKI, using keywords related to pre-interpreting preparation and cognitive process of interpreting, reveals significant fewer studies on the former, let alone the anxiety research in the pre-stage. Given that proper preparation enhances performance and strategy to use in interpreting, it is reasonable to hypothesise a link between interpreting anxiety and pre-stage preparation, making it interested to be further researched in this thesis.

2.1.3.2 While-stage of interpreting

In addition to the pre-interpreting preparation, the next stage, interpreting cognitive process, begins with the start of the source speech and ends with the completion of the rendition. As it involves information comprehension, storage, transformation, and verbal transmission (Gerver, 1971: viii), a great deal of cognitive processing is engaged in this stage. The while-stage of interpreting can be very anxiety-provoking, which was proved by many existing empirical studies (e.g., Ravakhah et al, 2015; Kang, 2012; Wang, 2021, etc.). Such anxiety can exert impacts on aspects such as fluency (Zhao, 2022), intonation (Korpal, 2017) and speech rhythm (Rojo López et al, 2021) while performing the interpretation task, impacting the interpreting outcomes. To investigate the anxiety that could possibly occur during the while-stage, it is primary to understand what it takes to be able to actually carry out the language conversion. Gile's (1999) Effort Model, a foundational theory capturing cognitive process in interpreting studies, outlines four key cognitive efforts:

(1) Listening Effort. This includes listening and analysis. Interpreters need to comprehend, not only the surface level such as recognise the sound waves and identify

specific words, but also the meaning of the utterance, and this requires the ability of analysing the input information while listening. This is especially challenging when dealing with a second or foreign language.

(2) Memory Effort. It especially focuses on short-term memory and how interpreters access the memory to engage in the interpreting process. It includes, for example, storing phonetic segments until recognition the meaning, and maintaining information during the interpreting process in order to select appropriate words and syntactic structures in rendition production.

(3) Production Effort. It refers to the effort that the interpreter puts forward in producing the rendition. The output part certainly requires effort because speaking is seldom completely error-free and fluent (Holmes, 1988) and it is often a problem-solving process (Clark and Clark, 1977) and therefore requires time and cognitive load to think of, for example, the right word, how to organise the sentence, and how to formulate the output information and put it together in a proper sequence in order to well reflect the message clearly and articulately.

(4) Coordination Effort. This effort is more of an overarching aspect that coordinates and balances the other three efforts. Leeson (2005) compares coordination effort in interpreting with the "air-traffic controller" that works to allocate the capacity and manage interpreter's focus of attention among listening, analysing, memorising, producing, and ongoing self-monitoring. Effective coordination helps achieve smooth interpreting (Kriston, 2012).

Based on the Effort Model, there are two phases of consecutive interpreting:
Phase 1: CI = L+N+M+C. In which "L" means listening and analysis, "N" means note-taking, "M" means short-term memory operations, and "C" means coordination.

In this phase, interpreters first need to listen to the sound wave of the speech and understand the meaning of the utterance, after which efforts are made to write down the notes as interpreters may resort to note-taking to memorise the key contents of the speech in many cases of CI (Kuang & Zheng, 2022). Short-term memory also operates in this stage, and the memory here is particularly associated with the time between the moment

it is heard and the moment it is written down as the note or proceed mentally in the brain. During this phase, coordination effort is also in place as interpreters consciously allocate the attention among different efforts.

Phase 2: CI = Rem + Read + P + C. In which "Rem" means remembering, "Read" means note-reading, and "P" means production.

In this phase, while interpreters produce the translated speech in target language, they need a set of mental operations in order to recall the successive parts of the original utterance, and that is "remembering". It includes the information stored in the brain as well as that reflected by the note. Good notes help reduce the processing capacity requirements for remembering and producing. In addition, coordination plays an important role in managing and allocating the overall attention.

As far as the role and allocation of cognitive resources are concerned, Gile (1995) identifies two essential conditions for successful interpreting. (1) The interpreter's total available processing capacity (TA) should be higher than the total requirement of cognitive resources needed for interpreting processes (TR), i.e., TA > RA. (2) The level of cognitive resources allocated to each processing session (LA) should be higher than the cognitive processing resources required for each session (LR), i.e., LA>LR.

If either condition is not met, Gile (1997) argues that interpreting errors occur. To deal with those errors, along with the updated situation, could require more cognitive load, occupying already insufficient cognitive capacity and consequently leading to anxiety and certain physiological reactions, such as accelerated heart rate, trembles, tensed muscles (Gong, 2006). To make it worse, this could possibly form the stress-error-stress vicious cycle that can culminate in interpreter's burnout (Mackintosh, 2003). Therefore, understanding the stages and cognitive process of interpreting is key to explore the source reasons of interpreters' psychological response, anxiety in particular, in interpreting task.

2.1.4 Key competences in interpreting

As proved by existing literature that interpreters' psychological-emotional state, anxiety in particular, is closely linked with their interpreting competence (Bontempo & Napier 2011; Li & Dong, 2020) This section examines interpreter's key competences needed for

completing an interpreting task.

2.1.4.1 Definition of interpreting competence

Based on Bachman's (1990) model of communicative language competence, interpreting competence is described as the abilities that enable the interpreter to purposely do all the decision-making while performing a given interpretation task. Defined by Kalina (2000) interpreting competence refers to the competence to process oral texts in the context of bi- or multilingual communication situations with the aim of interlingual mediation. It is a combination of capabilities that together enable the interpreter to act and perform in a situation that has certain constraints determined by the nature characteristics of interpreting, such as time pressure, lack of revision, lack of semantic autonomy, and multitasking, etc. Further on the mediation function of an interpreter, Wang et al (2020) define interpreting competence as the interlingual and intercultural mediation ability that an interpreter has in utilising the language proficiency, relevant knowledge and interpreter-specific strategies to instantaneously transfer oral texts from the source language to targe language. Wang (2007) defines interpreting competence as the underlying system of knowledge and skills needed to be able to interpret.

2.1.4.2 Essential competences in interpreting

Scholars discuss interpreting competence from its various components. Gile (1995), Zhong (2003), and Yang (2005) argue that the core components of interpreting competence primarily consist of linguistic ability, interpreting skills (including techniques, tactics, and strategies), and knowledge capacity. Scholars such as Wang et al (2018), Li and Li (2019) introduce the concept of interpreters' technological application capabilities, suggesting that the effective use of technology is an essential component of interpreting competence. Kalina (2000), Cai (2005), and Wu (2010) emphasise that interpreting competence includes linguistic ability, strategic competence (encompassing skills, techniques, and strategies), knowledge capacity, and physiological-psychological attributes. In addition to the abovementioned elements, communicative expressiveness (Keiser, 1978; Gerver et al. 1984; Gu, 2009) and interpreter's professional ethics (Gile, 1995; Setton & Dawrant, 2016) are also highlighted in compromising interpreting competence.

Among scholars' various opinions, two major points need to be emphasised. Firstly, it is

critical to distinguish "interpreting competence" and "interpreter competence". Interpreting competence is associated with the knowledge, both bilingual knowledge and extra-linguistic knowledge, and skillset needed to be able to interpret, whereas the latter concerns the qualities needed in working as an interpreter (Wang, 2007). The interpreter competence has a larger scope than interpreting competence as it also includes elements such as interpreter's psychological and physical qualities and professional ethics, alongside the above three components of interpreting competence (Wang, 2012). This thesis research adopts the scope of interpreting competence. It is because the research is more concerned with the perspective of a given interpreting task as it investigates the anxiety experienced by both interpreting students and professionals in completing a task.

Secondly, among various components of interpreting competence put forward by scholars, a consensus was reached in terms of the general modules of interpreting competence which further contain the specific components. Agreed by many scholars (e.g., Gile, 1995; Zhong, 2003; Wang, 2007, 2012; Cao, 1996; Cai, 2001; Liu, 2005; Yang, 2005; Li, 2021; etc.), there are three major modules of interpreting competence: (1) language competence, (2) extra-linguistic knowledge, and (3) interpreting skills. To be specific:

Language competence

Language competence pertains to bilingual proficiency. An adequate interpreter should have good command of one's mother tongue at a perfect level and foreign languages at a high level of fluency, ideally approaching native-like proficiency (Albl-Mikasa, 2013), and these include the linguistic knowledge as well as the ability to swiftly converse between languages. For interpreters, profound understanding of phonetics, semantics, morphology, and syntax is essential, alongside a comprehensive grasp of the working languages, enabling accurate comprehension of the source text and its faithful rendition into the target language.

Extra-linguistic knowledge competence

Extra-linguistic knowledge is another significant competence module, as evidenced in equations of interpreting competence proposed by both Gile (1995) and Zhong (2003) in which extra-linguistic knowledge serves as an essential factor. Components of extra-linguistic knowledge competence module include encyclopaedia-like knowledge (Wang, 2012; Setton & Dawrant, 2016), such as common sense, cultures, history, major news etc.,

and domain-specific professional knowledge that relates to the topic of the given interpreting task (Wang, 2012; Yang, 2005), such as professional terms and expressions of a specialised field, and contextual knowledge (Wang, 2006: 17). Acquiring this knowledge is vital for accurately understanding professional topics and avoiding errors based on common sense. That is why, as described by Herbert (1952), a good interpreter should know something of everything and everything of something.

Interpreting skills

Furthermore, interpreting skills also represent a fundamental aspect of interpreting competence (e.g.: Kalina, 2000; Cai, 2005; Wu, 2010; Gerver et al, 1984; Gu, 2009; Liu, 2014, etc.), and they are believed to have three important components: (1) skills, (2) strategies, and (3) techniques (e.g., Gile, 1995; Zhong, 2003, Yang, 2005, Setton & Dawrant, 2016; Cai, 2005; Wu, 2010, etc.). To be more specific:

Skills

These include: a) interpreting-specific skills, such as multitasking skill (Stachowiak, 2014), working memory capability (e.g., Liu et al, 2004; Yang, 2017), and interpreting note-taking skill (e.g., Wang & Jia, 2023; Zhang, 2018, etc.); and b) interpreting-general skills, for instance, artistic presentation skills (Zhong, 2003), cross-cultural communication skills (Tomozeiu, et al, 2016).

Strategies

Defined as a deliberate approach employed to prevent or address potential problems in interpreting or to enhance the outcome performance of interpreting (Lörscher, 1991; Bartłomiejczyk, 2006), interpreting strategy is another important component of interpreting skill competence (Dong et al, 2019). Examples of interpreting strategies, as described in Deng & Zhu's (2016) paper, include paraphrasing, chunking, anticipating, inferring, synonymy expression, summarising, etc. Research reveals a strong link between the use of interpreting strategies and interpreter's anxiety level (Li & Dong, 2020).

Techniques

For example, the capability to effectively use information searching tools, corpus, computer-aid translation, and relevant interpreting equipment (Jiang and Chen, 2018;

Wang et al, 2018; Li and Li, 2019).

2.1.4.3 Interpreting competence across interpreters of different levels

Among the abovementioned three major interpreting competence modules, language knowledge is the foundation, and interpreting skills are the focus of interpreting training (Riccardi, 2005), and therefore a good commend of language knowledge should be the prerequisite for learning interpreting courses (Donovan, 2006). This argument has been proved in empirical studies as well. For example, Yang (2014) finds out that at the beginning stage of learning interpreting and translation, learner's interpreting competence is highly correlated with learner's language knowledge and ability, whereas such correlation is weakened when there has been more interpreting training. Similar conclusions such as the respective influence of language knowledge and interpreting skills on learner's interpreting competence along the different stages of interpreting learning process (Zhong & Zhan, 2016) have been reached as well.

2.2 Literature on anxiety research

This section is divided into two parts. The first part gives an overview of the anxiety research landscape and anxiety theories, and the second part illustrates the foundational theories underpinning the thesis research and explains how they relate to the current research.

2.2.1 Overview of theories of anxiety

Anxiety, as a fundamental human emotion, has been a central focus of psychological research for a long time. From its early research in 19th century, the conceptualisation of anxiety has been explored by many scholars and many theories of anxiety have emerged. The understanding of anxiety has evolved significantly, reflecting broader shifts in psychological paradigms. This review outlines the major stages in the development of anxiety research, highlighting key theories and perspectives that have shaped our understanding of this complex phenomenon.

2.2.1.1 Early Studies

Early studies in anxiety research encompass a variety of theoretical perspectives, including, for example, existential, psychoanalytic, and physiological theories.

Kierkegaard's (1844) Existential Theory, originating from his work *The Concept of Dread*, posits anxiety as an inherent aspect of human existence, on the basis of human's freedom of choices and all the possibilities that exist in people's lives. He distinguished anxiety from fear, arguing that while fear is tied to specific objects, anxiety emerges from the condition of facing choices and possibilities, making it an "irrational experience" integral to human life. Although this theory provides foundational insights into the concept of anxiety, its philosophical grounding limits its psychological applicability.

Freud's psychoanalytic contributions, particularly his formulations in 1917 and 1926, offer another perspective on anxiety. Initially, Freud (1917) viewed anxiety as a transformation of repressed libido. However, he later revised his theory, proposing that anxiety functions as a signal from the ego about existing or potential dangers, acting as a defence mechanism (Freud, 1926). This adaptive function of anxiety, related to cognitive processes of threat appraisal and learning, laid the groundwork for understanding anxiety's role in psychological functioning (Izard, 1977).

Additionally, physiological theories, such as those discussed by Panksepp (1982) and Grey (1987), focus on the neural underpinnings of anxiety, highlighting the fight or flight response as a critical component of the central nervous system's reaction to perceived threats. These early theories illustrate the multifaceted nature of anxiety, paving the way for more contemporary cognitive and neurophysiological approaches (Strongman, 1995).

2.2.1.2 Cognitive turn in anxiety theories

The cognitive turn in the evolution of anxiety theories refers to a significant shift in psychological research and clinical understanding that occurred in the mid-20th century. This shift moved the focus from purely behavioural and psychoanalytic explanations of anxiety to a greater emphasis on cognitive processes: how thoughts, beliefs, and interpretations influence emotional experiences, particularly anxiety (Strongman, 1995). Representative theories after the cognitive shift such as Learning Theory, Uncertainty Theory, Self-discrepancy Theory, and State-Trait Theory are outlined in the following parts, with the origins and mechanisms of anxiety explained from different perspectives.

Learning Theory of Anxiety

Advocated by Mowrer (1953), Learning Theory of anxiety posits that anxiety, a particular

form of stress, is a learned response associated with previous experiences. Individuals learn to associate certain stimuli with negative outcomes, leading to increased anxiety when encountering similar situations in the future. Staats and Eifert (1990) further elaborate on this idea, emphasising that anxiety can be learned through adverse conditions and there is always an emotional response at the basis of anxiety. However, while the learning theory effectively explains anxiety arising from known threats, it struggles to account for anxieties related to new possibilities or uncertainties not previously encountered.

Uncertainty Theory

Contrasting the Learning Theory of Anxiety, Uncertainty perspective and its relevant studies view anxiety as fundamentally linked to unpredictability and ambiguity. In this theory, anxiety is defined as a feeling of uneasiness and apprehension, usually about a situation with uncertain outcome (Spielberger et al, 1983). Unlike fright, which is often brought by imminent physical harm, anxiety occurs when there is an uncertain and ambiguous threat (Lazarus, 1991a). In addition to external threats, an individual's perception of their ability to cope with these threats is also a source of uncertainty and therefore relating to anxiety as well (Lazarus, 1991a). Moreover, the notions surrounding uncertainty as a central component of anxiety were further explored and expanded upon. For instance, studies on intolerance of uncertainty (IU), represented by Dugas et al (1998), delve into how some individuals have a predisposition towards experiencing higher levels of anxiety due to their difficulty in tolerating uncertainty.

Self-Discrepancy Theory

Proposed by Higgins (1987), this theory shifts focus from external triggers to internal discrepancies between one's actual self (individual's fundamental self-concept, a self-perceived view of one's own attributes) and ideal/ought selves (the representation of someone's hopes or sense of obligations). According to this theory, emotional distress such as anxiety arises when individuals perceive gaps between their current self-concept and their aspirations or obligations. The notion that emotional distress can be derived from the negative thoughts about oneself has a long history in psychology (e.g., Sullivan, 1953; Adler, 1964). Self-discrepancy theory provides a framework for understanding how such cognitive evaluations contribute to feelings of inadequacy and stress, highlighting the importance of self-perception in shaping emotional states.

State-Trait Anxiety Theory

Developed by Spielberger (1966, 2019), this theory distinguishes between two types of anxiety: state anxiety (A-state) and trait anxiety (A-trait). Trait anxiety is a feature in one's personality and it reflects a stable tendency to experience anxiety across various situations (Scovel, 1978). Suggested by Eysenck (1979), trait anxiety can disturb one's memory and undermine the cognitive function. State anxiety, on the other hand, refers to temporary emotional state of stress in response to specific circumstances (Luo, 2013). It is a conscious feeling of tension and apprehension that usually goes with active autonomic nervous system reactions in response to a particular stimulus, such as standing under the spotlight and presenting in the public (Spielberger, 1985). The distinction between these forms of anxiety has been widely recognised in psychological literature (cf., Endler, 1983; Dreger, 1985; Endler & Kocovski, 2001) and played a pivotal role in following psychological research, such as state-trait anxiety inventory (Spielberger, 1983), situation – response Inventory of Anxiousness (Shedletsky & Endler, 1974), and the multidimensional interaction model of anxiety (Endler & Parker, 1992).

2.2.1.3 Integrative perspective in contemporary anxiety research

In contemporary anxiety research, advances in neuroscience have expanded the understanding of the biological and neuropsychological underpinnings of anxiety. For example, research has identified key brain regions involved in stress and anxiety, such as the amygdala (fear processing) and the prefrontal cortex (regulation of fear responses) (LeDoux, 1996). When stress occurs, it manifests both physiologically and psychologically. Physiologically, stress triggers the release of hormones like adrenaline and cortisol, enhancing alertness and activating the sympathetic nervous system (Kurz, 2003). This leads to symptoms such as increased heart rate (Chalmers, 2016), higher blood pressure (Sherwood & Carels, 2007), dilated pupils (Kyriakou et al., 2019), and lower peripheral skin temperature (Partala & Surakka, 2003). Psychologically, stress can cause anxiety and fear (Daviu et al, 2019). As anxiety and fear are both emotional states of stress, they are different in that fear is the emotional reaction to a real perceived imminent threat, whereas anxiety concerns the anticipation of potential perceived threat (American Psychiatric Association, 2013). Results from Mordkoff (1964) confirm that there is a substantial relationship between physiological and psychological stress responses, highlighting their interconnections.

In conclusion, the exploration of anxiety through diverse theoretical lenses offers a rich tapestry of insights into its causes and effects. Each theory brings its unique contribution to the understanding of anxiety, highlighting its multifaceted nature and the interplay between environmental triggers, cognitive processes and an individual's biological and emotional states. Among those theories, State-trait Anxiety Theory is particularly pertinent to the current interpreting anxiety research, since the focus of the research concerns a particular situation – performing an interpreting task, and it is crucial to distinguish the type of anxiety investigated in the current research. Strait-trait Anxiety Theory is one of the foundational theories in this thesis, and it is further elaborated in next section.

2.2.2 Theoretical foundation of anxiety in this research

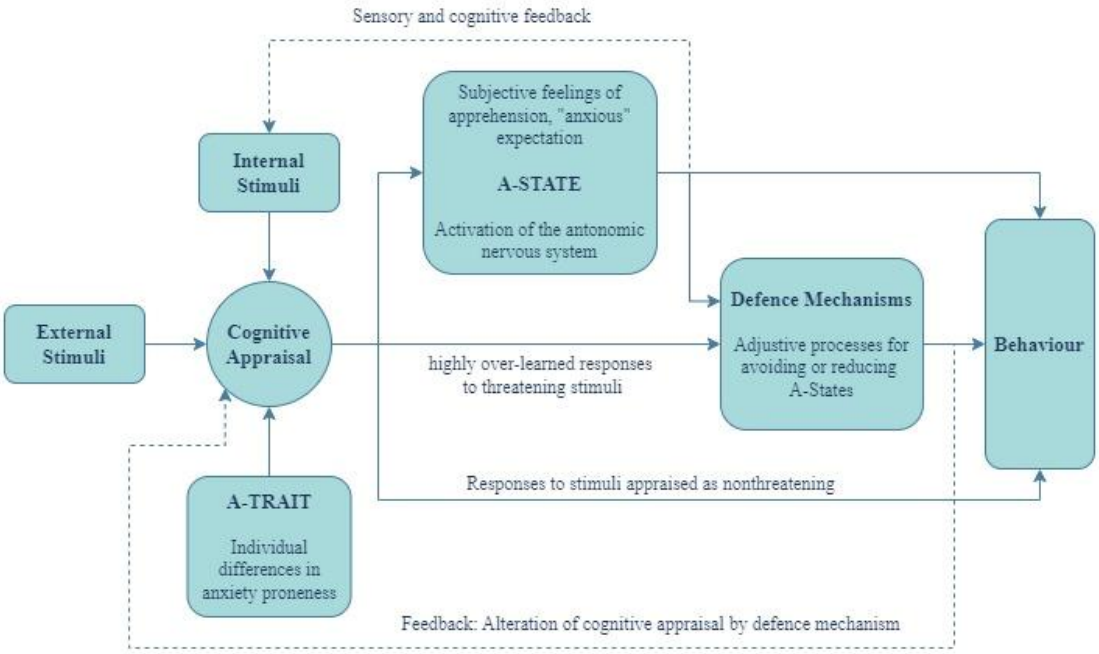
By conducting a systematic review of the State-Trait Anxiety Theory and related anxiety theories, and by analysing their interconnections and complementary aspects, this thesis identifies and utilises three pivotal and interconnected theories as its foundational framework. These include: Spielberger's State-Trait Anxiety Theory (1966) which outlines the mechanism and core components for anxiety production, Lazarus and Folkman's Cognitive Appraisal Theory (1984) which discloses the procedures of anxiety appraisal, and the concept of Self-efficacy (Bandura, 1986) which is identified as a crucial mediator in determining anxiety evaluation. This section offers a detailed exploration of these three theories and highlights the close relationships among them. It also illustrates how these theories are particularly applicable to the study of interpreting anxiety within this thesis research.

2.2.2.1 State-Trait Anxiety theory

The first foundational theory in this thesis research is Spielberger's (1966) State-Trait Anxiety Theory. Given the focus on interpreters performing consecutive interpreting tasks which is regarded as a particular situation, this research primarily examines state anxiety, excluding individuals with persistent trait anxiety or anxiety disorders.

Spielberger's (1966) model suggests that the production of state anxiety involves the following key steps: (1) Stimulus Identification: The process begins with recognising a stimulus, either external (e.g., a challenging situation, a threat) or internal (e.g., thoughts,

memories), which initiates the anxiety response. (2) Cognitive Appraisal: Individuals cognitively appraise whether the identified stimulus poses a threat. This appraisal is influenced by personal experiences, beliefs, and individual differences. According to this theory, if the stimulus is deemed threatening, it leads to increased physiological arousal and emotional distress. (3) Activation of State Anxiety: Heightened physiological arousal and emotional distress constitute the state anxiety response, characterised by feelings of apprehension and symptoms such as increased heart rate and muscle tension, and restlessness. (4) Defence Mechanisms and Behavioural Responses: When coping resources such as highly over-learned responses to threatening stimuli are available, state anxiety may prompt an individual's defence mechanisms which are an adjustive process aimed at coping with or avoiding state anxiety. It may also lead to certain behavioural responses such as changes in attention, preparing problem-solving strategies, or



avoidance behaviours. (5) Feedback Mechanism: At the feedback stage, the individual may cognitively re-appraise the updated situation on what kinds of stimuli the situation still has and what level of A-state such threat could arouse. As a result, the individual's ongoing assessment of the situation and their emotional and physiological responses may further influence the intensity and duration of the state anxiety. See Figure 2.1.

Applying this framework to interpreting anxiety, the theory provides a suitable model for

Figure 2.1: Production mechanism of state anxiety (adapted from Spielberger, 1966)

understanding its origins and producing mechanisms. Specific factors within interpreting act as stimuli or stressors, triggering cognitive appraisals. For instance, if an interpreter perceives a certain stimulus in the task as threatening, state anxiety is activated, potentially resulting in behaviours like stammering or avoidance of eye contact (Young, 1992), or even total give-up or "burnout" (Mackintosh, 2003). Moreover, highly practiced responses to these stimuli can help reduce perceived threat by activating defence mechanisms which work as an adjustive process for avoiding or reducing the state anxiety. Therefore, following this model, it is hypothesised that, the more proficient and experienced the interpreter is, the more likely it is that he or she has repeatedly learnt about responses to deal with a certain stressor, and as the result, the less likely that such stressor will be deemed as threatening, thus leading to reduced interpreting anxiety. As this research aims to compare the interpreting anxiety sources and levels among three groups of interpreters of different level of proficiency, this theory offers a suitable model framework.

2.2.2.2 Cognitive Appraisal Theory

In Spielberger's (1966) Trait-state anxiety theory, an essential stage is the cognitive appraisal – the process of evaluating whether a stimulus is perceived as dangerous or threatening. In his work, Spielberger (1966) highlights Lazarus's (1984) theory on cognitive appraisal, noting its strong alignment with the Trait-State Anxiety Theory. Lazarus and Folkman (1984) further develop the concept of cognitive appraisal in stress and its coping, which underscores the role of cognitive appraisal in anxiety responses.

Primary appraisal and secondary appraisal

Lazarus and Folkman's (1984) model identifies two types of appraisals: primary appraisal, which assesses the significance of a certain stressor, and secondary appraisal (or reappraisal), which evaluates one's ability to cope with it. While secondary appraisal isn't always present, when it is, it interacts with primary appraisal to influence the level and duration of anxiety experienced. Moreover, the concepts of primary and secondary appraisals align well with Spielberger's Trait-State Anxiety Model. For instance, during primary appraisal, a stimulus might activate the individual's defence mechanisms when there are over-learned strategies as coping resources; in secondary appraisal, if an individual believes they have effective coping strategies, the stimulus may be perceived as less threatening in the feedback loop, thereby reducing anxiety. Reappraisal involves

continuously updating one's assessment of a stressor based on new information, indicating that ongoing evaluation can modify the anxiety response.

This influential model has profoundly impacted anxiety and coping research by providing a comprehensive framework for understanding how individuals perceive and respond to stressors. It emphasises the dynamic and transactional nature of stress and coping, highlighting how cognitive appraisal shapes emotional and behavioural responses. Lazarus and Folkman's theory serves as a foundational cornerstone for research on psychological stress and coping across various disciplines (Biggs et al, 2017).

Factors affecting stress cognitive appraisal

In terms of the factors to be evaluated in the cognitive appraisal process, Lazarus and Folkman (1984) identify personal factors (or internal factors) such as commitments and beliefs, and situational factors (or external factors) such as event novelty, predictability, uncertainty, imminence, and ambiguity, etc.

Within personal factors, commitments reflect what holds value and importance to an individual, determining what is at stake during stressful situations. It encompasses cognitive elements, such as personal values and goals, as well as psychological components like motivation. Commitments influence the reappraisal process by guiding values, which in turn shape reasoning and behaviour (Slife & Rychlak, 1982) and help sustain faith and coping efforts when facing challenges (Klinger, 1975).

Another crucial component within personal factors in cognitive appraisal is beliefs. As defined by Wrubel et al. (1981), beliefs are cognitive constructs that can be individually formed or culturally shared. Within the cognitive appraisal process, beliefs inform an individual's understanding of their environment, shaping perceptions of “how things are” (Lazarus & Folkman, 1984, p. 63). According to Lazarus and Folkman (1984), there are two primary types of beliefs: beliefs about personal control and existential beliefs. Existential beliefs involve faith in God, fate, or other natural power in universe, which tend to be more generalised rather than situation-specific (Bulman & Wortman, 1977). Since this thesis focuses on the specific context of interpreting, these broader existential beliefs are not directly relevant. Instead, the emphasis will be on beliefs related to personal control and how they impact the cognitive appraisal of stressors encountered

during interpreting tasks.

Regarding the situational factors raised by Lazarus and Folkman (1984) in their theory, key to understanding them is that stress and anxiety are not inherent in the situation itself but arise from the individual's appraisal of the situation and their perceived ability to cope with it. According to Lazarus and Folkman (1984), major situational factors include novelty, predictability, imminence, and ambiguity. For example, unfamiliar and unpredictable situations are more likely to be appraised as threatening because the individual lacks prior experience or knowledge to predict outcomes (MacNamara & Barley, 2018). Likewise, the immediacy of a situation can heighten stress as well Lazarus and Folkman (1984). In the secondary appraisal in particular, if situations perceived as controllable, they are less likely to induce anxiety because the individual believes they can influence the outcome (Endler et al, 2000).

Applying this model to interpreting context explains why interpreting often induces high levels of anxiety. The immediacy and non-revisable nature of interpreting tasks introduce significant uncertainty and unpredictability, which are more likely to be appraised as threatening. Furthermore, interpreting frequently involves novel and ambiguous content, especially when dealing with unfamiliar subject areas, making interpreters feel less control over the interpreting task. These situational factors make interpreting particularly demanding and prone to inducing anxiety.

Therefore, given the broad impact of Lazarus and Folkman's (1984) Cognitive Appraisal Theory, its compatibility with Spielberger's State-Trait Anxiety Theory, and its relevance to interpreting, this theory serves as an important foundational basis for examining the cognitive appraisal processes involved in interpreting anxiety.

2.2.2.3 Self-Efficacy Theory

As discussed above, those personal and situational factors shape a particular person-situation interaction which influences the mediating process of cognitive appraisal as well as the subsequent coping responses. To address the appraisal of such person-situation interaction, more emphasis has been put on the significant role played by self-efficacy (Karademas & Kalantzi-Azizi, 2004). The concept of personal and situational appraisals of control in the previous part, as noted by Lazarus and Folkman (1984, p. 69), closely

aligns with Bandura's idea of "self-efficacy." Self-efficacy refers to an individual's confidence in their ability to execute strategies and achieve a given outcome (Bandura, 1977). Both concepts involve understanding one's relationship with a situation and assessing personal capability to manage it using available resources and coping strategies. These assessments influence both emotional responses, such as anxiety, and the choice of coping mechanisms (Lazarus & Folkman, 1984). Essentially, self-efficacy plays a crucial role in both primary and secondary appraisals, and it is believed to be one of the most important factors in regulating human behaviours (Bandura, 1997).

Instead of offering an objective measure of one's skills and capabilities, self-efficacy represents a subjective assessment of one's competence in specific situations (Feltz, 2001). A high level of self-efficacy signifies strong self-perceived confidence in accomplishing a given task. According to Bandura (1997), personal agency allows individuals to exert causal influences over their psychosocial functioning, with self-efficacy being central to this process. When facing particular situations, those with high self-efficacy view challenging problems as opportunities for mastery, show greater interest in their engaged activities, maintain stronger commitments to their goals, and exhibit resilience against setbacks and negative emotions like anxiety (Bandura, 1986).

Sources and influence of Self-efficacy

According to Bandura (1977, 1980), the sources of self-efficacy information include a) mastery experience: the past experiences of success can enhance one's self efficacy whereas past experiences of failure diminish it; b) vicarious experience: the observation of others' successful or failure performance can impact one's self-efficacy, as the positive case can lead to higher self-efficacy, and the similarity to others can be the cue for gauging the self-efficacy (Schunk & Usher, 2012); c) verbal persuasion: encouragement or discouragement from others, tutors, peers, friends for example, can shape self-efficacy beliefs; and d) physiological and emotional states: the physical and emotional responses experienced during performing the task can also influence one's self-efficacy, for example, anxious feelings while doing the task can affect one's situational beliefs.

Moreover, self-efficacy can exert influence on an individual through four important internal processes including one's cognitive process (Bandura, 2008), motivation (Bandura, 1994), Emotions (Bandura, 2008; Heuven et al, 2006), and choices and

decisions (Bandura, 2008; Mun& Hwang, 2003). See the below figure 2.2 of sources and influence of self-efficacy.

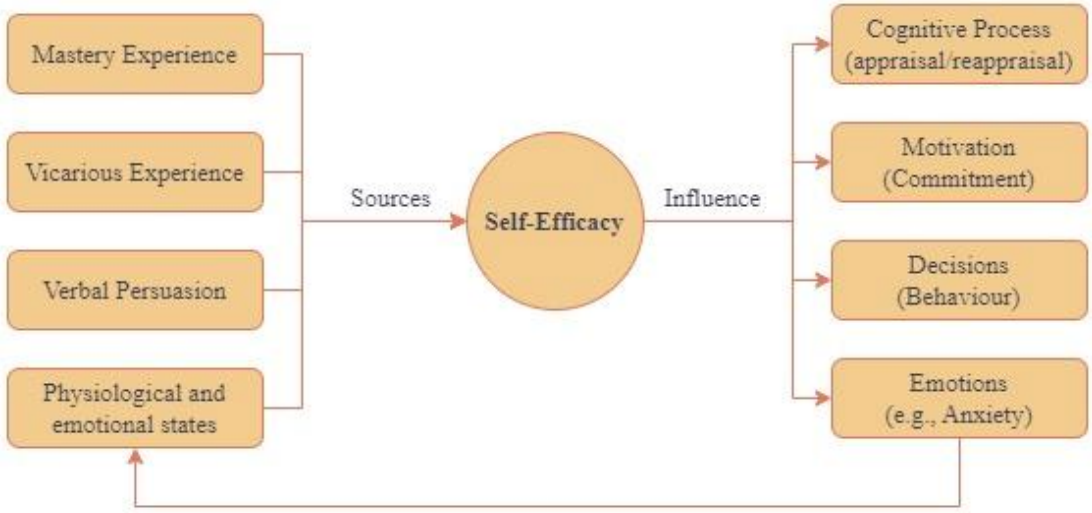


Figure 2.2: Sources and influence of self-efficacy (adapted from Bandura, 2008)

Generalised self-efficacy Vs. specific self-efficacy

Self-efficacy is dynamic in timespan and subjective to specific domains (Bandura, 2006; Schunk & DiBenedetto, 2016; Artino, 2012). For example, it changes based on individual's learning and previous experiences (Bandura, 1990). With the development of self-efficacy conceptualisation and measurement, the concept of task-specific self-efficacy has been distinguished from generalised self-efficacy. Generalised self-efficacy, defined by Schwarzer (1999), is the general self-perceived confidence in one's ability to meet any new demand, which is believed to be a stable construct of one's personality trait, whereas task-specific self-efficacy focuses on perceived confidence in completing a particular task (Baessler & Schwarzer, 1996; Stajkovic & Luthans, 1998).

That is to say, the specific domain should be considered when people need to judge their capability for completing a certain task. This is because high self-efficacy in one area does not necessarily lead to high self-efficacy in another (Pajares & Urdan, 2006). Moreover, it has been demonstrated that specific self-efficacy measures provide greater precision and yield more reliable research outcomes compared to generalised self-efficacy when it comes to a certain situation (Bandura, 1997). Furthermore, task-specific self-efficacy has been widely agreed to be a significant indicator of one's performance

over a certain task across various fields (e.g. Beattie et al, 2016; Bell & Kozlowski, 2002), since it serves as a key cognitive mediator of competence and performance (Valiante, 2000) and plays a crucial role in one's cognitive appraisal process (Pintrich et al, 2002).

Self-efficacy in Interpreting

Given the specificity of task-related self-efficacy, applying this concept to the field of interpreting requires focusing on interpreting self-efficacy. As this concept refers to perceived beliefs in one's competence in completing a specific interpreting task, the key in exploring this concept is to understand essential competencies or components needed for successfully completing an interpreting task. Key competences in interpreting were discussed earlier in Section 2.1.4, and by examining how interpreters perceive their interpreting self-efficacy over those essential interpreting competences, this thesis research integrates these two joining points and bridges the disciplines of psychology and interpreting study.

The existing literature demonstrates close relations between interpreting self-efficacy and interpreter's anxiety level as well as their interpreting outcomes. For example, Lee (2017) examines self-efficacy specifically in consecutive interpreting and reveals that learners' interpreting self-efficacy positively correlates with their performance. Jiménez Ivars et al. (2014) further found that this relationship is significant only for those with high second language proficiency; learners with low proficiency show poor performance regardless of their self-efficacy. Also, self-efficacy, crucial in the cognitive appraisal of anxiety, inversely correlates with perceived threat levels (Ringeisen et al., 2019). Applying it to the domain of interpreting, Bates (2016) demonstrates in an interpreting context that enhancing self-efficacy can reduce anxiety, proposing it as a key anxiety-mitigating factor for interpreters. Similar findings by Yu (2022), Mei (2019), and Gong (2020) confirm a significant negative relationship between self-efficacy in interpreting and interpreting anxiety among Chinese postgraduate interpreting students.

However, the research gap remains in applying the concept of self-efficacy in interpreting. Firstly, most research on self-efficacy in language-related fields focuses on second language learning (e.g., Zhang & Liu, 2009; Yan & Zhang, 2015; Zhang & Yuan, 2004), with limited studies specifically addressing interpreting. Despite self-efficacy and anxiety being critical in interpreting practice, it is only in the recent decades that the self-efficacy

concept has been brought into the interpreting domain (Mei, 2019), and few studies focus on these aspects within interpreting (Zhang, 2018), leaving a notable research gap.
Secondly, current interpreting studies, mostly empirical (e.g., Yu, 2022; Mei, 2019; Gong, 2020), explore statistical relationships but lack a thorough explanation of the underlying mechanisms of how self-efficacy impacts psychological and emotional states. Additionally, most studies examine interpreting students rather than professional interpreters, overlooking differences across proficiency levels. Bandura (1990) emphasised that self-efficacy evolves with experience and learning. Therefore, it is important to include professional interpreters to better understand how self-efficacy and its relation to interpreting anxiety vary with proficiency. This thesis research aims to address the above research gaps by investigating the concept of interpreting self-efficacy and examining, both theoretically and empirically, the relations between interpreting self-efficacy and interpreting anxiety among interpreters with different level of proficiency.

To summarise Section 2.2.2, anxiety is a complex and cross-disciplinary construct that has been defined and conceptualised from various perspectives in the literature, showing the multifaceted nature of anxiety (Lazarus, 1993; Ursin and Eriksen, 2004; Godoy et al, 2018). With its importance in understanding the cognitive process of how anxiety is produced, this section examines how Spielberger's (1966) differentiation between state and trait anxiety provides a fundamental understanding of anxiety dynamics, how Lazarus and Folkman's (1984) appraisal process explain the cognitive assessment of stressors, and how Bandura's (1986) self-efficacy concept plays a crucial role in mediating an individual's perception, evaluation and management of anxiety. Together, these theories offer a comprehensive framework for investigating the unique challenges and stressors faced by interpreters, enhancing the understanding of interpreting anxiety, which also constitute the theoretical foundations of the thesis research.

2.3 Literature on interpreting anxiety

This section reviews the literature on interpreting anxiety and is divided into four parts. The first part discusses the conceptualisation and definition of interpreting anxiety, providing a clear definition for the purposes of this thesis research. In the second part, we explore the manifestations of interpreting anxiety and its role in the interpreting process, underlining the importance of studying this topic. As this thesis focuses on the source and levels of interpreting anxiety, the third part delves into the classification of sources of

interpreting anxiety, the fourth part reviews popular methods used in measuring IA level, while the fifth part examines how interpreting anxiety differs among various groups of interpreters, presenting key findings from existing literature and highlighting the remaining research gaps.

2.3.1 Concept and definition of interpreting anxiety

2.3.1.1 Distinction of interpreting anxiety construct

For the concept of anxious feelings experienced in interpreting, it was not until 1986 when Horwitz et al (1986) proposed a situation-specific anxiety construct termed "Foreign Language Anxiety" that a major milestone had been made in making a more unified theoretical foundation for the studies in this field. In this construct, Horwitz et al (1986) define anxiety in foreign language learning as "a distinct complex of self-perceptions, beliefs, feelings, and behaviours related to classroom language learning arising from the uniqueness of language learning" (p.128). This is believed to be the first clear distinction between foreign language anxiety and anxiety in general (Chiang, 2006). Horwitz et al (1986)'s proposal of the situation-specific approach of foreign language anxiety as well as its measure instrument, the Foreign Language Classroom Anxiety Scale (FLCAS), has provided a more explicit and essential construct framework for many later studies.

However, in the following two decades, the construct of interpreting anxiety remained ambiguous and many researchers mixed interpreting anxiety with foreign language anxiety. Chiang (2006) addresses this confusion by stressing that interpreting anxiety and foreign language anxiety are related but distinct psychological responses. To better measure interpreting anxiety among students, he developed the Interpretation Classroom Anxiety Scale (ICAS), contributing significantly by defining interpreting anxiety and highlighting cognitive processing as a core component.

Following the clear differentiation between interpreting and foreign language anxiety, a new trend emerged in recent years that integrated cognitive psychology into the study of interpreting anxiety (Pöchhacker, 2004, Gentzler, 2001). This interdisciplinary approach has been evident both theoretically and empirically. Theoretically, the crucial role that cognitive psychology plays in the interpretation process, performance and training has been stressed (Kang, 2014), and the theory concept of Cognitive Psychology of Interpretation (CPI) was proposed by Kang in 2014 (ibid). Empirically, by measuring

student interpreters' anxiety level, Deng (2018) develops a three-factor model of interpreting anxiety sources from the cognitive process perspective, in which she also emphasises the importance of meta-cognitive adjustment in interpreting anxiety coping mode. Wemm and Wulfert (2017) argue that stress and anxiety can influence translation through key cognitive activities including problem-solving and decision-making. More interdisciplinary integration has been seen in the recent studies on interpreting anxiety.

2.3.1.2 Definition of Interpreting Anxiety in existing literature

Interpreting anxiety is categorised as state anxiety, or more specifically by Chiang (2006) as "situation-and-language-skill-specific anxiety." As outlined in Section 2.2.1, Spielberger (1983) defines state anxiety as a feeling of uneasiness and apprehension, characterised by heightened vigilance when faced with perceived threats. This definition of state anxiety is widely accepted by other scholars (e.g., Daviu et al, 2019; Jiménez and Pinazo 2001), describing it as a temporary emotional state of stress or worry occurring under specific circumstances (Luo, 2013).

When applying the state anxiety concept to the specific field of interpreting, different definitions were proposed from scholars' different perspectives. For example, from interpreting learning perspective, Chiang (2006) conceptualises Interpreting classroom anxiety a part of foreign language anxiety, defining it as the "fifth skill-specific anxiety" in second language acquisition (p.46). Yet, this categorisation did not consider that interpreting inherently involves listening and speaking skills, making it difficult to isolate it as a distinct fifth skill. From a professional viewpoint, Kurz (2003) associates interpreting anxiety primarily with job-related stress. Given that anxiety is a psychological manifestation of stress (Korpal, 2017), Kurz (2003) describes interpreting anxiety a negative emotional reaction arising when interpreters' abilities, resources, or conditions fail to meet job demands.

Building on Kurz's work, Riccardi (2015) emphasises the subjective nature of task-specific anxiety and broadens its scope beyond classroom learning or professional settings. As a result, Riccardi (2015) defines anxiety in interpreting as a psychological response to perceived imbalances between personal capabilities, coping resources, and task requirement. Further following the cognitive perspective, Kang (2010) highlights the inherent challenges of interpreting activities, as he describes interpreting anxiety arising

from characteristics of interpreting such as immediacy, source language complexity, syntactical differences between source and target languages, and other psychological factors.

2.3.1.3 Definition of Interpreting Anxiety in this research

After reviewing the above existing literature, as far as this thesis is concerned, it is believed that three important points need to be reflected when defining Interpreting Anxiety, namely, the nature of how state anxiety is produced, the subjectivity of anxious feelings, and the specific situation involved in interpreting activity.

Firstly, interpreting anxiety is a form of state anxiety, which involves the psychological manifestation of stress stemming from the anticipation of threats (Weng, et al, 2022). This occurs when there is an imbalance between one's capabilities and the demands of the task at hand (Riccardi, 2015). It is crucial to consider this inherent nature of state anxiety when discussing interpreting anxiety.

Secondly, it is individuals' perception of a situation, instead of mere "objective" environment, that has an overriding influence on people's performance on the job as well as their physical and psychological well-being (Cooper, et al, 1982). In other words, anxiety depends on people's subjective evaluation of the situation. In interpreting, feelings of anxiety can be highly subjective, influenced by personal factors such as self-confidence (Kurz, 2003). This underscores the cognitive appraisal process of anxiety and highlights the importance of self-perception in anxiety appraisal.

Thirdly, it is important to consider the specificity of interpreting activity when defining the concept of anxiety in interpreting, as noted by Kang (2010). Also, the definition needs to be inclusive to various groups of interpreters. Limiting definitions to either student or professional interpreters alone risks incompleteness. Riccardi's (2015) use of the term "task" rather than specifying classroom or job settings serves a good example for inclusivity across different subjects.

In conclusion, considering the above three points and adapted from Spielberger's (1983), Kurz's (2003) and Riccardi's (2015) definitions, this thesis defines the Interpreting Anxiety (IA) as:

A psychological response of uneasiness and apprehension experienced when interpreter's self-perceived competences and coping resources do not meet the task requirements due to the complexity arising from the uniqueness in performing a certain interpreting task.

2.3.2 Common existence and significant role of anxiety in interpreting

Interpreting is widely recognised as a highly anxiety-provoking activity (e.g., Roland, 1982; Longley, 1989; Moser-Merser, 2003; Arnaiz-Castro & Díaz, 2016). This is because the cognitive load involved, due to multitasking, time constraints, unfamiliar topics, intensive memory use, etc., makes interpreting very demanding in terms of interpreters' competences and therefore a particularly stressful situation (Gile, 2009). As a significant psychological reaction to stress, anxiety is common in stressful situation (Weng et al, 2022). In empirical studies, many interpreters, both professionals and students, frequently report experiencing anxiety during interpreting tasks. For instance, Cooper's (1982) large-scale study involving over 1,400 members of the International Association of Conference Interpreters (AIIC) showed that most professionals work under significant pressure and experience anxiety during assignments. Similarly, research on students in interpretation classes (e.g., Liu, 2016; Kang, 2012) reveals high levels of anxiety among learners, with some instructors noting the need to provide ad-hoc psychological support to help students manage stress even after regular classes (Jiménez & Pinazo, 2001).

Moreover, it has been widely agreed that anxiety plays a key role in influencing interpreting performance including both its quality and the way it delivers. For example, Chiang (2009, 2010) focuses on student interpreters and points out that the interpreting anxiety can notably affect students' learning outcomes. Similarly, Jiménez and Pinazo (2001), who apply the "State-Trait Anxiety Inventory" to examine the relationship between the level of interpreting anxiety and the quality of students' interpreting outcomes, argue that the ability to manage anxiety and stress is considered to be a critical factor in determining interpreting performance. Ravakhah et al (2015) tested 100 students of English translation studies in terms of how their anxiety level compared to their performance in interpretation speed and accuracy, and they found out that the speed of translation is affected significantly by the level of anxiety. It is backed by many empirical studies that anxiety could hinder interpreter's ability to complete interpreting assignments to a desired level (e.g., Ferdowsi & Razmi, 2022; Rajabi & Yousefi, 2022; Wang, 2021;

Wang 2018, etc.). Moreover, in addition to the quality of interpreting outcomes, anxiety can also lead to behavioural changes or speech delivery aspects such as altered intonation (Korpal, 2017), speech rhythm (Rojo López et al, 2021), speech disfluencies (Zhao, 2022), and avoidance of eye contact (Young, 1992). Due to the fact that there are prescribed time limits for interpreting, such stressful feelings can develop from minor visible tension to significant mental exhaustion, and even lead to total abandoning of the task or "burnout" (Mackintosh, 2003).

Given the high prevalence of interpreting anxiety and the key role it plays in affecting interpreters' performances, investigating its causes is essential. However, despite its importance, research on interpreting anxiety remains limited (Deng, 2018). Understanding its mechanisms and sources could lead to better coping strategies, aiding interpreter training and education. Therefore, the following section specifically reviews literature on interpreting anxiety, including its history, definition, scope, and sources.

2.3.3 Classification of Interpreting Anxiety sources

As a complex combination of cognitive activities is engaged in interpreting, anxiety can happen in many of the aspects involved, making it challenging to encompass all contributing factors comprehensively. Consequently, scholars often focus on specific perspectives or categories that contribute to interpreting anxiety (IA). In reviewing relevant literature, this section is organised to explore IA source factors from different dimensions.

2.3.3.1 Sources of Interpreting Anxiety from a Cognitive Process Perspective

Some research examines IA through the lens of the cognitive processes involved in interpreting. Gile's (1995) Effort Model identifies key cognitive stages such as listening and analysis, memorisation and note-taking, note decoding and recall, and production. Based on these stages, Deng (2018) identifies three components of interpretation anxiety: listening anxiety, memorizing anxiety, and interpreting (producing) anxiety. She confirms the existence of these different cognitive sources of interpreting anxiety through tests with a scale designed by herself. Additionally, Xu (2016) investigates anxiety specifically related to the note-taking procedure in consecutive interpreting, as note-taking is an essential skill for interpreters. Kang (2010) focuses on auditory anxiety, highlighting reason factors such as lack of vocabulary, different auditory characteristics of input

sounds, attention distraction, passive listening, high density of information, poor listening and comprehension skills. It is believed among the above three phases for student interpreters, listening anxiety is the most notable one (Woolfolk, 2001; Kim, 2000).

Rui (2019) proposes a similar three-phase IA source model based on Levelt's language production model, dividing the process into concept formation, construction, and articulation stages. She identifies anxiety-inducing factors at each stage, including inadequate notes, poor memory, lack of encyclopaedic knowledge and lexical knowledge in stage one, shortage in psychological vocabulary and syntactic knowledge in stage two, and fear of communication and negative evaluation in stage three.

2.3.3.2 Interpreting anxiety in professional settings vs. classroom settings

Many studies focus on either professional interpreters or learners, addressing specific groups' source factors. For professionals, research emphasised that working conditions, such as work modes – for example, whether it is consecutive interpreting or simultaneous interpreting (Wang, 2014), could be the sources of stress in interpreting. Emerging patterns like remote interpreting are also identified to be interpreting stressors due to interpreters' feelings of losing control or fatigue (Moser-Mercer, 2003). Apart from the work mode factor, prolonged working shift (Moser-Mercer et al, 1998) and intensive workload (Mertens-Hoffman 2001) are also examined to be IA source factors in interpreting work.

For student interpreters, classroom-based anxiety has been studied extensively. Factors that could induce interpreting anxiety include foreign language learning challenges (Huang, 2013; Zheng, 2017), peer assessment (Wu, 2017), teacher's negative evaluations (Wu, 2008), public speaking fears (Pan & Min, 2017; Penny, 2000), and fear of test (Huang, 2013). Even teaching method – whether it is a student-centred teaching method (Davies & Rinvolucri 1990), and classroom layout (Hua & Dai, 2016) can be factors that influence students' anxiety in interpreting classes.

2.3.3.3 Language-related vs. non-language-related factors

Another classification criterion divides IA sources into language-related and non-language-related factors. Language-related factors involve linguistic aspects such as vocabulary, speech rate, accent, semantics, and etc., while non-language-related factors

include interpreter's psychological state, topic familiarity, and external environment. Wang (2014) highlights linguistic difficulty as a major cause, particularly in listening and speaking, given the high demand for real-time conversion between languages while doing interpreting.

Notably, while closely related, language-related factors are not equivalent to language proficiency. Language proficiency, according to Lado (1961) and Carroll (1972), consists two-dimensional grid, with components of linguistic knowledge (e.g., knowledge of lexis, morphology, syntax and phonology) combined with four language skills, i.e., listening, reading, speaking, and writing. Such two-dimensional construct of language proficiency becomes widely-accepted and influential in research (Hulstijn, 2011). These dimensions and their specific aspects are within one's own capability, as language proficiency refers to an individual's overall ability to understand and use a language effectively (Thomas, 1994). In contrast, language-related factors also encompass features of the input speech, such as speed and accent, which are external to the interpreter's personal language ability.

Kang (2011) categorises IA source reasons into locutionary and illocutionary factors. According to Kang (2011), locutionary reasons include six factors, namely, different language factor, accent factor, speaking rate factor, information volume factor, bilingual knowledge factor, and bilingual technique factor. By examining these factors on interpreting beginning learners, Kang (2011) argues that locutionary factors accounting for 80%-100% of total anxiety in beginners. Zheng (2017) also categorises IA inducers according to their proximity to linguistic capabilities, and linguistic capability related factors include listening and comprehension as well as language expression skills. In Zheng's research, 98% of student participants report that listening and comprehension is the most direct and influential source leading to interpretation anxiety, while 88% agree that anxiety is derived from their lack of language production skills particularly in terms of articulation, language knowledge and sentence organisation abilities. Korpal (2016, 2017) specifically focuses on the factor of high delivery rate of source speech and finds that the student interpreters encounter increased level of both physiological and psychological stress when they have to cope with fast speech rate.

Non-language-related factors, termed by Kang as "illocutionary factors", include biological, personality, cultural, environmental, cognitive and psychological factors (Hu,

2006; Kang, 2011). In addition to these six factors, Zheng (2017) adds another two important non-language-related factors: the range of encyclopaedic knowledge, and group learning.

2.3.3.4 Internal vs. external factors

Another approach to categorise the sources of interpreting anxiety (IA) is by distinguishing between external/environmental and internal/personal factors.

For internal factors, self-confidence or self-efficacy stands out as a critical element impacting levels of interpreting anxiety. In his scale measuring interpreting anxiety, Chiang (2006) categorises "low self-confidence" as one of three factors constructing interpretation anxiety. Likewise, the scale for measuring students interpreting anxiety designed by Dong et al (2013) also contains the element of self-efficacy which refers to an individual's subjective perception of whether oneself is able to complete a certain task. Shaw & Hughes (2006) propose a broader framework encompassing internal factors such as academic habits, cognitive processing skills, and personal characteristics within interpreting. By asking interpreting students to rate their confidence in their abilities and their anxiety levels, Shaw and Hughes (2006) conclude that enhancing students' confidence significantly reduces their anxiety in preparing for interpreting tasks. Other empirical studies (e.g., Yu, 2022; Gong, 2020; Mei, 2019; Arnaiz-Castro & Pérez-Luzardo Díaz, 2016) also indicate a significant negative correlation between self-efficacy and anxiety level experienced by interpreters.

In addition to the empirical evidence, Jiménez Ivars and Pinazo Calatayud (2001) provide theoretical insight into this (negative) relationship between self-confidence and interpreting anxiety using Lazarus and Folkman's (1986) cognitive assessment model. They explain that when individuals perceive their capabilities as inadequate for a situation, they evaluate it as threatening, leading to anxiety. Self-confidence directly reflects how one assesses their abilities against the demands of the situation. Focusing on public speaking, their study found that interpreting trainees with lower self-confidence in public speaking report higher state anxiety during interpreting activities.

When it comes to external sources, they refer to factors outside the interpreter, including both objective environmental conditions and other involved people. For example,

environmental conditions include temperature (Kurz, 1983a; Kurz & Kolmer, 1984), O2 and CO2 levels (Kurz, 1983b), humidity and air quality (Kurz & Kolmer, 1984), noise or heat (Gerver, 1974; Riccardi et al., 1998; Shlesinger, 2000), sudden equipment defect (Gong, 2006), etc. Additionally, variables from speakers and audiences can be other uncontrollable external factors. According to Chiang (2006), speaker-related variables, such as fast delivery speed, unfamiliar accents, poor pronunciation and deviation from the norms of speech, as well as audience-related variables, including audience size, sensitivity and familiarity, could contribute to interpreting anxiety. For student interpreters, fear of teachers' negative feedback is found to be another factor that leads to interpreting anxiety for students (Hansen & Shlesinger, 2007), which findings are also evidenced by the results obtained by Walczynski (2019).

2.3.3.5 Discussion on IA sources

This section outlines various methods for classifying the sources of interpreting anxiety (IA) from existing literature. Sources represent broader categories, while factors are specific triggers within each source. It's noted that many IA factors overlap across different classifications. For instance, strong accents and fast speech can be categorised as language-related factors, speaker variables, or part of the listening cognitive process. These overlaps occur because these factors are integral to interpreting and can be viewed from multiple angles.

To compare different methods of classification, this thesis finds the internal-external distinction is relatively more suitable due to its applicability, subjectivity, and comprehensiveness. Firstly, it aligns with Spielberger's (1983) State-trait anxiety theory and Lazarus and Folkman's (1984) Cognitive appraisal theory, both of which emphasise that anxiety can be triggered by internal and external stimuli. Given that these theories inform the theoretical foundation of the thesis, this way of source categorisation would be more adaptable to the current thesis. Secondly, the internal aspect captures the subjective nature of anxiety, reflecting an interpreter's self-perceived competence and situational complexity. An interpreter's subjective evaluation of their abilities, or self-efficacy, is crucial in determining whether a stressor is perceived as a threat and thus triggers anxiety. Thirdly, a comprehensive framework must cover various interpreting scenarios systematically. The internal-external approach accommodates factors relevant to both professional and student interpreters without limiting analysis to specific stages

of interpreting. Unlike cognitive-process-based classifications that focus mainly on task execution, the internal-external method also considers preparatory stages, which are vital for performance but underexplored (see Section 2.1.3).

2.3.4 IA producing mechanisms and models

When discussing the sources of IA, two integral aspects need to be considered: identifying "what" the source factors are and understanding "how" these factors contribute to IA. Beyond merely identifying the factors, it is crucial to elucidate their mechanisms to comprehensively address the origins of IA.

Gile's (1995; 2011) Effort Models emphasise the allocation of limited cognitive resources during the interpreting process and its link to IA. According to this framework, interpreters must distribute their attention and efforts efficiently across listening, analysis, memory, and coordination. If the effort required for any of these components exceeds the interpreter's maximum available capacity, it can lead to errors or failures, thereby inducing anxiety. This foundational theory provides significant insights into the cognitive processes involved in interpreting and the root causes of IA.

However, much of the existing literature on IA sources focuses primarily on the "what" aspect and ignores the "how" aspect, not offering a systematic mechanism for IA generation (Deng, 2018). For instance, Kang (2010) lists six locutionary and six illocutionary factors contributing to IA but does not detail how each factor leads to anxiety or their relationships with IA (Deng, 2018).

Among the few studies that have explained IA mechanisms, limitations such as lack of generalisability and evidence support have remained. Rui (2019) proposes a three-phase IA production model based on Levelt's language production model, synthesising anxiety-inducing factors like inadequate notes, poor memory, and fear of negative evaluation. However, Rui's model relies heavily on linguistic theories without integrating psychological perspectives and lacks empirical evidence. Similarly, Chiang (2006) identifies variables affecting IA, such as speaker, audience, self, task, and classroom procedures, but bases his explanations on data from small number of interviews, limiting generalisability of the findings.

Other studies offer valuable insights but focus narrowly on specific aspects of interpreting, limiting its comprehensiveness. Jiménez Ivars and Pinazo Calatayud (2001) argue that low self-confidence is a root cause of IA, using Lazarus and Folkman's (1986) cognitive assessment model to illustrate the negative relationship between self-confidence and IA. They explain that individuals perceive situations as threatening when they believe their capabilities are inadequate for a situation, leading to anxiety. Despite combining cognitive psychology, social studies, and interpreting studies, their model focuses solely on public speaking without examining other IA sources. Deng (2018) proposes a model explaining the cognitive causes and patterns of IA, identifying a three-factor model within the listening, memorizing, and interpreting (producing) stages. She highlights the importance of meta-cognitive adjustments in managing IA levels. However, her study is limited to the while-stage of interpreting and interpreting students only and does not consider other stages or groups like preparation or professional interpreters, lacking comprehensive coverage.

Therefore, while these models provide valuable insights into IA production, there remains a need for more comprehensive and systematic frameworks that integrate both psychological and linguistic dimensions across all stages of interpreting and among diverse cohorts of interpreters.

2.3.5 Self-report instrument as an important tool to measure IA level

In existing studies of this field, self-report measures are the major tools used. Interview is regarded as a useful approach, for example, as trying to figure out the sources of occupational stress among conference interpreters, Cooper et al (1982) used a research methods combination of interview, questionnaire and the participants' stress logs. They collected and analysed data from 33 interviews and stress logs as well as 826 questionnaires targeted at the members of International Association of Conference Interpreters (AIIC), and their findings emphasised the critical influence the individual's perception of stress can exert on their interpreting performance. Similarly, in his study, Marrero (2020) also employed self-reporting tool and conducted a series of semi-structured interviews with the aim of identifying anxiety-inducing source factors for interpreters working in the press conference setting. Interviews were also employed by Korpal (2017) who combined questionnaires with the aim of measuring self-reported interpreting anxiety, and interviews for inquiring into subjects' coping strategies while

handling anxiety.

Questionnaires are another widely used method in relevant studies. For instance, Moser-Mercer et al (1998) used questionnaires along with performance assessment, for the purpose of probing the level to which prolonged interpreting shifts could affect interpreters' anxiety level and their output quality. Walczynski (2019) relied on questionnaires and interpreters' consecutive interpreting notes to collect data of interpreters' psycho-affective factors including anxiety and fear.

Questionnaire design, in many cases, is associated with scales and psychometric measures. For example, in order to investigate interpreters' anxiety and depression in the context of remote interpreting, Riccardi et al (1998) used questionnaires, in which they adopted the ASQ-IPAT Anxiety Scale and CDQ-IPAT Depression Scale – two developed scales to provide an accurate appraisal of people's anxiety level and depression level respectively. Likewise, STAI (State-Trait Anxiety Inventory) was also adopted and adapted in studies such as Jiménez Ivars & Pinazo Calatayud (2001), Moser-Mercer (2005) and Chiang (2010). Another important scale – ICAS (Interpreting Classroom Anxiety Scale) developed by Chiang (2006), is also adopted and used by Kao and Craigie (2013) in their study to evaluate the anxiety experienced by interpreting trainees in classroom setting. Given its suitability and popularity in existing studies, self-report instruments, such as interviews and questionnaires, are also utilised in this thesis research.

2.3.6 Interpreting Anxiety among different groups of interpreters

Many studies on interpreting anxiety, especially those focusing on the Chinese-English language pair, primarily use student interpreters due to their accessibility and availability (Deng, 2018), thus often neglecting comparisons across proficiency levels. However, comparing novices and experts is crucial in this field, as interpreting education and training involve both knowledge acquisition and practical skill development (Liu & Lei, 2017; Wang, 2020). Understanding differences in anxiety levels and their impact on performance can offer valuable insights into professional development and interpreter training.

Research indicates that novice interpreters experience higher anxiety than professionals. For instance, Riccardi et al. (1998) found that trainees exhibit more anxiety even in

simulated settings compared to experienced interpreters. Similar results were reported by Jiménez Ivars & Pinazo Calatayud (2001) and Kurz (1997, 2003), who observed greater psychological stress in interpreting students than in professionals.

The reasons behind the difference of IA level between novices and experts have been studied as well. Moser-Mercer (2000) explains that, unlike professional interpreters, novices have to struggle with a number of difficulties such as comprehension, finding equivalents, keeping up with the speaker, background knowledge, phrasing etc., which is agreed by Korpal (2017) who states that the major stressor in interpreting for trainees is multitasking. Arnaiz-Castro and Pérez-Luzardo Díaz (2016) also noted lower self-efficacy and higher anxiety among less experienced trainees.

By contrast, professional interpreters benefit from extensive experience and effective stress-coping strategies (Riccardi et al., 1998; Gumul, 2021). Their superior self-regulatory skills, including metacognition, emotion control, self-observation and self-judgement (Hild, 2014), allow them to manage information more efficiently and adopt appropriate strategies quickly or even automatically, referred to as "automation" (Liang, 2021; Kurz, 2003). This automation, akin to Spielberger's (1966) model of highly over-learned responses, activates defence mechanisms, enabling the feedback loop and therefore adjusting and reducing interpreting anxiety. Gile's (1999) Effort Model further supports this, suggesting that automation lowers cognitive burden, allowing for more resources to manage unautomated tasks and reducing anxiety.

However, two key limitations exist in this research area. in most of the relevant studies, it is the level of general interpreting anxiety being examined and compared, rather than the specific sources and factors that contribute to interpreting anxiety. In other words, which group of interpreters is more sensitive to which specific sources of IA remain unknown. Understanding the influence of different source of anxiety on different groups of interpreters will enable the researcher to provide more precise and effective suggestions at each stage of interpreting training.

Secondly, most research contrasts novices and professionals, overlooking intermediates. Interpreting's progression from study to work is a long journey and involves multiple stages. For example, obtaining qualification accreditation is often an inevitable gateway

into the interpreting job market (Chan, 2009), and candidates typically need to undergo years of training and obtain relevant bachelor's degrees for eligibility of taking accreditation exams, such as CTTIC[2] in Canada or ATA[3] in the USA (Yang, 2023). After that, it again needs further years of practice to reach professional status. Thus, examining only beginners and experts provides an incomplete picture. A three-group comparison (beginners, intermediates, and professionals) would yield richer data, illustrating dynamic changes in IA throughout expertise development and offering a comprehensive view of the journey from novice to mastery.

2.4 Summary

As the research topic, interpreting anxiety, is an interdisciplinary concept that combines cognitive psychology and linguistics, this chapter systematically reviews the literature about anxiety and interpreting respectively. Then it narrows down to focus on the notion of anxiety experienced in interpreting from the perspectives of sources and levels, and the contrast between learners and professionals in particular. By reviewing the literature, this chapter also defines the interpreting anxiety and draws the link between where anxiety comes from and how interpreting works, or interpreting self-efficacy and interpreting anxiety, building the theoretical foundation for this research.

Research Gap and Originality of this Research

Reviewing the literature shows that interpreting anxiety is prevalent among both learners and professionals, affecting their psychological well-being and performance. Despite its significant impact on interpreting outcomes and professional development, research in this area is limited, with the research gaps in four key areas.

Firstly, while many studies have empirically examined the relations between certain stressors and interpreters' anxiety level, it remains unclear that how exactly those sources trigger anxiety in interpreting, particularly what roles interpreting self-efficacy plays in producing the interpreting anxiety. This study aims to address this by developing an Interpreting Anxiety Source Model to identify and explain these triggers.

[2] CTTIC: Canadian Translators, Terminologists and Interpreters Council
[3] ATA: American Translators Association

Secondly, most existing studies focus on overall interpreting anxiety levels without examining the contribution of an individual sources. Understanding which sources are more impactful can help instructors target training more effectively. Thus, this study aims to analyse each IA source dimension separately to determine their specific influence.

Thirdly, there's a heavy focus on student interpreters, particularly in China with Chinese-English as the language pair in research, due to students' easier access. Professional interpreters, on the other hand, are often overlooked, as are comparisons across different proficiency levels. Given the developmental journey from novice to expert, this study proposes including novice interpreters, proficient interpreters, and professional interpreters to better illustrate how anxiety evolves with development of proficiency and expertise.

Lastly, while interpreting anxiety can possibly be associated with different stages of interpreting, from preparation to task completion, unfortunately, it seems that no studies specifically addressing pre-interpreting anxiety have been found so far, despite the crucial role the pre-interpreting preparation plays in the ultimate interpreting performance.

Chapter 3 Methodology

3.1 Introduction

The previous chapter reviewed the existing literature on interpreting, anxiety, and interpreting anxiety, an interdisciplinary area lying at their intersection. It detailed foundational theories and identified where current research fits by highlighting achievements and gaps, particularly in understanding the sources and mechanisms of interpreting anxiety (IA). The review also underscored the need for further investigation into IA sources categorisation, levels from specific sources, and between interpreters of varying competence. To address these gaps, this thesis aims to develop a model of IA sources for Chinese-English interpreters at different proficiency levels, examining how IA varies across specific sources in the pre-interpreting stage. Consequently, the following research questions were formulated:

Research Question 1: What are the sources of IA?

Research Question 2: What are the processes through which IA emerges?

Research Question 3: Within each group of interpreters, what is the IA level induced by each source in the pre-stage?

Research Question 4: How does IA level from different sources vary in the pre-stage across interpreters of different proficiency?

Methodology outlines the general approach, justification, and validation of research, incorporating a system of beliefs and philosophical assumptions that shape the understanding of the research questions and guide the selection of methods. Saunders et al.'s (2016) "research onion" model provides a structured approach to constructing methodology, encompassing six layers: research philosophy, research approach, research strategy, time horizon, data collection methods, and data analysis techniques (see Figure 3.1).

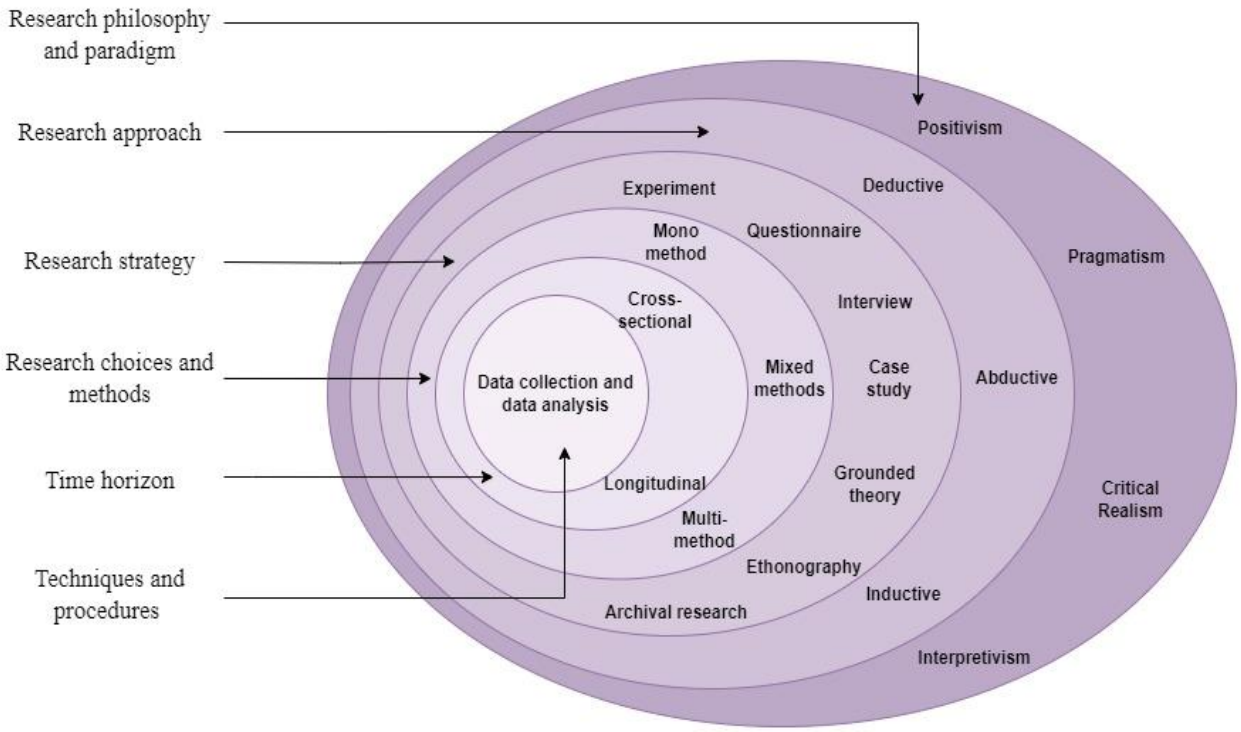


Figure 3.1: Research Onion (adapted from Saunders et al, 2016)

The "research onion" model offers a layered framework guiding researchers through the systematic design of studies, with each layer representing crucial methodological decision points (Melnikovas, 2018). Adopted for this thesis, it informs a research design grounded in the critical realism paradigm and an abductive approach, and conducted via an exploratory mixed methods design that combines both qualitative and quantitative techniques.

This chapter is structured into six sections. Section 3.1 details the selected research philosophy and paradigm. Section 3.2 delves into the research design, focusing on the abductive approach and exploratory mixed methods design. Section 3.3 provides specific strategies for qualitative and quantitative stages, followed by the overview of the methodological roadmap. Sections 3.4 and 3.5 outline the data collection and analysis processes, respectively, while Section 6 addresses ethical considerations.

3.2 Research philosophy and research paradigm

3.2.1 Ontology, epistemology, and axiology

Research philosophy refers to the set of beliefs and assumptions shaping the understanding of reality and study of it, forming the foundation of research and guiding the choice of research strategies and techniques (Saunders et al, 2016; Nweke & Orji, 2009). It involves ontological, epistemological, and axiological considerations: ontology examines the nature of reality and what can be known about it (Richards, 2003); epistemology explores how knowledge is acquired, validated and communicated among human beings (Gall et al, 2003; Cohen et al, 2007); and axiology addresses ethical issues and values in research (Finnis, 1980).

While philosophy is about the researchers' worldview, paradigm refers to the approach to the research which entails researcher's philosophical stands, in other words, a research paradigm reflects a researcher's beliefs about the world (Lather, 1986). Defined as a comprehensive belief system guiding research and practice (Willis, 2007), a paradigm is crucial for researchers to understand and align with their philosophical orientations when designing their studies. This alignment ensures coherence and integrity in the research process.

3.2.2 Research paradigm

3.2.2.1 Positivism and interpretivism

Research paradigms are traditionally distinguished between positivism and interpretivism (Saunders et al., 2016). Positivism posits that reality exists independently of human perception, governed by immutable laws, with entities observed as external, objective events (Melnikovas, 2018), suitable for quantitative analysis (Gall et al, 2003). Conversely, interpretivism assumes a socially constructed reality, where entities are understood through social constructs like language and consciousness (Myers, 2008), acknowledging the researcher's inherent part in the social reality being studied (Grix, 2004) and the influence of researchers' personal context, such as language, culture, knowledge, experience, etc., on data collection (Blaikie, 2000).

However, this rigid dichotomy between the positivist position and the interpretivist position faces criticism, particularly regarding distinctions between natural and social sciences. Positivism is critiqued for oversimplifying the social world, failing to capture

the complexities of human interactions (Richards, 2003). Interpretivism, meanwhile, is criticised for its perceived lack of rigor, difficulty in generalizing findings, and potential lack of objectivity due to researcher involvement (Grix, 2004).

3.2.2.2 Critical realism

Ongoing debates between positivism and interpretivism have led to the emergence of new philosophical approaches, with critical realism being an important example (Mingers, 2006). Bhaskar (1994, 2008) introduced critical realism, combining transcendental realism and critical naturalism. This paradigm distinguishes knowledge into two types: 1) transitive knowledge, which is socially constructed and dependent on human activity, and 2) intransitive knowledge, which concerns knowledge independent of human existence. Ontologically, critical realism identifies three layers of reality: empirical, actual, and real (Collier, 1994; Blaikie & Priest, 2017). Specifically, 1) the empirical level encompasses observable and sensed experiences by humans; 2) the actual level involves events and objects occurring in the world; and 3) the real level focuses on underlying causal mechanisms (Scott, 2005; Fletcher, 2017), which is reflected in a three-layered 'iceberg' of reality (see Figure 3.2).

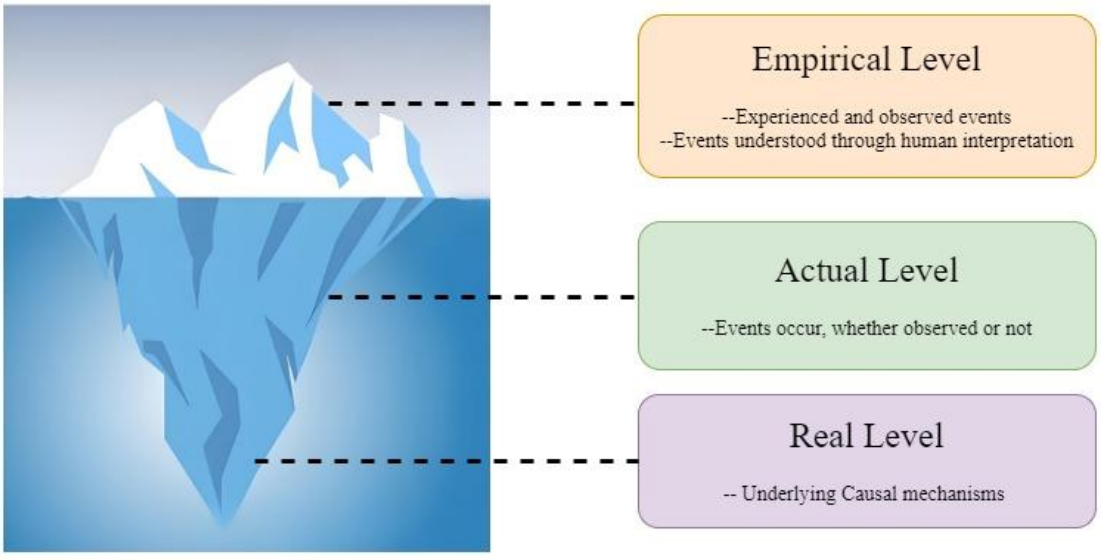


Figure 3.2: Iceberg Model for Critical Realism ontology (adapted from Fletcher, 2017)

The iceberg model exhibits the critical realism ontology and epistemology as it relates to human knowledge of reality, and these three layers of reality interconnect with each other

without any layer being prioritised (Fletcher, 2017). By bridging positivist reliance on numerical data and interpretivist focus on qualitative insights, critical realism offers a balanced approach that supports both quantitative and qualitative methodologies (Stutchbury, 2021). This makes it a valuable framework for integrating different research methods and reconciling the philosophical positions of positivism and interpretivism (Melnikovas, 2018; Welch, et al, 2011).

3.2.3 Applying critical realism to the current thesis research

In the current thesis, the critical realism paradigm was adopted due to its suitability for addressing the research questions. As the result of its three layers on its ontological footings – empirical, actual, and real, within the critical realism paradigm, data collected could be analysed from multiple angles, effectively responding to the demands of the research questions. To be specific, (1) Actual level: This level allows for collecting rich, descriptive data through interviews and observations, providing a detailed understanding of participants' experiences within their context (Freeman, 2014). It is particularly useful for exploring the sources of interpreting anxiety (IA), as these are deeply embedded in participants' narratives and difficult to quantify. (2) Real level: Focusing on underlying causal mechanisms which give rise to the observable event (Tikly, 2015), it particularly addresses the second research question by investigating the mechanisms that produce IA, offering insights into the deeper causes of IA. (3) Empirical level: Concerned with observable and measurable experiences, this level is ideal for quantitatively assessing (Stutchbury, 2021). In this thesis research, it is particularly suitable for measuring and comparing IA levels using quantitative data across different sources and proficiency levels, which is the focus of research questions 3 and 4.

3.3 Research Design

In this section, according to the “research onion”, layer 2 to layer 5 include research approach, methods design, specific research strategies used, and research time horizon, are explained respectively from 3.3.1 to 3.3.4.

3.3.1 Abduction as the research approach

The second layer of the "research onion" refers to the research approach, which outlines the broader methodology researchers employ (Phair & Warren, 2021) This approach is informed by the research philosophy, shaping how researchers perceive reality and

acquire knowledge, and it influences the selection of research design and methods (Babbie, 2010). At this stage, the key decisions to make include selecting from common research approaches: inductive, deductive, or abductive approach (Saunders et al, 2019). The following explains the choice of abductive approach from “what” (what is the abductive approach), “why” (why apply the abductive approach to this thesis), and “how” (how to carry out abductive approach).

3.3.1.1 Inductive, deductive and abductive approach

There are two primary methodologies of logical reasoning: inductive and deductive approaches (Trochim, 2006). Inductive research involves collecting and analysing data to develop concepts or models based on observations, typically used for theory generation (Saunders et al., 2003). Conversely, the deductive approach begins with a theory or hypothesis and tests it through data collection and analysis (Masud, 2024). Inductive methods are "bottom-up," moving from data to theory, while deductive methods are "top-down," applying theory to data (Creswell & Clark, 2017, p.23).

Building on these, scholars have introduced the abductive approach, which integrates elements of both induction and deduction (Tengli, 2020; Janiszewski & Van Osselaer, 2022). The abductive approach aims to infer the most plausible explanation for an observed phenomenon, then test this explanation more broadly. It involves iterative data collection, conjecture, theory formulation, and empirical testing for proposed theory (Behfar & Okhuysen, 2018; Haig, 2005). Simply put, it builds original theories and quantitatively tests them (Tengli, 2020). This approach is especially useful when existing theories inadequately explain observed data, aiming to generate new insights or theories (Stewart, 2024). It iteratively combines inductive and deductive reasoning (Fischer, 2021).

The abductive approach addresses limitations of using only inductive or deductive methods (Dudovskiy, 2022). Inductive research often lacks broad empirical data for robust theory-building, while deductive research can struggle with selecting appropriate theories and formulating hypotheses (Saunders et al, 2012). The abductive approach overcomes these by blending inductive and deductive reasoning, offering a more critical perspective.

3.3.1.2 Rationale of applying abductive research approach to this thesis

The abductive approach was chosen for this thesis due to its alignment with the critical realism paradigm, its suitability for addressing the research questions and aims, and its capability to generate an original model.

Firstly, the abductive approach, which seeks the best explanation for observed phenomena, resonates with critical realism's focus on uncovering underlying structures and mechanisms that influence observable events (Bhaskar, 2008; Archer et al., 1998). This approach facilitates empirical testing of hypotheses generated from patterns observed, supporting the development of the Interpreting Anxiety Source Model (IASM) in this thesis, which aims to explain the origins and mechanisms of interpreting anxiety (IA) through observed evidence. Moreover, the epistemological stance of such a to-be-tested model, the IASM in the case of the thesis research, is consistent with the objectives of the abductive research method (Timmermans & Tavory, 2012).

Secondly, the abductive approach accommodates the research aims and questions. By proposing a model that explains the relationships between causes and effects through mediators and moderators (Reis & Judd, 2000; Corley & Gioia, 2011), the abductive approach aligns with the thesis aims, which include identifying IA causes and explaining IA producing mechanisms through the IASM. Regarding the four research questions, the first two explore IA sources and production mechanisms which demand a mechanism model to be produced from observed evidence, using inductive reasoning. The latter two research questions investigate IA levels across different proficiency groups, and examine the strength of these relationships within the proposed model, and to empirically test the proposed mode refers to deductive reasoning. As the abductive approach integrates both inductive and deductive reasonings, it facilitates the investigation of all four research questions.

Finally, compared to inductive or deductive approaches, the abductive reasoning is particularly effective for generating original theories relevant and generalizable across disciplines. While deductive methods excel at expending and extending existing theories (Alba, 2012; Locke, 2007) and inductive methods focus more on documenting states without extensive empirical validation (Corley, 2015), abduction allows for creating new models informed but not guided by existing theories (Janiszewski & Van Osselaer, 2022)

and the testing of a proposed model. As an interdisciplinary study, this thesis finds a lack of existing model that could explain the mechanism of how IA can be produced and adjusted. Therefore, abduction's inherent iterative nature of both induction and deduction (Taylor et al., 2016; Thomson, 2010; McGuire, 1997) collects both qualitative and quantitative data, allowing the original model to be generated and tested.

3.3.1.3 Procedures of carrying out abductive approach

According to Saunders et al (2019), the abductive research approach involves seven key procedures, including setting Research Questions, recruiting respondents, initial data collection and analysis, generate a plausible theory explaining the observed phenomenon, hypotheses formulation, empirical testing, and final results. The abductive process has two stages: the first uses inductive reasoning (steps 1-5), while the second employs deductive reasoning (steps 6-7), illustrated in Figure 3.3. This method ensures a robust, iterative refinement of theories through both qualitative and quantitative data.

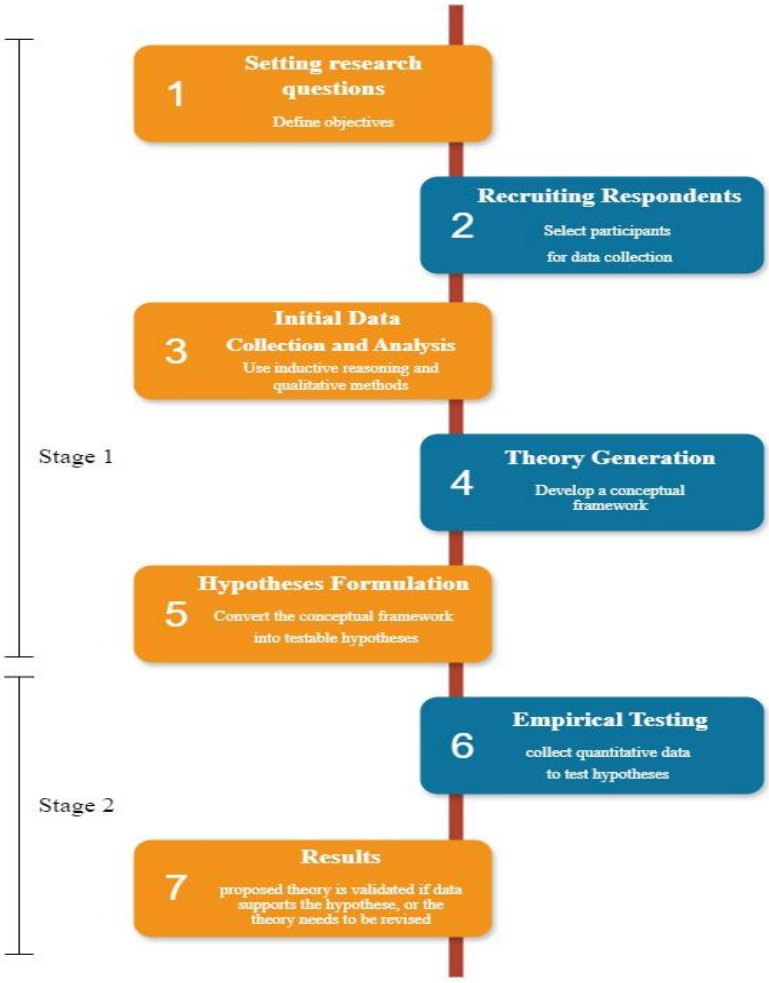


Figure 3.3: Procedures of abductive research approach (adapted from Saunders et al, 2019; Tengli, 2020)

The first stage focused on developing the Interpreting Anxiety Source Model (IASM) using inductive reasoning and qualitative methods to explore plausible explanations for IA sources and mechanisms. During this model's construction, testable hypotheses were also formulated. In the second stage, these hypotheses were tested through deductive reasoning with large-scale quantitative data collection and analysis, and also research question 3 and 4 were answered. To clearly address the research questions, three studies were conducted in the thesis research:

Study 1

It covers steps 1-3 of the abductive approach, focusing on identifying IA source factors (Research Question 1). Qualitative data was analysed to recognise patterns, leading to a categorisation of IA source factors.

Study 2

It includes steps 4-5, addressing Research Question 2 by integrating Study 1's results with existing anxiety theories to propose an original model explaining IA production and adjustment mechanisms.

Study 3

It involves steps 6-7, examining Research Questions 3 and 4 regarding IA levels and their relationships with different interpreter proficiency levels. By answering these two research questions, this study also tested the IASM hypotheses using extensive empirical data to validate the proposed model (IASM).

3.3.2 Exploratory mixed methods design as methodology

In addition to the reasoning perspective, research methods are also discussed from the viewpoint of data collection and analysis. This leads to the identification of qualitative and quantitative methods, each grounded in different philosophical assumptions and linked with distinct research approaches. Combining these yields a mixed methodology (Creswell, 1994). This thesis adopts an exploratory mixed methodology, explained through "what" (definition), "why" (rationale for its use), and "how" (implementation).

3.3.2.1 Mixed methodology and exploratory mixed methods design

Mixed methodology integrates both quantitative and qualitative methods. Quantitative data, expressed numerically, establishes generalizable facts, while qualitative data, expressed textually, provides deep insights into complex concepts (Simister & James, 2020). Qualitative methods excel at exploring ideas and formulating theories but risk ungeneralisable results and observer bias. In contrast, quantitative methods effectively generalise findings and test hypotheses but may lack in-depth explanation (Streefkerk, 2023). There is a growing consensus that both methods are important, and combining them together, or mixed methodology, helps the research build on the strengths of both qualitative and quantitative methods, and minimises their relative weaknesses.

Considering different types of combination, there are four major types of mixed methods designs: 1) Triangulation Mixed Methods Design, 2) Embedded Mixed Methods Design, 3) Explanatory Mixed Methods Design, and 4) Exploratory Mixed Methods Design (Creswell & Clark, 2017). This research employs the Exploratory Mixed Methods Design, which is aimed at firstly exploring some certain factors in order to identify categories or taxonomy and subsequently testing them. It often consists of two research phases and involves sequential data collection, where qualitative data is collected first and the quantitative data is then later collected to test the instruments developed from the first phase (Creswell, 2008; Kimmons, 2022). The rationale of applying exploratory mixed methods design is discussed in detail in the following section.

3.3.2.2 Rationale of applying Exploratory Mixed Methods Design to this thesis

Exploratory Mixed Methods design is particularly suitable for this thesis research project for the following three main reasons. Firstly, this design's two sequential phases align with the two-stage research plan guided by critical realism, with the first stage focuses on developing the Interpreting Anxiety Source Model (IASM) and the second testing it. Secondly, it fits for the explorative nature of the thesis research. The first stage, in particular, uses qualitative methods to explore potential IA source factors, providing rich, detailed insights into social contexts and underlying reasons (Moriarty, 2011). The interactive nature of qualitative research allows emergent issues to be further explored through close researcher-participant interactions (Snape & Spencer, 2003), facilitating an exploration of IA sources and a deeper understanding of IA producing mechanisms. Thirdly, by adopting both inductive and deductive reasonings and integrating qualitative

and quantitative methods, this exploratory mixed methods design capitalises on the advantages of both approaches (Denscombe, 2008; Molina-Azorin et al, 2018; etc.). It allows for both in-depth and rich qualitative data and generalised and standardised quantitative data produced in the development and testing of the IASM, enabling a more well-rounded data analysis and convincing conclusions.

3.3.2.3 Procedures of carrying out Exploratory mixed methods

According to Creswell and Clark (2017), the procedures of sequential design of exploratory mixed methods include two phases. Phase I is qualitative research in which qualitative data is being collected and analysed for realising its findings. Phase II uses a quantitative method where results are obtained from quantitative data collection and analysis. The following graph (Figure 3.4) exhibits this procedure:

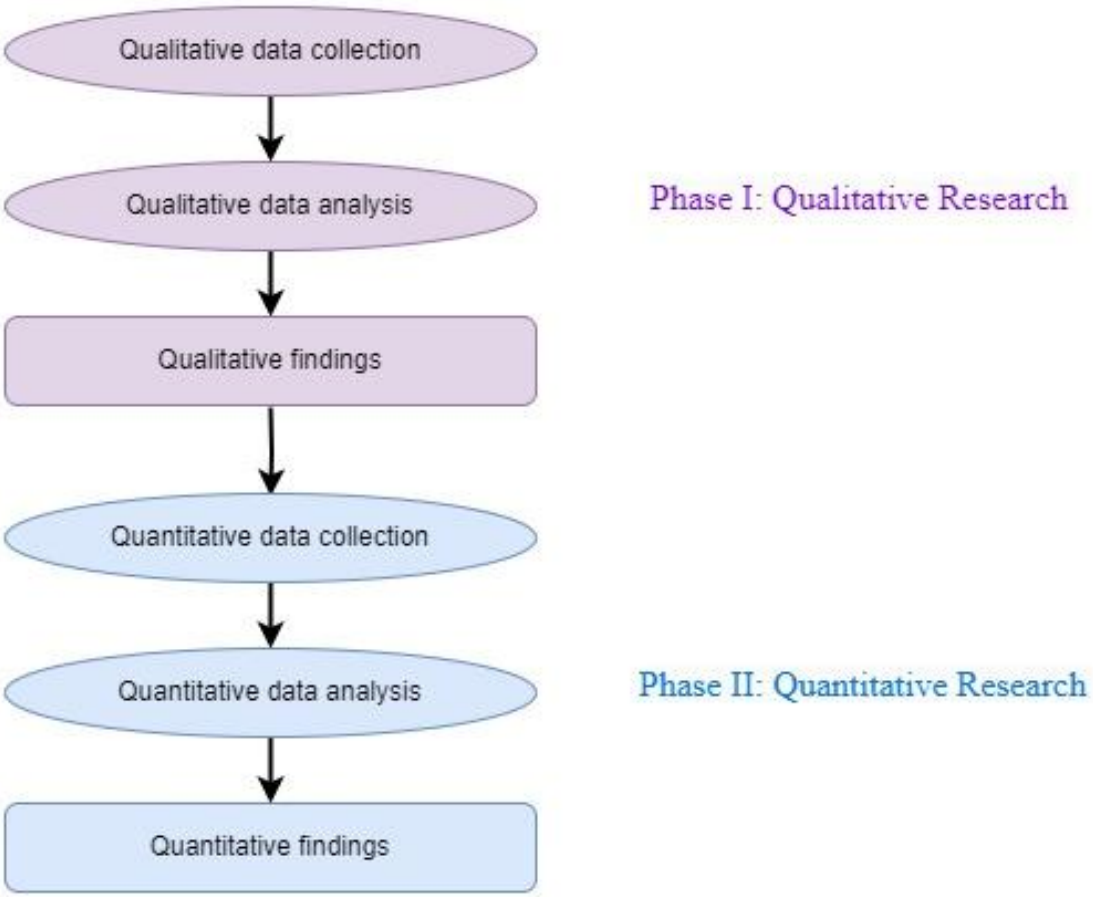


Figure 3.4: Sequential Design of Exploratory Mixed Methods (adapted from Creswell & Clark, 2017)

This thesis research followed the exploratory mixed methods design and therefore contained two sequential phases. The first phase was qualitative, which aimed to explore possible sources of IA and develop a theoretical framework. This involved collecting qualitative data through qualitative methods, which led to the construction of the IA Source Model and the formulation of hypotheses. The second phase was quantitative, where the proposed IA Source Model was tested through quantitative methods. The goal of this phase is to validate the model and answer Research Questions 3 and 4. This sequential design ensures that theoretical foundations are grounded in real data before quantitative testing takes place.

3.3.3 Research strategies and methods

The next layer of "research onion" is research strategy which details how, based on the aims of the study, research can be conducted. The main strategies to be utilised are grounded theory and interview for the inductive stage, and a questionnaire with scale for the deductive stage. In this section, the rationale of specific strategy choices for qualitative research and quantitative research is explained in section 3.3.3.1 and 3.3.3.2 respectively, followed by the generation of hypotheses of the proposed model in section 3.3.3.3 and overall methodological roadmap to be concluded in section 3.3.3.4.

3.3.3.1 Qualitative methods used in this thesis

Grounded theory and interview for producing IA source categorisation

Grounded Theory is a systematic strategy that enables researchers to derive concepts and develop theories from qualitative data, focusing on generating theories from primary sources without pre-existing assumptions (Corbin & Strauss, 2008). It identifies commonalities across datasets and results are then drawn from completed research without the aim of fitting the findings into a pre-existing theory or framework (Phair & Warren, 2021).

Rationale of using grounded theory

There are three main reasons for applying the grounded theory to the current study, including its fitting for theoretical gap, strength in primary data analysis and utility to constructing the IASM. To be specific, first and foremost, grounded theory is ideal for fields with limited or fragmented theoretical frameworks, such as the current study where there's no consensus on categorising interpreting anxiety (IA) source factors (see Section

2.3.3). This method allows for theory development without initial theoretical assumptions. Secondly, given the exploratory nature of identifying IA source factors, which may vary due to an individual interpreter experiences, grounded theory facilitates comprehensive and systematic analysis of primary qualitative data. This ensures a robust extraction of concepts and models from diverse research subjects. Thirdly, in attempting to answer the first and second research questions, this research aims to construct the IASM, an original model to probe on the two main aspects of IA– "what" (are the IA sources) and "how" (IA produces and varies). With Grounded theory as a common qualitative strategy in social research used for exploring the "what", "how", and "why" of social processes (Eppich, et al, 2019), it can be of great utility in generalising and constructing the IASM in this research.

Procedures of carrying out grounded theory

In Grounded theory, researchers need to obtain a great deal of qualitative data and then analyse it, and repeat this process until the point where there is no new information emerging and thematical saturation has occurred (Glaser & Strauss, 1967; Khan, 2014). Described by Hu et al (2020), the process flowchart of Grounded theory method is as follows:

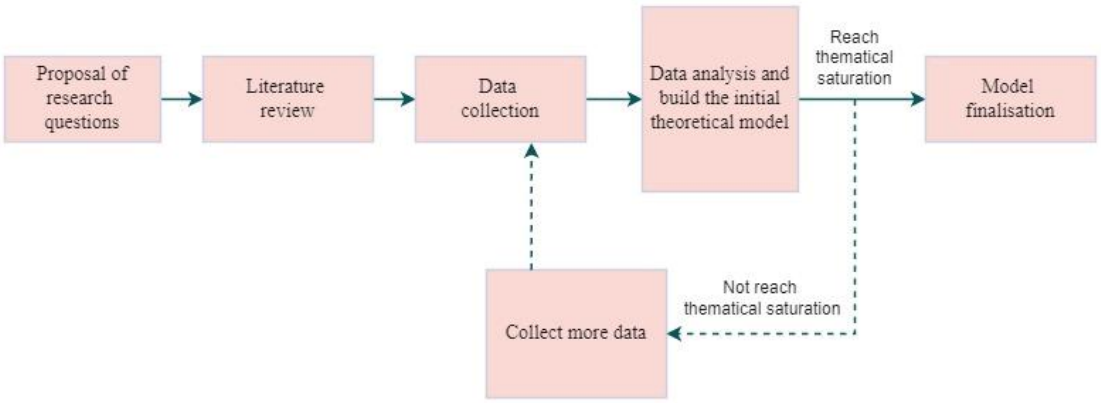


Figure 3.5: Procedures of Grounded Theory (adapted from Hu et al, 2020)

Following this procedure in this thesis, the first step is the proposed research question. Grounded theory is utilised in Study 1 aiming to answer the research question 1 – what IA sources are. The second step is literature review which is done in Chapter 2, and it finds out various IA source factors and therefore Study 1 looks for a systematic and

comprehensive way of categorising various IA source factors. In order to achieve this, primary qualitative data is needed to be collected and hence develop a framework of IA source categorisation (which is the "theoretical model" in the above flowchart).

Semi-structured interview

In the data collection stage of grounded theory, data can typically be gathered through methods such as interviews, observations, focus groups and document analysis, among these, interviews are arguably the most commonly used approach (Egan, 2002). This study adopts a semi-structured interview as the main strategy of collecting qualitative data for the following three reasons: alignment with grounded theory principles, providing flexibility and adaptability, and offering a comfortable setting for self-report. Detailed illustration of these reasons presents in the following.

Firstly, semi-structured interviews align well with grounded theory's emphasis on inductive theory development and emergent concepts. This method supports iterative and flexible research, allowing new insights and evolving theoretical constructs to emerge (Charmaz, 2014). Secondly, semi-structured interviews offer adaptability and flexibility (Kallio et al, 2016), crucial for exploring how IA is produced and varied. For instance, they enable follow-up questions that uncover deeper insights and emerging themes, central to Grounded Theory's inductive approach (Bryant & Charmaz, 2007). Thirdly, unlike focus groups or observations, one-on-one interviews provide a more comfortable setting for discussing personal anxieties. Given that interpreting anxiety and related concepts like self-efficacy are self-perceived (as discussed in Section 2.3.5 of the literature review), semi-structured interviews serve as an effective self-report method, facilitating honest and detailed responses.

Thematical saturation

A crucial aspect of grounded theory is determining when thematic saturation is reached, ensuring that data collection is sufficient and no further data is needed (Glaser and Strauss, 1967). Achieving saturation ensures the qualitative research results are repeatable and verifiable (Morse et al, 2002), as well as comprehensive comprehension and completeness (Xi & Chen, 2021). Saturation occurs when no new data emerges, and researchers repeatedly encounter similar situations (Glaser & Strauss, 1967). Grady (1998) supports this, noting that in interviews, saturation is reached when new data merely

repeats existing information. Ur-quhart (2013) further clarifies that thematical saturation is reached when no new codes or categories emerge, for codes and categories are the premise and pillars of the theory. This argument has been agreed and backed by many other scholars (e.g., Olshansky, 2015; Birks & Mills, 2015; Given, 2016, etc.).

In this thesis, whether the interview data reaches its saturation point was examined through collecting extra data from more interviews and existing literature. This dual approach diversifies the sources for assessing saturation, enhancing reliability (Nelson, 2017). Leveraging both new interviews and literature provides a robust check for thematic saturation, ensuring thorough and credible findings.

Literature research method for forming IA theoretical framework

The second Research Question explores the working mechanism through which IA is produced and varied. To answer this question in a wholistic and systematic way, Study 2 aims to construct an IA Source Model (IASM), using literature research method with inductive reasoning.

Understanding the induction and variation of IA ultimately requires examining the fundamental mechanisms of anxiety production. Reviewing existing literature is crucial as it forms the foundation for constructing the theoretical framework of this thesis, which is then applied to interpreting studies. The literature research method allows for a systematic examination of relevant theories, enhancing the study's thoroughness (Tranfield et al, 2003). By synthesising and integrating these theories into a coherent framework, the IASM can be effectively built. This method is particularly beneficial in interdisciplinary research (Snyder, 2019), therefore facilitating model construction across psychology and linguistics in this thesis.

Literature analysis involves two procedures: (1) Purpose and Selection: Identifying the purpose, selecting relevant studies, and critically analysing them through data abstraction and idea comparison (Snyder, 2019). For the thesis study, the purpose of literature review is to find out the existing theories relevant to the producing mechanisms of anxiety emotion. (2) Synthesis and Application: It is pivotal to synthesise different findings and draw their connections, building a more reliable and coherent framework of the anxiety producing mechanism. This theoretical framework, informed by Study 1’s categorisation

of IA source factors and interview observations, is then applied to the interpreting field to propose the IASM.

3.3.3.2 Quantitative methods used in this thesis

Scales and questionnaire for measuring IA and examining IASM

Research Questions 3 and 4 examine IA sources and levels, focusing on interpreters' proficiency and expertise. Research Question 3 investigates intra-group dynamics, while Question 4 compares inter-group differences. To measure IA levels, Study 3 employs questionnaires incorporated with scales, and also the comparative analysis method is applied in probing Research Question 4.

Another important point is that both Research Question 3 and 4 focus on the pre-stage of interpreting tasks, as distinguishing between pre-interpreting preparation and the interpreting process is crucial for accurate IA assessment (see section 2.2.2). At the same time, given the thesis scope and word limit, the Study 3 specifically targets the pre-stage to maintain its focus and clarity. This point needs to be considered in the design of the scales and questionnaire.

Rationale of using five-point Likert scales

In this Study, five-point Likert scale was used as the tool to measure IA, for the following three main reasons. Firstly, as discussed in section 2.3.5, self-report measurement is a more proper method to use since both interpreting anxiety (IA) and interpreting self-efficacy (ISE) are subjective self-perceived notions. Self-report measures like scales incorporated into questionnaires can effectively capture these personal perceptions (Brehob et al, 2001). Secondly, standardised items in scales ensure consistent, organised data collection (Jain, 2023), particularly beneficial for comparisons across interpreter groups. Thirdly, five-point Likert scale is used because they offer richer and more reliable data than three-Likert. They are also likely to have higher response rate than seven-Likert measurement as it is less overwhelming (Aishwarya, 2024).

Procedures of designing scales

According to Gehlbach and Brinkworth (2011), main steps in scale design include 1) literature review, 2) interviews and focus groups with potential respondents, 3) synthesising the literature review with interview-focus group data, 4) preliminary item

development, 5) expert validation of preliminary items, and 6) pretesting.

This thesis study followed the above scale designing process. the relevant scales in existing literature were firstly reviewed in a critical manner. Then, the literature findings were synthesised with the discoveries from the interview in Study 1, for the purpose of adjusting and improving the existing scales. After adjustment and adaptation, the preliminary version of the designed scales was produced, followed by feedback and validation from potential participants, industrial experts and scholars in the same field of study. A pilot test was run in order to examine the validity and reliability of the scales. The final revised versions of the scales were used in Chapter 7.

Rationale of using questionnaire

Choosing the questionnaire method for investigating interpreters' ISE) and IA is supported by two main reasons. Firstly, the design of questionnaire allows an easy integration of one or more scales (Jouffre, 2004), which allows participants to self-report their interpreting self-efficacy levels and interpreting anxiety levels across various interpreting scenarios, providing essential data for addressing Research Questions 3 and 4. A questionnaire using scale(s) has also been proved to be an effective and a widely-accepted approach for measuring IA level (see section 2.3.5). Additionally, as questionnaires are sent through internet, the web-based questionnaires facilitate access to a large and geographically diverse participant pool (Lindemann, 2023), reducing geographical bias (Jain, 2023) and hence enhancing data reliability.

Procedures of designing questionnaire

There are four key parts in the layout of the questionnaire, including the introduction and participation consent form, the screening section to filter through the targeted subjects, main body of the questionnaire which is the developed scales, and the final closing questions (Anpar Research, 2020).

In this thesis, the structure of questionnaire began with an introduction of the researcher and the study’s purpose, emphasising confidentiality and data protection, followed by a consent form which outlines participants' rights and seeks their voluntary consent. Subsequently, the questionnaire filtered participants into targeted groups based on demographic and experiential questions, measures ISE and IA levels using scales

developed previously, and concluded with questions aimed at assessing IA levels before and during interpreting tasks, alongside an open-ended question to gather personal IA experiences. Furthermore, specialists and experts in the field of interpreting were invited to comment and revise the questionnaire before its circulation, making sure directions and wordings in the questionnaire were clear and complete. More details of questionnaire design are elaborated in Section 7.1.1.

3.3.3.3 IASM Hypotheses Generation

Since this thesis adopted abductive research approach, it requires the examination of the proposed IASM through hypotheses testing with quantitative data. Effective hypothesis generation involves challenging foundational theory assumptions, identifying additional mediators and moderators, and integrating related theories to broaden insights (Janiszewski et al., 2016).

In this thesis, there were two hypotheses derived from proposed IASM:
Hypothesis 1: IA level is negatively correlated with ISE level
Hypothesis 2: Interpreters with higher proficiency tend to have lower IA

These two hypotheses were generated by challenging the assumptions of foundational theories. To be specific, three foundational theories of this thesis include: 1) Spielberger's (1966) state-trait anxiety theory which differentiates state anxiety and provides a fundamental understanding of anxiety dynamics; 2) Lazarus and Folkman's (1984) appraisal process which explains the cognitive assessment of stressors in detail, and 3) Bandura's (1986) self-efficacy concept which plays a crucial role in mediating individual's perception, evaluation and management of anxiety (see Section 2.2.2 for more details). Informed by these three foundational theories, a two-layer cognitive appraisal process which constitutes primary appraisal and secondary appraisal is identified, serving as the significant pillar for constructing the IASM (see Chapter 5 for more details about model construction).

Based on the theoretical framework for developing the IASM (see Section 5.1 and 5.2), there are two assumptions underpinning the cognitive appraisal process of interpreting anxiety, the core of the IA production mechanism. The first assumption is that IA level is negatively correlated with ISE level. This is inferred because in the primary appraisal, IA

is activated because a feeling of threat, and such a feeling is more likely to occur when an interpreter's perceived beliefs on their interpreting capabilities over completing a certain interpreting task, termed as ISE in this thesis, remains low. Therefore, the assumption involved in the primary appraisal process is that lower ISE tends to link with higher IA. The second assumption is that interpreters with higher proficiency are likely to have lower IA. This is because the secondary appraisal highlights the important role defence mechanisms play in adjusting and reducing IA level, and defence mechanisms can be activated through overlearned coping strategies and available coping resources. it is believed that interpreters with more proficiency and expertise, professional or expert interpreters for instance, inherently possess more interpreting strategies and are expected to produce interpretation with higher quality than novice interpreters (Gieshoff, 2021; Rosedo & Galván, 2019). Therefore, more proficient interpreters, often equipped with better coping strategies and resources, are likely to manage IA more effectively.

By challenging these assumptions, two hypotheses were formulated to validate the IASM. In Study 3, these hypotheses were tested using quantitative data from questionnaires. Confirming both hypotheses supports the IASM, while evidence against either of them indicates a need for model refinement.

However, one important point to bear in mind is that Study 3 specifically focuses on IA in pre-stage (see section 1.3.1 and section 2.1.3) due to the research gap in anxiety in pre-stage, the importance of interpreting preparation, and the word limit of the thesis. Firstly, evidence from of the interviews (see Chapter 4) shows that the anxiety that interpreters experienced could likely be higher at pre-stage. Compounded with the uncertainty involved in the pre-stage, the ISE and IA could become more complex, and such anxious feelings should not be neglected. Despite its importance, the source reasons of pre-stage IA and how the IA level in pre-stage varies across interpreters of different level of proficiency really remain under-researched (see Section 2.1.3). Secondly, to learn how to prepare a certain interpreting task, including emotional preparation, should be a significant and inevitable path for becoming a qualified interpreter. It is also believed that more preparation prior to the interpreting task could greatly help enhance the ultimate interpretation performance (e.g., Hao, 2019; Luo, 2020; Jiang, 2021; etc.). Therefore, it is acknowledged that IASM is only examined via quantitative data related to pre-stage of interpreting, and further data may be needed to examine the IASM more comprehensively.

3.3.3.4 Thesis methodological roadmap

To put the research approach, methods design and research strategies together, the following flowchart clearly exhibits the theoretical roadmap for this thesis project. There are three main studies in the research project, addressing the research questions. The objective of Study 1 is to develop a categorisation of IA source factors which comes from interview data using Grounded Theory. Such IA source exploration and categorisation answers the first Research Question – What are the sources of IA? Study 2 aims to construct the IASM, which helps explain how does IA come about (Research Question 2) by integrating the categorisation of IA Sources developed in Study 1 and theoretical framework of anxiety production generated from existing literature. Based on the proposed model, two major hypotheses are put forward. In Study 3, by utilising quantitative methods such as scale and questionnaire design, and comparison method through deductive research approach, it intends to measure the level of IA. Subsequently, it analyses the correlations between IA level and its certain source dimension, within a given group of interpreters or across three groups of interpreters, answering Research Question 3 and 4 respectively. Additionally, by collecting and analysing the quantitative data, Study 3 also attempts to examine two hypotheses generated from Study 2 for the purpose of testing the proposed IA Source Model built in Study 2, completing a comprehensive model construction and testing process.

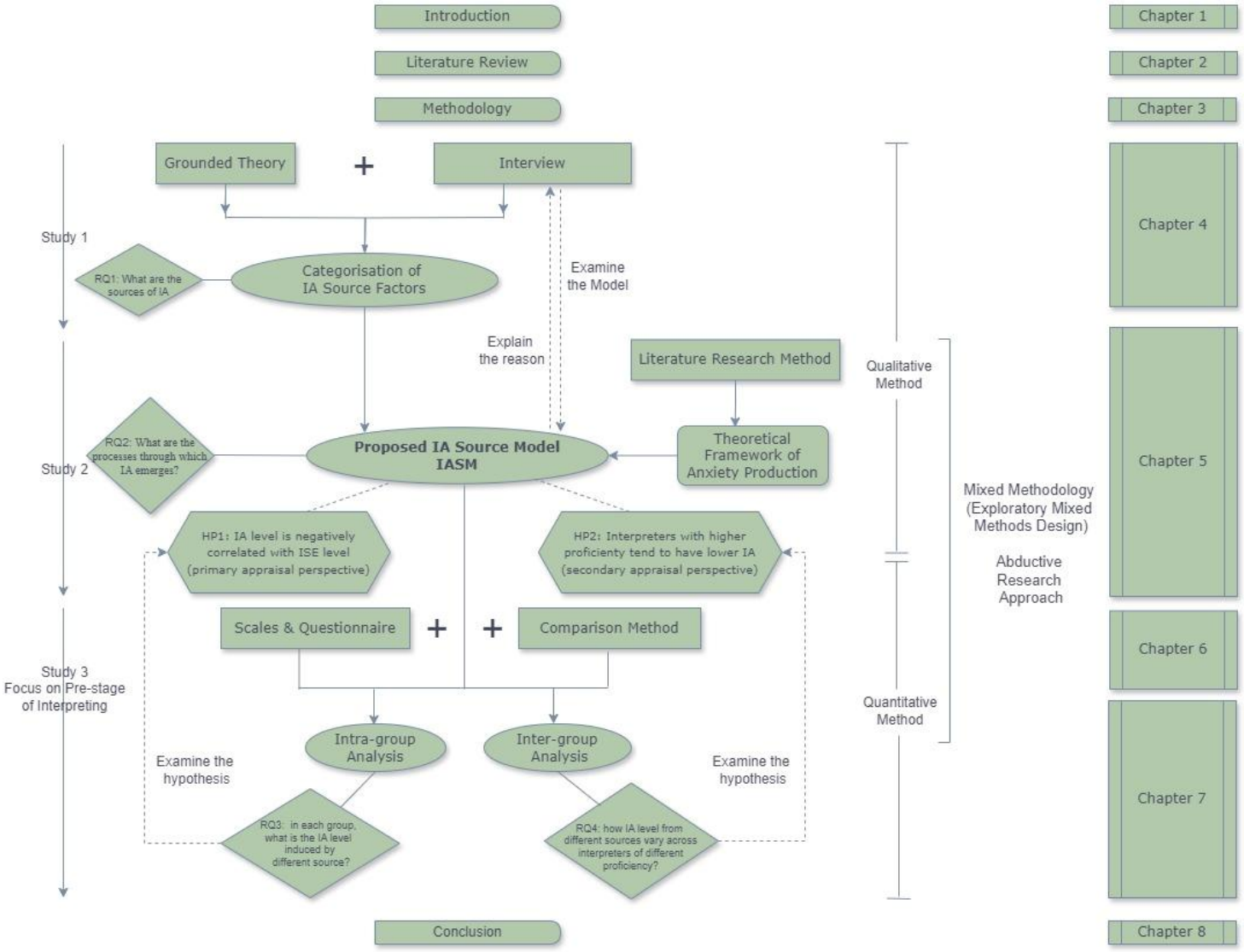


Figure 3.6: Theoretical roadmap of the thesis research project

Moreover, it is important to emphasise that the three studies are not independent but rather interconnected and complementary, which aligns well with the explorative mixed methods approach. This integration allows qualitative findings to inform quantitative analysis and enables a more comprehensive understanding of IA. The qualitative phase (Study 1 and Study 2) helps develop the IA Source Model, while the quantitative phase (Study 3) tests and validates it. This sequential design strengthens the study's methodological rigour as it ensures that data from one phase builds upon and refines the next.

3.3.4 Time horizon of the research

Time horizon, the fifth layer of "research onion", determines whether data is collected at one point in time (cross-sectional) or over multiple intervals (longitudinal) (Phair & Warren, 2021). Cross-sectional research captures a snapshot of a population's characteristics, while longitudinal research gathers data from samples at different intervals with purpose of tracking changes over time (Alamgeer, 2023).

This thesis research chose cross-sectional time horizon, because in addressing the research questions, it aims to understand the mechanism of IA production and the current status of IA level and its inducing factors among interpreters at a certain proficiency level. Additionally, the thesis research involves comparing IA levels and sources across different proficiency levels, which requires simultaneous data collection to control other variables. Collecting data at different times could lead to changes in interpreter proficiency, complicating group comparisons and reducing the validity of the results. Having said that, it is important to acknowledge that both ISE and IA are dynamic and can change depending on when they are tested, and not having it tested longitudinally could be a potential limitation.

3.4 Data collection

This section has three parts, respectively illustrating three main aspects: 1) research subjects – who were chosen as research participants and why, and what were the criterial for group classification; 2) methods used in qualitative data collection; and 3) methods used in quantitative data collection.

3.4.1 Research participants

This research focused on three participant groups: (1) novice interpreters (undergraduate students majoring in English interpreting), (2) proficient interpreters (Master students majoring in English interpreting), and (3) professional interpreters (practicing experts that possess experience and expertise). This categorisation follows the "Standard for Chinese Translation Ability Assessment Level (2022 Edition)" which is an authorised standard developed by official institutions including Translation Institute of China Foreign Languages Administration, China Accreditation Test for Translators and Interpreters (CATTI), and the Evaluation Committee of the China Translation Association (Mu et al

2024). The details of the justification of three groups of research participants are presented in the following.

This Standard integrates interpreting competence level with corresponding educational qualifications and accreditation certificates. It delineates three stages of interpreting competence: foundational, general, and professional. As illustrated in Table 3.1, by identifying three main stages of interpreter's competence – foundational stage, general stage and professional stage, the Standard matches each stage of an interpreter's competence level with corresponding educational and certification levels. Regarding educational qualifications, it incorporates China's Bachelor's degree in translation, introduced in 2006, and the Master's degree in Translation and Interpretation (MTI), launched in 2007, both established by China's Ministry of Education (Wang & Mu, 2012). For accreditation, the Standard compares and aligns three certification types in China: China International Evaluation on Language Capability Certificate (CEC), China Accreditation Test for Translators and Interpreters (CATTI), and the international version of CATTI.

Indicated by the following table, (1) Foundational stage: it targets beginners or those equivalent to the China International Evaluation on Language Capability (CEC) certificate. Beginners or novices of interpreting include, for example, undergraduate students learning about the basic knowledge of interpreting, as this category aligns with the teaching objective of the interpreting programme at the undergraduate level which aims to popularise the interpreting study and cultivate the basic knowledge and skills of interpreting (Hou, 2012; Deng & Zhang, 2008; Liu, 2009). (2) General stage: it corresponds to intermediate-level or proficient learners whose competence is in line with the goal of Master of Translation and Interpreting Programme (MTI) in China as it aims to produce high-quality interpreting students with practical abilities and ready to enter into the interpreting market (Zhou & Jiang, 2013; Wang & Han, 2013). This level also matches the CATTI International version certificate. (3) Professional stage: it refers to interpreting practitioners or senior level interpreting learners who often hold significant experience and expertise, aligning with CATTI accreditation from Level Three to One (Mu et al 2024).

Table 3.1: Interpreting and translation competence level (adapted from the Standard for Chinese Translation Ability Assessment)

Competence development stage	Corresponding population	Competence grade	Corresponding learning level	Qualification certification level
Professional stage	Professional interpreters and translators; advanced interpreting and translation learners and practitioners	Top-level: Distinguished	MTI or higher	CATTI Reviewer
		Level 1 Level 2 Level 3		CATTI Level 1 CATTI Level 2 CATTI Level 3
General stage	People in general translation industry or non-translation industries that require foreign language proficiency; intermediate translation and interpretation learners and practitioners	Level 4 Level 5 Level6	Master's programme of translation and interpretation	CATTI International version
Foundational stage	Beginners or novice translators and interpreters; people who learn Chinese and other languages at the same time; Junior translation and interpretation learners	Level 7 Level 8 Level 9	Bachelor's programme of translation	CEC

This alignment in interpreting competence facilitates a structured understanding of the progression from novice level to proficient and then to professional level in interpreting, justifying the categorisation of three groups of interpreters in this thesis research. Therefore, considering the Standard and the corresponding groups of people it refers to at different stage, this thesis uses the level of interpreting education and presence or lack of work experience as the criteria for categorising the three subject groups. Meanwhile, the equivalent certificates are not used for participant selection because some abovementioned certificates are unpopular among Chinese interpreters, for example, CATTI International version is designed primarily for non-Chinese native speakers (Huang, 2023). However, it is acknowledged that there might be variations within each participant groups – i.e., not all MTI students would have the same level of knowledge and experience for instance, which can be a possible limitation in the group categorisation

and data interpretation. Therefore, in data collection, relevant certification information is also collected for further analysis, ensuring comprehensive profiling of participants as much as possible.

3.4.2 Qualitative data collection – Interview

3.4.2.1 Sampling method

In recruiting interview participants, a combination of stratified and purposive sampling methods is utilised. This approach ensures both structured representation and targeted insights.

Stratified sampling involves dividing the population into distinct subgroups based on specific criteria (Li & Yang, 2022), and it is particularly effective for populations with a variety of attributes in which subgroups can be formed (Hayes, 2024b). Applying a stratified sampling method to the current study, the criterion for dividing into different strata is the proficiency level of the interpreters, and according to the abovementioned criteria of grouping interpreters, research participants are categorised into three groups: novice interpreters (undergraduate students majoring in interpretation and translation), proficient interpreters (Master's students in interpretation), and professional interpreters (those who have extensive working experience of interpreting).

Purposive sampling, commonly used in grounded theory research (Morse 2007; Sbaraini et al, 2011), selects information-rich cases for qualitative analysis (Patton, 2002). This method facilitates the identification of individuals with deep understanding or extensive experience in the subject area (Cresswell & Clark, 2011). Additionally, these participants are often more willing to share their experiences articulately and expressively (Bernard, 2002). In this study, participants were selected through expert recommendations, enhancing engagement and commitment during interviews. Some interviews extended beyond the planned duration as the result of participants' willingness in sharing their experiences and their detailed and insightful contributions.

Having said that, it is important to acknowledge the possible limitations of the purposive sampling method. As a non-random sampling method, it might have resulted in excluding certain groups/individuals or led to biased conclusion (Taylor, 2015), and findings need to be interpreted with these considerations in mind. This is discussed in detail in the

limitation section in Chapter 8.

3.4.2.2 Sample size and thematical saturation

In terms of the sample size in order to reach data saturation in grounded theory, by and large, the suggested range of sample size basically varies from 6 to 25. For example, Bertaux (1981, p.35) states that 15 is the smallest accepted number for sample size. Guest et al. (2006) proposed the guiding principle of "multiples of 6". They pointed out that in cases where participants are relatively homogeneous, 94% of high-frequency codes will appear in the 6 cases interviewed for the first time, and 97% will appear in the 12 cases interviewed for the first time, so data can be examined for its saturation after every 6 samples. Constantinou et al. (2017) claimed that all possible themes could be obtained after interviewing the first seven research participants. Ando et al. (2014) argue that 12 interviews are sufficient to provide all the topics needed by researchers. Based on their own research experience, Hagaman & Wutich (2017) pointed out that, for groups in a relatively homogeneous environment, less than 16 cases are sufficient to achieve saturation.

Given these guidelines, this study set a target of 15 participants, 5 from each interpreter group, to achieve data saturation. After collecting data from these 15 subjects, an initial assessment would determine if saturation has been reached. Further examination involves additional interviews and literature review to identify any emerging themes or new thematic information (Xie & Chen, 2021). Specifically, three more interviews (one per interpreter group) were conducted after initial theoretical model development for examining the data saturation. Simultaneously, a review in literature would be conducted to check for any new IA source categories. If new themes emerge, further interviews are needed for data collection; otherwise, data collection is concluded.

3.4.3 Quantitative data collection – Questionnaire

This quantitative study in the thesis research employed a web-based questionnaire, leveraging internet technology to efficiently gather large datasets from geographically dispersed participants in a short timeframe (Regmi et al, 2016). Compared to traditional methods like face-to-face, postal, or telephone surveys, online questionnaire platforms facilitate this process. The questionnaire in the current study was displayed and distributed through Qualtrics, a university verified and advanced tool for questionnaire

data collection. Meanwhile, it is important to make sure the layout of each question is chosen in a user-friendly manner as presenting on the software.

3.4.3.1 Sampling method for questionnaire

Cluster sampling, one of the probability sampling methods, was utilised in the thesis study. This involves selecting random groups rather than individual units from the target population (Qualtrics, n.d.). Examples of clusters include students within the same classroom or interpreters from the same community. Cluster sampling is chosen for its economic benefits and logistical simplicity when dealing with widespread populations (Qualtrics). Given that interpreting is both a profession and a field of study, its relevant population naturally forms clusters. To identify these clusters, this research engages in online and offline interpreter networking activities and approaches gatekeepers of interpreting classes, programmes or communities.

3.4.3.2 Sample size for questionnaire

In terms of sample size, as it is generally suggested and agreed among scholars (e.g., Roscoe, 1975; Chang et al, 2006; Lin & Chen, 2006; Sultana, 2020) that the questionnaire sample size needs to be no less than 30. Roscoe (1975) also suggests that for comparative analysis, if the data set needs to be broken into several subgroups (in this thesis case, novice, proficient and professional interpreters respectively form three subgroups), 30 respondents should be considered the minimum for each group. For the maximum end, it is suggested that the sample size not over 500, or otherwise it may lead to other statistical error (Sekaran & Bougie, 2016). Therefore, in the data collection of questionnaires in the current thesis research, it is important to make sure that each subgroup has a sample size of no less than 30, and the total number of participants is maintained within the range of 150-500.

3.5 Data Analysis

This section outlines the methods for analysing both qualitative and quantitative data in the thesis research. For qualitative data analysis, content analysis and three-step coding are utilised. For quantitative data analysis, both descriptive and inferential statistics are calculated, particularly for the latter, correlation analysis, canonical correlation analysis and comparison analysis are applied. These are explained in the following sections.

3.5.1 Qualitative data analysis

Data analysis using Grounded Theory involves three primary steps: open coding, axial coding, and selective coding. Open coding extracts concepts from raw data, grouping them into conceptual categories (Miles & Huberman, 1994). Axial coding examines the relationships between these categories, organizing them into a hierarchical framework of subcategories (Noble & Mitchell, 2016). Selective coding then selects core subcategories identified during axial coding, integrating them into a logically coherent model (Linneberg & Korsgaard, 2019).

In this thesis study, interviews were recorded, transcribed and then analysed through these sequential steps. Open coding identified and categorised ideas related to Interpreting Anxiety (IA) source factors, which were then organised into logically-linked subcategories through axial coding. Finally, selective coding integrated these subcategories into a comprehensive model, i.e. IA source categorisation. This categorisation of IA source factors was examined through thematic saturation test, addressing the research question on the origins of IA. Nvivo 14 software was used as a tool in interview data analysis.

3.5.2 Quantitative data analysis

3.5.2.1 Descriptive statistics

Descriptive statistics describe the data in terms of its composition and attributes, such as mean, median, mode, as well as measures of variability include kurtosis, skewness, data distribution, and minimum and maximum variables, giving an overall summarisation of a given dataset (Hayes, 2024a). To understand the status of IA level from each of its source dimensions, it is important to have the overall idea of the IA status among interpreters. Therefore, descriptive statistics for each group such as mean, median, maximum, and minimum were calculated and presented for showing the data distribution of ISE and IA. Also, proper graphs were used for visual presentation.

3.5.2.2 Inferential statistics

Inferential statistics are often used in order to compare group differences, infer relationships, and identify potential associations (Jansen & Warren, 2023). There are many types of inferential statistics, such as correlation analysis, regression, etc., the choice of which is based on the objectives of the research (Jansen & Warren, 2023). This

thesis employed correlation analysis, canonical correlation analysis, and comparison analysis, with detailed methodologies outlined below.

Correlation analysis

To explore the relationship between IA levels and their corresponding IA source categories, correlation analysis examines the associations between two variable sets: ISE data (set 1) and IA data (set 2), which include the identified dimensions of ISE and IA respectively. This helps determine how changes in specific ISE dimensions influence IA, providing practical insights into which ISE improvements could most effectively reduce IA. Testing Hypothesis I of the proposed IASM involves assessing these correlations; significant negative correlations between each pair of ISE and IA variables would validate Hypothesis I and support the IASM.

Correlation analysis quantifies the direction and strength of associations between variables. The choice of correlation coefficient depends on the dataset's characteristics. Within the two most commonly used correlation coefficients – Pearson's correlation coefficient and Spearman's correlation coefficient (Rebekić et al, 2015), Pearson's correlation coefficient is suitable for normally distributed data, while Spearman's correlation coefficient is appropriate when the bivariate normal distribution assumption is violated (Artusi et al, 2002).

This study used Spearman's correlation coefficient (r_s) due to the non-normal distribution of novice interpreter data (see section 7.2.5). As a non-parametric measure that ranks variables (De Winter et al, 2016), Spearman's correlation coefficient is suitable for this research. After calculating the Spearman's correlation coefficients for all groups, intra-group correlation matrices for ISE and IA are presented, followed by inter-group correlation matrices.

Canonical correlation analysis

In addition to simple correlation analysis, this thesis study also employed canonical correlation analysis (CCA), a multivariate statistical method developed by Hotelling (1936). CCA measures the linear relationships between two multidimensional variable sets. By applying canonical correlation analysis, it can address major objectives such as: (1) determining if and how strongly two sets of variables correlate; (2) creating a set of

weights for the two sets of variables in order to maximise the correlation between each set's linear combinations; and (3) elucidating the nature of any connections that may exist between the variables in the two sets, by calculating each variable's relative contribution to the extracted canonical functions (Meloun & Militký, 2011).

CCA is suitable data analysis method in this particular case for its multidimensionality, maximising correlations, and enhanced interpretation. To be specific: (1) It addresses correlations between two sets of data with multiple dimensions. In this Study, both ISE and IA contain multiple categories as the results of multi-dimensional interpreting competence (see Section 5.2.2), making ISE and IA two multi-dimensional datasets. CCA addresses the issues of whether two sets of variables are correlated and how strong such a correlation is. As a multivariate statistical method, canonical correlation analysis is particularly useful for two sets of data with multiple dimensions (Zhuang et al, 2020). (2) it seeks to maximise the correlations between two datasets. By applying CCA, it can generate a set of weights for the two sets of variables in order to maximise their correlations. In this thesis, such weights could help explain which source dimension has the strongest relationship with the IA in general and the degree to which different dimensions of ISE relate to corresponding dimension of IA. (3) it better facilitates the data interpretation. This is because CCA enables an explanation of the nature of the connections that may exist between the variables in the two sets, by calculating each variable's relative contribution to the extracted canonical functions (Meloun & Militký, 2011), providing more meanings to the data. By doing so, not only the statistical relations but also, more importantly, the inner connections of two concepts – ISE and IA – could be better understood and interpreted.

SPSS Statistics 29.0.1.0 was used for data analysis. Prior to applying CCA, normality tests were conducted on each subject group's data to ensure assumptions of linearity, uniform variability, and data normality are met (Hessing, 2018). The detailed steps of CCA, including calculation of canonical correlations, canonical weights and loadings, and redundancy measurements, are outlined in the quantitative data analysis chapter (see section 7.2.3).

Comparison method

For addressing Research Question 4, the core method involves comparative analysis to

highlight distinctions among three interpreter groups regarding their IA levels and the relationships between IA and its inducing sources. This method provides a direct and deeper insight into disparities across different data subsets, essential for examining group differences (Leustek, 2017).

Specifically, the analysis proceeded as follows: first and foremost, descriptive statistics such as mean, medium of three interpreter groups, in different dimensions respectively, were compared, in order to view IA difference across three groups. For example, it is about understanding which group would possibly have higher level of IA in a certain source category whereas another group would be more likely to maintain it at the lowest. Secondly, the analysis of variance (ANOVA) which is developed to understand whether or not there are significant differences between the means of independent variables (Carpenter, n.d.) could be useful too. Thirdly, it compared correlation coefficients between ISE and IA across three groups for given source dimensions. The absolute values of the coefficients indicate the degree of relationship between ISE and IA, potentially ranking the sensitivity of IA to specific sources.

By employing this comparative approach, it is possible to identify which source dimensions are more likely to trigger IA in particular interpreter groups. Consequently, this can inform strategies for reducing IA at different career stages and provide targeted suggestions for interpreting training.

3.6 Ethical considerations

This thesis project is subject to the University of Wales Trinity Saint David (UWTSD) Research Ethics & Integrity Code of Practice, UWTSD Research Data Management Policy, and General Data Protection Regulation (GDPR). In this thesis project, while utilising mixed methodology, there are such instruments as interviews and questionnaires that require participants' engagement. The following ethical responsibilities are considered throughout the project.

3.6.1 Voluntary consent

The UWTSD Research Ethics & Integrity Code of Practice requires researchers to follow its guidelines, even if the study is undertaken somewhere outside of the UK, which is the case for the current research project. According to the above guidelines, it requires

voluntary consent from research participants. Therefore, in this research project, a briefing would be given to each participant before the interview or questionnaire starts. In the briefing, it clearly outlined the aims and objectives of the study including why this research is necessary, what this research is about, how this research would be conducted, what kinds of questions in the questionnaire / interview would be expected, and then there would be a consent form for participants to sign.

Also, in interviews and questionnaires, the potential participants would be informed beforehand that: (1) participation in the research is on a fully voluntary basis; (2) they have the right to ask questions or seek further clarification about the study from the researcher; (3) the interview would be either video-recorded or audio-recorded; (4) all information provided to the research would be treated confidentially and stored safely; (5) their identity would remain anonymous in any report on the results of the study; and (6) No data would be collected before the full consent being obtained from them.

About the ways of gaining consent from participants, a consent form was prepared, and the perspective participants were asked to sign the consent form before data collection began. For interviews, it would be either a paper form or electronic form depending on whether the interview was conducted face-to-face or remotely. All questionnaires were sent and collected securely online, and the consent form was the very first page of the questionnaire, informing participants that by clicking on the NEXT button they were providing consent.

Furthermore, whether the participants would share some particular information with the researcher was completely on a voluntary basis, and the participants were given the option of omitting any question that they did not like to answer.

3.6.2 Anonymity, Confidentiality and Privacy

The ethics guidelines require the researchers to properly deal with the data collected from the participants, in a confidential and anonymous way in particular. Therefore, in this thesis project, participants' identity is remained anonymous in any outputs of the study. Names were not collected and it was done by using pseudonym name or disguising details of identity. The name of any participants would not be mentioned in any research publications including the thesis without their explicit permission. The confidentiality of

all information provided by participants was ensured as well. For example, people other than the researcher or the researcher's supervisory team have no access to any of the collected data including the original recordings and the transcript, and the research data was stored safely in accordance with the requirement of UWTSD Ethics Code.

3.6.3 Data Protection and Storage

It clearly states in the UWTSD Research Data Management Policy that all data collected in the research need to be stored safely. In this thesis project, all data, including participants' personal data and the sensitive data such as their anxiety level and psychological situation, is stored in a specific and password-protected file in researcher's personal computer, and all participants were given a unique identifier to ensure confidentiality and this list was kept securely in the password protected folder.

As this research chose English and Chinese as the pair of languages in interpretation process, and selects bilingual Chinese as subjects, the research mainly took place in China and most of the interview and questionnaire data was collected from China. Therefore, when discussing with the supervisory team, there would be import of data from outside of the UK. In case of need for data transfer between the researcher and the supervisory team, or between China and UK, only the minimum of the necessary data was transferred, and through university's official emails within the research team or University's official 365 One Drive cloud. For data back-up, it was stored in the password-protected Microsoft 365 One Drive cloud storage through UWTSD university account. For questionnaires, it was conducted online through Qualtrics which was provided by UWTSD psychological lab and logged in through university account.

For data management, data collection/analysis software such as Qualtrics, SPSS and NVivo was used. All participants were given a unique identifier to ensure confidentiality and no real name appeared in such software. The abovementioned software was accessed in the official way, for example, Qualtrics was accessed through the psychological lab of the University and log in using researcher's own university account, and SPSS and NVivo were accessed from the UWTSD's IT service desk.

In addition, according to the GDPR, ongoing confidentiality will be ensured, and there will be a process for regularly evaluating the effectiveness of technical measures for

ensuring the security of processing. Moreover, participants' identity will be kept confidentially in any output of the research, and there will be use of pseudonym name or hiding of identity information.

Chapter 4 Interview and Qualitative Data Analysis

This study aims to understand the situation of interpreting anxiety (IA) among interpreters and explore various source factors of IA, so as to answer Research Question 1 of the thesis. As explained in the Methodology Chapter, this study adopts the methods of Grounded Theory and semi-structured interview to collect and analyse the data (see Section 3.3.3).

Grounded Theory provides a systematic approach for extracting concepts and developing models from qualitative data (Corbin and Strauss, 2008). In this study, it is employed to identify IA source factors and build an IA source categorisation model using primary data collected through semi-structured interviews. The methodology of grounded theory involves four key steps: data collection, data analysis, thematic saturation examination, and model finalisation (Hu et al., 2020; see Section 3.3.3 for more details).

This chapter is organised into 4 sections. Section 4.1 outlines the interview design, and the data collection process is elaborated in Section 4.2. Section 4.3 describes the data analysis procedure, which includes open coding, axial coding, and selective coding (Corbin and Strauss, 2008), alongside saturation examination. Finally, Section 4.4 presents the interview findings, detailing IA source categorisations, specific source factors, and how IA varies among different interpreter groups at various stages of an interpreting task. The conclusion of this chapter also serves as a crucial pillar in constructing the IA Source Model (IASM) in next chapter.

4.1 Interview design

Interviews, as a crucial qualitative method, facilitate the collection of facts, opinions, and attitudes from respondents, enabling an in-depth exploration of the reasoning and logic behind their views (Thomas, 2013). This method is particularly beneficial for identifying potential IA source factors, understanding interviewees' feelings towards these stressors, and elucidating interpreters' experiences with IA. This study employs semi-structured interviews, the most prevalent format (DiCicco-Bloom & Crabtree, 2006), for its advantage of adaptability and flexibility (Kallio et al., 2016). These attributes foster a reciprocal relationship between interviewer and participant (Galleta, 2012; Polit & Beck,

2010), allowing for improvised questions based on participants' responses. This approach supports a nuanced understanding of each participant's unique experiences with IA and the reasons behind it by encouraging detailed verbal expression.

A semi-structured interview guide typically comprises two layers: main themes and follow-up questions. The main themes address the core ideas of the study topic, within which follow-up questions are used to encourage participants to openly discuss their opinions and experiences (Mannan & Afni, 2020). There are five steps in designing a rigid semi-structured interview guide (Kallio et al, 2016): 1) identifying the prerequisites for conducting semi-structured interviews; 2) retrieving and using existing knowledge; 3) creating a draft semi-structured interview guide; 4) conducting a pilot test of interview; and 5) refining and completing the final semi-structured interview guide. These five steps are followed in designing the interview in the present study.

4.1.1 Identifying the prerequisites for conducting semi-structured interviews

The objective of this step is to confirm the semi-structured interview is a suitable strategy for gathering rigorous data in relation to the chosen research question. To do that, certain aspects of the phenomena based on prior knowledge of the chosen study need to be identified (Turner, 2010). For IA, defined as a significant emotional and psychological reaction during interpreting tasks, semi-structured interviews are suitable because they effectively capture perceptions on complex or emotionally sensitive issues (Barriball & While, 1994). Additionally, by providing participants more space to openly discuss their anxiety emotions and the reasons behind them, the semi-structured interview can facilitate the exploration of new source factors of IA.

Another prerequisite consideration is that the follow-up questions need to be adjusted in order to accommodate different participant groups, given the study's aim to compare IA among novices, proficient interpreters, and professional interpreters. Factors triggering IA may differ across these groups. For instance, what stresses student interpreters might not significantly affect professionals, and certain classroom-specific stressors, such as exams, may not apply to professionals. Consequently, interview questions must be tailored to the proficiency level of the interpreters to ensure relevance and depth in data collection.

4.1.2 Retrieving and using existing knowledge

This step aims to acquire an adequate and sufficient comprehension of the research topic which necessitated evaluating previous studies critically. Existing literature helps with the design of the interview question framework, in a way of identifying two stages of interpreting and providing guidance for asking follow-up questions for while-stage.

To be specific, firstly, as mentioned in the literature review (see Section 2.1.3), the scope of interpreting includes pre-interpreting preparation and interpreting cognitive process. Moreover, one research gap mentioned in the literature review is that IA in different stages, the pre-stage in particular, is under-researched. Such two-stage framework provides a more comprehensive structure for interview questions.

Secondly, in terms of the while-stage, interview questions follow the modules of information processing in interpreting as identified by Gile (2009), which includes 2 sub-phases and seven important modules. According to Gile's (2009) Effort Model, while doing consecutive interpreting, there are two main phases:

Phase 1: CI = L+N+M+C
In which "L" means listening and analysis, "N" means note-taking, "M" means short-term memory operations, and "C" means coordination.

Phase 2: CI = Rem + Read + P + C
In which "Rem" means remembering, "Read" means note-reading, and "P" means production, and "C" means coordination.

Adding up the pre-stage, the following graph exhibits the flow and important modules of information processing in a complete interpreting task. This flow chart is the main trunk of interview questions framework.

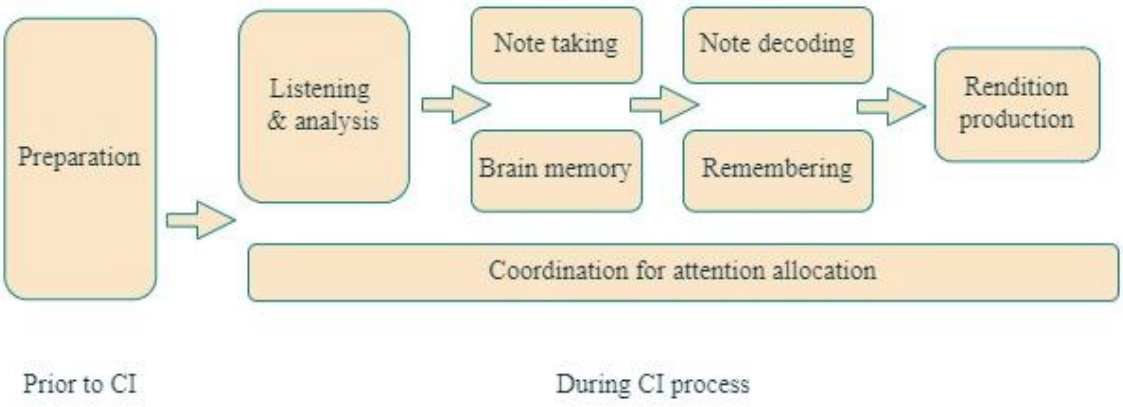


Figure 4.1: Framework of interview questions flow

Based on the above provided graph, interviewees are questioned about the presence, intensity, and sources of IA experienced at each stage. In the current study, for the pre-stage, interview questions include whether participants experience interpreting anxiety. If affirmative, follow-up questions probe the level of anxiety ("Would you describe the anxiety specific to this stage as high or low?"), the source factors contributing to this anxiety ("What are the source factors leading to interpreting anxiety at this stage?"), and how these factors influence anxiety levels ("How do these source factors affect the anxiety level in this specific stage?"). This approach ensures a detailed understanding of IA including its levels and source reasons.

4.1.3 Creating a draft semi-structured interview guide

A three-tier semi-structured interview guide was developed, encompassing main themes, primary questions, and follow-up questions. Initially, the guide ensures the collection of general background information from each participant, such as age, gender, community, and basic study or work experience. This foundational data facilitates correct participant grouping and enhances background understanding (Bearman, 2019). Hence, the first two sections of the interview focus on obtaining this general background information. It is imperative that all personal information collected remains strictly confidential, adhering to ethical standards and used solely for this research.

Subsequently, the interview delves into IA source factors, with primary questions centred on identifying the origins of IA and the underlying reasons. These questions are structured according to the stages of an interpreting task, as illustrated in Figure 4.1. The follow-up

questions are flexible and responsive rather than fixed or sequence-sensitive, tailored to participants' responses.

Critical to the interview's effectiveness is the precise wording of questions to ensure comprehensive, accurate, and unbiased data collection (Bhandari, 2022). To achieve this, two experts in interpreting studies were consulted to refine question clarity and eliminate ambiguity or leading questions, ensuring each query is clearly articulated and unbiased.

4.1.4 Conducting a pilot test of interview

The pilot test helps identify if there are any shortcomings or limitations in the interview design, allowing for necessary adjustments before the actual interviews take place (Kvale, 2007). It is recommended that participants in the pilot test share similar characteristics with the subjects of the main study to ensure relevance (Turner, 2010).

In this study, three individuals, each representing a different participant group, were invited to participate in the pilot interviews. Two interviews were conducted face-to-face, and one was held via an online conference. Each session lasted approximately one hour, with feedback collected immediately afterwards. This prompt collection of feedback ensures accurate and genuine responses.

Three primary recommendations emerged from the pilot study. Firstly, it is advised to visually present the flow chart (Figure 4.1) of the cognitive modules of the interpreting process directly to participants. This visual aid enhances their understanding and serves as an effective memory prompt. Secondly, clarifying the definition of IA at the outset ensures that interviewees fully comprehend the topic, distinguishing IA from similar emotions like fear or worry. Additionally, rather than asking directly if participants feel anxious in a given context, interviewers should encourage them to share their feelings and experiences freely, thereby minimising question bias. These recommendations were integrated into the subsequent stages of the interview process, which is outlined in detail below.

4.1.5 Refining and completing the final semi-structured interview guide

By adopting suggestions from the pilot test, the interview framework was revised and refined. The interviews were conducted in Chinese, since it is the first/native language of

all participants. Using the three-tier framework, the guide of the interview questions is shown in Table 4.1 below.

The final version of the interview guide comprises four parts. Parts one and two gather basic participant information, including demographics (gender, age) and group-specific details (school, major, grade, related courses for students; work experience for professionals). Part three aims to capture an overall picture of each participant's IA experience. Part four delves into IA source factors, prompting participants to identify specific sources, their underlying reasons, the degree of anxiety associated with each, and to rank these sources by severity. This part covers both pre- and while-stage in an interpreting task, addressing all modules in the cognitive interpreting process (Table 4.1), ensuring comprehensive exploration of IA sources. Furthermore, regarding two stages of interpreting, participants are also asked to compare which stage induces more anxiety. The interview concludes with open-ended questions inviting participants to share additional observations or situations not previously discussed. The complete interview guide, available in both Chinese and English, can be found in the appendix 4.1-1 and 4.1-2.

Table 4.1: Semi-structured interview guide

Part 1: Basic information (general)		
Main themes	**Main questions**	**Follow-up questions**
Participant's general information	Name, gender, age, study/work status	\
Part 2: Basic information (group-specific)		
Main themes	**Main questions**	**Follow-up questions**
Participant's specific information (Novice group & Proficient group)	School, major, grade, related courses, learning time of interpreting,	\
	Interpreting certificate(s)	If yes, what kind of certificate(s)
	practice/internship experience	If yes, further describe the experience

Participant's specific information (Professional group)	Interpreting learning experience	\
	Interpreting working experience	Work mode, work intensity, work length
	Interpreting certificate(s)	If yes, what kind of certificate(s)
Part 3: General profile of participant's interpreting anxiety		
Main themes	**Main questions**	**Follow-up questions**
General existence of IA	Did you ever feel anxious during the consecutive interpreting task?	If yes, further elaborate how it feels and mostly when it comes to exist.
		If no, please explain the reason
General level of IA	how much you score your overall IA during CI task, if the maximum level is 100?	Explain the rationality of the score
Part 4: Explore the possible sources and the level of IA		
Main themes	**Main questions**	**Follow-up questions**
IA in pre-stage	Whether there is any IA involved in this stage?	Where does the IA come from?
	Which factor(s) makes the participant feel anxious?	Explain the reason and how the factors induce the anxiety.
	To what level of IA would each factor lead to?	To rank the source factors based on the IA level they bring to.
IA in while-stage	Whether there is any IA involved in this stage?	In which phase / module does IA exist? (follow the flow chart)
	Which factor(s) makes the participant feel anxious?	Explain the reason of IA.
	To what level of IA would each factor lead to?	To rank the source factors based on the IA level they bring to.
Comparison of IA level in different stages	Compare two stages, which stage involves more IA?	Further explain the reason
Others	Any other situations in CI that make the participant feel	If any, further elaborate

	anxious? Are there any other observations that the participant would like to add?	

4.2 Participants and data collection

As illustrated in the methodology chapter (see Section 3.4.2), the study employs stratified and purposive sampling to recruit participants. Data was gathered from 15 semi-structured interviews: 5 with novice interpreters (3 females, 2 males), 5 with proficient interpreters (all females), and 5 with professional interpreters (2 females, 3 males), aged between 19 and 45. One possible limitation that needs to be acknowledged is that there is no male interpreter in the group of proficient interpreters. This could possibly be attributable to the inherent gender imbalance in conference interpreting – females occupy the majority in both interpreting learning and careers (Marianacci, 2015; Mastropietro, 2012). Such gender imbalance is acknowledged as a possible limitation of the thesis and discussed in section 8.4.1.

In data collection, 12 interviews were video-recorded and 3 were audio-recorded, averaging approximately one hour each, resulting in over 17 hours of recordings and approximately 314,406 words of transcriptions. While processing the data, to ensure confidentiality, participants' names were replaced with alphanumeric codes. Codes A1-A5 represents 5 participants in the novice group, B1-B5 represents 5 participants in the proficient group, and C1-C5 represents 5 participants in the professional group.

4.3 Interview data Analysis

As a useful tool to analyse qualitative data particularly unstructured text, audio, etc. (Dhakal, 2022), NVivo (version 14) is used in this study to analyse the interview data. The most important procedure in data analysis is coding. Code is the word that symbolically offers a salient and summative capturing of the relevant data, so as to enable the research to identify the essential information and build the theory from raw data (Holton, 2010; Saldaña, 2016). According to Corbin and Strauss (2008), the coding procedures used in grounded theory include three steps, namely, open coding, axial

coding and selective coding.

4.3.1 Open coding

Open coding is the first step in grounded theory. At this stage, the ideas are extracted from raw data and subsequently characterised into different conceptual categories (Miles & Huberman, 1994). The goal of it is to provide comprehensive codes that identify, classify and describe the phenomena being studied (Strauss & Corbin, 1990), which enables the researcher to explore the entire spectrum of the possible theories through the open generation of codes (Holton, 2008). This step requires a close look and a line-by-line reading of the interview data (Creswell, 2007).

At this stage, the interview transcripts were being read line by line. For example, the interviewee (C4) talked about how the higher level of the speaker to whom they provide interpretation, the ministerial level or other senior leaders for instance, could lead to more anxiety before the real interpreting starts. Then, in the transcript, this sentence was given the labels of “the level of the speaker” and “pre-stage”. Similarly, another interviewee (A5) mentioned that anxiety would occur when encountering a phrase which embodies certain unknown cultural knowledge. This was coded as “cultural knowledge”.

About 400 references in each interview transcript were cycled out. 89 codes or “concepts” in total were generated. In 89 concepts, 56 were related to the sources of IA, such as accent, numbers, notes in interpretation, lack of vocabulary, cultural difference, speaking speed, information intensity, audience feedback, emotional coordination, etc.

4.3.2 Axial coding

The second level of coding is called axial coding which is, according to Strauss and Cobin (1990), needed in order to examine the connections between the concepts and categories that have been formed in the open coding step. It aims to provide the structure or framework within which the data can be synthesised and organised and subsequently more logical and hierarchically coherent subcategories can be built in the existing categories (Charmaz, 2006; Noble & Mitchell, 2016).

In order to establish the abovementioned linkages between categories and subcategories, the relationships found in the data were carefully analysed. This process is following

LaRossa's (2005) "6 C model" which refers to the key perspectives in organising the data, namely, causes, contexts, contingencies, consequences, covariance, and conditions. After axial coding, similar codes have been integrated, and then grouped into 15 categories. For example, the concepts identified in the open coding such as accent, speaking rate, vocabulary, information intensity, etc, were put into the category of "listening comprehension". Similarly, concepts such as professional knowledge of a certain domain, and field-specific terminology were categorised as "domain-specific knowledge". Another dimension in axial coding is to divide the codes or concepts into the groups of "pre-stage" and "while-stage" according to the specific stages that interviewee refers to.

4.3.3 Selective coding

Selective coding is the third step in the grounded theory and it is a process of "integrating and refining categories" (Strauss & Corbin, 1998). It is about selecting the core categories and subcategories that have been developed in axial coding and then combining them together into a single coherent theory (Linneberg & Korsgaard, 2019). This process looks similar to axial coding but it is more abstracted (Vollstedt & Rezat, 2019). To do that, according to Williams & Moser (2019), it is important to select the main thematic category where the refined codes or subcategories can be integrated and aligned in a systematic manner.

In this process, the meaningful presentations of each category in axial coding and the relationship among them were further elaborated and analysed. For example, the aforementioned category of "listening comprehension" as well as other categories such as "speaking abilities of Chinese and English", "language application abilities" were further organised into the category of "bilingualism/ language knowledge" which is a higher level of generalisation in the vertical structure of the codes. Furthermore, the interviewees talked about the anxiety source factors such as high level of professionalism of the audience, decisive impacts on the speaker, high level of self-expectation, negative feedback from the peers, etc., which have been coded in the axial coding as factors from the audience, the speaker, the self and the peers respectively. Then, in the selective coding, these four subcategories were further generalised as "stakeholder factors" as they could all possibly have a stake in or relate to the interpretation performance. The coding process in relation to the IA source factors is shown in the following chart.

Table 4.2: Coding process of interview data

Open coding	**Axial coding**	**Selective coding**
(1) phonetics (2) semantics (3) morphology (4) syntax	Listening comprehension in Chinese and English	Language knowledge
(1) phonetics (2) semantics (3) morphology (4) syntax	Speaking abilities of Chinese and English	
(1) wording (2) swift conversion between two languages (3) poetic translation	Language application	
(1) Encyclopaedic knowledge (2) Cultural knowledge (3) Recent major news	General knowledge	Extra-linguistic knowledge
(1) professional knowledge of a certain domain (2) field-specific terminology	Domain-specific knowledge	
(1) information about the task background (2) information about the task schedule background information about the speaker	Contextual knowledge	
(1) note-taking skills (2) multi-tasking skills (3) public speaking skills (4) cross-cultural communication skills (5) memory (6) stress-resilience skills	General skills	Interpreting skills
(1) Paraphrasing (2) Chunking (3) Anticipating (4) Inferring	Strategies in interpretation	

(5) synonymy expression (6) summarising (7) procrastination (8) other strategies		
(1) information searching (2) corpus application (3) computer-aid interpreting tools (4) able to use interpreting equipment	Technical skills in interpretation	
(1) audience language abilities (2) audience professionalism (3) audience size (4) audience's expectation (5) feedback from audience (6) impacts on audience	Audience	Stakeholder factors
(1) speaker's expectation (2) degree of formality (3) level of the speaker (4) feedback from speaker (5) impacts on speakers	Speaker	
(1) feedback from the employer or superiors (2) feedback from the examiner	Employer or examiner	
(1) self-expectations (2) impacts on oneself (3) physical conditions	Self	
(1) feedback from peers (2) peer pressure	Peers	
(1) impacts on other stakeholders (2) environment	Others	

In forming the theoretical framework of the IA source factors, as the result of the selective coding, 4 major sources have been identified, namely language knowledge, extra-linguistic knowledge, interpreting skills and stakeholder factors. Also, after the coding process, two categories in terms of stages of an interpretation task have been recognised

which include pre-stage and while-stage.

4.3.4 Saturation examination

As explained in detail in the methodology in Section 3.3.3, a critical point in grounded theory is to decide whether the data collected has reached thematical saturation, for this would further determine whether more data is needed, ensuring qualitative research results are repeatable, verifiable, and comprehensive (Morse et al., 2002; Xi & Chen, 2021). Thematical saturation is identified when no new codes or categories are emerging, for codes and categories are the premise and pillars of the theory (Olshansky, 2015; Birks & Mills, 2015; Given, 2016, etc.).

In this study, whether the current interview data reaches its saturation point was examined through collecting extra data from both more interviews and existing literature. As the result shows that there were no new codes or emerging concepts regarding IA source factors, it is believed that the current study has reached the saturation point. The specific procedures of saturation examination in this study are displayed below.

4.3.4.1 Saturation test using data from more interviews

Regarding the saturation test with data from more interviews, after 15 interviews in the research, another 3 interviews – one for each subject group – were conducted. Using the same data collecting and analysing method, it was found that the concepts and codes mentioned in three additional interviews were somehow the repetition of what had been recorded before. Therefore, from the perspective of more interview data, it is believed the current data reaches its saturation point.

4.3.4.2 Saturation test using data from existing literature

In terms of examining the thematical saturation from existing literature, this study searched the keyword “interpreting anxiety” in CNKI, China's largest scholarly database, and ResearchGate, yielding 81 relevant papers from the past 30 years. These papers presented varied and diverse reasons and categorisations for IA.

For example, one common classification categorises IA sources into locutionary (language-related) and illocutionary (non-language-related) factors (e.g., Kang, 2011; Wang, 2014; Zheng, 2017; Hu, 2006; He, 2017; Korpal, 2017, etc.). Another approach

distinguishes between individual and external causes of IA. For instance, Chiang (2006) identifies low self-confidence as a primary cause that could lead to IA. Also, Dong et al. (2013) highlight the role that self-efficacy plays in affecting the anxiety level in interpretation, supported by Jiménez Ivars and Pinazo Calatayud (2001), who found that interpreting students with lower self-efficacy experience higher levels of IA. External factors include environmental conditions (Kurz & Kolmer, 1984; Riccardi et al., 1998), peer assessment (Wu, 2017), teachers' feedback (Wu, 2008; Wang, 2022), giving interpretation in public (Pan & Min, 2017), lack of social support (Zhou, 2017), task settings like exams (Huang, 2013), etc.

Additionally, besides the above two major types of categorisations, interpreting process or interpreting skills is another essential category to be discussed in generating interpreting anxiety. Studies by Deng & Zhu (2016) and Deng (2018) emphasise that deficiencies in cognitive processes such as listening, memorising, oral production, and note-taking contribute to higher IA levels.

In assessing thematic saturation, this study examines codes and concepts rather than categories, identifying any new codes present in the literature but absent from interview results. This is because codes are primary and conductive to generating new relating themes and categories (Birks & Mills, 2015; Xi & Chen, 2021). Though different scholars may view IA sources from different perspectives, the fundamental concepts of source factors remain in a certain range. Hence, in the current study, given the consistent core concepts across different perspectives, thematic saturation is achieved when no new codes or concepts emerge.

Moreover, in addition to the three main categories – language-related factors (or language knowledge in this study), non-language-related factors (or extra-linguistic knowledge in this study), and interpreting skill – this research introduces a novel category: "stakeholder factors". This concept well captures source factors such as feedback from teachers, audience expectations, audience size, peer pressure, impressions on employers or superiors, examiner expressions, self-expectations and influence on speakers, etc. As far as the researcher is aware, while these factors have been individually studied, they have not been integrated into a comprehensive theoretical framework. Thus, the "stakeholder factors" category is an original contribution of this study, crucial for forming the IASM.

The detailed categorisation of IA source factors is discussed in the interview results and conclusions in the following section.

4.4 Results and Conclusions

The results of the interview are presented in four parts. The first part discusses the existence and frequency of IA in general. The second part answers the question of what are possible IA source factors. In addition to listing those stressors, the categorisation of IA source factors which is an essential conclusion of this study is also provided in part 2. Part 3 addresses the difference of IA between pre- and while-stages whilst Part 4 concentrates on the IA differences across interpreters of different level of proficiency.

4.4.1 Prevalence of Interpreting anxiety

Findings from the interview show that IA does exist and actually very common among interpreters including beginners, proficient and professional interpreters. All 15 participants reported that they had experienced anxious feelings in an interpreting task. There are many quotes in the interview that repeatedly mention anxiety. For example:

"My heart beats heavily and quickly when I am asked by the teacher to do a certain interpreting task, especially if I have to do that in front of the class" (Interviewee A4, novice interpreter).

"If there is a sudden change happening before the conference, such as a change in the time, place, speaker, or the material to be presented, this will again lead to high level of anxiety" (Interviewee B3, proficient interpreter).

"I do sometimes have anxiety (in interpreting), and it depends on whether I am familiar with the topic" (Interviewee C3, professional interpreter).

In addition to the fact that each interviewee agreed that they had often experienced IA, the prevalence of IA can also be seen from the frequency of the words mentioned in all interviews. Terms such as "anxiety" and "anxious feelings" ranked 3rd in word frequency right behind "interpreting" and "topic".

4.4.2 IA source factors and IA source categorisation

With the above data analysis process in Grounded Theory, open coding is associated with the primary and fundamental concepts of IA factors, axial coding organises those concepts into hierarchically coherent subcategories, and selective coding integrates core subcategories into a coherent framework. Such a three-tier framework, therefore, well exhibits the IA source categories, IA factors under each category, and specific examples of each IA factor, corresponding to selective codes, axial codes and open codes respectively.

Therefore, according to the data analysis results, four major categories of IA source reasons have been identified including 1) Language Knowledge, 2) Extra-linguistic Knowledge, 3) Interpretation skills, and 4) Stakeholder factors, which correspond to the four selective codes in the coding results as shown in Table 4.3. Then, the derived IA source factors under each category as well as their examples can be found in axial codes and open codes respectively. For instance, under the category of language knowledge, source factors that can possibly lead to IA include lack of bilingual knowledge and lack of language application capabilities. Specific example could be weakness in vocabulary, phonetics, semantics, morphology and syntax, or inability to swiftly convert between two languages and quickly organise sentences, etc. The three-tier framework of IA sources including source categories, factors and examples is shown in the following table 4.3. Moreover, the table also shows the number and percentage of respondents who mentioned each source factor, indicating its prevalence among interpreters in the interviews.

Table 4.3: Three-tier framework of IA sources (source categories, factors and examples)

IA source categories	IA source factors	Examples	No. of respondents mentioning it (15 in total)	% of respondents mentioning it
Language Knowledge	Lack of bilingual knowledge	Short in vocabulary, lack of knowledge such as phonetics,	15	100%

(LK)		semantics, morphology and syntax, etc.		
	Lack of language application capabilities	cannot swiftly convert between two languages, cannot quickly organise sentences and speak it out.	13	87%
Extra-linguistic knowledge (ELK)	Lack of Common knowledge	Do not have enough Encyclopaedic knowledge or cultural knowledge, do not know recent major news	11	73%
	Deficit in Domain-specific knowledge	Do not have enough basic professional knowledge that relates to the specific domain of the interpreting task	15	100%
	Lack of Contextual knowledge	Lack of information about the task background, task schedule, background information about the speaker, etc.	8	53%
Interpreting skills (IS)	Deficit in general skills of interpretation	Shortage in the capabilities of interpretation note-taking, multitasking, cross-cultural communication skills, public presentation skills, etc.	13	87%
	Deficit in interpretation strategies	Do not know or cannot quickly and flexibly apply appropriate strategies in dealing with certain situations in interpretation	9	60%
	Deficit in interpretation technical skills	Cannot proficiently use the interpretation equipment or other computer-aid interpreting tools, applications, the skills of	4	27%

		quickly search for relevant information while preparing		
Stakeholder factors[4] (STA)	Audience	Possible negative feedback from audience, a large number of audiences, high expectation of audience	8	53%
	Speakers	High expectation from speakers, high level of speakers	4	27%
	Evaluators (e.g., examiners, customers, etc.)	Feedback from evaluators	9	60%
	Peers	Assessment from peers, peer pressure	4	27%
	Self	High expectation from oneself, one's physical condition	6	40%
	Others	Impacts from other stakeholders	1	7%

Figure 4.2 presents a radar chart illustrating the percentage of total interviewees (n=15) who cited a certain IA source factor, categorised into four dimensions: language knowledge (LK), extra-linguistic knowledge (ELK), interpreting skills (IS), and stakeholder-related factors (STA).

The results indicate that "lack of bilingual knowledge" which belongs to the category of "language knowledge" and "Deficit in domain-specific knowledge" which belongs to the category of "extra-linguistic knowledge" were cited by all participants (100%), followed by "Lack of language application capabilities" (87%) and "Deficit in general skills of interpretation" (87%). In contrast, factors such as "Deficit in interpretation technical skills" (27%) and "Other stakeholder related factors" (7%) were less frequently reported.

[4] There could be overlap among audience/speakers/evaluator/peers in different context. For example, in a student exam context, audience could be the evaluators at the same time, and audience could also be the peers simultaneously as well.

Stakeholder-related concerns, particularly evaluators (60%) and audience (60%), also emerged as notable sources of anxiety, while peers and speakers received lower mentions.

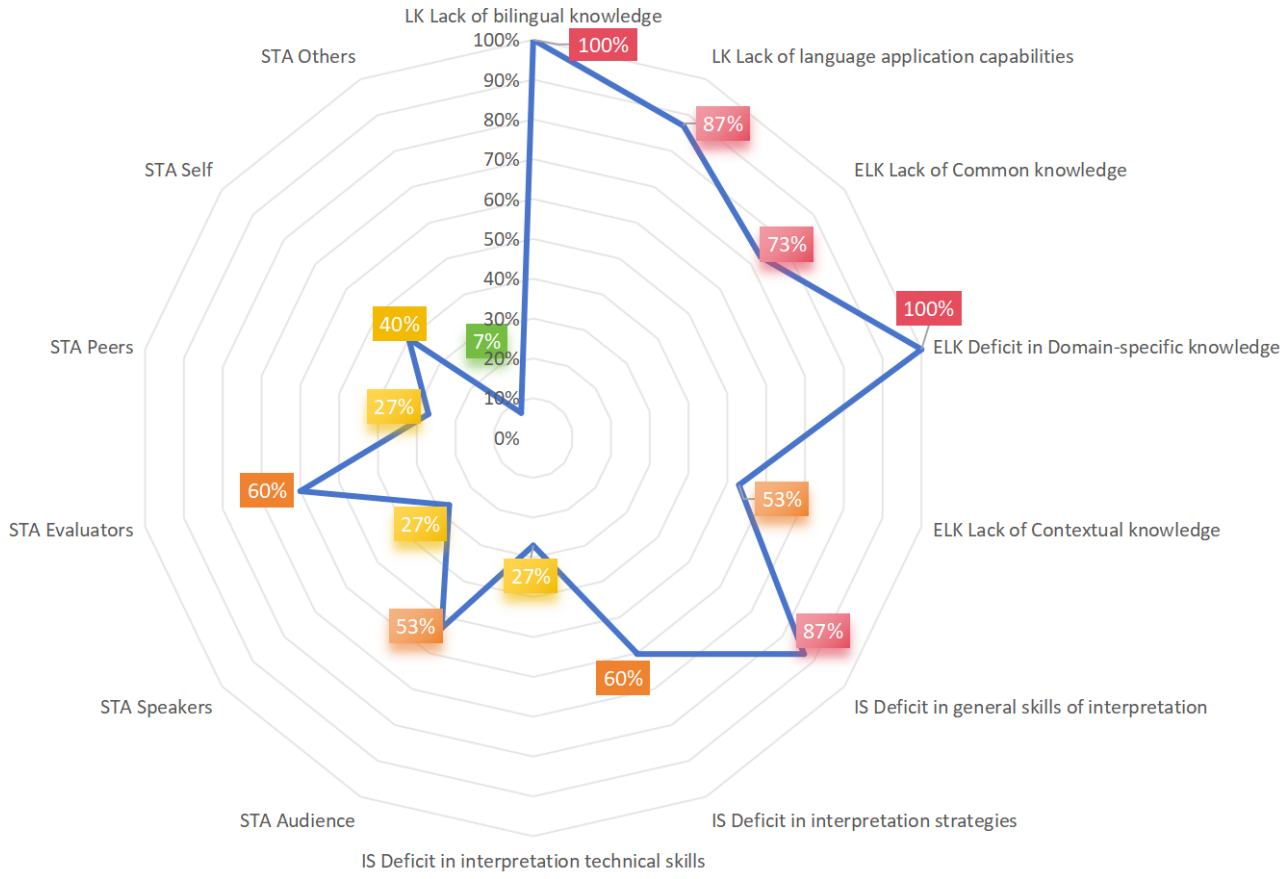


Figure 4. 2 Percentage of respondents mentioning each source factor in the interview

These findings underscore the prevalent roles of language knowledge deficiencies and extra-linguistic knowledge gaps in shaping interpreters' anxiety. However, it is acknowledged that the frequency of mentions does not equal to the importance or sensitivity of each factor in generating IA. This particular study, addressing Research Question 1, primarily explores these source factors and their categorisations. The ranking of each source category's importance in contributing to IA will be analysed in Study 3 of the thesis, addressing Research Questions 3 and 4 of the thesis research.

4.4.3 IA in pre-stage and while-stage

As discussed in Chapter two (see section 2.1.3), the scope of an interpreting task includes the pre-interpreting preparation stage and the stage where the interpreters are undergoing

the exact cognitive process of orally converting two languages, which are termed in this thesis as “pre-stage” and “while-stage” respectively. The findings of the interview show that IA exist in both pre- and while-stage of interpreting.

4.4.3.1 Pre-stage

In the pre-stage, IA factors such as unfamiliar topics, no materials to be provided, relatively lower level in second language proficiency, lack of practice, and not knowing how to prepare were pointed out by many interviewees. Metaphorically described by a professional interpreter in the interview, pre-stage was referred to as “washing clothes in a dark room”, and “you do not know how many clothes are still there, or whether the washed ones are clean or not” (Interviewee C3, professional interpreter). To put it in the context of interpreting, in the pre-stage, it is hard to know what still needs to be prepared and whether what has been prepared would be useful or not, bringing the interpreter a great amount of uncertainty and subsequent challenges in realising an adequate appraisal of the situation. Source factors for IA in pre-stage come from all four its categories.

4.4.3.2 While-stage

Interviewees gave many examples about the anxiety they experienced during performance of the interpreting process. Source reasons for anxiety in while-stage include: poor listening capabilities, deficit in interpreting note-taking abilities, lack of interpreting skills in dealing with ad-hoc issues, lack of domain-specific professional vocabulary, lack of domain-specific knowledge, worry of negative evaluation from teachers / peers / examiners / customers, etc. For example:

“I am anxious about the possible ad-hoc technical issues, cannot hear the speaker’s voice in a sudden for example, because I am not sure how to deal with such occasions when they happen” (Interviewee A5, novice interpreter).

Moreover, in contrast with professionals, novice and proficient interpreters are more likely to talk about IA they experienced in the while-stage. That is to say, interpreting students tend to have higher anxiety during the cognitive process of the interpreting.

4.4.3.3 Comparison of IA in different stages among three groups of interpreters

In the interview, each participant was asked to compare two stages in terms of the level

of IA involved and rank which stage contains more IA (See the interview guide in Table X). The novice group reported experiencing high levels of IA during both the pre-stage and while-stage, with IA appearing to be even higher during the while-stage. Specifically, three out of the five interviewees in this group ranked their while-stage IA as higher, while the other two believed that IA was equally high in both stages. For proficient group, both while-stage and pre-stage are associated with a high level of anxiety. In this 5-people group, two chose while-stage as the most anxious stage, whereas another two stated that the pre-stage usually sees most IA. The rest one interviewee asserted that her IA usually maintains at a high level in both pre- and while- stages, and such level is especially determined by the familiarity of the topic. For the professional interpreters, they experience most of the IA at the pre-stage, and they asserted that a kind of "flow mode" could be realised after a couple of minutes of interpreting process (Interviewee C2, professional interpreter; Interview C5, professional interpreter), in which they are extremely concentrated and almost feel no emotional distractions.

When considering all three groups together, it appears that IA is more commonly experienced during the pre-stage by interpreters in each group, but the rank of IA level in while-stage varies among three groups. However, it is important to note that the conclusions drawn are based on a limited number of interviewees. To further validate these findings, it may be necessary to include a larger number of participants or employ different research methods.

4.4.4 IA among interpreters of different professional levels

4.4.4.1 From the perspective of IA level

An observation in the interview is that generally the novice interpreters tended to report more IA whereas the professional group reported less IA. All novice interpreters stated that they experienced IA in almost every interpreting task, and the level of it depended on which specific source reason(s) were there. The flip side of this is that the professional group confirmed that they experienced low level of anxiety, or in some certain cases, almost no anxiety in while-stage. The findings can be supported by quotes from novice and professional interpreters in the interview. For example, "I can literally feel my face burning and heart beating when I got anxious in interpreting" (A4, novice interpreter). Similar descriptions can be observed among other novice interpreters. In contrast, interpreter (C3, professional interpreter) of the professional group asserted that "if it is a

very familiar topic and I got all the prepared materials, then I believe there is nothing to be worried about." Relatively less IA is reflected in other professional interpreters as well. Therefore, it is possible that overall IA level drops down while interpreters grow in their proficiency.

4.4.4.2 From the perspective of different IA sources

An analysis of word frequency in reported IA source factors indicates that words such as "interpreting", "topic", "skills", "anxiety", "experience", "listening", "familiar" and etc., were most frequently mentioned by interviewees, underscoring various sources of IA and their differences in potential significance of triggering anxiety. Table 4.4 presents the frequency counts for the top 20 mentioning words among all 15 interview participants.

Table 4. 4: Top 20 Word frequency counts

Rank	Word	Frequency counts
1	Interpreting	393
2	Topic	303
3	Skills	297
4	Anxiety	281
5	Experience	280
6	Listening	276
7	Familiar	267
8	Information	263
9	Practice	257
10	Speaker	250
11	English	245
12	Difficulty	241
13	Prepare	229
14	Worry	215
15	Materials	193
16	Language	193
17	Limited	187
18	Accent	185

19	Domain-specific	182
20	Formal	172

The above results are further visualised by a word could as shown in Figure 4.3 which highlights the source factors perceived by interviewees as anxiety-provoking in interpreting. In the word cloud, the salience of each factor, visually represented by font size, correlates with its frequency of mentioning in the interview. Words with larger font size demonstrate that factors such as topic familiarity, interpreting skills, experience, listening comprehension, availability of preparatory materials, English output, language competence, and speaker accent were frequently cited, suggesting their prominence as common triggers of IA.

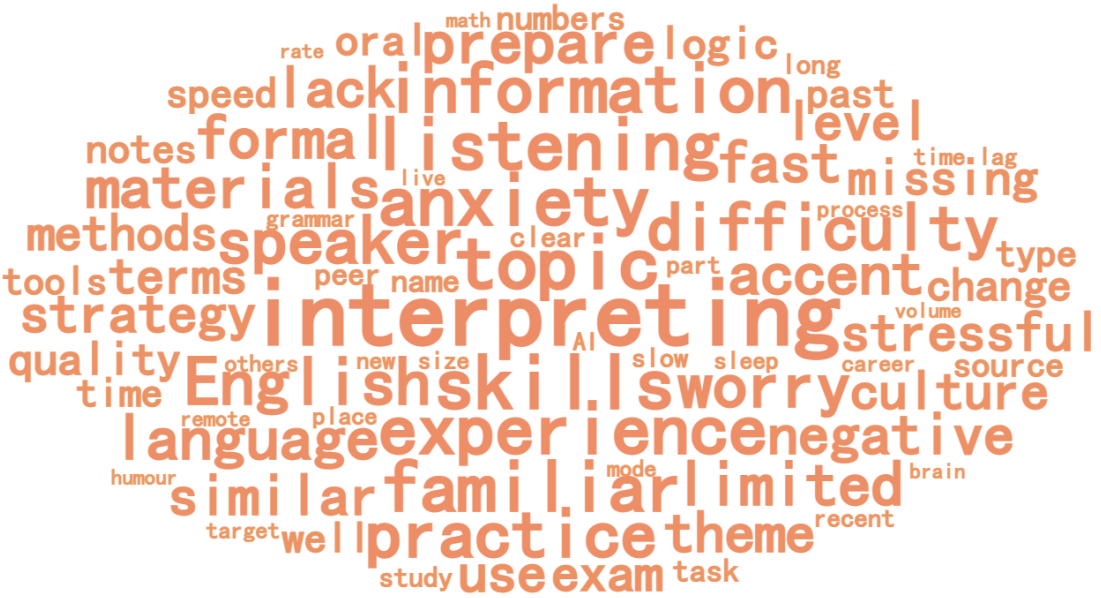


Figure 4. 3: Word cloud of IA source factors mentioned in the interview

In pre-stage, two main factors have been frequently highlighted by professional and proficient groups: whether preparatory materials were provided in advance and to what degree they were familiar with the topic. In contrast, for novice group, the formality of the task, such as an exam being a more formal context than regular classroom learning, is noted more often as a significant source of IA. Additionally, feedback-related factors,

including responses from audiences, speakers, examiners, teachers, and others, emerged as the second commonly listed IA source reason among novice interpreters.

In while-stage, the absence of effective note-taking skills has been cited most frequently by all five novice interpreters as a significant source of IA. They noted that deciding which symbols to use for representing specific meanings while simultaneously listening and taking notes consumes valuable time that should be dedicated to listening. Consequently, this distraction often results in missing subsequent information and significant memory lapses, causing considerable IA and sometimes not knowing how to proceed with interpretation. For the proficient group, the primary sources of anxiety as the interviewees discussed most include challenges with note-taking, listening comprehension, and dealing with overly technical terminology. In contrast, professional interpreters generally experience lower levels of IA during interpreting. However, they do report occasional anxiety when encountering speakers with strong accents (Interviewee C5, professional interpreter) or highly specialised topics which they may struggle to quickly find the appropriate words for when interpreting (Interviewee C4, professional interpreter). To be specific, quotations from interviewees are shown in the following:

"I remember it was a French speaker with a very very thick accent when speaking in English, and I almost cannot understand what he was saying, and you cannot imagine, I was so anxious at that time" (Interviewee C5, professional interpreter).

"… (that interpreting task) was about chemistry and several chemical elements, selenium for example, were mentioned. Those specialised terms were very alien to me and I had no time to check it up at the moment… and it gave me a great deal of anxiety at that moment" (Interviewee C4, professional interpreter).

4.4.4.3 From the perspective of IA duration

In addition to the levels and source factors, IA also differs in terms of its lasting time among three different groups. The observed trend is that, as interpreters develop their expertise, each occurrence of IA is likely to last for shorter time, and even can exist within a blink for professional interpreters.

To be specific, for novice interpreters, anxiety is an emotion that can last for a while and hard to control. Evidence can be seen from the quote of novice interpreter:

> When anxiety strikes, it often persists for quite a while. During this time, sometimes my mind can completely black out, unable to process any information, while at other times, a voice keeps echoing in my mind, "Oh my God, I'm so doomed, what can I do?" To make it worse, this ongoing anxiety, coupled with not knowing how to manage it, exacerbates the situation by generating even more anxiety. (Interviewee A2, novice interpreter)

Likewise, interviewee A1 and interviewee A3 also mentioned such lasting anxiety which sometimes can make them feel like giving up or starting over again. This aggravation effect is evidenced by Gong (2006) who describes such an "anxiety—mistake—anxiety" vicious cycle as a "snowball effect".

Proficient interpreters, however, reported less vicious cycle situation, as they agreed that they obtain some basic methods to deal with anxiety, for example, autosuggestion, deep breath, self-comforting, as well as certain interpreting techniques such as purposely stopping to attempt remembering previously missing information and concentrate on the upcoming information. According to interviewees in proficient group, this could greatly help alleviate the anxiety and therefore reduce the duration each time when IA occurs.

By contrast, professional interpreters describe most of their IA experience as something more like a "sudden stroke", especially in the while-stage, which comes quickly and leaves almost instantly too. This is because they master a great number of interpreting techniques which enable them to swiftly navigate through an automated or a semi-automated problem-solving process – selecting proper technique and quickly applying it. One example given by a professional interpreter is that:

> At the moment when I realise the number is extremely complicated and I did not manage to write down all its digits, I will feel anxious, but this will immediately pass away for I know how I can remedy the situation, to provide a round-off number for instance. (Interviewee C2, professional interpreter)

4.4.4.4 From the perspective of IA management

Interpreters are generally aware of IA when it arises, but their ability to manage it varies significantly by proficiency level. Novices often struggle to control their anxiety, proficient interpreters can manage it to some extent, while professionals typically report strong emotional regulation. This indicates that IA management improves with experience and expertise.

The range of coping strategies also expands with language competence and professional development. Novice interpreters tend to mostly rely on basic psychological techniques, such as self-suggestion, positive self-talk, or deep breathing. In contrast, proficient and professional interpreters combine these psychological techniques with other physical techniques and more interpreting strategies, including automation, synonymous fillers, strategic pausing, and slowing output, to maintain fluency under pressure.

To be specific, a novice interpreter (Interviewee A2) acknowledges feeling vulnerable to anxiety during performance:

> Anxiety can easily strike me while interpreting, but unfortunately, I don't have many particular measures to address it. Sometimes I just resort to deep breathing, or I keep telling myself: 'Calm down, calm down, calm down…' But it usually doesn't work very well.

Proficient interpreters begin to develop more structured self-regulatory techniques. One such interpreter (Interviewee B2) describes using positive self-talk to regain control:

> When anxiety strikes, I talk to myself things like: 'It's ok,' 'It's not the end of the world,' 'Stop thinking nonsense,' 'Focus! Focus!' And when I worry, I might not be capable of handling a task, I remind myself: 'Don't worry, the teacher gave me this assignment because they trust me and believe I can do it. They believe in me, so I have no reason not to believe in myself.'

Professional interpreters, drawing on experience, employ more interpreting skills and strategic techniques. One professional (Interviewee C5) shares some practical copings methods:

> There are certain techniques to relax myself, like using ‘good fillers’: synonyms to rephrase meaning, which buys me time to memorize information or organize my sentence. Or I just pause, regroup, and focus. That works too.

These accounts illustrate a developmental trajectory, from limited, often ineffective coping attempts among novices, to more deliberate psychological and professional strategies among experienced interpreters. Such greater strategic flexibility in managing IA among professionals is likely to stem from their broader skill set and accumulated experience, particularly in handling high-pressure situations (Interviewee C2, professional interpreter). Consequently, they not only manage IA more effectively but also experience shorter anxiety episodes. Efficient IA control reduces cognitive load, supporting the “coordination” mechanism, a central executive function in interpreting (Gile, 2009) likened to an “air-traffic controller” (Vita, 2014), and freeing up more cognitive resources for core interpreting components.

While these findings, based on 15 interviewees, reveal a clear link between proficiency level and IA management, further research with larger samples is needed to strengthen the generalizability of the results.

4.4.5 Summary

To sum up, in exploring IA sources, Grounded Theory and interview methods are applied in collecting and analysing the data. The most essential finding is the three-tier framework of IA source categories and factors which identifies four major categories for IA sources, namely: Language knowledge, extra-linguistic knowledge, interpreting skills, and stakeholder factors. Additionally, interview results also show that IA commonly existed among interpreters, including novice, proficient, and professional interpreters. However, IA in terms of different stages of interpreting task as well as interpreters with different proficiency and expertise may vary. To be specific, one observed trend is that IA remains high in the pre-stage of interpreting for all three groups of interpreters whereas that in the while-stage for professional interpreters becomes lower. Also, professional interpreters generally reported lower IA and shorter IA as well as more effective IA management measures than novice interpreters.

Meanwhile, it is noted that the number of participants may not be enough if more generalised conclusions need to be reached. Having said that, the interview results are still valuable in constructing the theoretical framework and making hypotheses for further examination. In the next Chapter, the interview results, particularly the categorisation of IA sources, are applied in developing the IA Source Model (IASM).

Chapter 5 Developing Interpreting Anxiety Sources Model

This chapter aims to address the second research question: How does interpreting anxiety (IA) come about? Specifically, it explores the mechanisms through which various source factors contribute to IA. To investigate this, an Interpreting Anxiety Source Model (IASM) is proposed, integrating foundational anxiety theories and constructs of interpreting competence from existing literature. The model's validity is tested using data from existing literature, previous interviews (detailed in Chapter 4) and questionnaires (presented in Chapter 7).

The chapter is organised into four sections. Section 5.1 provides a recap of the theoretical framework of the IASM (for a detailed discussion, see methodology in Chapter 3). In Section 5.2, the construction of the IASM is illustrated, and the mechanism through which IA is generated is explained in details. It is acknowledged that, up until now, the IASM has only been theoretically developed, making it crucial to validate the model with empirical data. Consequently, Section 5.3 introduces key hypotheses to validate the IASM and tests these hypotheses using data from existing theories and empirical data from previous interview. Section 5.4 is the summary of this chapter.

5.1 Theoretical framework of IA Source Model

The IASM is mainly grounded in three foundational theories: Spielberger's State-Trait Anxiety Theory (1966) which outlines the mechanism and core components for anxiety production, Lazarus and Folkman’s Cognitive Appraisal Theory (1984) which discloses the procedures of anxiety appraisal, and the concept of Self-efficacy (Bandura, 1986) which is identified as a crucial element in determining anxiety evaluation. This section provides a recap of the foundational theories that inform the development of the IASM, and for more detailed information of the foundational theories, it can refer to Section 2.2.2 in literature review.

In line with the logic flow of the abovementioned three foundational theories, the theoretical framework is reviewed from three aspects: (1) what is the anxiety producing mechanism: this involves understanding how anxiety is produced from stimuli; (2) how it is appraised in the anxiety production mechanism: Investigating the key processes by

which individuals evaluate the elements in cognitive appraisal in anxiety production mechanism; and (3) what is appraised in the anxiety production mechanism: Identifying the specific elements that are subject to cognitive appraisal in the anxiety production mechanism.

5.1.1 Anxiety producing mechanism

Informed by Spielberger's (1966) State-Trait Anxiety Theory discussed in Chapters 2 and 3, the mechanism for generating anxiety involves four key stages: 1) stimulus identification, 2) cognitive appraisal, 3) activation of state anxiety and defence mechanisms, and 4) alteration of IA in secondary appraisal.

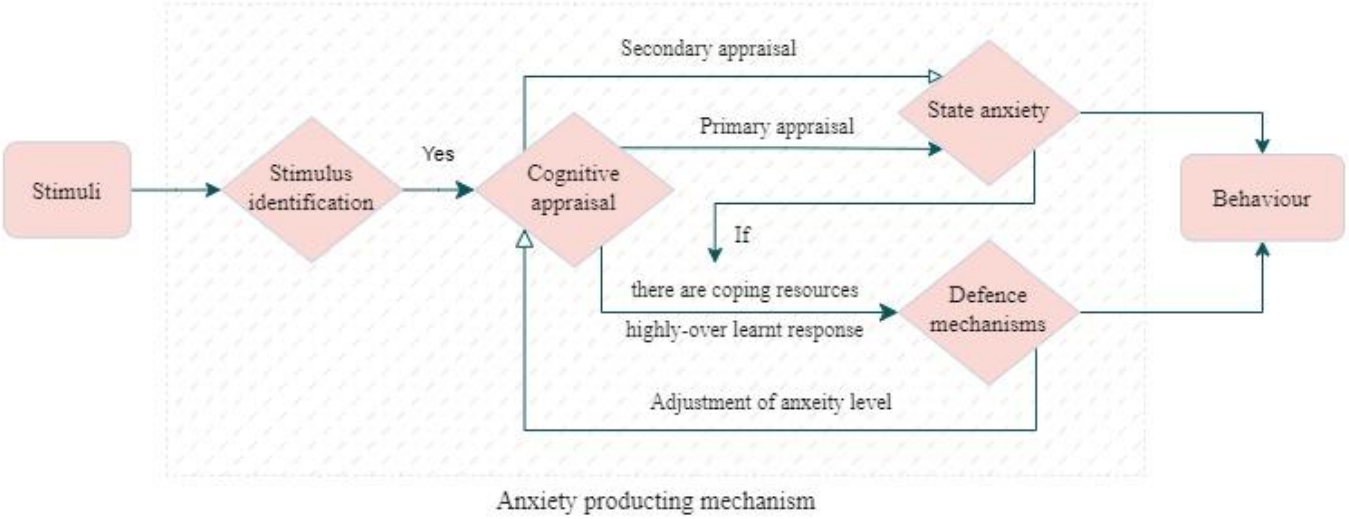


Figure 5. 1: Anxiety-state producing mechanism (adapted from Spielberger, 1966)

Initially, specific anxiety stimuli are identified. These stimuli then undergo a cognitive appraisal process where they are subjectively evaluated to determine if they are perceived as threatening (Beck et al, 1979). If a stimulus is deemed threatening and there is no automatic response available to address it, state anxiety is promptly activated, accompanied by the arousal of the autonomic nervous system, leading to anxious behaviours. Conversely, if the stimulus is considered non-threatening or if highly overlearned responses exist which can form defence mechanisms to effectively counteract the anxious feelings, state anxiety will either not occur or manifest at a low level.

In cases where defence mechanisms are activated, such mechanism engages feedback loops that facilitate a re-appraisal of the situation (Spielberger, 1966). This renewed appraisal can initiate another cycle of evaluation. Through successive iterations of this cycle, if defence mechanisms are effective, state anxiety can be progressively adjusted and reduced to a level beneath conscious awareness. Consequently, an individual's behaviour is also influenced, adapting in response to the managed levels of anxiety.

5.1.2 How it is appraised in the anxiety production mechanism

In understanding the above mechanism of how state anxiety is produced, it is clear that the cognitive appraisal process is central to the mechanism. The key question is how such a cognitive appraisal process works?

The cognitive appraisal process has been comprehensively elucidated within Lazarus and Folkman's (1984) theoretical framework on cognitive appraisal and coping. Cognitive appraisal includes two processes: primary appraisal and secondary appraisal (or reappraisal). Primary appraisal evaluates whether one is in trouble or benefiting from a situation, and the degree of stress and emotional reaction is mainly based on what is at stake in the interaction. Secondary appraisal relates to coping options and focuses on available resources and coping strategies (Lazarus & Folkman, 1984).

Featuring two types of appraisals which operate in a cycle, the entire appraisal process within the anxiety producing mechanism is also dynamic and cyclical, and such dynamism is supported by all three foundational theories. Spielberger's State-Trait Anxiety Theory (1966) emphasises a feedback mechanism where initial appraisal results, such as activation of defence mechanisms, update the person-situation interaction and therefore lead to subsequent appraisals. Lazarus and Folkman (1984) distinguish between primary and secondary appraisals where the former concerns the current state of person-situation interaction and the latter concerns whether there are available resources to address it. Similarly, Self-Efficacy Theory (Bandura, 1986) indicates that self-efficacy influences emotions like anxiety, which can, in turn, affect self-efficacy through physiological and emotional states.

5.1.3 What is appraised in the cognitive appraisal process

In understanding the anxiety producing mechanism, another key issue is what is exactly

to be appraised in the cognitive appraisal process. Existing literature supports that both internal and external factors are involved in the cognitive appraisal process (Kaplan, 1996). These categories of factors also align well with the internal and external factors described in Spielberger's (1966) State-Trait Anxiety Theory. For example, identified by Lazarus and Folkman (1984), commitments and beliefs are two main personal factors affecting anxiety cognitive appraisal, and situational factors, on the other hand, are associated with environmental elements such as ambiguity, novelty and uncertainty of the task.

Those factors shape a particular person-situation interaction which influences the mediating process of cognitive appraisal as well as the subsequent coping responses (Karademas & Kalantzi-Azizi, 2004). To address the appraisal of such person-situation interaction, more emphasis has been put on the significant role played by self-efficacy (Karademas & Kalantzi-Azizi, 2004). Conceptualised by Bandura (1986), self-efficacy refers to an individual's belief in their ability to achieve specific performance outcomes. It encompasses the assessment of one's ability to respond effectively to prospective situations involving ambiguous, unpredictable, and stressful elements, as well as the execution of behaviours necessary to cope with them (Bandura, 1997; O'Leary, 1992). Self-efficacy expectations are believed to be one of the most important factors in regulating human's behaviours (Bandura et al, 1985).

Specifically, during the cognitive appraisal process, if individuals believe their capabilities over a certain aspect do not meet the task requirements, anxiety could be triggered (Lazarus, 1991b). Thus, the appraisal process involves comparing one's perceived capability against the demands of the task, with self-efficacy serving as a measure in this cognitive assessment. With respect to stress and anxiety, it is mainly the perceived inefficacy that makes the person judge a situation as stressful (Bandura et al, 1985). To contrast, high self-efficacy usually indicates a low perception of threat to a certain stimulus in the cognitive appraisal process, thus leading to a lower level of anxiety in this context (Karademas & Kalantzi-Azizi, 2004).

To summarise, the theoretical framework provides a mechanism through which anxiety is produced. A central component of this mechanism is cognitive appraisal, which involves evaluating one's perceived capability to effectively manage a certain task, or the

self-efficacy, within a particular person-situation interaction. This appraisal process consists of two stages: primary appraisal and secondary appraisals, which determines whether anxiety is activated and considers the available coping resources respectively. After primary appraisal, if coping resources, such as highly overlearned responses, are available, defence mechanisms are aroused, which in turn update the person-situation interaction and trigger the secondary appraisal. Through the secondary appraisal, defence mechanisms play the role of adjusting and reducing anxiety level.

5.2 Developing Interpreting Anxiety Source Model (IASM)

Informed by the foundational theories reviewed in the previous section, this section develops a model of IA sources (IASM) to address the issue of how interpreting anxiety (IA) is produced. To achieve this, the study adapts the aforementioned theoretical framework specifically to the domain of interpreting, integrated with research results from both literature review and interview which offer insights on specific categories of interpreting competence and interpreting anxiety sources. This section illustrates the IASM by visualising the underlying logic and the pathways of the model first, offering the logic framework, and then providing the flow graph of the model to explain it from each of its four key stages.

Figure 5.2 illustrates the underlying logic and the pathways of IA producing mechanisms and clarifies its four stages: stimulus recognition, cognitive appraisal, defensive mechanisms, and reappraisal process. These stages are visually represented in blue rectangles to highlight their central role in the IA generation process.

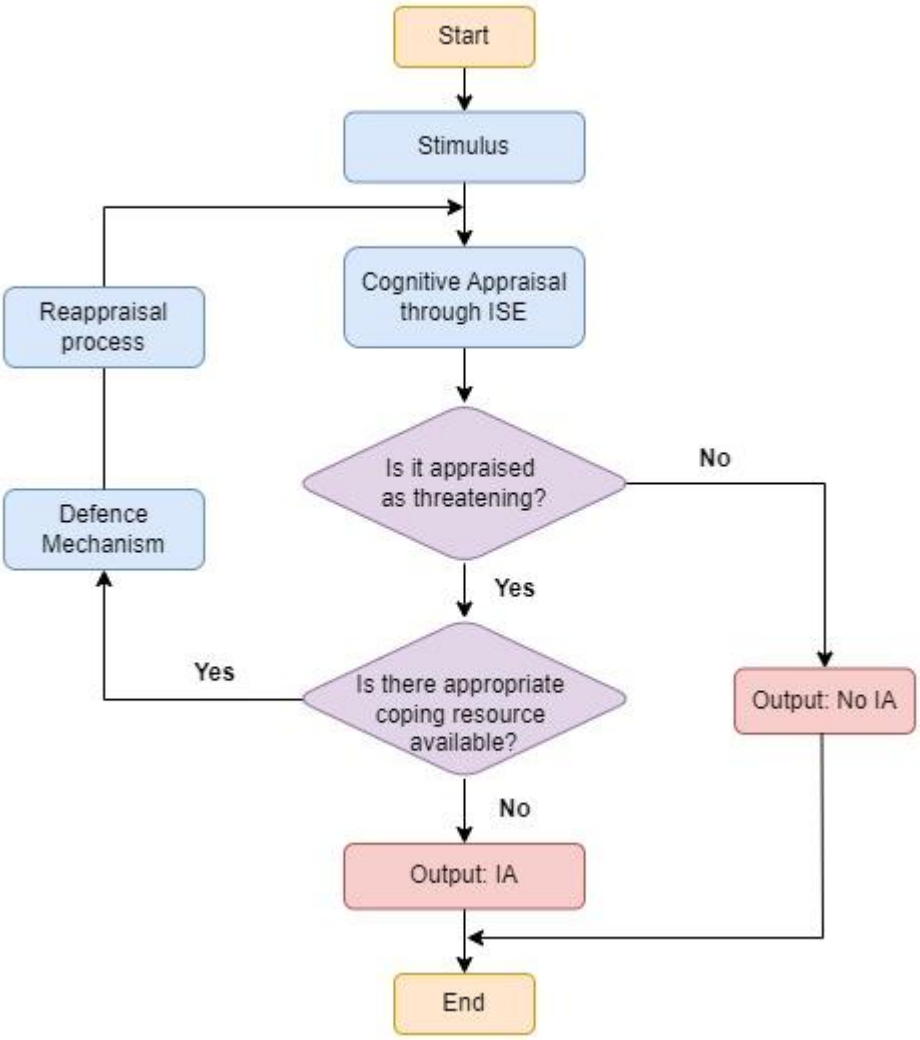


Figure 5. 2: Logic flow and pathways of the IASM

The logic flow of the IASM goes in line with the logic framework of the state anxiety producing mechanisms provided in Figure 5.1. As shown in Figure 5.2, within the logic flow of how IA is produced and adjusted, two critical cognitive decisions determine the trajectory of IA. The first involves assessing whether the perceived interpreting self-efficacy (ISE) is sufficient to handle the identified stimulus. If the individual judges their competence inadequate, the stimulus is appraised as threatening, thereby triggering IA. There is no IA in output if no threat is perceived. The second cognitive decision concerns the availability of appropriate coping resources. If such resources exist, defence mechanisms are activated, initiating a reappraisal process. This cycle of reappraisal may repeat iteratively until IA is reduced or resolved, otherwise it keeps a state of ongoing anxiety.

The Interpreting Anxiety Source Model (IASM) is developed with the above logic flow which is consistent with its theoretical framework. Figure 5.3 exhibits the IASM.

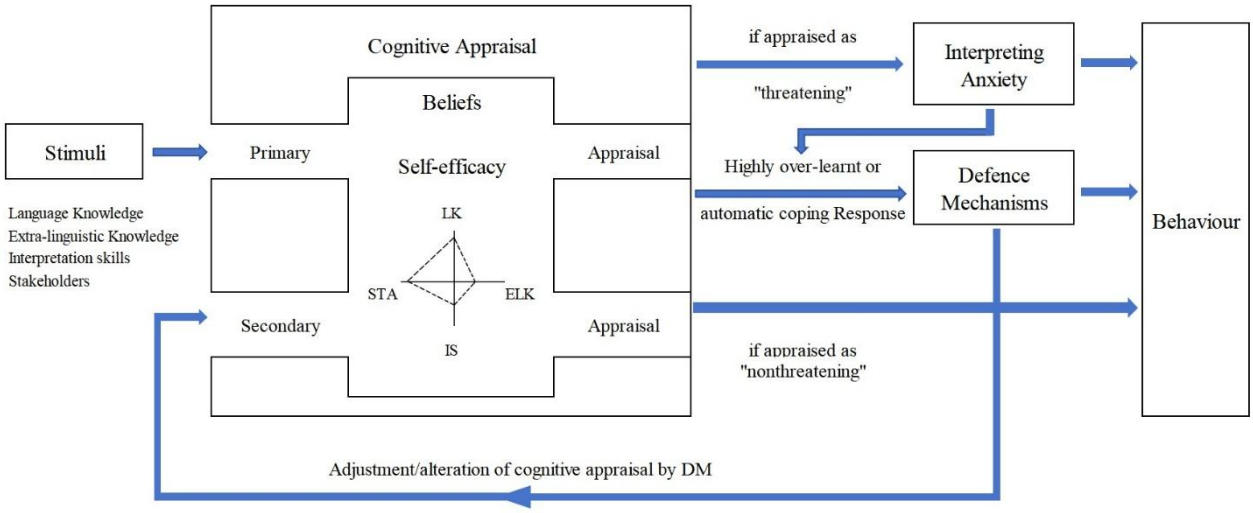


Figure 5. 3: Interpreting Anxiety Source Model (IASM)

In the Interpreting Anxiety Source Model (IASM), when a specific IA stimulus is detected, it enters a cognitive appraisal process. During this stage, the stimulus is subjectively evaluated based on perceived self-efficacy, determining whether it is interpreted as threatening or non-threatening. If the stimulus is appraised as threatening and there is no well-practiced or automatic response available to manage it, IA is triggered immediately. This response is accompanied by activation of the autonomic nervous system, which may subsequently give rise to observable anxious behaviours, such as trembling, sign, sweaty hands, etc. Conversely, if the stimulus is perceived as non-threatening, no significant state anxiety is expected to occur. In cases where IA persists after the initial cognitive appraisal, two potential pathways emerge. On one hand, if the individual possesses appropriate overlearned or automatic coping strategies, the defence mechanisms can be activated to counter the anxiety. Such mechanisms initiate a reappraisal process, during which the updated person–situation interaction is reassessed. This iterative cycle of reappraisal may repeat multiple times, potentially leading to a gradual reduction in anxiety levels. On the other hand, in the absence of adequate coping resources, IA is likely to remain at a high intensity without significant alleviation.

The following section illustrates in detail the four key stages of the IASM: (1) stimuli factors as IA trigger, (2) ISE as mediator in cognitive appraisal of IA, (3) Coping resources as the activator of IA defence mechanisms, and (4) reappraisal process as IA coordinator.

5.2.1 Stimuli factors as IA trigger

Guided by the aforementioned theoretical framework, the initial stage in IA production involves the identification of specific stressors, encompassing both internal and external factors as previously discussed. The sources of IA identified through the interview findings presented in Chapter 4 can be categorised as stimulus factors within the Interpreting Anxiety Source Model (IASM). Based on the interview results in Chapter 4, the primary sources of IA can be classified into four distinct categories: 1) language knowledge, 2) extra-linguistic knowledge, 3) interpreting skills, and 4) stakeholder-related factors. The first three categories are considered internal factors, as they pertain to the interpreter's own competencies and knowledge. The fourth category constitutes external factors, as it is linked to contextual and situational elements, including the scale and formality of the interpreting event, the characteristics of speakers and audience members, as well as the influence of employers, examiners, peers, colleagues, and other environmental elements.

The variables within these four dimensions serve as the stressor that trigger the IA producing mechanism experienced in completing an interpreting task. Considering the complexity of the interpretation task in real world, it is likely that multiple factors or dimensions are encountered simultaneously within a single interpretation task. Consequently, IA could be triggered by multiple source factors at one time.

However, it is important to clarify that the overall IA is not a simple aggregation of IA from different sources, as there is no evidence to suggest that stimuli from different dimensions exert equal influence on the generation of IA. Instead, interviews (see Chapter 4) reveal that interpreters at different proficiency levels exhibit varying degrees of sensitivity to these variables. For example, certain factors may induce significant anxiety in one group of interpreters but may not be perceived as equally daunting by another group. Therefore, whether a particular stressor ultimately results in IA, and the degree of such anxiety, depends on individual’s cognitive appraisal, which is explained in the next

part.

5.2.2 Interpreting self-efficacy as mediator in cognitive appraisal of IA

To move to the cognitive appraisal section of the IASM, the stimuli are assessed by individuals in terms of whether they have sufficient competence and coping strategies to complete a given interpreting task. If the appraisal indicates an unfavourable and even a threatening result and there are no sufficient immediate coping strategies, the state anxiety is activated.

In this cognitive appraisal process, as discussed in the above theoretical framework, self-efficacy plays the role of the mediator in such appraisal. Moreover, self-efficacy is dynamic over time and domain-specific (Bandura, 2006; Schunk & DiBenedetto, 2016). Task-specific self-efficacy pertains to distinct constructs (Stajkovic & Luthans, 1998) and reflects one's perceived confidence on his or her capabilities in completing a certain task within a specific domain. In the context of interpreting, this translates into interpreting anxiety (IA) and interpreting self-efficacy (ISE). Therefore, cognitive appraisal process in interpreting context focuses on ISE rather than general self-efficacy.

Adapted from the definition of self-efficacy (Bandura, 1986), ISE refers to an individual's belief in their interpreting competence to achieve specific performance outcomes in an interpreting task. When self-efficacy is defined specifically as interpreting self-efficacy (ISE), it is important to investigate the domain-specific construct of ISE. As shown in the above anxiety producing mechanism, both internal and external factors are evaluated. The following part illustrates in detail the internal and external factors constructing ISE.

5.2.2.1 ISE construct – internal factors

The construct of internal factors, in the interpreting context, relates to the interpreting competence construct, as the appraisal process involves the evaluation of one's own interpreting capabilities.

By reviewing key interpreting competences in Chapter two (see section 2.1.4), there are three commonly agreed major interpreting competences: 1) language knowledge, 2) extra-linguistic knowledge, and 3) interpreting skills. This is evidenced by the equation proposed by Gile (1995) "C=KL + ELK + A", in which KL refers to knowledge of

language, ELK refers to Extra-linguistic knowledge, and A refers to interpreting analysis. This conclusion is also supported by Zhong (2003) in his equation of interpreter's required competence KI = KL+EK+S(P+AP). In this equation, KL stands for knowledge for language, EK stands for encyclopaedic knowledge, and S refers to skills which include professional interpreting skills (P) and artistic presentation skills (AP).

To be specific, in regards to language competence, the interpreter needs to have an in-depth knowledge, such as phonetics, semantics, morphology, and syntax, and understanding of their working languages, so as to comprehend the source language and apply knowledge to swiftly transform the message from the source language to the target language.

Extra-linguistic knowledge includes encyclopaedia-like knowledge, professional knowledge and contextual knowledge, referring to common knowledge, professional terms and expressions of a specialised field, and knowledge about the background of speakers and audiences, speech context and working environment respectively (Wang, 2006).

Interpreting skills is another widely-recognised crucial pillar for constructing interpreting competence. It includes three main components: (1) skills, including interpreting -specific skills such as note-taking skills (Wang & Jia, 2023) and interpreting-general skills such as artistic presentation skills (Zhong, 2003). (2) strategies, which refer to deliberate approaches employed to prevent or address potential issues in interpretation (Bartłomiejczyk, 2006), for instance, anticipating, summarising, paraphrasing, etc. (3) Techniques, for example, ability to use computer-aid translation and information searching tools (Li and Li, 2019), etc. More details regarding interpreting competencies can be found in Section 2.1.4.

5.2.2.2 ISE construct – external factors

External factors, on the other hand, relate to situational and interpersonal elements. In the interpreting context, characteristics of the stakeholders and events, for instance, the formality of the occasion, size of the audience, and the stakes involved (e.g., legal proceedings, medical emergencies) can impact anxiety and lead to ethical stress to interpreters (Hubscher-Davidson, 2020). Also, interactions with various stakeholders

including speakers, audience, employers, examiners, peer learners, colleagues, and others could possibly influence the interpreter's emotional state and performance. For example, unfamiliarity with the speaker's speaking style can challenge the interpreter's ability to accurately convey messages (Pöchhacker, 2016). The reactions and behaviour of the audience can influence the interpreter's confidence and performance. Negative feedback or lack of engagement can increase stress levels and affect interpretation quality (Moser-Mercer, 2003)

In summary, the above-discussed ISE construct which contains 4 dimensions including both internal and external factors is presented in the following table.

Table 5.1: Interpreting self-efficacy construct

Dimension	Sub-category	Examples
Language knowledge	Bilingual/multilingual knowledge	Phonetics, semantics, morphology, syntax of the working languages
	Language application ability	Ability to correctly use the language, ability to swiftly convert between two working languages
Extra-linguistic knowledge	General knowledge	Encyclopaedic knowledge
	Domain-specific knowledge	Professional knowledge that relates to the specific domain of the interpreting task
	Contextual knowledge	Knowledge about the interpreting task background, schedule, and speaker's background information
Interpreting skills	Interpreting-specific skills	Note-taking, multi-tasking, and attention allocation skills
	Interpreting-general skills	Cross-cultural communication skill, public presentation skill, and stress-resilience skill
	strategies	Such as Paraphrasing, chunking, anticipating, inferring, synonymy expression, summarising, etc., in interpreting
	Techniques	Skills to quickly search for relevant information,

		ability to use corpus, computer-aid interpreting tools, ability to use interpreting equipment
External / situational viables	Stakeholders and Interpersonal factors	formality of the occasion, size of the audience, stakes involved, response from audience, familiarity with speakers, etc.

It can be seen from the table that the four dimensions constructing ISE overlap with the source categories of IA (see Section 4.4.2). This alignment is consistent with the intrinsic logic of the cognitive appraisal in the IASM. Specifically, anxiety from one dimension may emerge when interpreters perceive their competence in that particular aspect as insufficient to meet the demands of a given interpreting task. For example, if interpreters lack bilingual knowledge and are not familiar with a certain accent, they may perceive their proficiency as inadequate for comprehending the source language fully, particularly when confronted with a strong accent during the interpreting task. Consequently, this perceived deficiency can lead to anxiety specifically related to inadequate bilingual knowledge.

Given that the cognitive appraisal is carried out on different dimensions of the ISE construct, instead of looking at IA as a whole as in much of the other existing research (e.g., Zhu, 2022; Xu & Li, 2016; Li & Dong, 2020; Arnáiz Castro & Pérez-Luzardo, 2016, etc.), the IASM enables the researcher to investigate IA segmentation and its level from different source dimensions. Moreover, to measure IA induced by different source factors also helps better understand how IA source factors vary among interpreters across different level of proficiency and therefore provide more targeted suggestions to interpreting education.

5.2.3 Coping resources as the activator of IA defence mechanisms

Moving on to the next section, another crucial component of the IASM is IA defence mechanisms. As seen from the IASM chart, there are three main results after cognitive appraisal. If the stimulus is assessed as “non-threatening”, IA is not aroused over this particular stimulus. If, however, the stimulus is perceived as “threatening”, IA is immediately triggered, which also leads to subsequent anxiety behaviour response. In the

case that the needed coping resources are available, IA may prompt the individual's defence mechanisms. Such responses are usually those highly over-learnt effective coping strategies in interpretation, or even automatic reactions in some cases (Liang, 2021; Kurz, 2003). While in the process of interpreting, when quick reactions are needed, such highly over-learnt coping methods or automatic reactions can help activate IA defence mechanisms, which play a coordinating role in IA adjustment in next stage.

IASM applies to different stages of interpreting

Considering the time span for gathering the needed coping resources and adapting to situational changes during an interpreting task, the IASM suggests that IA levels can fluctuate across different stages: such as pre-stage and while-stage of the task.

Specifically, in the pre-stage of interpreting, cognitive appraisal involves evaluating not only the current situation but also anticipated challenges of the upcoming task. This stage often involves uncertainty, complicating predictions (Lazarus, 1991a). For example, if informed that the upcoming task covers a professional and unfamiliar topic, interpreters assess their vocabulary and domain-specific knowledge against expected demands. During this phase, there is more time to collect the necessary coping resources, for instance, the interpreter could have time to search for domain-related information and contextual knowledge, thereby accumulating more coping resources, reducing IA through enhanced preparation.

Conversely, IA is more sensitive in the while-stage due to higher cognitive loads (Gile, 1995) and the need for real-time responses. Unlike the pre-stage, the while-stage allows little room for revisions or corrections, limiting coping strategies. For instance, in the while-stage, if the interpreter realises that he or she has made a mistake in the just-interpreted words, restarting over again might not be a proper and effective coping strategy, though it could be an option in preparation. Consequently, differences in IA levels among interpreters become more pronounced during while-stage, especially for novices lacking rapid-response coping strategies. These individuals may experience prolonged IA due to difficulties in activating effective defence mechanisms under time pressure.

5.2.4 Reappraisal process as IA coordinator

Follow the same logic of the theoretical framework, the last stage of the IASM is the reappraisal (or secondary appraisal) process. The reappraisal process is initiated when coping resources are available and defence mechanisms are activated. The updated factors as the result of renewed person-situation interaction are brought into another round or secondary appraisal and lead to adjusted appraisal results. Informed by aforementioned foundational theories (see Section 2.2.2 and Section 5.1), defence mechanisms facilitate the reduction of IA level. Outcomes of defence mechanisms feed back into the reappraisal process which serves as the IA coordinator, allowing for ongoing adjustments/reduction of IA in how the renewed situation is appraised and managed.

Instantaneous interpreting anxiety

Indicated by the IASM, initiating the reappraisal process can effectively alleviate IA and therefore shorten the duration of IA. This is because, when coping resources, such as over-practiced or automated responses, are readily available, they swiftly activate defence mechanisms, leading to rapid reduction or even instantaneous dissipation of IA.

This study introduces the concept of "Instantaneous Interpreting Anxiety" to describe the phenomenon of brief or almost immediate episodes of IA. Such phenomenon predominantly occurs among highly proficient interpreters as the result of rapidly activated defence mechanisms and the reappraisal process.

This notion is supported by both theoretical and empirical evidence. The theoretical underpinning of this concept aligns with Gile's Effort Model (2009) which captures the cognitive process of interpreting. Coping resources such as automation minimise cognitive load, and the quick activation of defence mechanisms free up cognitive resources for other tasks, allowing seasoned interpreters to handle the interpreting process more efficiently and therefore experience less anxiety. Empirical evidence from previous interviews (see Chapter 4) supports this notion as well. Four out of five professional interpreters as well as one from the group of proficient interpreters reported experiencing instantaneous IA that peaks and dissipates rapidly, likening it to "a flip" or "the heart skipping a beat." An example provided in the interview describes such phenomenon when a technical problem occurred while interpreting, but IA level quickly reduces when the interpreter believes they know how to address the ad-hoc issue. Notably, in the interview,

novice interpreters did not report such instant IA; instead, their anxiety persisted longer, sometimes throughout the entire interpreting task.

5.3 IASM hypotheses and validation

It is acknowledged that, up until now, the IASM has only been theoretically developed, and therefore it is essential to validate the model with more data. In this section, two major hypotheses for validating the IASM are put forward, with one focus on the primary cognitive appraisal and the other based on defence mechanisms and secondary appraisal. The two hypotheses are tested through existing literature and the findings of the previous interview.

5.3.1 Hypothesis 1: IA level is negatively correlated with ISE level.

It is hypothesised that IA and ISE are negatively correlated, under which condition the cognitive appraisal process can be carried out as the IASM describes. To be specific, through the IA producing mechanism, when stimuli are identified, they trigger the cognitive appraisal process where each stimulus is assessed based on the interpreter's perceived capability in relevant dimensions. For instance, if ISE is high in a certain dimension, it means the interpreter has a high belief in their own capability in this dimension relative to the capability needed for completing the task, leading to a nonthreatening primary appraisal result and consequently lower or no IA.

This hypothesis applies across different dimensions of ISE. According to the ISE construct established above in this research, ISE can be categorised into four dimensions: language knowledge, extra-linguistic knowledge, interpreting skills, and stakeholder factors. Each dimension should exhibit a negative correlation between ISE and IA, meaning higher ISE in a given dimension is associated with lower IA in that specific aspect. Furthermore, such ISE-IA correlation is bidirectional and the two variables are closely intertwined. According to the IASM, ISE correlates with IA through primary cognitive appraisal, and, conversely, IA could also possibly relate to ISE through secondary appraisal process.

The theoretical logic of the IASM resonates with the results of many empirical studies that research the relationship between ISE and IA. For example, Chiang (2006) argues that “low self-confidence” contributes to IA. Likewise, Jiménez Ivars and Pinazo

Calatayud (2001) prove that interpreting learners with lower self-efficacy in public speaking tend to have higher levels of IA. This negative correlation between ISE and IA has been evidenced by other empirical studies (e.g., Yu, 2022; Gong, 2020; Mei, 2019; Arnaiz-Castro & Pérez-Luzardo Díaz, 2016, etc) as well.

5.3.2 Hypothesis 2: Interpreters with higher proficiency tend to have lower IA

The second hypothesis posits that highly proficient interpreters tend to experience lower levels of IA. This hypothesis focuses on the availability of coping resources and the secondary appraisal process, comparing interpreters of varying proficiency levels. Experienced interpreters typically have access to a broader range of interpreting strategies and coping mechanisms, including over-learnt or automated responses. These resources are crucial for activating defence mechanisms, which helps mitigate IA during the secondary appraisal process. In contrast, novice interpreters often lack sufficient coping resources, making it difficult to activate their defence mechanisms effectively. Consequently, once IA is triggered, it tends to persist at higher levels due to the absence of effective strategies and subsequent defence mechanisms.

Theoretically, this hypothesis is supported by Bandura's Self-Efficacy Theory (1980), which identifies four sources of information – mastery experience, vicarious experience, verbal persuasion, and physiological and emotional states – that individuals use to assess their self-efficacy. For instance, more past successful experiences of performing the interpreting task help the interpreter give a higher and more accurate evaluation of ISE.

Empirically, this hypothesis is corroborated by prior studies and interview findings from Chapter 4 of this thesis. For example, Arnáiz Castro and Pérez-Luzardo (2016) observed that interpreting trainees with higher proficiency experienced lower anxiety levels and vice versa, while Zhao et al. (2023) noted that lower proficiency, marked by more lexical and syntactic errors, was associated with increased anxiety. Additionally, interviews further support this argument: professional interpreters reported reduced IA when they knew how to address the issue, exemplified by one professional interpreter who mentioned calmness was maintained during technical ad-hoc difficulties due to previous experience, compared to a novice interpreter who very anxious and did not know what to do in a similar situation.

Regarding the above two important hypotheses, however, it is acknowledged that the above relevant empirical studies generally only discuss the overall ISE and IA, and the correlations of different specific dimensions between ISE and IA has not been examined yet. Given the IASM proposed in this thesis, more quantitative data with a larger base of participants is needed in order to test the hypotheses and therefore validate the IASM in a more comprehensive way. The further test of IASM is conducted in Study 3 in Chapter 7 (See Section 7.7)

5.4 Summary

Informed by foundational theories, this study establishes the IASM to explain the source and the mechanism through which IA is produced and adjusted. According to the IASM, stimuli factors play the role of IA trigger, and once they are identified, stimuli are evaluated through the cognitive appraisal process through which ISE serves as the mediator. If a certain stimulus is appraised as "threatening", anxiety is aroused as the consequence. However, appropriate interpreting strategies and coping resources can help activates IA defence mechanisms which alleviate the IA level via secondary appraisal with updated person-situation interaction.

This Model applies broadly across interpreters' proficiency levels and interpreting stages, as it explains their distinctions logically. "Instantaneous Interpreting Anxiety", an original concept derived from this Model, has also been proposed. More importantly, instead of looking at ISE and IA as a whole, the IASM provides a more in-depth perspective to view ISE and IA by investigating their relationship from different dimensions.

To validate the Model, two hypotheses related to primary and secondary appraisal processes were tested using interview data in this research and existing literature, confirming its alignment with prior studies. To further test hypotheses and validate the IASM, additional quantitative data are collected in the following study.

Last but not least, though IA varies among different stages of the interpreting task, many existing studies mainly focus on the while-stage only or are being ambiguous and do not specify the stage, leaving a research gap on the IA in different stages, pre-stage in particular. The conclusion of interviews (see Chapter 4) also reveals that the anxiety that interpreters experienced could likely be higher at pre-stage. Despite its importance, pre-

stage IA remains under-researched, particularly regarding how it varies with interpreters' proficiency levels. Therefore, the next part of this thesis research specifically focuses on IA in pre-stage, so as to better understand its sources and variations, providing practical advice for interpreting training practices.

Chapter 6 Scales Design

Chapter 6 and Chapter 7 constitute Study 3 which answers Research Question 3 and 4, concerning the IA level induced by different sources in the pre-stage of interpreting and how it varies across interpreters of different proficiency. Chapter 6 serves as the foundation of Study 3 since it focuses on the design of the Interpreting self-efficacy (ISE) scale and the Interpreting anxiety (IA) scale, the major tool to be used to measure ISE and IA level in questionnaire and data analysis in Chapter 7. It is essential to measure ISE and IA as investigating the source and level of IA, because according to the IASM developed in Chapter 5, the core process that determines whether IA would be produced is the cognitive appraisal through which the individual's ISE is being evaluated. The structure of this Chapter includes the review of existing literature on ISE and IA measuring instruments, the rationale and process of designing the scales from adapting the existing ones, followed by the reliability and validity tests of the scales, making sure the designed ISE and IA scales are credible and robust.

6.1 Design of Interpreting Self-Efficacy scale

6.1.1 Concept of self-efficacy

Serving as a human agency, self-efficacy is the core in Bandura's (1986, 1997) construct system of Social Cognitive Theory which argues that human functioning is a result of the interplay among personal, behavioural and environmental impacts (Pajares, 2002). According to this theory, individuals exert control over their motivations, thoughts, feelings, and behaviours, significantly influenced by their self-perception (Gerhardt & Brown, 2006). Defined as one's belief in their capability to execute tasks at a specific level (Bandura, 1997), self-efficacy profoundly impacts emotional and behavioural outcomes. For instance, previous studies have demonstrated that high academic self-efficacy correlates with undertaking challenging assignments (Bandura & Schunk, 1981), reduced anxiety (Pintrich & de Groot, 1990), and enhanced intellectual performance (Bouffard-Bouchard, 1990).

To accurately measure self-efficacy, it is necessary to distinguish self-efficacy from other similar notions such as self-concept, self-esteem, and self-confidence.

Self-concept involves collective self-views shaped by personal experiences and interpretations of the surrounding environment, heavily influenced by external judgments (Shavelson & Bolus, 1982). In other words, self-concept is "past-oriented self-perceptions that are relatively stable due to their generality" whereas self-efficacy is "cognitive, goal-referenced, context specific, and future oriented judgements of competence that are relatively malleable due to task dependence" (Schunk and Pajares, 2005, p89). Self-esteem refers to the consciousness of one's own goodness and one's degree of overall self-regard for oneself as a person (Campbell, 1984). It is more concerned with the judgement of self-worthiness whereas self-efficacy pertains to the perceived judgement of self-capabilities (Bandura, 1997). Lastly, self-confidence, though related, is a more stable and broad notion that encompasses comprehensive personality traits rather than task-specific capabilities (Bandura, 1997). Thus, for interpreting, a cognitive, goal-referenced and context-specific activity, self-efficacy is the pertinent construct for investigation.

In addition, there is a certain standardised protocol for designing a self-efficacy scale recommended by Bandura, the founder of the Social Cognitive Theory and the concept of Self-efficacy. In the guidelines for constructing the self-efficacy scale, Bandura (2006) states that the scale needs to present the subjects with items that depict different task demands and ask them to rate how strongly they believe in their capability in order to complete the required task. The scale should be unipolar, ranging from 0 to the maximum level, with no negative numbers because there are no lower gradations than the judgement of completely incapability (0). The suggested format of the scale is to present the description of each difficult situation using the phrase such as "when….", "if….", "during…", "after…" etc., and it should use the term "can do" rather than "will do", as "can" is a judgement of capability whereas "will" is a statement of intention. Bandura (2006) also recommends identifying the forms of challenges and difficulties prior to constructing a domain-specific self-efficacy scale, and such preliminary work could be in the form of open-ended interviews or pilot questionnaires. In this thesis research, interviews that identify the possible challenges and sources of IA were conducted earlier (see Chapter 4), and their findings facilitated the scenario description in the items.

6.1.2 Existing interpreting self-efficacy measuring instruments

In early research, it was often the scales measuring general self-efficacy that to be used.

For example, Sherer et al. (1982) created one of the earliest general self-efficacy scales (GSE), which was designed to assess "a general set of expectation that the individual carries into new situations" (p. 664), with 17 items. However, due to the decontextualised nature of the GSE (Lee, 2014), academics such as Chen et al (2001) began to question its suitability and validity for specific tasks, given that self-efficacy is inherently domain-specific. This necessitated the development of task-specific psychometric tools.

In interpreting studies, various established scales have been adopted. For example, Baessler and Schwarzer (1996) developed a 10-item general self-efficacy scale which has been widely adopted in many studies in interpreting and translation (e.g., Bolaños-Medina 2014; Jiménez Ivars et al, 2014; Mashady et al, 2015, etc.). Similarly, Schyns and von Collani (2002) designed a 20-item Occupational Self-efficacy Scale which measures people's confidence level on successfully performing a job task by utilising the skills they possess. This scale was then adopted by Atkinson (2012) and Atkinson and Crezee (2014) in their studies on freelance translator's level of self-efficacy and their success in their job. Also, Kim and Park's (2001) 28-item academic self-efficacy scale, measuring students' self-beliefs on their academic learning, was adopted in Lee's (2014) and Zareai's (2010) research which explore the correlation between interpreting students' self-efficacy level and their interpretation quality. Another 8-item new general self-efficacy scale developed by Chen et al (2001) was used by interpretation researchers such as Bontempo and Napier (2011) and Atkinson (2012) who investigate interpreter's emotional stability and psychological skill respectively.

However, despite being used in previous research, many previously established self-efficacy scales that were used in the interpretation field were still being criticised by academics for not providing a comprehensive conceptual analysis of the given domain, or for lack of reliability and validity proof (e.g., Lee, 2014; Chen et al, 2001; Plant et al, 2011; etc.). Consequently, developing a reliable and valid interpreting-specific self-efficacy scale is essential.

Among only a few attempts in developing a self-efficacy scale that particularly concerns the interpretation domain, one notable effort is Lee's (2014) Interpreting Self-Efficacy Scale. It is designed for undergraduate interpreting trainees based on Bandura's Social Cognitive Theory and adapted from Kim and Park's (2001) Academic Self-Efficacy Scale.

It includes 21 items covering four dimensions of interpreting capabilities: (1) language proficiency and bilingualism, (2) extra-linguistic knowledge, (3) processing and interpreting techniques, and (4) mental, affective and physical energies. Lee's scale was refined through exploratory factor analysis, validity, and reliability tests with data from 413 Korean interpreting students. Recognised as a rigorous approach to date (Bolaños-Medina & Núñez, 2018), this study builds upon Lee's (2014) tool, adapting it in three major aspects detailed in the following section.

6.1.3 Developing the ISE Scale

6.1.3.1 Adaptation from existing scale

While adapting from Lee's (2014) work, there are three main points to be considered: the dimensionality, the comprehensiveness, and the focus of the pre-stage of interpreting in developing the ISE scale in this research.

Dimensions of the ISE Scale

Regarding the dimensionality of the developed ISE scale, there are four fundamental dimensions: (1) language knowledge, (2) extra-linguistic knowledge, (3) interpretation skills, and (4) stakeholder-related factors. These dimensions reflect the essential aspects of interpreting competences, assessing an individual's belief in their capacity to perform specific interpreting tasks effectively. The dimensions are derived from the literature review (see Section 2.1.4) and align with the proposed IASM (see Section 5.2.2).

These dimensions comprehensively cover the constructs of interpreting competence outlined in Lee's (2014) scale, which includes bilingualism, extra-linguistic knowledge, processing and interpreting techniques, and affective and physical factors. In this research, processing and interpreting techniques along with affective and physical factors are integrated into the interpretation skills dimension, consistent with Dong et al.'s (2013) categorisation that includes both physiological and psychological competencies as part of interpreting skills.

Beyond Lee's (2014) framework, this research introduces an additional crucial dimension: stakeholder-related factors. This dimension considers the influence of the surrounding environment and individuals involved in the interpreting task, such as audiences, clients, evaluators, peers, and instructors, etc. According to Bandura (1997), self-efficacy is

influenced by one's perception of competence within their environmental context, making this dimension essential.

In addition to the items adapted from Lee's existing scale, other items referring to these dimensions in the designed ISE in this research are generated from previous interviews (Chapter 4), which serves as preliminary work to identify challenging tasks in interpreting, following Bandura's (2006) recommendations. Pilot studies are conducted to ensure the scale's validity and reliability.

Comprehensiveness on interpreter subjects

The ISE scale developed in this research broadens the scope of interpreter subjects to encompass both interpreting students and professional interpreters, unlike Lee's scale, which focuses solely on undergraduate students. To effectively capture various learning and career stages within a single measure, the ISE scale in the thesis research includes participants at different levels: interpreting students at undergraduate and postgraduate levels, as well as professional interpreters, who already entered into this profession field. With this in mind, items need to be revised in order to ensure compatibility and comprehensiveness across both learning and working environments.

Focusing on pre-stage of interpreting

As highlighted in the literature review (see Section 2.1.3), an interpreting task involves distinct stages, pre-stage and while-stage, which correspond to the preparation phase and the cognitive processing phase, respectively. Differences in situations encountered and levels of preparation at these stages could potentially influence the assessment of self-confidence on one's capabilities and, consequently, interpreting anxiety (IA) levels. This finding was also supported by the interview (see Section 4.4.3) in this thesis. Since Lee's scale does not account for these distinctions, when adapting from Lee's work and designing the ISE scale, it is necessary to distinguish between stages.

Given that the focus of this study is on the pre-stage of interpreting and the research questions to be answered concern the pre-stage, the scale items are adapted and rephrased to ensure respondents understand that the questions pertained to their perceived confidence in each interpreting competence exclusively during the pre-stage. This adjustment ensures the relevance and specificity of the scale items to the study's

objectives.

6.1.3.2 Initial version of ISE scale

Following the above-mentioned three main adaptations while developing the ISE scale based on Lee's (2014) scale, the initial version of the ISE scale contains 15 items in total (see Table 6.1). Among them, 3 items (item number 1, 5, and 10) belong to the language knowledge capability dimension, 3 items (item number 4, 7, and 9) belong to the extra-linguistic knowledge capability dimension, 6 items (item number 2, 3, 6, 12, 13, 14) belong to the interpretation skills dimension, and 3 items (item number 8, 11, and 15) belong to the stakeholder factors dimension. Participants would be asked to rate their degree of confidence from 1-5 which represent "cannot do at all", "slightly can do", "moderately can do", "very certain can do", and "extremely certain can do" respectively when facing the described situation.

Also, for the purpose of minimizing the response biases and encouraging more frank answers, the scale uses nondescript title "Appraisal Inventory" rather than "Interpreting Self-efficacy Scale", as suggested by Bandura (2006). The following table shows the initial version of ISE scale.

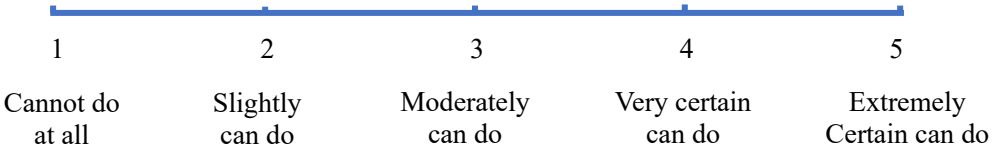


Table 6.1: Initial version of Interpreting Self-efficacy Scale

No.	Item	Note[5]
1	When the source speech in the coming interpreting task has a difficult accent, I feel …	Adapted
2	When the coming task requires intensive note-taking ability, I feel…	Adapted
3	When unexpected challenges arise while preparing interpretation task, I feel...	From interview

[5] "adapted" means the item was adapted from Lee's scale, and "from interview" means the item was generated from the interview results.

4	When the coming task requires certain professional domain knowledge that unknown to me, I feel …	Adapted
5	When the English listening comprehension in the coming task is difficult, I feel …	Adapted
6	When I have to quickly search information and prepare for the coming interpreting task in a very limited time, I feel …	From interview
7	When cultural background knowledge is needed in the coming interpreting task, I feel …	Adapted
8	When someone will comment on my following interpretation performance, I feel …	From interview
9	If I do not have the background / contextual knowledge about the speech in the coming task, I feel …	From interview
10	When the coming interpreting task has a high level of requirement on English vocabulary, I feel …	Adapted
11	If the expectation for my interpreting performance is high, I feel …	From interview
12	If the upcoming interpreting task has a high level of requirement on memory ability, I feel …	Adapted
13	When I am not provided with much preparation materials in advance, I feel...	From interview
14	If I am suddenly called to provide interpretation for the following content, I feel …	From interview
15	If the coming task is very formal, I feel …	From interview

The scale is designed in both English and Chinese language. The subjects are Chinese-English interpreters and they can choose whichever language makes them feel comfortable to read and think when answering the item questions. It uses the double translation method for translating the scale from Chinese to English. This is a method involving three steps: forward translation (translating from the source language into the target language), back translation (translate the forward-translated instrument back into the source language without knowledge of the original instrument), and comparison and revision (discrepancies are addressed to produce a final version of translation) (Duffy, 2006). The double translation method is believed to be the most reliable method of attaining semantic equivalence between the source and target languages (Hilton & Skrutkowski, 2002; Wang et al, 2006), and it is preferred to other translation methods such as one-way translation or focus group approach in ensuring rigorous information (Dhamani & Richter, 2011, Eremenco et al, 2005). For brevity, the Chinese version of the scale is not put in text, and it can be found in the Appendix 6.1-2.

6.1.3.3 Pilot test

In piloting, it aims to obtain no less than 30 questionnaires from the same targeted subjects. As a result, 32 complete and valid answers were collected, covering three participants groups – novice interpreters (undergraduate students majoring in interpreting), proficient interpreters (master students majoring in interpreting), and professional interpreters who have no less than two years of professional working experience.

The designed self-efficacy scale shows a good result in reliability (α=0.961) and validity (KMO=0.871). The factor loading test shows there are four factors in the scale, which proves the rationality of the four-dimensional structure in measuring the interpreting self-efficacy.

6.1.3.4 Refinement of the ISE scale

To enhance the scale, feedback was sought from experts, including industry professionals, university professors specialising in interpreting, and doctoral students researching this field. Based on their recommendations, three key improvements were implemented: (1) Shorten the item list: To boost questionnaire response rates, redundant or ambiguous items were removed. Specifically, two items (item 3 and item 13) related to interpreting skills were deleted due to their redundancy or ambiguity. (2) Contextualise situations: To ensure clarity, situations described in the items were contextualised. For example, item 15 now includes examples (e.g., exams, competitions, or addressing high-ranking officials) to clarify the formality of the task. (3) Refine Language: Certain phrases were reworded for greater clarity. For instance, "difficult accent" in item 1 was changed to "unfamiliar accent" to better convey its intended meaning.

The refined version of ISE scale shows as below:

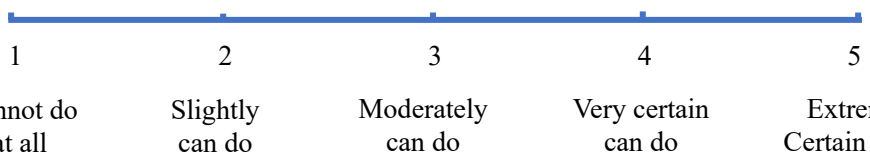


Table 6.2: Refined version of Interpreting Self-efficacy Scale

No.	Description
1	When the source speech in the coming interpreting task has an unfamiliar accent, I feel …
2	When the coming task requires intensive note-taking ability, I feel…
3	When the coming task requires certain professional domain knowledge that unknown to me, I feel …
4	When the English listening comprehension in the coming task is difficult, I feel …
5	When I have to quickly search information and prepare for the coming interpreting task in a very limited time, I feel …
6	When cultural background knowledge is needed in the coming interpreting task, I feel …
7	When someone will comment on my following interpretation performance, I feel …
8	If I do not have the background / contextual knowledge about the coming task, I feel …
9	When the coming interpreting task has a high level of requirement on English vocabulary, I feel …
10	If the expectation for my interpreting performance is high, I feel …
11	If the upcoming interpreting task has a high level of requirement on memory ability, I feel …
12	If I am suddenly called to provide interpretation for the following content, I feel…
13	If the coming task is very formal (e.g., exam, competition or the conference attendee has a very high-level position), I feel …

In the refined scale, there are 13 items in total, among which 3 items (item number 1, 4, and 9) belong to the language knowledge capability dimension, 3 items (item number 3, 6, and 8) belong to the extra-linguistic knowledge capability dimension, 4 items (item number 2, 5, 11, and 12) belong to the interpretation skills dimension, and 3 items (item number 7, 10, and 13) belong to the stakeholder factors dimension.

For the refined Interpreting Self-efficacy scale, the validity and reliability tests were run again, and it showed a satisfactory result (α=0.958, KMO=0.881). This ISE scale will be used in questionnaire design in Study 3 in Chapter 7.

6.2 Design of interpreting anxiety scale

6.2.1 Existing interpreting anxiety measuring instruments

In existing studies, the selection of IA measuring tool depends on the perspective from which IA is approached. Physiological studies, for instance, employ instruments like heart rate (Kurz, 2003; Korpal, 2017), blood pressure (Klonowicz, 1994; Korpal, 2016), galvanic skin response (Kurz, 2003), and cortisol concentration (Moser-Mercer, 2005) to gauge physical responses to interpreting anxiety. Conversely, psychological approaches emphasise subjective experiences of anxiety during interpreting activities, favouring self-report measures as the most common method (Deng, 2018). Self-reports, such as questionnaires and interviews, are advantageous because they allow participants to articulate their personal experiences directly rather than relying on observer interpretations (David, 2006). Given this study's focus on IA as a psychological construct influenced by cognitive appraisals of self-perceived ISE, self-report methods are deemed suitable.

Among self-report methods, the Likert scale is particularly fitting due to its quantitative nature and ease of integration into questionnaires, facilitating the capture of subjects' feelings and opinions (Aubagna, 2021). Scales have been widely used in measuring interpreting anxiety in relevant studies, and four representative scales are introduced in the following.

Chiang (2006) distinguished the concept of interpreting anxiety from the foreign language anxiety for the first time and designed the first interpreting anxiety related scale – Interpreting Classroom Anxiety Scale (ICAS) which was adapted from Horwitz et al (1986)'s FLCAS. ICAS includes 44 items and uses a 5-points Likert measurement. It comprises three factors: (1) fear of interpreting class and negative evaluation, (2) cognitive processing anxiety, and (3) low self-confidence in interpretation, demonstrating high reliability ($\alpha = 0.94$). However, it only considers the classroom setting and interpreting student trainees, and many items such as "it won't bother me at all to take more advanced interpretation classes", and "I am usually at ease during tests in my interpretation class" are not applicable to professional interpreters or the interpreting work setting, limiting the differentiation between interpreting stages.

Based on Cassady and Johnson's (2002) Test Anxiety Model, Kang (2010) designed the Auditory Anxiety Scale and Interpreting Anxiety Scale which focus on the listening phase

and rendition-producing phase respectively. By realising that anxiety may vary in both its levels and source factors at different stages of interpretation, Kang divided IA into auditory anxiety and interpreting anxiety, and utilises different scales to measure IA at different stages. There are some items in Kang's scale that are specifically associated with the pre-interpretation stage. For example, "I lost sleep over worrying about my listening ability in the final examination of interpretation", "the prospect of listening in an important interpretation task in one of my courses would not cause me to worry", "before taking an interpretation task, I feel confident and relaxed of my listening ability". To measure IA according to different interpreting phases is a strength of Kang's scale, also reflecting the importance of differentiating the interpreting stages. However, Kang's scale is still limited to college students and interpreting test/exam settings, as the items in the scale all presuppose the interpreting exam scenario, and it is, to some extent, hard to separate the anxiety caused by exams from interpreting anxiety. Consequently, it is necessary to build an IA scale that not only measures IA at different stages, but can also be more inclusive in covering a broader scope of interpreting tasks (vs. exam only) as well as a wider range of interpreters (vs. college students only).

To design a more generalised and inclusive scale, Dong et al (2013) developed an Interpreting Anxiety scale based on Devellis's (1991, 2012) instruction on scale development. Dong et al' s 20-item scale integrates many previous foreign language learning relevant scales, and it is constructed with three factors: (1) the difficulty of interpreting, involving interpreting pressure and interpreting skills and the sense of challenges, frustration and achievement brought by interpretation; (2) the service-oriented nature of interpreting, that is, worrying about leaving negative impression on others in performing the interpreting task; and (3) the general confidence in interpreting. Validity tests were run for the scale and the modified scale showed a satisfactory result. This scale is not constrained to the interpreting classroom setting, as the scenarios described in the items are more interpreting tasks oriented, instead of only talking about interpreting exams, making the scale applicable to not only interpreting students, but also professional interpreters. However, the scenarios set in the items do not separate different stages in interpreting. For example, items such as "I feel quite relaxed on my way to the interpreting venue" is particularly relevant to pre-stage, whereas items such as "I feel quite at ease when I make mistakes during interpreting" and "in interpreting, I worry a lot about failing to translate what the speaker intends to say" specifically concern the while-stage.

Deng (2018) designed another interpreting anxiety scale by adding more items on Dong et al 's (2013) scale and investigating IA through its cognitive process. Although all items in Dong et al' s scale were included in Deng's scale, Deng emphasises the cognitive aspect of doing the interpreting task and therefore utilises another three factors – "listening anxiety", "memorising anxiety" and "interpreting anxiety"[6] – which represent three logically-connected cognitive phases when performing interpreting tasks. Moreover, by adding "memorising anxiety" and making the cognitive process more comprehensive, Deng further improved the interpreting anxiety scale based on Kang's scale which only has two factors: auditory and rendition producing. In addition, the factor explorative analysis also approved three-factor construction, and the designed scale ran well in its reliability and the validity tests. In Deng's research, she applied this scale to multiple interpreting scenarios such as classroom learning, interpreting competition, interpreting exam, etc. However, the subjects of the scale and the designed scenarios are still limited to interpreting students and did not consider the preparation stage.

To address these limitations, this study aims to develop a more inclusive IA scale that measures anxiety across different interpreting stages and encompasses a broader range of interpreting tasks and interpreter levels. This approach ensures a comprehensive assessment of IA, accounting for both learning and professional contexts.

6.2.2 Developing the IA scale

6.2.2.1 Adaptation from existing scales

The IA scale developed in this study integrates advantageous elements from existing scales by Deng (2018), Dong et al. (2013), and Kang (2010). In developing the IA scale, there are three main points to be considered: the dimensionality of source factors, the inclusion of diverse interpreter subjects, and emphasis on the pre-stage of interpreting.

Dimensionality of source factors

Drawing from the IASM proposed in this thesis, the IA scale is structured around four

[6] The word "interpreting anxiety" here is the term that directly drawn from Deng's paper, and it is different from the term "interpreting anxiety" used in this thesis. In Deng's paper, "interpreting anxiety" refers to the anxiety experienced in the interpreting (rendition-producing) cognitive phase, whereas in this thesis, interpreting is more concerning the entire stage or time frame of performing the interpretation task, and therefore interpreting anxiety refers to the anxiety that occurred during the whole process of interpreting.

dimensions that constitute IA: language knowledge, extralinguistic knowledge, interpretation skills, and stakeholder-related factors. Each dimension is represented as a factor within the scale, with items designed to reflect these major sources of IA. Additionally, each identified category includes sub-categories (see Section 4.4.2) that must also be captured in the scale items. The preliminary work involving interviews (Chapter 4) identified key sources of IA and anxiety-provoking situations, which informed the design of the scale items.

Inclusion of interpreter subjects

This study encompasses novice, proficient, and professional interpreters, necessitating the adaptation of scale items to accommodate interpreters at various learning and career stages. Items are rephrased to ensure scenarios are relevant to interpreting tasks rather than being limited to academic settings only. For example, instead of referencing "worrying about the coming interpreting exam", items now refer to "worrying about the coming interpreting task," thus broadening applicability beyond students to include professionals.

Focusing on pre-stage of interpreting

Given the study's focus on the pre-stage of interpreting, all items in the IA scale are tailored to this phase. Descriptions clearly identify situations occurring before the cognitive process while performing an interpretation, ensuring respondents understand they are rating their IA levels specifically during the preparation phase.

Finally, conducting pilot tests for the adapted scale is essential. By assessing its validity and reliability, it ensures the scale accurately measures the intended constructs across different interpreter groups and contexts.

6.2.2.2 Initial version of IA scale

After adaptation from existing scales, the initial version of the IA scale (see Table 6.3) contains 15 items in total, among which 3 items (item number 3, 4, and 7) belong to the language knowledge capability dimension, 3 items (item number 2, 11, and 15) belong to the extra-linguistic knowledge capability dimension, 6 items (item number 1, 5, 8, 12, 13, and 14) belong to the interpretation skills dimension, and 3 items (item number 6, 9, and 10) belong to the stakeholder factors dimension. Participants would be asked to judge to

what extent each statement matches their real situation (or real feeling) by choosing from 1-5 which represent “Strongly disagree”, “Disagree”, “Neutral”, “Agree”, and “Strongly agree” respectively. The IA scale is shown as follows:

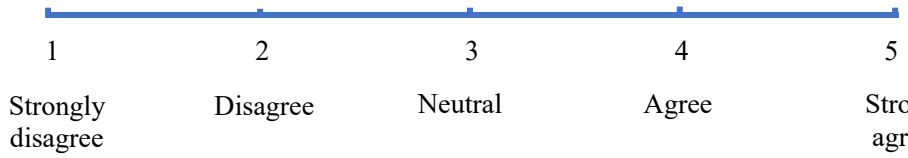


Table 6.3: Initial version of Interpreting Anxiety Scale

No.	Item	Note
1	I lose sleep over worrying about possible failure in the coming interpreting task.	Adapted from Kang’s scale
2	While preparing the interpreting task, my anxiety will be notably reduced if I have done interpreting task with similar topic or agenda before. (R)	From interview
3	If I have not used one of the languages in interpretation for a while, I would be worried that my performance in the coming interpreting task would be worse.	From interview
4	My English listening ability is good and therefore I do not feel anxious about missing out the English input in the coming interpreting task. (R)	Adapted from Dong et al’s scale
5	I feel anxious about having to listen and take notes simultaneously in the coming interpreting task, because I always find it hard to coordinate these two efforts.	From interview
6	If I know that my listeners understand both languages, I will feel worried even before the task begins that they may notice my interpreting mistakes.	Adapted from Dong et al’s scale
7	My knowledge of English syntax is good and therefore I do not worry about my English output in the coming interpreting task. (R)	Adapted from Deng’s scale
8	If I get ill or not feeling well as the task is approaching closely, I will be worried about my interpreting performance.	From interview
9	I worry that I cannot clearly deliver speaker’s message in the upcoming interpreting task.	From interview
10	I feel very nervous when the coming task requires me to do interpreting in public.	Adapted from Dong et al’s scale
11	I worry that my general knowledge is not good enough to avoid making a major mistake in the coming interpreting task.	Adapted from Deng’s scale

12	I have learnt a certain amount of interpreting strategies, so I can calmly use proper strategies to deal with possible situations in the coming interpreting task. (R)	Adapted from Dong et al's scale
13	My heart will beat rapidly if I'm informed of any change in the content or the form of the interpreting task when it is about to start.	Adapted from Deng's scale
14	I feel anxious about my note-taking skills in the coming interpreting task, because it is usually hard for me to catch the key points and logic in notes.	Adapted from Deng's scale
15	When the upcoming interpreting task requires unfamiliar domain knowledge and few preparation materials are provided, I will be very anxious.	From interview

The scale is designed in both English and Chinese language. The subjects are Chinese-English interpreters and they can choose whichever language that makes them feel comfortable to read and think when answering the item questions. Again, it uses double translation method for translating the scale from Chinese to English. For brevity, the Chinese version of the scale is not put in text, and it can be found in the Appendix 6.3-2.

6.2.2.3 Pilot test

In piloting, 30 questionnaires from same targeting groups are aimed. As a result, a total of 32 completed and valid questionnaires were collected, covering three participants groups – novice interpreters (undergraduate students majoring in interpreting), proficient interpreters (master students majoring in interpreting), and professional interpreters who have no less than two years of professional working experience.

The adapted IA scale's factor analysis confirms a four-factor structure, aligning with the designed model's four dimensions and supporting its construct validity. The scale demonstrates satisfactory reliability with a Cronbach's alpha (α) of 0.86. However, the validity is moderately supported, given a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy at 0.69. This suggests the need for further modifications to enhance the scale's validity.

6.2.2.4 Refinement of the IA scale

After piloting, as in the design process of the ISE scale, experts in this field were invited to give advice on the scale. It was suggested to further contextualise the item, for example, instead of saying feeling nervous due to interpreting in public, it can say "I feel very nervous that I may leave a negative impression on the audience due to poor performance

in the upcoming interpreting task", as this provides a more detailed psychological response and is more clearly relevant to stakeholder factors. Item 1 and Item 8 were also suggested to be deleted in order to avoid any ambiguity in the item. Wording in the item was suggested to be more precise and accurate, for example, the Chinese word "记" can have multiple meanings as it can refer to both "remember" and "note-taking" in interpreting context. And this was suggested to be modified as "笔记" which precisely refers to the note-taking ability, making sure the subjects understand the items in the correct way. After revision, the refined Interpreting Anxiety Scale shows as below in Table 6.4 (the Chinese version can be found in Appendix 6.4-2).

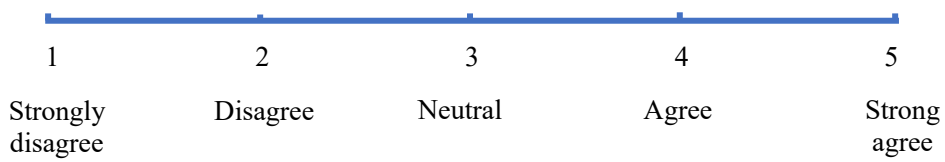


Table 6.4: Refined version of Interpreting Anxiety Scale

No.	Item
1	While preparing the interpreting task, my anxiety will be notably reduced if I have done interpreting task with similar topic or agenda before.
2	If I have not used one of the languages in interpretation for a while, I would be worried that my performance in the coming interpreting task would be worse.
3	My English listening ability is good and therefore I do not feel anxious about missing out the English input in the coming interpreting task. (R)
4	I feel anxious about having to listen and take notes simultaneously in the coming interpreting task, because I always find it hard to coordinate these two efforts.
5	If I know that my listeners understand both languages, I will feel worried even before the task begins that they may notice my interpreting mistakes.
6	My knowledge of English syntax is good and therefore I do not worry about my English output in the coming interpreting task. (R)
7	I worry that I cannot accurately deliver speaker's message in the upcoming interpreting task.
8	I feel very nervous that I may leave negative impression to the audience due to poor performance in the upcoming interpreting task.

9	I worry that my general knowledge is not good enough to avoid making a major mistake in the coming interpreting task.
10	I have learnt a certain amount of interpreting strategies, so I can calmly use proper strategies to deal with possible situations in the coming interpreting task. （R）
11	My heart will beat rapidly if I'm informed of any change in the content or the form of the interpreting task when it is about to start.
12	I feel anxious about my note-taking skills in the coming interpreting task, because it is usually hard for me to catch the key points and logic in notes.
13	When the upcoming interpreting task requires unfamiliar domain knowledge and few preparation materials are provided, I will be very anxious.

In the refined IA Scale, there are 13 items in total, among which 3 items (item number 2, 3, and 6) belong to the language knowledge capability dimension, 3 items (item number 1, 9, and 13) belong to the extra-linguistic knowledge capability dimension, 4 items (item number 4, 10, 11, and 12) belong to the interpretation skills dimension, and 3 items (item number 5, 7, and 8) belong to the stakeholder factors dimension. Items 3, 6, and 10 are reversed items.

After refinement, both the reliability (α=0.889) and validity (KMO=0.739) of the scale have been improved, particularly the validity, reaching a good acceptable level (DeVellis, 2017).

To conclude, ISE scale and IA scale for measuring interpreters' ISE and IA level in the pre-stage have been developed and finalised. They are employed in the questionnaire in next chapter.

Chapter 7 Using the Proposed IASM Questionnaire for Quantitative Data Analysis

This Chapter focuses on the questionnaire that utilises the tool of Interpreting Self-efficacy Scale and Interpreting Anxiety Scale developed in Chapter 6. By collecting and analysing the quantitative data, it examines the two major hypotheses derived from the proposed IA Source Model (IASM), and at the same time, it investigates how the IA source and level vary among interpreters of different proficiency, addressing Research Question 3 and 4.

This chapter is organised into 7 sections. Section 7.1 delineates the questionnaire design, participant selection, and data distribution. In Section 7.2, the methods for data analysis are elaborated in details. Sections 7.3 through 7.5 present quantitative analyses of interpreting self-efficacy (ISE) and interpreting anxiety (IA) among novice, proficient, and professional interpreters, respectively, examining their IA sources, IA levels, and correlations between ISE and IA across various dimensions. Section 7.6 contrasts these groups to highlight differences in IA sources and levels according to proficiency. Section 7.7 tests the hypotheses derived from the IASM, aiming to further validate the model.

7.1 Questionnaire

As explained in the methodology chapter, a questionnaire method was used in this research for the aim of investigating the sources and levels of IA for interpreters across different proficiency level. This objective was kept in mind while in the process of designing the questionnaire, choice of participants, and distribution of the questionnaires.

7.1.1 Design of the questionnaire

There are four key parts in the layout of the questionnaire, including the introduction and participation consent form, the screening section to filter through the targeted subjects, main body of the questionnaire and the final closing questions (Anpar Research, 2020).

At the beginning of the questionnaire, there is a part introducing the researcher and stating the purpose of the research. The confidentiality and data protection is also stressed in this

part. The second page of the questionnaire is a consent form according to the ethical requirement of UWTSD, which explains to the participant the rights they have while completing the questionnaire and asks their consent for voluntary participation. The second part involves the selection of research subjects via demographic questions, categorizing them into three groups based on their educational and professional experiences. As the main body, the third part measures the levels of ISE and IA using the scales developed in Chapter 6, focusing on specific dimensions. Subsequently, the final section includes questions aimed at evaluating IA levels pre- and while- stage of interpreting respectively, and it ends with open-ended questions about personal IA experiences. These inquiries seek to find out whether interpreters' opinions regarding IA in pre-stage and while-stage concur with the interview results and whether preparation makes a difference in reducing IA level in pre-stage.

The questionnaire, distributed through Qualtrics, is designed with a user-friendly layout and has undergone refinement based on pilot testing by potential respondents and experts. It is validated through reliability and validity testing of the employed scales (refer to Sections 6.1.3 and 6.2.2). The complete questionnaire is available in Appendices 8.1-1 and 8.1-2.

7.1.2 Participants and data collection

As detailed in the Methodology, the study includes three groups of research subjects: novice interpreters (undergraduate students majoring in interpreting), proficient interpreters (master's students in interpreting), and professional interpreters (with working experience of no less than two years).

After web-circulation of the questionnaire, a total of 543 questionnaires were sent out, resulting in 351 completed responses, among which 267 met the criteria for research subjects. Among these 267 valid and complete questionnaires, 141 questionnaires were from undergraduate students, 86 from master's students, and 40 from experienced professional interpreters with working experience of no less than 2 years.

7.2 Data Analysis methods

As illustrated in the Methodology Chapter, data analysis includes descriptive statistics, correlation analysis, canonical correlation analysis, and comparative analysis (more

details refer to Section 3.5.2).

7.2.1 Descriptive statistics

Descriptive statistics, including the mean, median, maximum, minimum, and standard deviation are calculated and presented to illustrate the distribution of ISE and IA for each group, in which box plots are utilised to provide an effective visual summary, revealing data skew, variance, symmetry, and outliers (Babura et al, 2018.). This approach enables a more intuitive understanding, such as identifying the source dimensions interpreters feel most confident about or typically induce higher level of IA, and the data variability within a specific group of interpreters.

7.2.2 Correlation analysis

Correlation analysis assesses both the direction and strength of the relationship between two variables. To explore the relationship between ISE and IA, a scatter plot which is a useful tool (Mayorga & Gleicher, 2013) is initially constructed, visually depicting how these variables interrelate. In this plot, ISE values are plotted on the horizontal axis, given its presumed influence on IA, which is treated as the dependent variable according to the IASM. The regression line drawn on this plot indicates the nature of the relationship; the slope's direction signifies whether the correlation is positive or negative, while its magnitude reflects the extent of how much IA (y) changes with any given change of ISE (x).

Subsequently, it is crucial to evaluate the correlation coefficient, which quantifies the direction and degree of association between the two variables. As detailed in the methodology (Section 3.5.2), Spearman's correlation coefficient is utilised to measure the correlations between ISE and IA across different participant groups. Following this calculation, the intra- and inter-group correlation matrices for ISE and IA are presented and analysed, with interpretations provided for the numerical findings.

7.2.3 Canonical correlation analysis

In addition to the correlation analysis, Canonical correlation analysis is a data analysing method for measuring the linear relationship between two sets of variables. In other words, it measures multiple-X and multiple-Y correlations. The rationale for using this particular method has been listed in the Methodology Chapter (see Section 3.5.2)

In canonical correlation analysis, the principal outcomes encompass canonical correlations, canonical loadings, and redundancy measurement (Intellectus Consulting, n.d.).

7.2.3.1 Canonical correlations

In the context of multiple sets of variables X and Y, canonical correlation analysis constructs linear combinations, referred to as canonical variates, denoted as U_i and V_j. Canonical correlation analysis looks for different pairs of U and V that are maximally correlated with each other but uncorrelated with other pairs (Karwowska, 2022). Shown as in the Figure 7.1, canonical correlation analysis extracts the bivariate correlation between the two canonical variates in a canonical function.

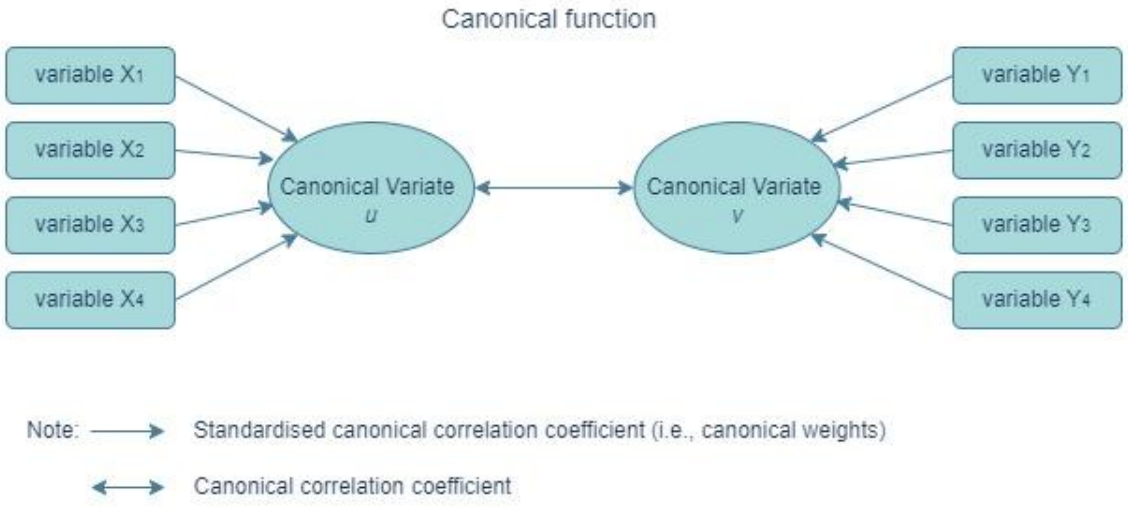


Figure 7.2: Components of a canonical function

According to Knapp (1978), in conducting the canonical correlations, the first step is to compute the correlation matrix encompassing all variables within the model. Then, the eigenvalues of the matrix are calculated, each corresponding to the square of a canonical correlation coefficient, and therefore canonical corelation coefficients (*Rc*) are then determined. Cooley and Lohnes (1971) further elaborate on the canonical model's characteristic of selecting linear combinations of variables that exhibit maximal variance, under the condition that these combinations remain orthogonal to one another. This ensures that each subsequent canonical variate provides unique information not captured

by previous variates, thereby optimizing the representation of relationships between variable sets.

A significance test is run for each pair of canonical variates, also known as canonical roots, starting with the largest one, and only those roots are statistically significant are retained for subsequent interpretation (Tenenhaus, et al, 2014).

7.2.3.2 Canonical weights and canonical loadings

Upon establishing the number of significant canonical variates, the next step is to interpret the meaning of each significant pair of variates (or roots). There are two major approaches in making such an analysis – canonical weights and canonical loadings (Dattalo, 2014).

One approach to elucidate each canonical root involves examining the weights for each set, since each root embodies two weighted linear combinations, and such weights are referred to as canonical weights (Hair et al, 1998). For each pair of significant canonical variates, the function showing the relationship between U_i and dimensionalities of X as well as V_j and dimensionalities of Y can be therefore written in the following format:

$$U_i=a_{i1}X_1+a_{i2}X_2+\ldots+a_{ip}X_p$$

$$V_j=b_{j1}Y_1+b_{j2}Y_2+\ldots+b_{jq}Y_q$$

Where a_{i1}, a_{i2}, …, a_{ip} and b_{j1}, b_{j2}, …, and b_{jq} are canonical weights, which are chosen to maximise each pair of canonical variates.

Canonical loadings, alternatively referred to as structure coefficients, quantify the simple linear correlations between observed variables within *u* or *v* variable sets and their respective canonical variates. These loadings indicate the extent of variance that an observed variable shares with its associated canonical variate, and computes the within-set variable-to-variate correlation. Larger canonical loadings suggest higher importance in deriving the canonical variate (Dattalo, 2014).

Canonical loadings have been increasingly utilised as an approach which is believed to be better than canonical weights for interpreting the canonical functions (Dattalo, 2014). This is because of the inherent deficiencies of canonical weights, for example, variables could be marginalised from the correlation due to high degree of multicollinearity, or such weights could be instable as they are subject to considerable variability from one sample

to another (Dattalo, 2014).

Therefore, in the canonical correlation analysis in this study, the approach of canonical loadings is employed while interpreting the canonical function and the relative contribution of a variable to the corresponding vitiate. As the canonical loadings approach provides insights into the structure and the relative contribution of each observed variable to the corresponding canonical function (Palmer, 1993), it allows researchers to assess the significance of individual variables in defining the canonical function.

7.2.3.3 Redundancy measurement

Redundancy coefficients measure the proportion of variance of one set of variables predicted from the linear combination of the other set of variables, or simply stated, how redundant one set of variables is, given the other set of variables (StatSoft, 2024). It is calculated by multiplying the squared canonical correlations, which represents the proportion of variance shared by the canonical variates in each set, and the variance extracted from one set of variables (StatSoft, 2024)). Higher redundancy indicates higher adequacy of prediction (Mandal et al, 2021).

Redundancy is often calculated for both the dependent and independent canonical variates, although in most cases the researchers only focus on the variance extracted from the set of dependent variables, for it often provides a more accurate and realistic measurement of the predictive capability of canonical relationships (Dattalo, 2014).

To summarise, the abovementioned three basic steps in the procedure of canonical correlation analysis are presented in details in the following sections. Additionally, as the prerequisite of canonical correlation analysis include data normality (Hessing, 2018), it is important to test normality for the data of each subject group before applying canonical correlation analysis.

7.2.4 Comparative analysis

Comparative analysis method is used when contrasting the three groups of subjects. In this case, for understanding the IA level in pre-stage, statistical data such as mean, medium of the three interpreter groups, in four dimensions respectively, is compared, and analysis of variance (ANOVA) can be a useful method. This approach provides a clear,

visual representation of IA levels among the groups, highlighting which group exhibits higher IA and which maintains the lowest.

Similarly, to understand variations in IA sources during the pre-stage, the correlation coefficients between ISE and IA within specific dimensions are compared across the groups. Given that the absolute value of the correlation coefficient indicates the strength of the relationship between variables, this comparison also allows for ranking the sensitivity of IA to particular sources. Consequently, it becomes possible to identify which source dimensions are more likely to trigger IA in specific interpreter groups.

7.2.5 Preliminary tests

As mentioned above, prior to conducting Canonical Correlation Analysis and ANOVA, it is essential to verify the normality and homogeneity of variance within the datasets.

Firstly, regarding normality, Shapiro-Wilk test results indicate that for both proficient and professional groups, the *p*-values associated with ISE and IA variables exceed 0.05, supporting the acceptance of the null hypothesis that these variables are normally distributed. Conversely, in the novice group, all dimensional variables in ISE and IA yield *p*-values below 0.05, leading to the rejection of the null hypothesis, indicating a failure to meet normality criteria.

Secondly, concerning homogeneity of variance, Levene's test results reveal that the *p*-values for both the proficient and professional groups across all four dimensions are higher than 0.05. This outcome supports the null hypothesis, confirming that these groups satisfy the conditions for homogeneity of variance.

In summary, Canonical Correlation Analysis and ANOVA are conducted exclusively on the proficient and professional groups' datasets, as they fulfil the prerequisites for normality and homogeneity of variance.

7.3 Data analysis for the group of Novice Interpreters

In this section, data from the group of novice interpreters who are undergraduate students majoring in translation/interpreting, is analysed. It is for the purpose of investigating in-depth the source and level of novice interpreters' ISE and IA, as well as the relationships

within and among ISE and IA relating to different source dimensions. As explained above, descriptive statistics and correlation analysis are employed for the dataset of this group. The results of the analysis are presented in sub-section 7.3.1, 7.3.2, followed by the conclusion in sub-section 7.3.3.

Profile of novice interpreters' group

A total of 141 valid and completed questionnaires were collected from undergraduate students majoring in translation/interpretation, comprising 17 males, 121 females, and 3 who preferred not to disclose their gender. This significant gender disparity aligns with existing literature indicating a higher female representation in both interpreter education and the professional field (Marianacci, 2015; Mastropietro, 2012), though it poses a potential limitation for data analysis.

This cohort, exclusively undergraduate, ranges in age from 19 to 24 years, with most having studied interpreting for approximately one year, and none exceeding four years. Specifically, 81 participants have studied for one year or less, 31 for two years, and 29 for three to four years. Participants were drawn from 36 universities across various regions in China, covering central, southern, eastern, and western cities of China. This enhances the geographical diversity of the sample and reduces statistical bias.

In terms of practical experience, only 16 out of 141 had participated in real conference interpreting. Among these, 15 had limited practical experience of no more than one year and had attended no more than six conferences in total. Only one participant reported three years of experience, with no more than five practice sessions annually. Furthermore, 130 participants did not possess any interpreting qualification certificates, while 11 held entry level interpreting certificates such as Intermediate level of Shanghai Foreign Language Interpreting certificate.

7.3.1 Descriptive statistics of ISE and IA for Novice interpreters

7.3.1.1 Novice interpreters' Interpreting Self-efficacy level

As the ISE scale and IA scale used in the questionnaire are both five-point Likert scale (see Chapter 6), the ISE and IA are measured from 1 to 5, where 1 represents the lowest level and 5 represents the highest. The table 7.1 shows the median and mean of novice interpreters' ISE levels in four specific dimensions. According to the table, novice

interpreters' ISE levels are generally low in all four different dimensions, with score averaging around 2, and the small standard deviations indicating minimal variation. Despite very small differences, it can be seen that interpreting skills is the dimension that novice interpreters feel relatively most confident with, whereas the language knowledge dimension is where least confidence lies.

Table 7.1: Novice interpreters' ISE levels in four dimensions

Interpreting Self-Efficacy	Sample Size	Median	Mean	Standard deviation
Dimension of Language Knowledge	141	2.00	1.84	0.65
Dimension of Extra-linguistic Knowledge	141	2.00	1.92	0.66
Dimension of Interpreting skills	141	2.00	2.15	0.76
Dimension of Stakeholder factors	141	2.00	1.97	0.76

The centralisation of data distribution can be visualised more directly in the following box plot (see Figure 7.2). The average levels of ISE in four different dimensions are close and remain at a relatively low level (around 2). Also, the box in the dimension of stakeholder factors is thicker than the other three dimensions, indicating more data fluctuation and data variance in this dimension.

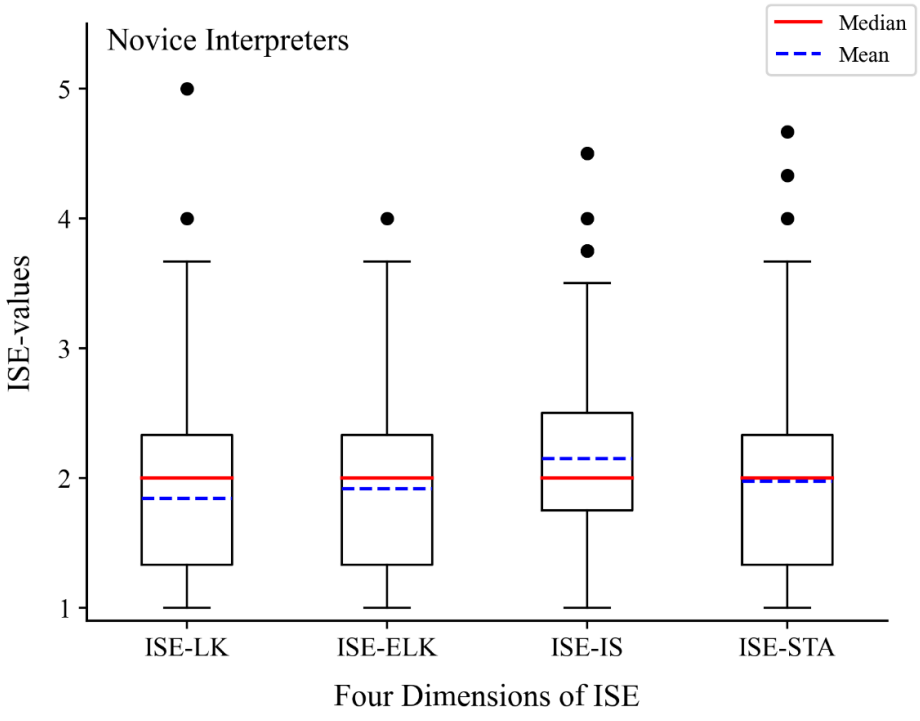


Figure 7.3: Box plot of novice interpreters' ISE level in four dimensions

Note: The red solid line indicates the median, the blue dotted line indicates the mean, the lower edge of the box in the box plot is the first quartile, the upper edge is the third quartile, the tentacles (the vertical lines extending out of the box) are 1.5 times the quartile data interval, the thickness of the box reflects the degree of dispersion of the data. The thicker the box, the more fluctuating the data is, and the dots are the outliers.

7.3.1.2 Novice interpreters' Interpreting Anxiety level

From the table below which displays the median and mean of IA level in four specific dimensions for the group of novice interpreters, it can be seen that the IA levels vary somewhat in different dimensions but the medians are generally at a high level between 3.50 and 4.00 in a five-point Likert scale. To compare four different dimensions, taking the median as the contrasting indicator, it is high in both extra-linguistic knowledge dimension and the stakeholder factors' dimension, reaching 4.00 respectively. The lowest standard deviation in the extra-linguistic knowledge dimension indicates a strong consensus among novice interpreters that lacking contextual or domain-specific knowledge is a significant source of anxiety. IA in the linguistic knowledge dimension ranks the next, with a median of 3.67, while the interpreting skills dimension shows the lowest anxiety level at 3.50. Details can be referred to Table 7.2.

Table 7.2: Novice interpreters' IA level in four dimensions

Interpreting Anxiety	Sample size	Median	Mean	Standard deviation
Dimension of Language Knowledge	141	3.67	3.74	0.62
Dimension of Extra-linguistic Knowledge	141	4.00	4.01	0.48
Dimension of Interpreting skills	141	3.50	3.64	0.57
Dimension of Stakeholder factors	141	4.00	3.68	0.72

Furthermore, the box plot diagram illustrates that the data across all four dimensions exhibits small fluctuation, indicated by the similarly narrow width of the boxes. As shown in Figure 7.3, notably, the stakeholder factors dimension displays more outliers and a greater disparity between the median and mean, suggesting the presence of more extreme

cases at the lower end of the spectrum.

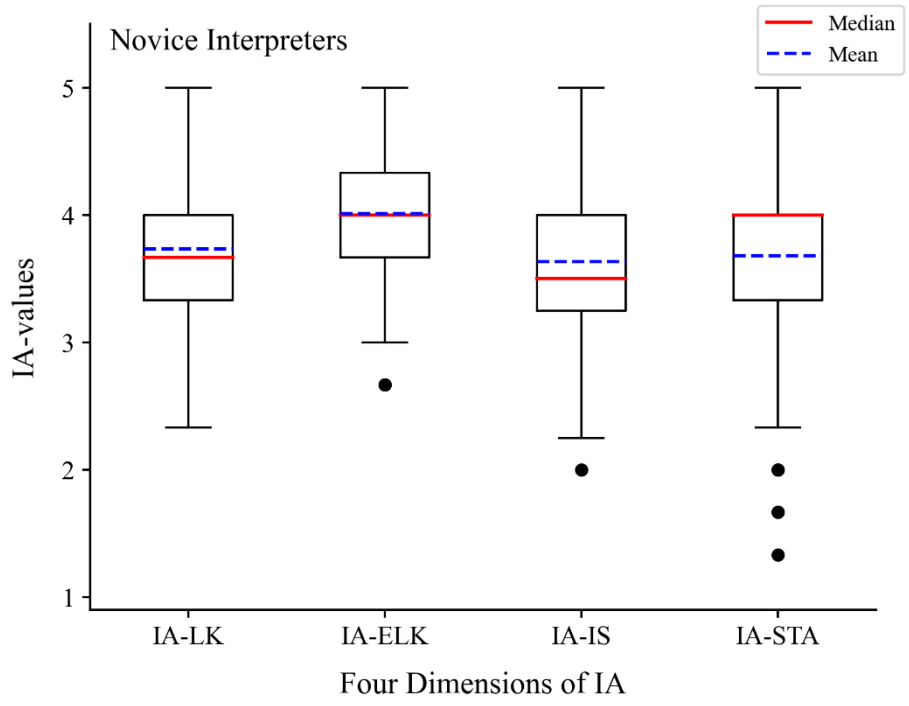


Figure 7.4: Box plot of novice interpreters' IA level in four dimensions

Note: The red solid line indicates the median, the blue dotted line indicates the mean, the lower edge of the box in the box plot is the first quartile, the upper edge is the third quartile, the tentacles (the vertical lines extending out of the box) are 1.5 times the quartile data interval, the thickness of the box reflects the degree of dispersion of the data. The thicker the box, the more fluctuating the data is, and the dots are the outliers.

7.3.2 Correlation Analysis between ISE and IA in different dimensions for novice interpreters

Correlation is a bivariate analysis that measures the direction and the strength of the association between two sets of variables. As aforementioned, in correlation analysis, useful methods such as scatter diagram and regression line are used, showing the data distribution format and how much IA (y) changes with any given change of ISE (x). In addition, the Spearman correlation coefficients among different dimensions within and between ISE and IA are also calculated by constructing the correlation matrix. This helps find out the direction and the degree to which different dimensions are related to each other.

7.3.2.1 Scatter diagram analysis

The format of data distribution can be seen in the scatter diagrams. For example, in terms of language knowledge dimension, most of the data was concentrated in the area where ISE is relatively low and IA is relatively high. By contrast, the ISE and IA data in terms of the stakeholder dimension is more dispersed. The data distribution as well as the regression line in the four different dimensions are illustrated in the following Figure 7.4.

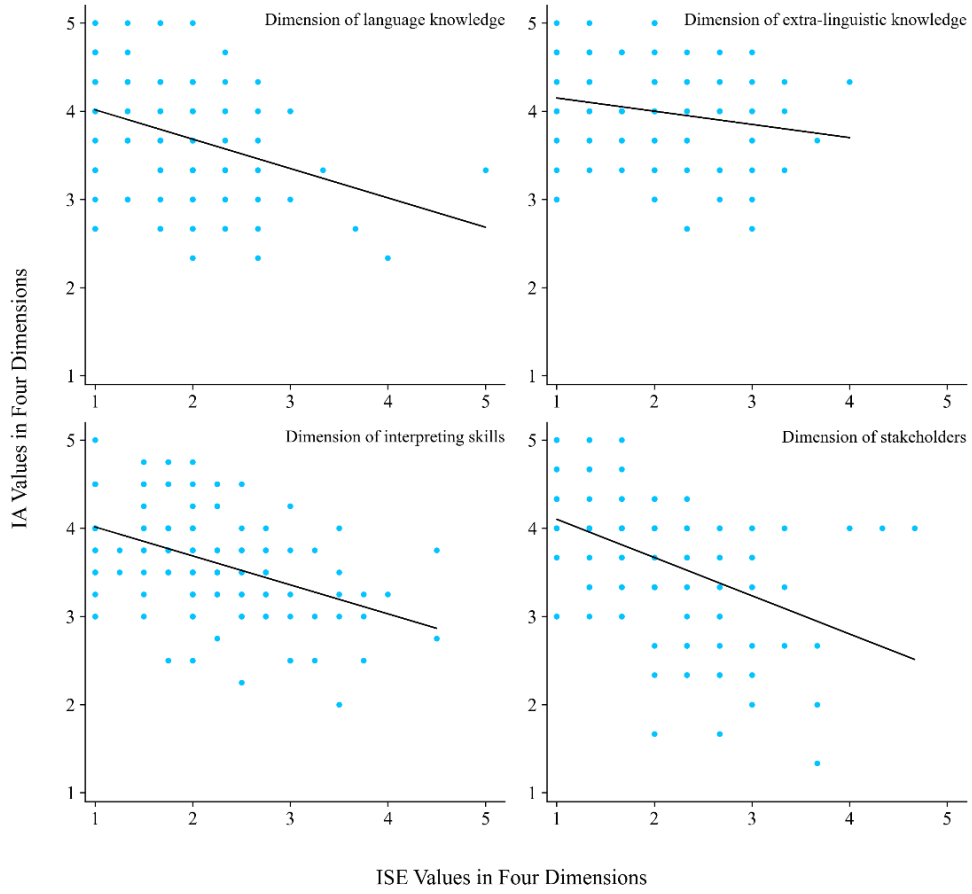


Figure 7.5: Scatter diagram and regression line of IA-ISE for novice interpreters

When putting the ISE as the independent variable (x) and IA as dependent variable (y), the unary linear regression coefficients for IA relative to ISE across four dimensions are summarised in the following Table 7.3. At the 0.05 significance level, all four dimensions for novice interpreters show significant negative correlations with IA. The unstandardised slopes of the fitted trend lines (regression lines) across four dimensions, from highest to

lowest absolute magnitude, are: stakeholder factors (-0.434), language knowledge (-0.333), interpreting skills (-0.329), and extra-linguistic knowledge (-0.150). The greater the absolute value of the slope, the steeper the regression line, indicating a more pronounced change in IA for a given change in ISE within that dimension.

Table 7.3: Unary linear regression coefficients for the group of novice interpreters

Dimension	Constant β_0	Unstandardised β_1 (slope)	Coefficients Std. Error	t	Sig.
Language knowledge	4.349	-.333	.075	-4.430	<.001
Extra-linguistic knowledge	4.299	-.150	.061	-2.470	.015
Interpreting skills	4.343	-.329	.057	-5.740	<.001
Stakeholder factors	4.534	-.434	.071	-6.108	<.001

To further interpret the data, for novice interpreters, anxiety related to the stakeholder factors dimension, which mainly encompasses external, or environmental factors, shows the highest sensitivity to ISE changes (slope -0.434). In other words, increased ISE regarding stakeholder-related factors tend to be associated with lower IA from this dimension. For instance, performing an interpreting task before a familiar and undemanding instructor enhances stakeholder-related ISE, likely decreasing IA. Conversely, facing demanding speakers, critical audiences, or high peer evaluation pressure lowers stakeholder-related ISE, potentially increasing IA. This highlights that novice interpreters' anxiety is easily influenced by external/environmental factors.

Secondly, in the dimensions of language knowledge and interpreting skills which assess interpreter’s linguistic knowledge and skills, IA also exhibits a high sensitivity (slopes of -0.333 and -0.329, respectively). This indicates a strong correlation between improvements in ISE in these areas and reductions in IA caused by these sources.

By contrast, the sensitivity of IA in the extra-linguistic knowledge dimension, which refers to the encyclopaedic, contextual or domain-specific professional knowledge, is notably low (slope -0.150), with anxiety levels remaining high, around 4. This suggests that IA stemming from deficiencies in extra-linguistic knowledge is less responsive to increases in ISE within this dimension, with it steadily remaining at a high level.

7.3.2.2 Correlation Matrix

Following the construction of scatter diagrams and regression lines, the next step involves generating correlation matrices to explore the relationships among different dimensions of ISE and IA. Three matrices are presented: the ISE intra-group correlation coefficient matrix, the IA intra-group correlation coefficient matrix, and the ISE-IA inter-group correlation coefficient matrix.

Novice interpreters' ISE intra-group correlation coefficient matrix

Spearman's correlation analysis, which results are shown in the following Table 7.4, reveals that for novice interpreters, the four dimensions of ISE exhibit significant positive correlations ($p < 0.01$), indicating a significant positive correlation among the dimensions of ISE. The coefficients ranging from 0.639 to 0.781, showing strong inter-dimensional relationships within ISE.

Table 7.4: Novice interpreters' ISE intra-group correlation coefficient matrix

Spearman correlation coefficient	ISE-language knowledge	ISE-Extra-linguistic knowledge	ISE-interpreting skills	ISE-stakeholder factors
ISE-language knowledge	1			
ISE-Extra-linguistic knowledge	0.665**	1		
ISE-interpreting skills	0.639**	0.767**	1	
ISE-stakeholder factors	0.657**	0.739**	0.781**	1

Note: ***. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Novice interpreters' IA intra-group correlation coefficient matrix

The Table 7.5 in the following reflects the Spearman correlations among the four dimensions of novice interpreters' IA, which show significant positive correlations ($p < 0.01$) With coefficients between 0.261 and 0.544, it suggests a moderate relevance. This implies that an increase in IA in one dimension is associated with increases in other dimensions in the same direction.

Table 7.5: Novice interpreters' IA intra-group correlation coefficient matrix

Spearman correlation coefficient	IA-language knowledge	IA-Extra-linguistic knowledge	IA-interpreting skills	IA-stakeholder factors
IA-language knowledge	1			
IA-Extra-linguistic knowledge	0.261**	1		
IA-interpreting skills	0.544**	0.318**	1	
IA-stakeholder factors	0.369**	0.335**	0.524**	1

Note: ***. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Novice interpreters' ISE and IA inter-group correlation coefficient matrix

The inter-group correlation matrix for novice interpreters' ISE and IA (as shown in the following Table 7.6) demonstrates significant negative correlations between ISE and IA across all four dimensions, with the strongest correlation observed in the stakeholder factors dimension (-0.514). The negative correlations between ISE and IA among interpreting skills dimension and language knowledge dimension are also observed, ranging from -0.287 to -0.432, indicative of a relatively strong negative relationship. Particularly notable is the negative correlation on the stakeholder factors' dimension of ISE (i.e. the numbers in the fifth column), where the absolute values of the correlation coefficients relate to all dimensions of IA rank highest, at the significance level of $p < 0.01$. This means that increased ISE regarding stakeholder factors is linked to reduced IA levels indued by all four dimensions, consistent with the findings from the scatter diagram analysis. This underscores the critical role of external factors in shaping the ISE and IA levels of novice interpreters.

Table 7.6: Novice interpreters' ISE and IA inter-group correlation coefficient matrix

Spearman correlation coefficient	ISE-language knowledge	ISE-Extra-linguistic knowledge	ISE-interpreting skills	ISE-stakeholder factors
IA-language knowledge	-.337**	-.307**	-.287**	-.411**
IA-Extra-linguistic knowledge	-.031	-.192*	-.113	-.144
IA-interpreting skills	-.331**	-.287**	-.432**	-.514**
IA-stakeholder factors	-.348**	-.366**	-.409**	-.488**

Note: ***. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

7.3.3 Conclusion

Overall, novice interpreters exhibit low ISE levels, averaging around 2 on a five-point Likert scale where 1 is the lowest and 5 is the highest. Concurrently, their IA levels are relatively high across all dimensions, averaging approximately 3.75 at the five-point Likert scale.

Regarding the relationship between ISE and IA, for novice interpreters, stakeholder factors, such as audience responses, evaluator feedback, and task formality, are the most potent sources of anxiety, indicating high sensitivity to external influences. Although not as pronounced as stakeholder factors, the dimensions of language knowledge and interpreting skills also show significant sensitivity, suggesting that enhanced bilingual capabilities and skills tend to reduce IA in these areas. Conversely, IA related to extra-linguistic knowledge remains consistently high and shows little sensitivity to improvements in ISE.

7.4 Data analysis for the group of Proficient Interpreters

In this section, data from the group of proficient interpreters, master students majoring in translation/interpreting, is analysed. As explained in Section 7.1, the descriptive statistics, correlation analysis and canonical correlation analysis are used for the dataset of this group. The results of the analysis are presented in sub-section 7.4.1-7.4.3, followed by the conclusion in sub-section 7.4.4.

Profile of proficient interpreters' group

A total of 86 valid and completed questionnaires were collected from master's students in interpreting programs across 13 Chinese universities, including those at ministerial, provincial and municipal levels, covering a wide range of interpreting students at the master's level[7]. The sample encompasses a broad spectrum of geographical regions, including first-tier, second-tier, central, eastern, and southern cities of China, ensuring wide distribution.

Among the 86 respondents, 15 were male, 69 were female, and 2 preferred not to disclose their gender. The cohort's age was relatively concentrated, with an average age of 23. Their interpreting study duration ranged from 1 to 5 years. Notably, 58 participants had no experience in real conference interpreting at all, 20 had less than one year of practical experience, and only 8 reported more than one year of experience. This distribution highlights the varied levels of practical exposure within the sample.

7.4.1 Descriptive statistics of ISE and IA for proficient interpreters

7.4.1.1 Proficient interpreters' Interpreting Self-efficacy level

The median and mean values of proficient interpreters' ISE in each of the four dimensions are shown in the Table 7.7 below. With 1 representing the lowest level and 5 representing the highest, it can be seen that the general ISE for proficient interpreters is maintained at a medium-low to medium level. Taking mean as the indicator, among different dimensions, proficient interpreters have the highest level of ISE in the interpreting skills (2.55), followed by stakeholder factors (2.43), and extra-linguistic knowledge (2.36), The level of confidence in linguistic knowledge remains the lowest at 2.26, and this dimension shows the smallest standard deviation, indicating a consistent perception among participants that it is the area with least confidence

Table 7.7: Proficient interpreters' ISE level in four dimensions

Interpreting Self-Efficacy	Sample Size	Median	Mean	Standard deviation
Dimension of Language Knowledge	86	2.17	2.26	0.77
Dimension of Extra-linguistic Knowledge	86	2.33	2.36	0.80

[7] In China's context, it is often the case that the teaching quality and students' specialty capability in ministerial universities are generally higher than that in the provincial level, followed by municiple level.

Dimension of Interpreting skills	86	2.50	2.55	0.83
Dimension of Stakeholder factors	86	2.33	2.43	0.94

Similarly, visual representation of the differences in median, mean, quartiles, and data variance across the four dimensions among proficient interpreters can be seen in the box plot in the following Figure 7.5. The thickness of the box for ISE in the stakeholder factors' dimension indicates greater data fluctuation in this dimension. Specifically, the stakeholder factors' dimension has the thickest box among the four, highlighting that individual differences in ISE are more pronounced in this dimension compared to others.

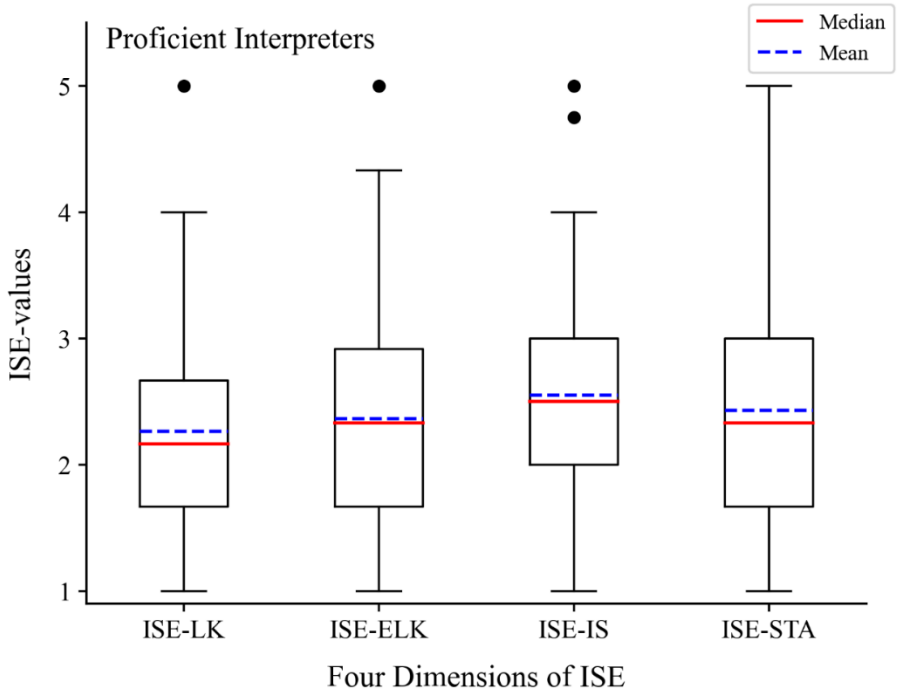


Figure 7.6: Box plot of proficient interpreters' ISE level in four dimensions

Note: The red solid line indicates the median, the blue dotted line indicates the mean, the lower edge of the box in the box plot is the first quartile, the upper edge is the third quartile, the tentacles (the vertical lines extending out of the box) are 1.5 times the quartile data interval, the thickness of the box reflects the degree of dispersion of the data. The thicker the box, the more fluctuating the data is, and the dots are the outliers.

7.4.1.2 Proficient interpreters' Interpreting Anxiety level

As is shown in the following Table 7.8, the IA level of proficient interpreters fluctuates from 3.33 – 4.00, which is a moderately high level in a five-point Likert scale. To be more specific, Using the median as the benchmark, proficient interpreters report the highest interpreting anxiety (IA) in the extra-linguistic knowledge dimension (4.00), which also has the lowest standard deviation, indicating it is a widely shared and consistent source of anxiety. The other three dimensions, interpreting skills (3.38), language knowledge (3.33), and stakeholder factors (3.33), show similar anxiety levels and comparable standard deviations.

Table 7.8: Proficient interpreters' IA level in four dimensions

Interpreting Anxiety	Sample size	Median	Mean	Standard deviation
Dimension of Language Knowledge	86	3.33	3.42	0.70
Dimension of Extra-linguistic Knowledge	86	4.00	3.92	0.50
Dimension of Interpreting skills	86	3.38	3.40	0.68
Dimension of Stakeholder factors	86	3.33	3.42	0.76

As for the thickness of the box in the following box plot (see Figure 7.6), the thinner boxes in terms of extra-linguistic knowledge and interpreting skills dimensions indicate less variance in data regarding these two dimensions among the group subjects.

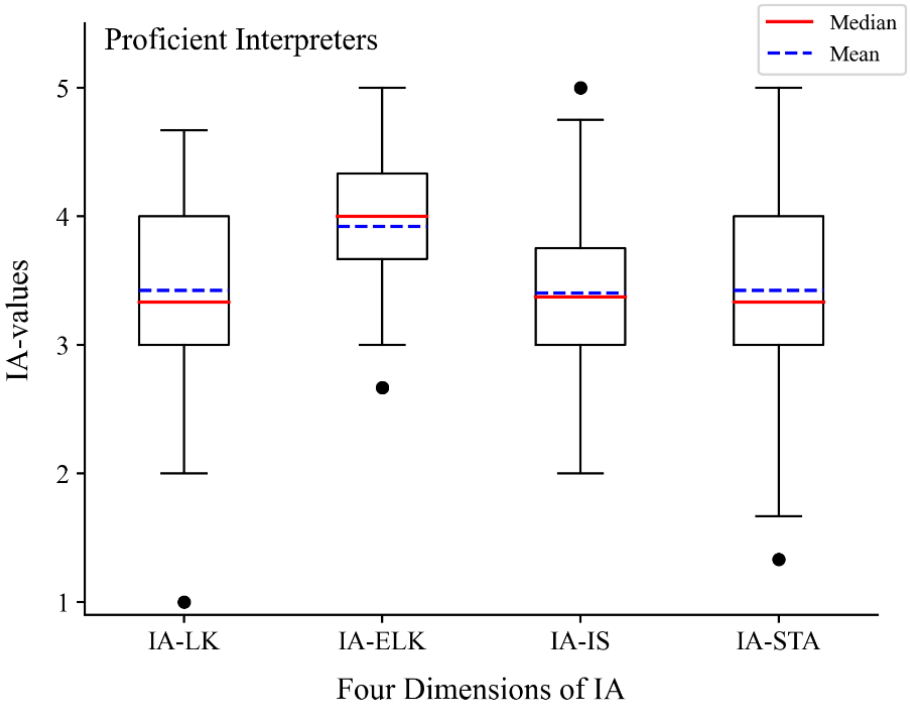


Figure 7.7: Box plot of proficient interpreters' IA level in four dimensions

Note: The red solid line indicates the median, the blue dotted line indicates the mean, the lower edge of the box in the box plot is the first quartile, the upper edge is the third quartile, the tentacles (the vertical lines extending out of the box) are 1.5 times the quartile data interval, the thickness of the box reflects the degree of dispersion of the data. The thicker the box, the more fluctuating the data is, and the dots are the outliers.

Combining the two sets of means above (ISE means and IA means), it can be found that proficient interpreters, having acquired a certain degree of interpreting skills through training, exhibit higher ISE and consequently lower IA related to interpreting skills. Regarding the stakeholder factors' dimension, the significant data variance likely stems from differing individual experiences. For instance, interpreters with no real-world experience outside the classroom may primarily consider teachers and classmates as stakeholders, whereas those with external interpreting experience may include employers, audiences, and clients. Thus, despite being in the same subject group, varying levels of real-world experience leads to differences in how interpreters rank their ISE and IA in the stakeholder factors' dimension.

7.4.2 Correlation Analysis between ISE and IA in different dimensions for proficient interpreters

Similar to the correlation analysis for novice interpreters, unary linear regression was conducted with ISE as the independent variable (x) and IA as the dependent variable (y), to determine the relationship between ISE and IA across four dimensions. Following the creation of scatter diagrams and regression lines, a correlation matrix was developed to illustrate the relationships within and between the ISE and IA variables across these dimensions.

7.4.2.1 Scatter diagram analysis

The scatter diagram (Figure 7.7) and regression coefficient table (Table 7.9) reveal that, at the 0.001 significance level, proficient interpreters exhibit negative correlations between ISE and IA in all four dimensions, i.e., language knowledge, extra-linguistic knowledge, interpreting skills, and stakeholder factors, with non-standardised slopes of the fitted trend line (regression line) of -0.515, -0.303, -0.642, and -0.437, respectively. Moreover, the interpreting skills dimension shows the highest sensitivity (slope -0.642), indicating that among proficient interpreters, enhanced interpreting skills – such as note-taking skills, memorising skills, cross-cultural communication skills, and public speaking skills, etc. – are notably associated with reduced IA.

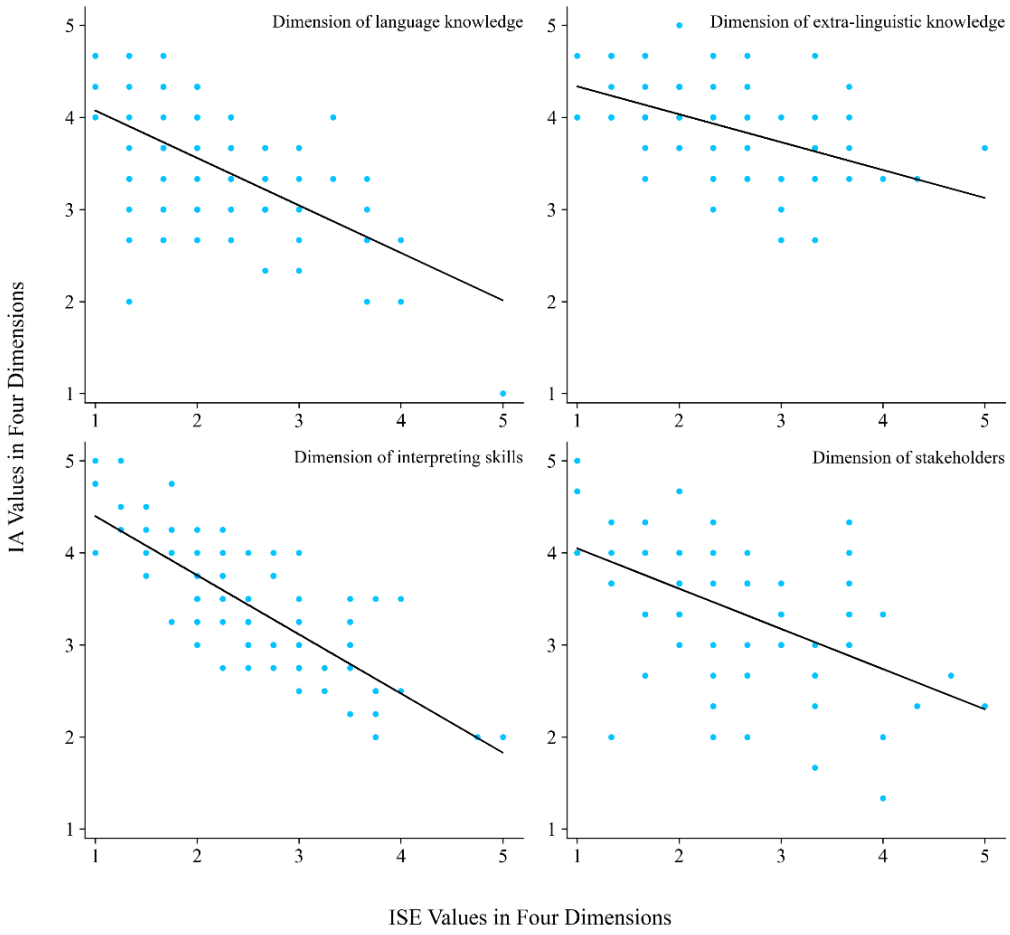


Figure 7.8: Scatter diagram and regression line of IA-ISE for proficient interpreters

Table 7.9: Unary linear regression coefficients for the group of proficient interpreters

Dimension	Constant β_0	Unstandardised β_1 (slope)	Coefficients Std. Error	t	Sig.
Language knowledge	4.589	-.515	.081	-6.331	<.001
Extra-linguistic knowledge	4.638	-.303	.060	-5.071	<.001
Interpreting skills	5.041	-.642	.055	-11.594	<.001
Stakeholder factors	4.484	-.437	.074	-5.905	<.001

7.4.2.2 Correlation Matrix

To understand how ISE and IA in one dimension could possibly impact that in other

dimensions, three correlation matrixes are presented in the following including ISE intra-group correlation coefficient matrix, IA intra-group correlation coefficient matrix, and ISE-IA inter-group correlation coefficient matrix.

Proficient interpreters' ISE intra-group correlation coefficient matrix

The Table 7.10 below shows the intra-group correlation coefficients between each dimension of ISE. It can be seen that, at significant level $p < 0.001$, for proficient interpreters, there is a significant positive correlation between the dimensions of ISE, with correlation coefficients ranging from 0.726 to 0.845, representing a strong positive correlation.

Table 7.10: Proficient interpreters' ISE intra-group correlation coefficient matrix

Spearman correlation coefficient	ISE-language knowledge	ISE-Extra-linguistic knowledge	ISE-interpreting skills	ISE-stakeholder factors
ISE-language knowledge	1			
ISE-Extra-linguistic knowledge	0.780**	1		
ISE-interpreting skills	0.785**	0.810**	1	
ISE-stakeholder factors	0.726**	0.817**	0.845**	1

Note: ***. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Proficient interpreters' IA intra-group correlation coefficient matrix

The Table 7.11 below shows the intra-group correlation coefficients between each dimension of IA for proficient interpreters. Likewise, at the significance level $p < 0.01$, there is a significant positive correlation between dimensions of IA and the correlation coefficients are in the range of 0.336 to 0.654, which is of relatively high relevance.

Table 7.11: Proficient interpreters' IA intra-group correlation coefficient matrix

Spearman correlation coefficient	IA-language knowledge	IA-Extra-linguistic knowledge	IA-interpreting skills	IA-stakeholder factors

IA-language knowledge	1			
IA-Extra-linguistic knowledge	0.336**	1		
IA-interpreting skills	0.538**	0.510**	1	
IA-stakeholder factors	0.370**	0.604**	0.654**	1

Note: ***. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Proficient interpreters' ISE and IA inter-group correlation coefficient matrix

The intergroup correlation matrix for proficient interpreters (see Table 7.12) exhibits significant negative correlations between IA and ISE in each of their dimensions at the p <0.01 significance level.

Table 7.12: Proficient interpreters' ISE and IA inter-group correlation coefficient matrix

Spearman correlation coefficient	ISE-language knowledge	ISE-Extra-linguistic knowledge	ISE-interpreting skills	ISE-stakeholder factors
IA-language knowledge	-.474**	-.436**	-.469**	-.506**
IA-Extra-linguistic knowledge	-.386**	-.516**	-.445**	-.378**
IA-interpreting skills	-.553**	-.622**	-.749**	-.745**
IA-stakeholder factors	-.379**	-.500**	-.524**	-.551**

***. Correlation is significant at the 0.001 level.

**. Correlation is significant at the 0.01 level.

*. Correlation is significant at the 0.05 level.

By and large, anxiety from the interpreting skills dimension has the highest degree of negative correlation with ISE in all dimensions, with correlation coefficients ranging from -0.553 to -0.749. IA in the interpreting skills dimension exhibits the highest sensitivity relative to interpreter's ISE level in the same dimension, which means that improved ISE is mostly related to the reduction of IA in the aspect of interpreting skills.

7.4.3 Canonical correlation analysis on ISE and IA for the group of proficient interpreters

Canonical correlation analysis is employed as it is a useful tool for measuring the linear relationship between two sets of variables. There are three main steps in canonical correlation analysis including the calculation of canonical correlations, canonical loadings, and redundancy measurements (see more details in Section 3.5.2 and Section 7.2.3).

According to the previously established IASM, linguistic knowledge, extra-linguistic knowledge, interpreting skills and stakeholder factors were selected as variables for both variates which represent ISE and IA respectively. SPSS version 29.0.1 was used to obtain the canonical correlation analysis results.

7.4.3.1 Canonical correlations

In the four pairs of canonical variates generated from the analysis, only the first pair is statistically significant at a significance level of 0.001. In the Table 7.13 below, it can be seen that in the first pair, the canonical correlation coefficient between two datasets is 0.812, which can be regarded as a strong canonical correlation (Dattalo, 2014). Since only the first pair of variates is statistically significant at $p < 0.001$, only this pair is retained for the following analysis procedures.

Table 7.13: Canonical correlations result for the group of proficient interpreters

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F.	Denom D. F.	Sig.
1	.812	1.937	.249	8.591	16.000	238.932	.000
2	.413	.206	.733	2.913	9.000	192.416	.003
3	.275	.082	.883	2.556	4.000	160.000	.041
4	.210	.046	.956	3.728	1.000	81.000	.057

H0 for Wilks test is that the correlations in the current and following rows are zero

7.4.3.2 Canonical loadings

In analysing the canonical structure, loadings are crucial indicator presenting the relative important of each variable in deriving the canonical variate. As shown in the Table 7.14

and Table 7.15, in the first pair of variates, the loadings of ISE in all four dimensions in order are interpreting skills (-0.975), stakeholder factors (-0.949), extra-linguistic knowledge (-0.820), and language knowledge (-0.757), indicating the above four dimension all make great contribution to U1 (the indicator of ISE). The loadings of IA in all four dimensions in order are interpreting skills (0.988), language knowledge (0.658), stakeholder factors (0.647), and extra-linguistic knowledge (0.483), indicating that the four dimensions of IA have good explanatory power for V1 which is the indicator of IA.

Table 7.14: Canonical loadings for dataset 1

Variable	1	2	3	4
ISE-LK	-.757	.542	-.349	-.106
ISE-ELK	-.820	.476	.160	.276
ISE-IS	-.975	.126	.078	-.164
ISE-STA	-.949	.019	-.125	.288

Note: ISE: interpreting self-efficacy, LK: language knowledge, ELK: extra-linguistic knowledge, IS: interpreting skills, STA: stakeholder factors

Table 7.15: Canonical loadings for dataset 2

Variable	1	2	3	4
IA-LK	.658	-.503	.554	-.087
IA-ELK	.483	-.629	-.511	-.260
IA-IS	.988	.060	-.119	.084
IA-STA	.647	.065	-.079	-.755

Note: IA: interpreting anxiety, LK: language knowledge, ELK: extra-linguistic knowledge, IS: interpreting skills, STA: stakeholder factors

There are two major conclusions can be drawn from the above two tables. First and foremost, from the sign of the loading values for the first pair of variates, it can be inferred that U1 (the indicator of ISE) and V1 (the indicator of IA) are negatively correlated in all four dimensions. Secondly, the above figure shows that the aspect of interpreting skills has the greatest impact on U1. Likewise, anxiety due to lack of interpreting skills also has the greatest effect on V1, while anxiety because of short in extra-linguistic knowledge has relatively the least contribution to the formation of V1.

7.4.3.3 Redundancy Analysis and Proportion of Variance explained

In the first pair of canonical variables, as can be seen from columns 1 and 3 in Table 7.16, U1 predicts 77.4% of ISE and V1 predicts 51.5% of IA. Therefore, the first pair of canonical variables has a good explanatory and predictive ability for ISE and IA.

Table 7.16: Redundancy analysis for the group of proficient interpreters

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.774	.511	.515	.340
2	.134	.023	.164	.028
3	.042	.003	.158	.012
4	.049	.002	.163	.007

7.4.4 Conclusion

In conclusion, for proficient interpreters, overall ISE across four dimensions is at a medium to lightly-lower level, with the highest ISE in interpreting skills and the lowest in linguistic knowledge. Conversely, IA levels in general are moderately high, particularly pronounced in the extra-linguistic knowledge dimension.

In addition, there is a significant negative correlation between IA and ISE in all dimensions. Among them, anxiety from lack of interpreting skills has the strongest negative relationship with the level of ISE in all dimensions, which means that, increased ISE is mostly associated with reduced anxiety due to skill deficiencies.

This conclusion resonates with the findings in canonical correlation analysis which also highlights that anxiety related to interpreting skills plays a crucial role in overall IA. Therefore, to effectively reduce IA, for proficient interpreters, it is suggested to focus more on improving the interpreting skills and therefore possibly have their corresponding self-efficacy enhanced.

7.5 Data analysis for the group of Professional Interpreters

In this section, data from the group of professional interpreters is analysed. As explained

in Section 7.1, the descriptive statistics, correlation analysis and canonical correlation analysis are presented for this group of interpreters. The analysing results are displayed in sub-section 7.5.1-7.5.3, followed by the conclusion in sub-section 7.5.4.

Profile of professional interpreters' group

For professional interpreter group, a total of 40 valid questionnaires were collected, all with a minimum of two years of work experience. The cohort included 13 male and 26 female interpreters, with one individual not disclosing their gender. Ages ranged from 25 to 53 years, averaging 36.5 years. The sample comprised 8 full-time freelancers, 12 full-time interpreters working in government/institutions/enterprises, and 20 part-time interpreters. Their interpreting experience spanned from 2 to 18 years, averaging 9.68 years. The average number of conferences served per year was 21-30, with an average total of 512 conferences. Respondents represented diverse geographic locations including major Chinese cities such as Beijing, Shanghai, Guangzhou, Wuhan, Chengdu, Shenzhen, and Hangzhou, as well as overseas countries like the United States and the United Kingdom. Among the 40 respondents, 29 held high level professional interpreting qualifications: 28 possessed CATTI Interpreting Level 2 Certificate, and 8 held CATTI Interpreting Level 1 Certificate, and the rest posess CATTI 3 or equivient.

7.5.1 Descriptive statistics of ISE and IA for Professional interpreters

7.5.1.1 Professional interpreters' Interpreting Self-efficacy level

The medians, means and standard deviations of professional interpreters' ISE in each of the four dimensions are shown in the Table 7.17. With a measurement of 5-point Likert Scale, in which 1 represents the lowest level and 5 represents the highest, it can be seen that professional interpreters' ISE in general is at a relatively high level, as all numbers are higher than 3. Take the median as an example, ISE on interpreting skills is relatively the highest (3.75), followed by the ISE on stakeholder factors (3.50) and the dimension of language knowledge (3.33), and the ISE in extra-linguistic knowledge is relatively the lowest (3.00).

Table 7.17: Professional interpreters' ISE level in four dimensions

Interpreting Self-Efficacy	Sample Size	Median	Mean	Standard Deviation
Dimension of Language Knowledge	40	3.33	3.10	0.74
Dimension of Extra-linguistic Knowledge	40	3.00	3.06	0.77
Dimension of Interpreting skills	40	3.75	3.49	0.71
Dimension of Stakeholder factors	40	3.50	3.40	0.90

The relatively high ISE in interpreting skills among professional interpreters could be possibly attributed to their accumulated experience and practical expertise. In contrast, the lower ISE in extra-linguistic knowledge may result from the diverse and unfamiliar topics, specialisations or contents they encounter during their work.

Moreover, both the thickest box in stakeholders-related ISE shown in the box plot (see Figure 7.8) and the highest standard deviation in this dimension indicate significant data fluctuation and variability in responses. This variability aligns with the variety in real situations. For instance, the questionnaire asked about specific working scenarios, whether respondents were in-house interpreters (who often work in an enterprise and are paid a fixed income), government department interpreters (the conference is usually very formal with high-level speakers), part-time interpreters, or full-time freelancers (who often need to seek work opportunities on their own). These differing roles can influence stakeholder factors such as familiarity with speakers, audience expectations, and career prospects, thereby contributing to the variance in ISE within the stakeholder dimension. Different working contexts introduce varying levels of familiarity and pressure, affecting overall ISE related to stakeholder factors.

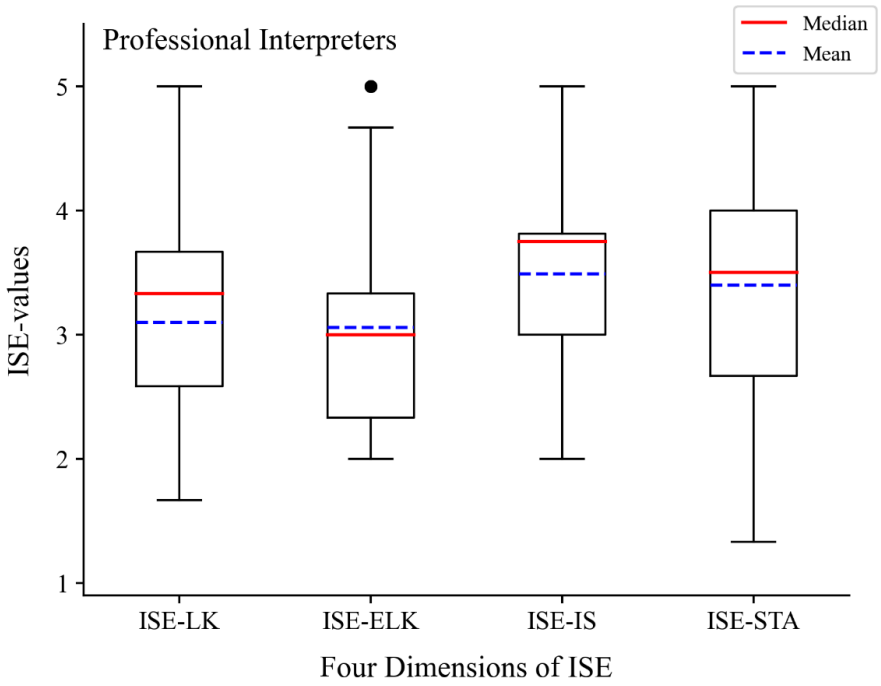


Figure 7.9: Box plot of professional interpreters' ISE level in four dimensions

Note: The red solid line indicates the median, the blue dotted line indicates the mean, the lower edge of the box in the box plot is the first quartile, the upper edge is the third quartile, the tentacles (the vertical lines extending out of the box) are 1.5 times the quartile data interval, the thickness of the box reflects the degree of dispersion of the data. The thicker the box, the more fluctuating the data is, and the dots are the outliers.

7.5.1.2 Professional interpreters' Interpreting Anxiety level

As shown in the following Table 7.18, the average IA level of professional interpreters maintains at a moderate level from 2.38 to 3.67 as 1 represents the lowest and 5 the highest.

Table 7.18: Professional interpreters' IA level in four dimensions

Interpreting Anxiety	Sample size	Median	Mean	Standard Deviation
Dimension of Language Knowledge	40	3.00	2.92	0.77
Dimension of Extra-linguistic Knowledge	40	3.67	3.52	0.55
Dimension of Interpreting skills	40	2.38	2.39	0.66
Dimension of Stakeholder factors	40	2.67	2.65	0.89

To be specific, as seen in both Table 7.18 and Figure 7.9, for professional interpreters, the highest level of anxiety comes from the dimension of extra-linguistic knowledge (3.67), which is notably higher than that of the remaining three dimensions; followed by the anxiety from the language knowledge (3.00) and stakeholder factors (2.67), while the lowest anxiety source is the interpreting skills (2.38). In their work, professional interpreters frequently encounter diverse domains and subjects, which can lead to anxiety when lacking specific knowledge in these areas. This aligns with their lower ISE levels in the extra-linguistic knowledge dimension, reflecting the challenge of navigating unfamiliar content. Similarly, the wide box in the stakeholder factors dimension in Figure 7.9 and the highest standard deviation in Table 7.18 indicate significant variability in professionals' anxiety related to stakeholders, such as clients, employers, and audiences. This aligns with the variation in ISE in this dimension and reflects, as discussed earlier, real-world differences in stakeholder relationships among freelancers, in-house, and part-time interpreters.

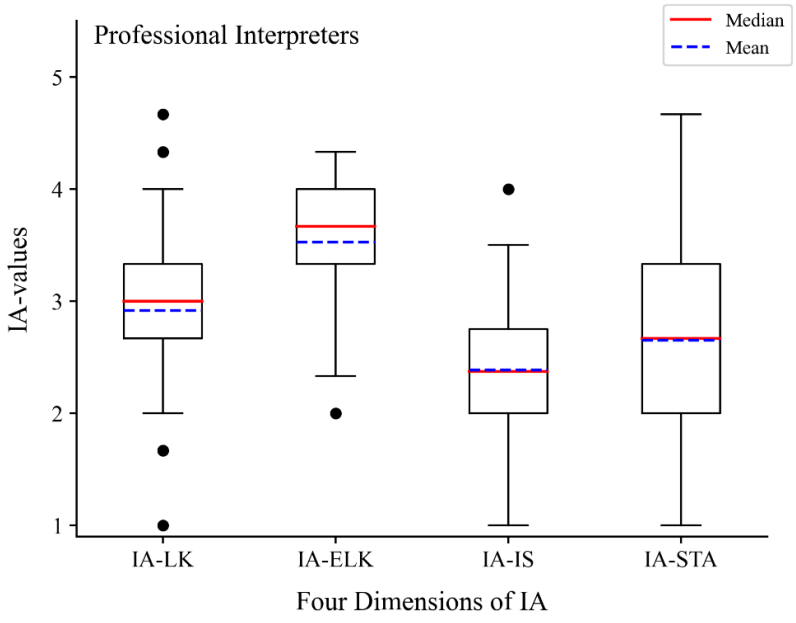


Figure 7.10: Box plot of professional interpreters' IA level in four dimensions

7.5.2 Correlation Analysis between ISE and IA in different dimensions for professional interpreters

Similar to the correlation analysis for the other two groups of subjects, the unary linear

regression with ISE value as independent variable (x) and IA value as dependent variable (y), the scatter diagram, and the correlation matrix are presented, exhibiting the correlations between ISE and IA among four dimensions.

7.5.2.1 Scatter diagram analysis

Shown in Table 7.19, at the 0.001 significance level, interpreting anxiety compared to interpreting self-efficacy for professional interpreters is significant on four dimensions – linguistic knowledge, extra-linguistic knowledge and stakeholder factors. They are negatively correlated with each other, with non-standard slopes of the trend line (regression line) are -0.596, -0.501, -0.603 and -0.532 respectively.

Table 7.19: Unary linear regression coefficients for the group of professional interpreters

Dimension	Constant β_0	Unstandardised β_1 (slope) Coefficients Std. Error	t	Sig.
Language knowledge	4.763	-.596	.138	-4.322	<.001
Extra-linguistic knowledge	5.056	-.501	.081	-6.187	<.001
Interpreting skills	4.490	-.603	.115	-5.230	<.001
Stakeholder factors	4.459	-.532	.135	-3.933	<.001

The scatterplot (see Figure 7.10) shows that for professional interpreters, the sensitivity that IA compared to ISE in all four dimensions – language knowledge, extra-linguistic knowledge, interpreting skills and stakeholder factors are very close, meaning their competence as well as the sensitivity that IA in terms of ISE in different dimensions is relatively balanced.

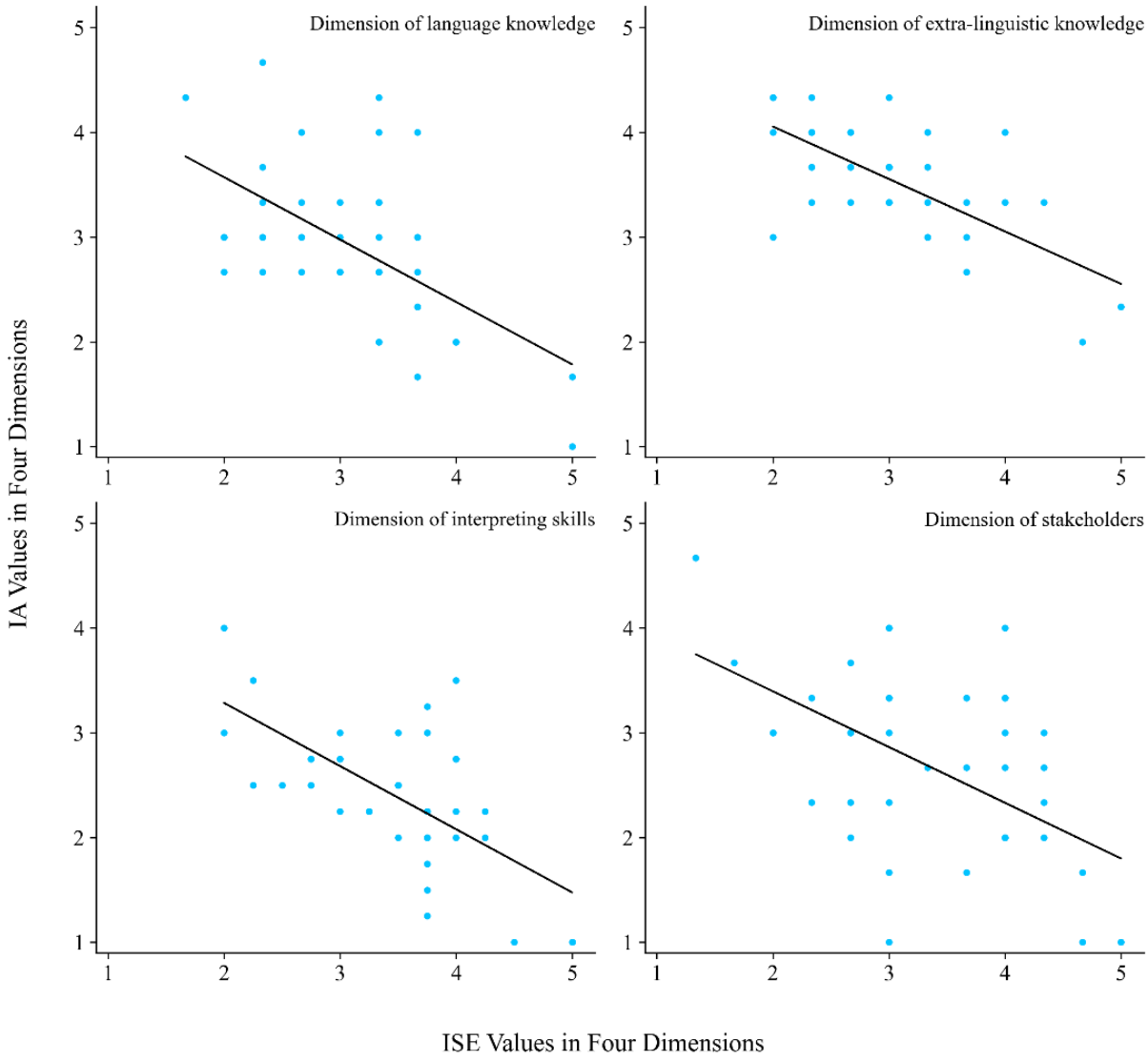


Figure 7.13: Scatter diagram and regression line of IA-ISE for professional interpreters

7.5.2.2 Correlation Matrix analysis

To understand how ISE and IA in one dimension could possibly link with that in other dimensions, three correlation matrixes are presented in the following including ISE intra-group correlation coefficient matrix, IA intra-group correlation coefficient matrix, and ISE-IA inter-group correlation coefficient matrix.

Professional interpreters' ISE intra-group correlation coefficient matrix

The Table 7.20 below exhibits the intra-group correlation coefficients between each dimension of ISE. For professional interpreters, the four dimensions of ISE have significant positive correlations, with the significance level $p < 0.01$. The correlation

coefficients between each two are in the range of 0.626 to 0.791, which is a strong correlation.

Table 7.20: Professional interpreters' ISE intra-group correlation coefficient matrix

Spearman correlation coefficient	ISE-language knowledge	ISE-Extra-linguistic knowledge	ISE-interpreting skills	ISE-stakeholder factors
ISE-language knowledge	1			
ISE-Extra-linguistic knowledge	0.736**	1		
ISE-interpreting skills	0.626**	0.758**	1	
ISE-stakeholder factors	0.674**	0.710**	0.791**	1

Note: ***. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Professional interpreters' IA intra-group correlation coefficient matrix

The Table 7.21 reflects the intra-group correlation coefficients between dimensions of IA for professional interpreters. It can be seen that for professional interpreters, except for the anxiety caused by insufficient interpreting skills and that caused by insufficient extra-linguistic knowledge, the other dimensions of IA have significant positive correlations at the $p<0.05$ significance level. The correlation coefficients between the two dimensions range from 0.377 to 0.691, which is a relatively strong correlation.

Table 7.21: Proficient interpreters' IA intra-group correlation coefficient matrix

Spearman correlation coefficient	IA-language knowledge	IA-Extra-linguistic knowledge	IA-interpreting skills	IA-stakeholder factors
IA-language knowledge	1			
IA-Extra-linguistic knowledge	0.216	1		
IA-interpreting skills	0.377*	0.300	1	
IA-stakeholder factors	0.357*	0.617**	0.691**	1

Note: ***. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Professional interpreters' ISE and IA inter-group correlation coefficient matrix

Shown in Table 7.22, with a significance level $p< 0.05$, IA has a significant negative correlation with ISE in all dimensions. According to the Spearman correlation coefficients, the correlations between ISE and IA resulting from lack of linguistic knowledge, extra-linguistic knowledge, interpreting skills and worry of stakeholder related factors are very close, with correlation coefficients are -0.507, -0.606, -0.551, and -0.479 respectively. This indicates that professional interpreters have relatively balanced sources in producing IA, which also echoes the findings shown in the scatter diagram.

Despite the overall balance, the negative correlation between IA and ISE in the extra-linguistic knowledge dimension is the strongest among the four (-0.606). This indicates that as professional interpreters gain more self-efficacy in accessing domain-specific knowledge, conference context, or encyclopaedia-like knowledge, their anxiety from these sources tends to be decreased.

Furthermore, the following matrix reveals that the correlation between ISE in the extra-linguistic knowledge dimension and IA in the stakeholder factors' dimension has the largest absolute value (-0.617). For instance, when audiences do not expect interpreters to use specialised terminology, interpreters would be likely to have higher efficacy in domain-specific knowledge, thus experiencing less concern and lower anxiety related to stakeholder factors.

Table 7.22: Professional interpreters' ISE and IA inter-group correlation coefficient matrix

Spearman correlation coefficient	ISE-language knowledge	ISE-Extra-linguistic knowledge	ISE-interpreting skills	ISE-stakeholder factors
IA-language knowledge	-.507**	-.387*	-.453**	-.357*
IA-Extra-linguistic knowledge	-.397*	-.606**	-.500**	-.530**
IA-interpreting skills	-.322*	-.418**	-.551**	-.372*
IA-stakeholder factors	-.487**	-.617**	-.528**	-.479**

Note: ***. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

7.5.3 Canonical correlation analysis on ISE and IA for the group of professional interpreters

As illustrated earlier in data analysis methods (see Section 7.2.3), there are three main steps including the calculation of canonical correlations, canonical loadings, and redundancy measurements to be presented in the analysis. According to the IASM, language knowledge, extra-linguistic knowledge, interpreting skills and stakeholder factors were selected as variables for both variates which represent ISE and IA respectively. SPSS version 29.0.1 was used to obtain the canonical correlation analysis results.

7.5.3.1 Canonical correlations

Show in the Table 7.23, in the four pairs of canonical variates generated from the analysis, only the first pair is statistically significant at a significance level p <0.001. Therefore, only the first pair of canonical variables is researched. In the first pair of canonical variables, the canonical correlation coefficient between set 1, i.e. ISE and set 2, i.e. IA, is 0.800, indicating strong canonical correlations between the two datasets.

Table 7.23: Canonical correlations result for the group of professional interpreters

	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F.	Denom D. F.	Sig.
1	.800	1.780	.217	3.987	16.000	98.399	.000
2	.545	.423	.604	2.058	9.000	80.464	.043
3	.375	.163	.859	1.337	4.000	68.000	.265
4	.015	.000	1.000	.008	1.000	35.000	.930

H0 for Wilks test is that the correlations in the current and following rows are zero

7.5.3.2 Canonical loadings

In analysing the canonical structure, loadings are crucial indicator presenting the relative importance of each variable in deriving the canonical variate.

In the first pair of variates, according to the second column in Table 7.24, the loadings of each variable of ISE are all greater than 0.820, showing a strong corelation. The absolute values of the loadings rank from high to low is: interpreting skills self-efficacy, extra-

linguistic knowledge self-efficacy, language knowledge self-efficacy, and stakeholder-factors self-efficacy. Interpreting skills and extra-linguistic knowledge are two important source dimensions since they weigh the most in constructing the overall ISE.

Table 7.24: Canonical loadings for dataset 1

Variable	1	2	3	4
ISE-LK	-.851	.076	.516	.060
ISE-ELK	-.930	-.326	.056	-.158
ISE-IS	-.948	.158	-.225	.160
ISE-STA	-.820	-.203	.064	.532

Note: ISE: interpreting self-efficacy, LK: language knowledge, ELK: extra-linguistic knowledge, IS: interpreting skills, STA: stakeholder factors

In terms of the variables for IA (see Table 7.25), following the order of absolute values of loadings from high to low are the extra-linguistic knowledge dimension (0.851), stakeholder dimension (0.829), interpreting skills dimension (0.750), and language knowledge dimension (0.683). Likewise, it is also the extra-linguistic knowledge dimension that contributes the most in constituting the overall IA.

Table 7.25: Canonical loadings for dataset 2

Variable	1	2	3	4
IA-LK	.683	-.509	-.452	-.264
IA-ELK	.851	.575	.013	-.071
IA-IS	.750	-.397	.522	.087
IA-STA	.829	-.009	.017	.559

Note: IA: interpreting anxiety, LK: language knowledge, ELK: extra-linguistic knowledge, IS: interpreting skills, STA: stakeholder factors

7.5.3.3 Redundancy Analysis and Proportion of Variance explained

In the first pair of canonical variates, as can be seen in columns 1 and 3 in Table 7.26, U_1 explains 79.0% of overall ISE and V_1 explains 59.5% of IA. The results of this analysis indicate that the two variates both have a relatively good explanatory power in predicting ISE and IA respectively.

Table 7.26: Redundancy analysis for the group of proficient interpreters

Canonical Variable	Set 1 by Self	Set 1 by Set 2	Set 2 by Self	Set 2 by Set 1
1	.790	.506	.595	.381
2	.045	.013	.187	.056
3	.081	.011	.119	.017
4	.084	.000	.099	.000

7.5.4 Conclusion

Overall, professional interpreters maintain relatively high ISE levels across the four dimensions: language knowledge, extra-linguistic knowledge, interpreting skills, and stakeholder factors. Notably, ISE is highest in interpreting skills and lowest in extra-linguistic knowledge. IA remains moderate across all dimensions, with the lowest IA observed in interpreting skills, mirroring the highest confidence in this area. Conversely, lower ISE in extra-linguistic knowledge corresponds to higher IA, indicating that insufficient domain-specific and non-linguistic knowledge tend to primarily contribute to anxiety among professional interpreters working across various fields. This suggests that enhancing professional knowledge in specific domains could be linked with lowered IA.

7.6 Contrast analysis among three groups of interpreters

After the data analysis for each group of interpreters, this section, by contrasting the figures from each group, focuses on the differences in terms of the source and level of ISE and IA across interpreters with different level of proficiency.

7.6.1 Contrast on interpreting self-efficacy

Comparing the median ISE across different dimensions among three groups (see Figure 7.11) reveals notable differences, indicating that ISE improves with increased interpreter expertise. The increase from proficient to professional interpreters is more pronounced than that from novice to proficient interpreters. Given that both novice and proficient interpreters lack substantial real conference experience, these findings underscore the critical role of practical, hands-on experience in enhancing ISE beyond mere knowledge and skill acquisition.

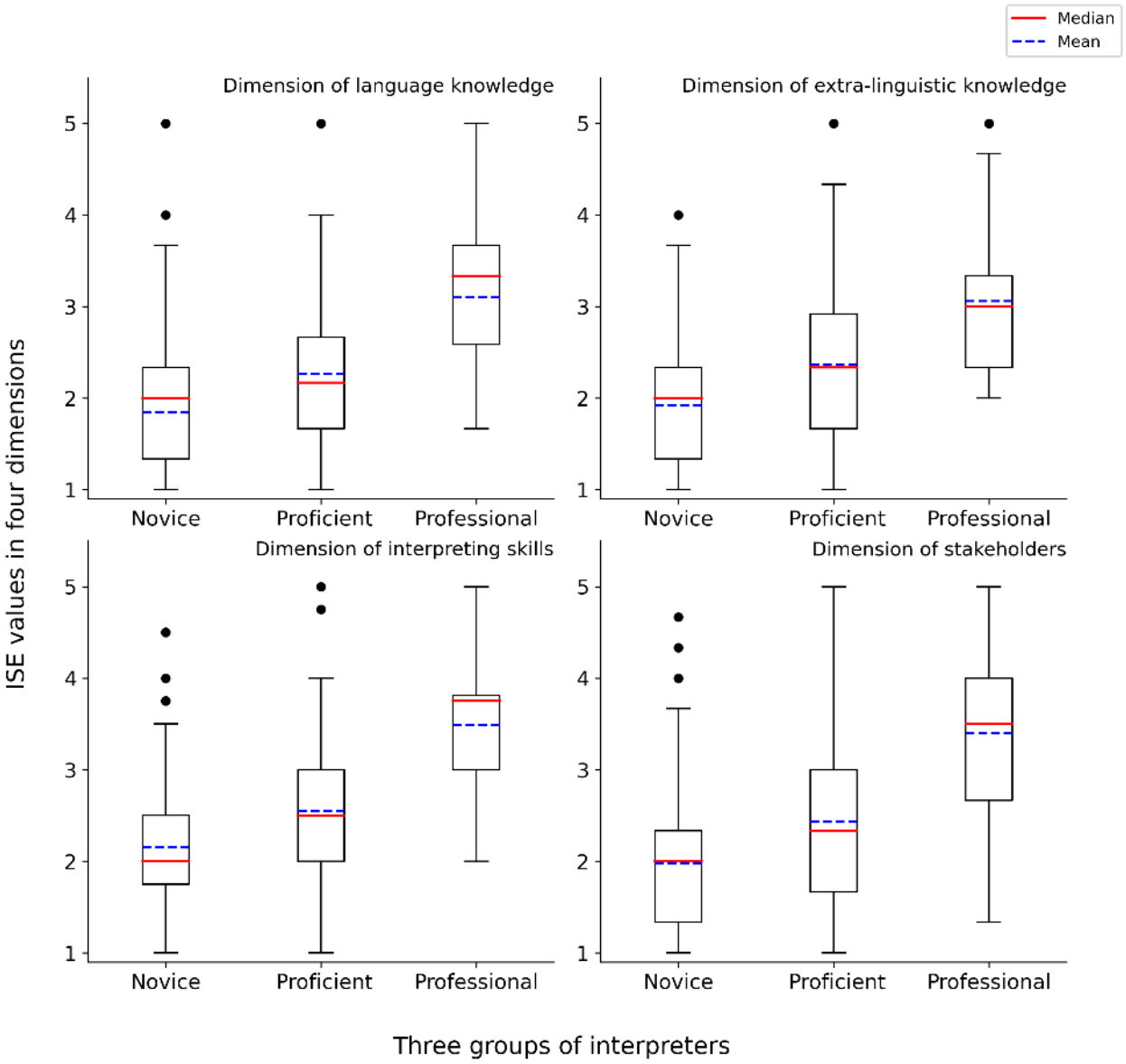


Figure 7.14: Contrast on ISE among novice, proficient, and professional interpreters

Regarding the sources of ISE, as interpreter proficiency increases, the dimension with the lowest ISE shifts from language-related to non-language domains. This shift reflects a gradually wider variety of topics the interpreters are facing in the course of serving actual meetings which is required to obtain non-linguistic knowledge in more fields. Consequently, while the absolute ISE level in extra-linguistic knowledge increases, its rate of improvement is minimal. In contrast, ISE related to interpreting skills shows the fastest rate of improvement as expertise increases. This highlights that learning and

practice are likely to significantly enhance ISE in interpreting skills more so than in non-linguistic knowledge.

7.6.2 Contrast on interpreting anxiety

The comparison of IA levels of the three groups (See Figure 7.12) shows that the overall IA level decreases as the interpreters' expertise grows. Likewise, such difference between proficient interpreters to professional interpreters is relatively larger in its absolute value than that between novice interpreters to proficient interpreters. This also shows that compared with the learning of interpreting knowledge, the practical experience of interpreting plays a more important role in easing anxiety in interpreting.

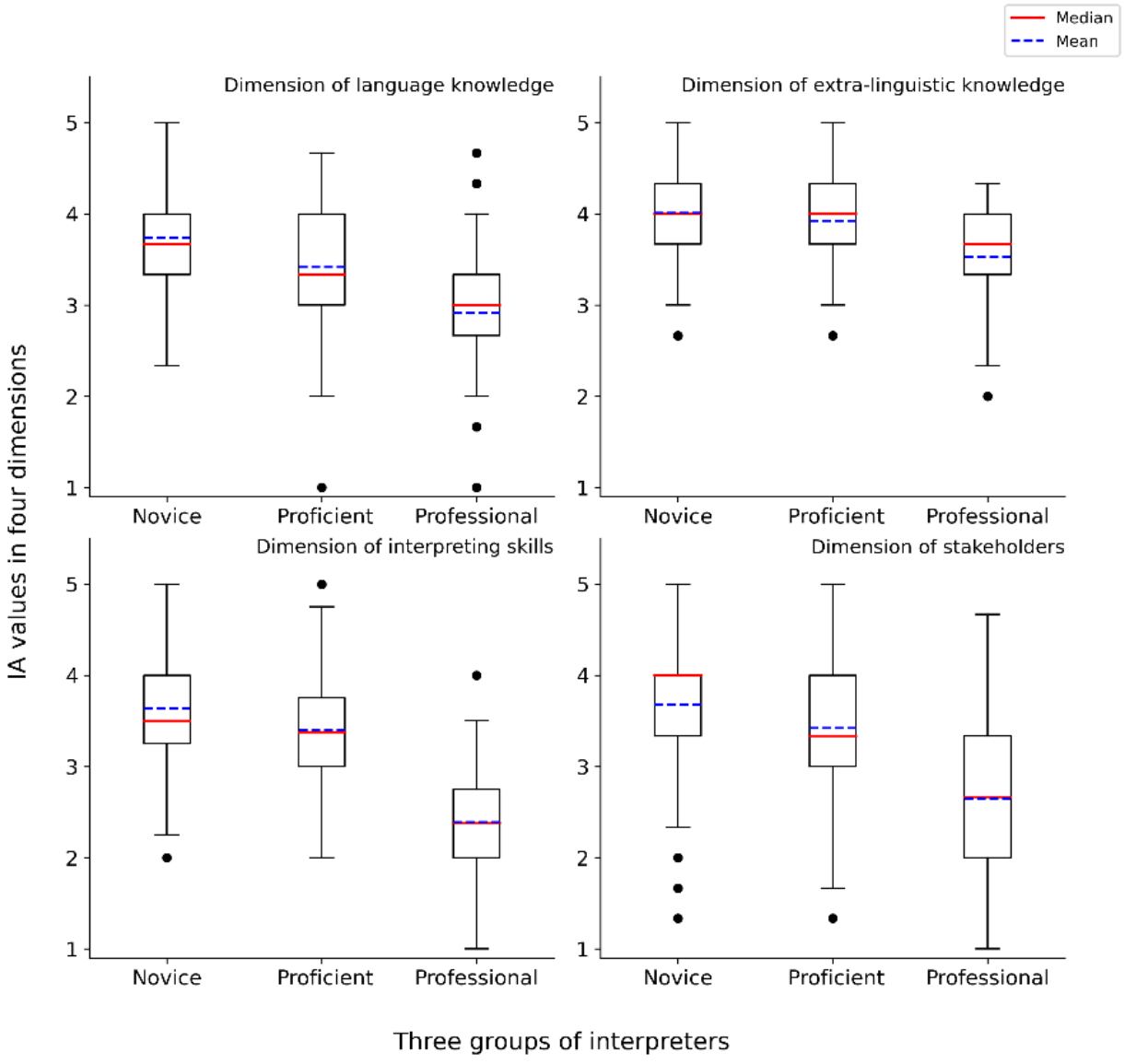


Figure 7.15: Contrast on IA among novice, proficient, and professional interpreters

Meanwhile, for all three interpreter groups, deficiency in extra-linguistic knowledge induces the highest level of anxiety, indicating that familiarity with the topic is strongly associated with anxiety levels. Novice interpreters experience high IA from stakeholder-related sources, which decreases as proficiency increases, suggesting that early-stage interpreters are more easily to be affected by external factors such as audience dissatisfaction, negative teacher feedback, and peer pressure, etc. In contrast, professional interpreters focus more on internal factors, with their emotions being less influenced by external pressures. This shift highlights the development of resilience and self-reliance with increased proficiency and expertise.

7.6.3 The contrast on the correlation between IA and ISE among three groups

The following Table 7.27 was streamlined from the inter-group correlation matrix of ISE and IA in each group of interpreters in previous sections. There are three major conclusions in contrasting ISE-IA correlations across subject groups.

First and foremost, all groups exhibit a significant negative correlation (p<0.05) between IA and ISE in each source dimension, with Spearman correlation coefficients indicating moderate to high negative correlations. This underscores the close relationship between ISE and IA across various dimensions for interpreters at all levels.

To look at the table horizontally, the source factor most closely linking IA and ISE varies by group. For novice interpreters, IA is predominantly linked to stakeholder factors, while proficient interpreters show the strongest linkage with interpreting skills, and professional interpreters with extra-linguistic knowledge. This progression reflects that as learners advance, their focus shifts from external concerns to internal competencies. To be specific, beginner learners are more concerned about other's responses or the external environment which seem more likely to trigger their IA. However, as interpreters develop their expertise and become more proficient, the source factors they consider more are shifted from external to internal. They care more about their actual interpreting skills, and improvement in ISE in interpreting skills tends to connect more with reduced IA in this regard. When interpreters further accumulate experience and become professional, lack of domain-specific professional knowledge as well as task-specific contextual information has the tendency to become the source dimension most closely linked with

IA production. This can be explained by various topics which require a certain level of domain-specific knowledge being encountered in real interpreting job scenarios.

Vertically, as interpreter proficiency increases, the nature of IA-ISE correlations evolves. From novice to proficient and then professional levels, the negative correlation strengthens in bilingual and extra-linguistic knowledge dimensions. Conversely, correlations in interpreting skills and stakeholder aspects initially increase but then decrease. Thus, continuous improvement in ISE, particularly in aspects of language and extra-linguistic knowledge, is crucial for interpreters' long-term development, as IA tends to increasingly correlates with competences in these areas.

Table 7.27: Contrast on the IA-ISE correlation coefficients among three groups of interpreters

Spearman correlation coefficient Between IA and ISE	LK	ELK	IS	STA
Novice interpreters	-.337**	-.192*	-.432**	-.488**
Proficient interpreters	-.474**	-.516**	-.749**	-.551**
Professional interpreters	-.507**	-.606**	-.551**	-.479**

Note: ***. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

LK: language knowledge, ELK: extra-linguistic knowledge,

IS: interpreting skills, STA: stakeholder factors

7.6.4 Contrast between proficient and professional groups on canonical coefficients analysis

For different groups of interpreters, the source factor that contributes the most to the overall IA tends to vary. Results of canonical correlation analyses from sections 7.4.3 and 7.5.3 reveal significant negative correlations between ISE and IA for both proficient and professional interpreters. Specifically, among proficient interpreters, insufficient interpreting skills are the predominant source of anxiety, while for professional interpreters, it is deficiencies in extra-linguistic knowledge. Therefore, to reduce overall IA, it is recommended that proficient interpreters focus more on alleviating anxiety related to interpreting skills, whereas professional interpreters could target more on

improvements in extra-linguistic knowledge.

7.6.5 ANOVA Analysis

In order to determine whether there is a significant difference in ISE and IA values across different dimensions among different groups of interpreters, ANOVA analysis is employed (See Section 3.5.2 and Section 7.2.4). Given that ANOVA requires data to conform to normality and variance homogeneity, this analysis was conducted only on proficient and professional interpreters (refer to the preliminary test in Section 7.2.5).

The ANOVA results (see Table 7.28) confirm significant differences in ISE and IA levels between these two groups. By examining the mean differences in each dimension between proficient and professional interpreter groups, the analysis shows Sig. values less than 0.001, indicating that the null hypothesis can be rejected. Thus, there is a significant difference (at the 0.001 significance level) in the mean values of ISE and IA of proficient versus professional interpreters across all dimensions.

Table 7.28: ANOVA analysis on ISE and IA

	ISE				IA			
	Language knowledge	Extra-linguistic knowledge	Interpreting skills	Stakeholder factors	Language knowledge	Extra-linguistic knowledge	Interpreting skills	Stakeholder factors
Mean Square	19.101	13.149	23.877	25.676	6.985	4.313	28.053	16.292
F	32.563	20.814	37.414	29.295	13.249	16.093	60.996	24.813
Sig.	.000	.000	.000	.000	.000	.000	.000	.000

7.6.6 Contrast of IA in pre- and while-interpreting stages among three groups

As stated in the literature (see Section 2.1.3), there are two main stages in a given interpreting task, that is, pre-stage, which is defined as the preparation time from being assigned the interpreting task to when it begins, and while-stage, which is defined as the time when undergoing the cognitive process of interpreting process. In the questionnaire, by asking the subjects to rate their IA level from 0 to 10 (0 is the lowest and 10 is the highest) at different interpreting stages, the study also attempts to explore the IA level of

different groups of interpreters at different stages of pre-interpreting and while-interpreting. The Figure 7.13 was obtained by calculating the average scores of IA level of each group, which reveals three key insights.

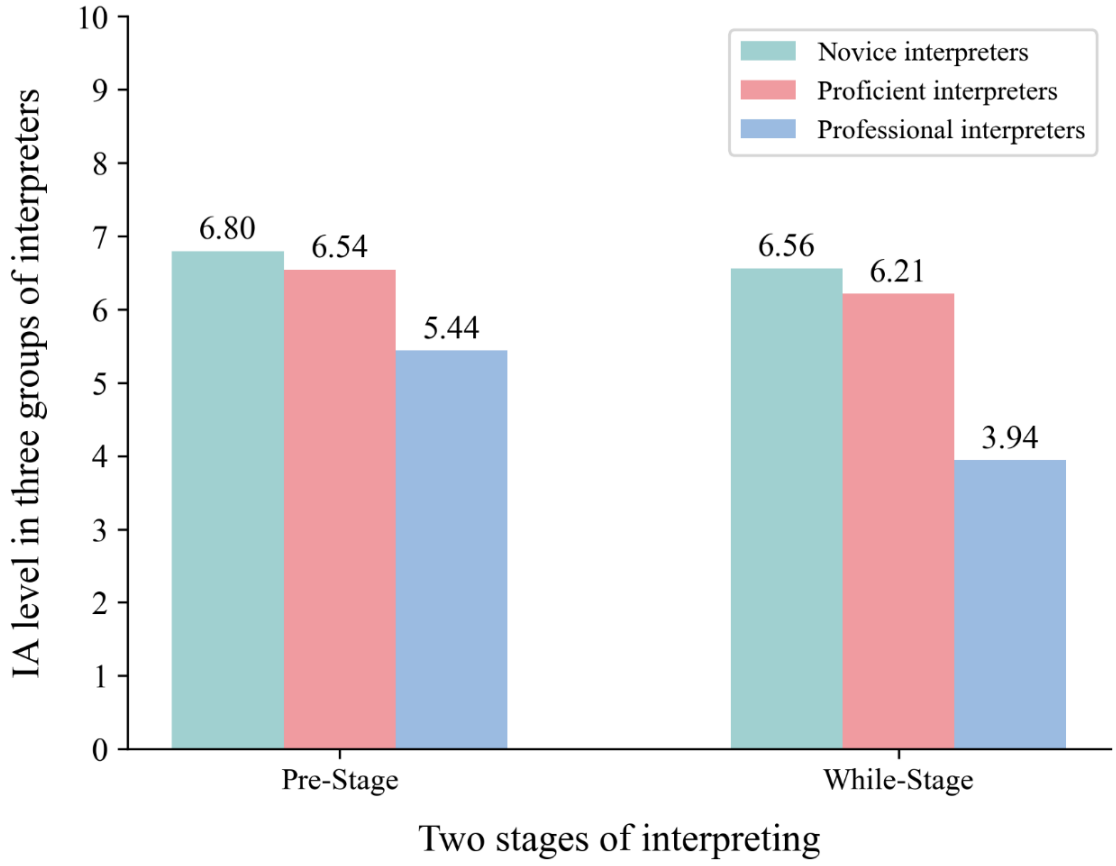


Figure 7.16: IA contrast on two stages of interpreting among three groups of interpreters

Firstly, across all groups, pre-stage IA is higher than while-stage IA, aligning with interview findings and justifying Study 3's focus on pre-stage IA. Secondly, within each stage, IA levels decrease as interpreter expertise increases, consistent with the overall trend of declining IA from novice to proficient and professional levels (Section 7.6.2). Thirdly, the degree of reduction in IA from pre-stage to while-stage varies among groups: the decrease is small (around 4%) for both novice and proficient interpreters but significantly larger for professional interpreters (approximately 28%). To interpret the difference in reduction, a plausible inference is that IA could be notably reduced from pre-stage to while-stage as the result of experience, expertise and certain technics

possessed by professional interpreters.

7.6.7 Conclusion

Drawing together the comparisons across three groups of interpreters, it can be seen that, while interpreting anxiety (IA) and interpreting self-efficacy (ISE) consistently show a negative correlation, the strength of this relationship, the rate of change in IA and ISE, and the specific dimensions most closely linked to anxiety vary across proficiency levels. Four key conclusions emerge:

Firstly, as interpreting proficiency increases, ISE rises and IA declines. This is logical: with advancing career stages, interpreters develop greater competence and confidence through accumulated experience, boosting ISE. Since IA is negatively correlated with ISE, anxiety naturally decreases while interpreters develop their proficiency and expertise. However, IA is unlikely to be fully eliminated – even seasoned professionals with over a decade of experience still report some anxiety in the questionnaire, underscoring its persistent nature.

Second, the primary sources of IA shift across career stages, necessitating tailored coping strategies. Novice interpreters are more affected by external factors such as peer pressure, audience expectations, and evaluator feedback. In contrast, proficient and professional interpreters are less swayed by external pressures but more sensitive to internal competence gaps – proficient interpreters are likely to worry more about interpreting skills, while professionals tend to be most concerned about deficits in extra-linguistic knowledge such as domain-specific knowledge. These differences call for stage-specific interventions in interpreting training, relevant to both practitioners and educators (implications are further discussed in Sections 8.1 and 8.2).

Thirdly, hands-on experience plays a more critical role than textbook learning in boosting ISE and reducing IA. The rate of improvement in ISE and reduction in IA accelerates from the proficient to the professional stage compared to the novice-to-proficient transition. Given that novice and proficient groups consist mainly of students with limited real-world experience, while professionals have extensive practical exposure, this highlights the superior impact of actual interpreting practice. Similar conclusion can also be reached when comparing the degree of IA reduction from pre-stage to while-stage

among three interpreter groups – the IA reduction in professional group is most prominent, which is likely due to their refined preparation strategies as the result of their experience, expertise and technics.

Last but not least, interpreting is a long-term commitment requiring sustained effort. Early-stage learners show only modest gains in ISE and reductions in IA. Progress accelerates as interpreters mature, with stronger ISE–IA correlations – especially in language and extra-linguistic knowledge – emerging at higher proficiency levels. This underscores the importance of perseverance in practice. Effective anxiety management also supports long-term career commitment by enhancing interpreters' psychological wellbeing. Continuous learning and professional development are thus essential, particularly for experienced interpreters (this is further detailed in Section 8.2.1).

7.7 Validation of the proposed IASM

As explained in the methodology chapter (see Section 3.3.2 and section 3.3.3), Study 3 also attempts to validate the IA Source Model proposed in Chapter 5, through analysing the data collected in the questionnaire and testing the two major hypotheses of the Model.

Concerning the primary appraisal process and secondary appraisal process respectively, the two major hypotheses for the IA Source Model are as following:

Hypothesis 1: IA level is negatively correlated with ISE level

Hypothesis 2: Interpreters with higher proficiency tend to have lower IA

More details of the rationality of the two hypotheses are in Section 3.3.3.3.

7.7.1 Test of Hypothesis 1

As seen in Section 7.3, Section 7.4, and Section 7.5, for all three groups of interpreters, the values of each slope in the scatter diagrams are all negative, meaning IA and ISE are negatively linked in all dimension. Also, the correlation coefficients between IA and ISE in all dimensions are all negative, which again confirms the negative correlation between IA and ISE in all of their dimensions. Moreover, this conclusion is further backed by the results of canonical correlation analysis, as the signs of canonical loadings of two groups of variables are opposite to each other.

Therefore, the questionnaire data shows that IA is negatively correlated with ISE across all four dimensions, thereby supporting the acceptance of Hypothesis 1.

7.7.2 Test of Hypothesis 2

Hypothesis 2 posits that interpreters with higher proficiency tend to have lower IA, a notion supported by comparing the three subject groups. Analysis results from Section 7.6.2 reveal a clear trend from the questionnaire data: IA decreases as interpreter expertise increases, applicable across all four IA dimensions for the three groups. The significance of these differences in mean values of IA among different proficiency levels is confirmed by ANOVA analysis (Section 7.6.5). Thus, Hypothesis 2 is also accepted.

In summary, both hypotheses are validated, affirming the proposed IASM. However, it is important to note that Study 3 specifically examines the pre-stage of interpreting, for example, the items in the scale discuss about interpreters' feelings in pre-stage only. To further strengthen the model's validation, additional evidence from the while-stage is necessary.

Chapter 8 General Discussions and Conclusions

To conclude, this thesis examines interpreting anxiety (IA), a critical factor influencing interpreters' learning outcomes (Chiang, 2010), through an abductive research approach and an exploratory mixed-methods design. It investigates the sources and levels of IA experienced by Chinese-English interpreters during consecutive interpreting, focusing on three groups: novice, proficient, and professional interpreters. This thesis addresses the research gap of lacking a comprehensive understanding of where IA comes from and how it possibly varies comparing interpreters across different interpreting competence levels.

In the thesis, four research questions were answered:

Research Question 1: What are the sources of IA?

Research Question 2: What are the processes through which IA emerges?

Research Question 3: Within each group of interpreters, what is the IA level induced by each source in the pre-stage?

Research Question 4: How does IA level from different sources vary in the pre-stage across interpreters of different proficiency?

To address the research questions, three studies were conducted:

Study 1: Utilised interviews and grounded theory to identify and categorise IA sources, addressing the first research question.

Study 2: Developed an IA Source Model (IASM) combining psychology and linguistics to explain the root causes and the producing mechanism of IA, providing a systematic and comprehensive outlook of how stress stimuli can possibly turn into anxiety in interpreting. This addressed the second research question.

Study 3: Employed scales and questionnaires to validate the IA Source Model and quantify IA levels from various sources within and across the three interpreter groups. This addressed the IA level induced by different source dimensions and how IA levels vary with proficiency, answering the latter two research questions.

This chapter presents the overall discussion and conclusions of the thesis, structured with five main sections. Section 8.1 provides the summary of findings of the four research questions in this thesis. Section 8.2 highlights the research implications to interpreting education and practice. Section 8.3 outlines the innovation and contribution of this

research whereas its limitations and recommendations for future studies are discussed in Section 8.4.

8.1 Summary of findings

Overall, this thesis addresses four research questions. This section summarises major research findings in addressing these four questions.

8.1.1 Outcomes of Research Question 1 – IA source categorisation

By adopting interviews and grounded theory, Study 1 focused on exploring IA source categorisation and its specific factors (see Chapter 4). The findings revealed four main categories of IA source factors:

(1) Language knowledge: it refers to the lack of bilingual knowledge such as phonetics, semantics, morphology and syntax, etc., as well as language application capabilities, e.g., cannot swiftly convert between two languages or quickly organise sentences.

(2) Extra-linguistic knowledge: it refers to deficit in such factors as encyclopaedic knowledge, domain-specific professional knowledge, and contextual knowledge, conference agenda and background information for instance.

(3) Interpreting skills: it refers to the shortage in skills including general skills of interpretation such as note-taking, public presentation, etc., interpretation strategies such as chunking, pausing, paraphrasing, etc., as well as interpretation technical skills, for example, proficient use of interpretation equipment and other computer-aid interpreting tools.

(4) Stakeholder factors: it refers to factors related to stakeholders of the interpreting task, including audience, speakers, examiners, customers, peers, self, and others, etc.

Notably, the stakeholder factors category, encompassing elements related to audiences, speakers, evaluators, clients, and peers who may influence or be involved in the interpreting process and its outcomes, was introduced as an original concept by this thesis. This contribution marks a novel addition to the field of interpreting studies, highlighting an innovative aspect of this research. This categorisation is further used in developing the

IASM proposed in this thesis.

Interviews in Study 1 also reveal that IA exists in both the pre-interpretation preparation phase ("pre-stage") and the actual process of oral language conversion ("while-stage"). While IA is present in both stages for all groups, its intensity and timing vary: novices report high and often escalating anxiety, particularly during the while-stage, whereas professionals experience most IA pre-task and frequently enter a focused "flow mode" once interpreting begins, minimizing emotional interference. Proficient interpreters show mixed patterns, with anxiety levels influenced by factors like topic familiarity. Overall, higher proficiency correlates with lower IA, shorter duration of anxious episodes, and more effective management strategies.

8.1.2 Outcomes of Research Question 2 – the IASM

This thesis advances beyond identifying and categorising sources of IA by developing the IA Source Model (IASM) which offers a plausible explanation of IA root causes and mechanisms of IA production and coordination. Grounded in State-trait Anxiety Theory (Spielberger, 1966), Stress Cognitive Appraisal Theory (Lazarus & Folkman, 1984), and Self-efficacy Theory (Bandura, 1986), the IASM integrates psychological and linguistic perspectives to explain how IA is generated and modulated, addressing Research Question 2. Figure 5.2 exhibits the IASM which details can be found in Section 5.2.

Central to the IASM is the cognitive appraisal process, which hinges on an individual's interpreting self-efficacy (ISE), their self-perceived belief in one’s own interpreting competences in completing a certain interpreting task. Lower ISE often leads to specific stimuli being appraised as "threatening," thereby triggering IA. The model outlines a dynamic mechanism comprising four stages: (1) stimuli factors as IA trigger, (2) ISE as mediator in cognitive appraisal of IA, (3) Coping resources as the activator of IA defence mechanisms, and (4) reappraisal process as IA coordinator. To be specific, identified stimuli are evaluated by the means of ISE in the cognitive appraisal process. If stimuli are evaluated as non-threatening, IA does not arise; otherwise, IA is triggered. Coping resources, typically over-learnt or over-practiced responses, can mitigate IA through the activation of defence mechanisms and the subsequent secondary appraisal, facilitating IA reduction or coordination. Furthermore, guided by the abductive and exploratory mixed-methods design, the proposed IASM was examined and validated via testing its critical

hypotheses using questionnaire data in Study 3.

The proposal of IASM bridges the gap of lacking models of explaining the producing and adjusting mechanisms of IA. Moreover, here are three innovative aspects brought by the IASM. Firstly, instead of discussing IA as a whole, it breaks down IA into different dimensions, namely, language knowledge dimension, extra-linguistic knowledge dimension, interpretation skills dimension, and stakeholder factors dimension, offering a more nuanced understanding of each source's contribution. It also allows for the observation of IA levels in terms of different sources across interpreters with varying proficiency. Secondly, it takes the time length of IA duration into consideration and introduces the original concept of "Instantaneous IA". This refers to a type of interpreting anxiety occurring very briefly, as the result of a quick response from defence mechanisms. This is because for experienced interpreters, with more coping resources available, defence mechanisms and secondary appraisal are more likely to be activated promptly, shortening the length of alarming time and therefore leading to instantaneous IA. Thirdly, it accounts for fluctuations in IA levels across different stages of an interpreting task – pre-stage and while-stage, influenced by the availability of coping resources and situational adaptation. For example, more uncertainty is involved in the pre-stage of interpreting whereas more requirement for immediacy and multi-tasking is involved in the while-stage, and such situational differences would require different coping strategies which availability would influence the activation of defence mechanisms. Consequently, IA levels may vary between the pre-stage and the while-stage of interpreting.

8.1.3 Outcomes of Research Question 3 – IA and ISE from different sources for a certain group

Research Question 3 examines the relations between ISE and IA, as well as the levels of IA relative to different IA source dimensions respectively in three interpreter groups. Study 3 addresses this question using questionnaire data. The findings yield two main conclusions observed across all three interpreter groups, along with specific results for each group.

First, a strong negative correlation between IA and ISE is evident in all dimensions and for all groups. This indicates that higher ISE consistently predicts lower IA, regardless of the anxiety source. Thus, enhancing ISE is crucial for managing and reducing IA across

proficiency levels. Practical strategies for boosting ISE are discussed in Section 8.2.

Another common trend observed in all three groups is that IA is generally higher in the pre-stage (preparation before interpreting) than in the while-stage (during interpreting). Unlike the while-stage where the situation is unfolding, the pre-stage involves greater uncertainty, making it harder to anticipate challenges or select effective coping strategies. However, thorough preparation, particularly possible coping measures, during this phase can significantly reduce anxiety. The specific research outcomes for each group of interpreters are summarised in the following:

8.1.3.1 Novice Interpreters

Overall, the ISE level in the novice interpreter group remains low while the IA level remains high. That is to say, novice interpreters tend to feel a high level of anxiety, in all four IA source dimensions, language knowledge, extra-linguistic knowledge, interpreting skills, and stakeholder factors, during interpreting tasks. At the meanwhile, Significant negative correlation between IA and ISE is observed across all dimensions, with the strongest correlation in the stakeholder dimension. Moreover, novice interpreters tend to be particularly sensitive to stakeholder factors, such as peer pressure, audience expectation, evaluator's response, or teacher's comments, where a small drop in ISE can markedly increase IA. Conversely, IA related to extra-linguistic knowledge remains consistently high and less responsive to improvements in ISE in this regard.

8.1.3.2 Proficient Interpreters

Proficient interpreters show moderate ISE and moderately high IA. Among all four dimensions, IA in interpreting skills is most sensitive to ISE in this dimension, suggesting that such deficiencies as note-taking, interpreting techniques, and cross-cultural communication skills could have a notable impact on IA. Canonical correlation analysis indicates that IA stemming from interpreting skills deficits contributes most heavily to overall IA. That is to say, improving the competence and self-efficacy particularly in aspects relating to interpreting skills, for example, to further strengthen capabilities of interpreting note-taking, confidence in public speaking, tends to reduce IA more effectively for proficient interpreters. Specific pedagogical implications are discussed Section 8.2.

8.1.3.3 Professional Interpreters

Professional interpreters generally report moderate-high ISE and moderate IA, with significant negative correlations between IA and ISE across all dimensions. In terms of specific dimensions, extra-linguistic knowledge is the dimension where the professional interpreters tend to find less confident about and thus reporting relatively highest level of IA. In contrast, professional interpreters are more confident in their interpreting skills, resulting in lower IA in this dimension. The canonical correlation analysis supports the idea that a lack of extra-linguistic knowledge, such as context, domain-specific, or cultural knowledge, constitutes the largest component of overall IA for professionals. Therefore, in their continuous professional development for professional interpreters, to specialise in one or a couple of high-demand professional fields is likely to be beneficial to IA reduction, as the result of more contextual knowledge and accumulation of specialised terms of certain professional domain. More suggestions for interpreter's continuous professional development would be discussed in the implications in section 8.2.

8.1.4 Outcomes of Research Question 4 – comparison of IA across three groups

In Study 3, Synthesising the conclusions across three groups of interpreters reveals three main arguments regarding the general trend, specific IA source dimensions, and stage-specific IA levels.

First and foremost, the general trend is that the ISE level keeps increasing while IA level gradually drops down as the interpreters increase their proficiency and expertise. Also, the lasting time of IA tends to be shorter along the development of interpreting proficiency. For interpreters with high level of proficiency and expertise, IA could happen really fast and its duration could be as short as in a blink of eyes, which is called "instantaneous IA".

Secondly, judging from the correlation coefficients and the canonical correlation analysis, the primary sources of IA vary with proficiency stages. Novice interpreters are most affected by stakeholder-related factors, such as fear of teacher criticism or negative audience responses. Proficient interpreters are more concerned about interpreting skills; deficiencies in note-taking, techniques, and cross-cultural communication tend to significantly elevate their IA. Professional interpreters are most affected by extra-linguistic knowledge, particularly domain-specific professional and contextual

information, making adequate preparation on professional knowledge and provision of relevant background information crucial prior to tasks. These differences underscore the need for tailored anxiety-reduction strategies at each proficiency level, with practical suggestions discussed in the implications section.

Thirdly, across all three groups of interpreters, pre-stage IA is generally higher than while-stage IA. As proficiency increases, both pre-stage and while-stage IA decrease, with the most significant reductions observed in professional interpreters. In other words, professional interpreters are able to take better use of the preparation prior to interpreting. This is likely attributed to the experience owned by professional interpreters which enable them to better know about how to prepare responding strategies in coping with possible stimulus brought by challenging situations. For example, based on their prior assignments, professional interpreters are likely to be more effective in anticipating the content of the upcoming speech and therefore prepare accordingly. These proactive measures allow faster activation of defence mechanisms when anxiety arises, leading to quicker, real-time anxiety reduction and the most notable drop in IA among professionals compared to less experienced groups.

8.2 Implications of the research findings

The findings of this thesis research focus on the sources and generative mechanisms of interpreting anxiety (IA), as well as its variation across interpreters' proficiency levels. These insights yield significant implications for managing IA throughout interpreters' developmental stages, particularly within the context of Chinese-English interpreters in China, as this research sets context in China.

Given China's growing international engagement, driven by initiatives such as "Belt and Road" and the strategic emphasis on "telling China's stories well", the demand for high-quality interpreters has surged in diplomatic, commercial, and cultural domains (Cao, 2025). Concurrently, rapid advancements in artificial intelligence (AI) and information technologies have reshaped the interpreting landscape, positioning technological competence as an integral component of professional practice (Wang & Li, 2020). As such, interpreters who can effectively leverage AI tools and collaborate with machine translation systems are increasingly in demand.

However, interpreting is a cognitively and emotionally demanding task that requires extensive training and substantial practice. Given the shortage of qualified interpreters, it is crucial to address factors that impact interpreting performance and training, and IA is one such key factor (Ferdowsi & Razmi, 2022; Korpal, 2017). Therefore, by better understanding the production and management of IA across proficiency levels, this thesis brings practical implications and contributes to reducing IA at interpreter's different career stages and fostering the development of more emotionally resilient and high-quality professionals.

Section 8.2 discusses the practical implications from three perspectives: individual interpreters, interpreting instructors, and overall society. For individuals, the implications involve specific methods of improving interpreting competence, interpreter's continuous professional development in particular. For instructors, the thesis conclusions inform tailored pedagogical approaches to strengthen learners' ISE and mitigate IA across proficiency levels. At the societal level, the study underscores the need to raise awareness of interpreters' psychological well-being in this high-stress profession.

8.2.1 Implications for interpreters

The IASM proposed in this thesis explains how IA is produced and adjusted, underscoring the essential roles ISE and defence mechanisms play in primary and secondary cognitive appraisals and hence determining IA levels. The results of Study 3 further reveal that there is a significant negative correlation between IA and ISE. Therefore, for interpreters, both learners and practitioners, an important key to address IA is to improve their ISE. Given that ISE reflects an individual's perceived confidence in their interpreting competence, enhancing actual interpreting competence is fundamental to strengthening ISE and, consequently, mitigating IA among both learners and practicing interpreters.

This research reveals four critical dimensions of interpreting competence: language knowledge, extra-linguistic knowledge, interpreting skills, and stakeholder-related factors. For students majoring in interpretation, they can learn from their courses which help interpreting students understand, practice and master bilingual proficiency such as grammar, syntax, semantics, as well as interpreting skills including interpreting note-taking skills, public presentation skills, and etc. Also, they can benefit from extra-curriculum listening and reading in order to learn about extra-linguistic knowledge, for

example, new words, authentic expressions, encyclopaedia knowledge, and diversified cultures.

For professional interpreters, as they already left schools and universities for years or even longer, continuous professional development plays a crucial role in their competence enhancement. Specific methods include:

(1) Pursue advanced certification and continuing education

Interpreters can enrol in interpreting accredited programmes such as CATTI (China Accreditation Test for Translators and Interpreters) and Interpreting Test of Shanghai International Studies University. This is because when customers look for interpreters, accreditation and experience are the two crucial factors that mostly concerned about (China Translation Association, 2025). Preparing for and obtaining these certifications enables systematic skill development (Ma & Ji, 2019), enhances professional competence, and therefore boosts ISE, thereby reducing IA. Achieving recognised credentials also strengthens market recognition (Ma & Ji, 2019), opens doors to higher-level assignments, and fosters a positive cycle of experience, growth, and career advancement.

(2) Specialise in high-demand fields and maintain knowledge curiosity

Professional interpreters can deepen expertise in specialised domains such as legal, medical, or financial interpreting, while accumulating domain-specific terminology and subject-matter expertise (Shermatov, 2024). For instance, a conference interpreter might pursue courses in International Financial Reporting Standards (IFRS) or CFA (Charted Financial Analyst) content to build domain-specific knowledge. Through more focused drills in such fields helps accumulate specialised terminology, contextual awareness, and numerical sensitivity, significantly lowering IA in settings such as financial report press release or shareholder meetings. Additionally, maintaining curiosity about emerging fields, such as artificial intelligence, blockchain, big data, and generative models like ChatGPT, supports broader extra-linguistic knowledge acquisition and strengthens overall interpreting competence.

(3) Engage in regular self-review and peer feedback

Recording and reviewing interpretation sessions enables objective self-assessment of clarity, accuracy, and delivery pace (Laroslavschi, 2011), fostering experience learning

and increased ISE, which in turn reduces IA. Constructive feedback from peers and colleagues helps identify areas for improvement (Lee, 2018) and build a repertoire of effective coping strategies. According to the IASM, having such strategies readily available allows for quicker activation of defence mechanisms when facing similar challenges, leading to more effective anxiety management.

(4) Develop soft skills and cultural intelligence

High-quality interpreting performance often relies on soft skills such as emotional resilience (Qiu, 2023), communication ability, adaptability, and cultural sensitivity (Lotus Localize, 2024). For example, interpreters in conflict resolution must remain neutral and empathetic under pressure, and successful experiences in such settings enhance ISE and reduce IA. Proactive communication with clients and speakers before assignments also helps gather contextual and background information, mitigating uncertainty and anxiety. These skills can be strengthened through deliberate practice and intercultural communication workshops.

(5) Master new technologies and computer-aided interpretation tools

With rapid advancements in digital technology and AI, particularly large language models, interpreters can develop their technical abilities to enhance performance (Zhang & Sheng, 2025) which can help reduce anxiety. This includes mastering remote interpreting platforms such as Zoom, Microsoft Teams, and Tencent Meeting (Gao & Zhao, 2024). Technical fluency enables interpreters to handle software issues confidently during live sessions, minimising stress caused by unexpected disruptions and supporting a smoother and more professional service delivery with reduced IA.

Beyond remote interpreting platforms, a deeper understanding and effective use of machine-assisted or AI-aided tools are vital too. By continuously learning about AI applications in interpretation, interpreters can leverage technologies such as AI-powered speech recognition, terminology databases, and real-time translation aids in prior-, while, and post-interpretation (Wang & Li, 2020) to enhance performance. The effective use of those tools in a collaborative human-AI model facilitates interpreters to leverage AI's advantage of transcribing audio, parsing syntax and retrieving terms, and at the same time, shine in human's advantage of emotional empathy and contextual judgement (Bezzaoucha, 2025; Fantinuoli, 2018). The resulting improvements in preparation

efficiency and output quality help alleviate anxiety stemming from, for example, fears of errors, delays, or unmet expectations of clients and audiences. Ultimately, integrating AI and digital tools into their skill set could enable interpreters to work more effectively and confidently, making technological proficiency a proactive strategy for boosting performance and reducing IA.

8.2.2 Implications for interpreting instructors

By proposing the IASM and investigating the IA sources and levels among interpreters across different proficiency, this thesis also brings pedagogical implications to interpreting instructors, including the importance of self-perception, over-learnt coping strategies, and tailored teaching methods to interpreting learners at different stages.

8.2.2.1 Self-perception improvement

Since ISE is a subjective and self-perceived notion, ISE is not necessarily equal to one's real competence level, but rather, one's own belief in the competence. Practice, vicarious experience, encouragement from others, and physiological and emotional states help build higher and more accurate self-assessment of one's competences (Bandura, 2008; Schunk & Usher, 2012). Interpreting educators can leverage these dimensions to strengthen learner's ISE and, in turn, reduce IA.

(1) First-hand experience and real practice

Engaging in real-world assignments, consistent interpreting practice, and rigorous pre-assignment simulations help interpreters build concrete competence and confidence. Immersive training using emerging technologies such as virtual reality (VR) tools (Zhang & Liu, 2024) or technology-based practice (Liu, 2024) can significantly reduce interpreting learners' IA by familiarising themselves with potential task scenarios, allowing them to develop and rehearse coping strategies in advance. This proactive preparation enhances perceived readiness. As interpreting learners accumulate experience, they gain clearer insight into their capabilities, leading to higher ISE and lower IA when facing similar tasks in the future.

(2) On-site observation and vicarious experience

Instructors can provide more observation opportunities. By observing experienced interpreters in action, how they prepare, manage challenges, handle technical issues, or

communicate with speakers beforehand, it helps learners internalise effective strategies. This vicarious learning enables them to anticipate difficulties and thus preparing potential coping strategies, accelerating the activation of defence mechanisms when under pressure. Additionally, peer practice fosters self-belief through social comparison: seeing colleagues or partners with similar capabilities succeed in difficult tasks reinforces the mindset, "If they can do it, so can I," which strengthens ISE and reduces anxiety. Therefore, instructors can provide more interpreting observation opportunities and use study group and peer feedback in teaching, so to equip students with more vicarious experience.

(3) Verbal persuasion and encouragement

Encouragement from multiple sources significantly boosts self-efficacy. Encouragement and constructive feedback from, interpreting instructors for instance, provides bravery and external validation. In interpreting training, for novice interpreters in particular, who are sensitive to stakeholder factors, positive reinforcement and encouraging feedback from teachers and trainers are instrumental in building ISE and therefore reducing IA.

(4) Physiological and emotional states

Managing emotional and physical states is also key to maintaining confidence under pressure, and therefore teaching students certain stress-relief techniques can be useful. Techniques such as recalling past successes ("I handled a high-stakes meeting before"), practicing deep breathing or mindfulness (Aubrey, 2024), or using symbolic reminders of capability (e.g., wear lucky charms) (American TESOL Institute, n.d.) can positively influence emotional arousal and bolster confidence before and during interpreting tasks. By cultivating a calm and positive mindset for learners, interpreting trainers can help their students improve their perceived efficacy and resilience.

8.2.2.2 Importance of repetitive practice

According to the IASM, the activation of defence mechanisms during secondary appraisal, crucial for regulating and reducing IA, depends on coping strategies that are highly over-learned and automatic. In interpreting training, repetitive practice transforms these strategies into rapid, even reflexive responses, facilitating quicker activation of defence mechanisms and a more efficient secondary appraisal process, ultimately leading to lowered IA.

The approach of obtaining highly over-learnt or automatic responses aligns with the notion of interpreting cognitive efforts (Gile, 2009) which explains that the cognitive resources freed through automation can be reallocated to other demanding tasks in interpreting, thereby enhancing overall performance. For example, instructors can help learners identify and repeatedly practice common expressions, collocations, and sentence patterns until they become instinctive. This enables immediate retrieval under pressure, allowing effective anxiety management through swift activation of defence mechanism when IA appears.

Beyond linguistic chunks, procedure coping strategies for recurring challenges can also be over-learned. For instance, when encountering culture-specific references or allusions, a reliable protocol is to first provide a literal translation, followed by a clear explanation of its culturally embedded meanings (Rakhimova & Khujaniyazova, 2024). By internalising such methods as standard responses, interpreters reduce decision-making time and ensure a ready coping mechanism. This not only shortens reaction time but also strengthens the activation of defence mechanisms within the IASM framework, enabling swift anxiety adjustment and more confident, fluent performance.

8.2.2.3 Importance of tailored teaching methods

Another implication is that strategies to cope with IA should be tailored to different proficiency stages, as indicated by questionnaire results in Study 3. It should reflect differences among interpreters of different proficiency level instead of assuming a one-size-fits-all approach. To be specific:

(1) Teaching novice interpreters

Beginner learners are particularly sensitive to stakeholder-related pressures, making it essential for instructors to foster a supportive and encouraging learning environment. This includes, for example, positive feedback from instructors, as it tends to mitigate stakeholders-related concerns and lower IA as a result. Trainers can use technology-aided teaching techniques such as artificial intelligence (Wang, 2025) and virtual reality (Zhang & Liu, 2024) to create a more encouraging and enjoying learning environment. Also, classroom setting, such as how to form a group in group practice, and organisation can be a way of creating favourable and stress-less environment (Hua & Dai, 2016)

(2) Teaching proficient interpreters

For teaching proficient or intermediate interpreters, training should focus more on refining core interpreting skills such as note-taking, public speaking, and cross-cultural communication, etc. Strengthening ISE in these areas tends to effectively reduce IA. In the classroom, AI-driven technology can be introduced to, for example, simulate upcoming interpretation scenarios, personalise assessment of interpretation skills, and enable immediate feedback and self-adjustment (Yang, 2024) to compensate for limited real-world experience. Such simulations and personalised assessment allow learners to practice under realistic conditions, accumulate coping strategies, and build confidence, enhancing interpreter's ISE and readiness for actual assignments.

Beyond conventional interpreting skills, being able to efficiently leverage AI and AI-related tools should be integrated into interpreter's skillset too, for such tools have been proven effective in improving translation efficiency and quality (Yang, 2025). Moreover, studies show that student interpreters are still at a basic level of technology use and lack a clear understanding of relevant tools (Sun & Han, 2024). This highlights significant potential for interpreting education to strengthen technology awareness and equip future interpreters with essential digital skills.

Said that, against the backdrop of fast development of AI technology and its application in translation and interpretation, one more essential skill that need to be taught to interpreting learners is critical thinking ability. While AI aids in translation process and reduces cognitive burdens (Bezzaoucha, 2025), students should be encouraged to think more critically that, for example, whether there is any better word choice, more authentic expression, or more aesthetic way of sentence organisation, enhancing translation quality. Critical thinking and post-editing ability become increasingly vital for effective human-AI collaboration.

(3) Supporting professional interpreters

Professional interpreters often face anxiety due to unfamiliar subject matter or lack of contextual knowledge across diverse assignments. Given the impossibility of mastering all domains, specialisation in specific fields such as law, medicine, finance, or international trade is recommended. Deep expertise in a niche area enhances confidence

and reduces IA. Equally important is proactively gathering background information from clients or event organisers before assignments. Training should therefore emphasise practical skills like pre-task communication with speakers and using tools like ChatGPT to rapidly acquire relevant contextual knowledge, enabling better preparation and more effective anxiety management.

8.2.3 Implications for the society

From the perspective of society, raising awareness and understanding among conference organisers and speakers about the possibility of anxiety that interpreters could experience during the task is important. Simultaneous and consecutive interpreting are widely recognised as high-pressure professions characterised by intense cognitive demands, no revision opportunities, and real-time response, all of which contribute significantly to interpreters' occupational stress and anxiety (Pöchhacker, 2016). Research indicates that interpreters frequently experience elevated levels of psychological strain, including symptoms of burnout, fatigue, and anxiety, particularly when working in high-stakes settings such as legal, medical, or conflict zones (Diaz, 2019).

As this research shows, a key factor exacerbating this stress, for professional interpreters in particular, is the lack of contextual information and adequate preparation prior to assignments. Studies have shown that advance provision of materials, such as glossaries, agendas, or background documents, enables interpreters to prepare effectively, which not only enhances the accuracy and quality of interpretation but also significantly reduces anxiety levels (Díaz-Galaz et al, 2015). Despite this, one common misconception about interpreters is that they are someone know-it-all and can "liaise on any subject" even without domain-specific professional knowledge (Admin, 2024). Such misconception from clients, agents, and the public contributes to a deficit in psychological support and professional recognition. Therefore, the psychological health of the people of this profession needs more attention and understanding from the society. Fostering greater awareness and institutional support, particularly from key stakeholders such as event organisers, employers, and clients, is essential not only for improving interpreting quality but also for safeguarding interpreters' mental well-being and long-term professional sustainability.

8.3 Thesis contribution

There are three main contributions that the current thesis research can make to the body of academic knowledge.

8.3.1 It explains the root causes and provides mechanism of IA production

This thesis advances beyond the surface-level exploration of IA source factors and their categorisation, as commonly found in existing literature (Deng, 2018), by innovatively developing the Interpreting Anxiety Source Model (IASM). The IASM identifies the major root causes of IA and clarifies its production and coordination mechanisms, offering a more comprehensive and systematic understanding of IA. As an interdisciplinary endeavour, the IASM integrates psychological theories with elements from linguistics and interpreting studies. Compared with existing models describing IA producing mechanisms (See Section 2.3.4), the IASM enhances robustness through qualitative and quantitative data and achieves greater comprehensiveness by encompassing interpreters of varying proficiencies and differing stages of the interpreting task. It facilitates interpreting researchers, learners, practitioners, and trainers to have a better understanding of IA and its working mechanism as well as choices of more appropriate approaches to address IA.

8.3.2 It provides segmentation of IA

In contrast to existing studies that often treat IA as a singular concept (see Chapter 2), this thesis emphasises the segmentation of IA according to different stages of interpreting tasks or source dimensions.

8.3.2.1 Stage-wise Perspective

IA can be segmented into pre-stage and while-stage anxiety. Pre-stage IA occurs from taking on assignment to commencement of interpreting process, allowing interpreters time to prepare and activate defence mechanisms by identifying problems and finding necessary coping resources. Conversely, while-stage IA arises during the actual interpreting process, characterised by its immediacy and lack of opportunity for preparatory strategies, making defence mechanisms activation more challenging. This distinction is supported by both interview and questionnaire data, revealing differing IA levels across these stages among all three groups of interpreters.

8.3.2.2 Source Dimensions Perspective

From the perspective of different source categorisations, IA can be divided into four different dimensions, i.e., dimensions of language knowledge, extra-linguistic knowledge, interpreting skills and stakeholder factors. Segmenting IA in this manner facilitates identification of which specific dimension could possibly exert more influences on IA within each interpreter's group. This approach offers a nuanced understanding of IA, highlighting the importance of tailored strategies for different stages and dimensions, thereby contributing insights and recommendations for interpreting education and training.

8.3.3 It offers comparison among interpreters across different level of proficiency

As per the literature review, many of the existing relevant studies focus on interpreting students or professionals only (refer to Chapter 2), and there is a lack of comparison among different interpreter groups. This thesis helps bridge the research gap by including and comparing three different group of interpreters according to their level of interpreting capabilities and expertise– novice interpreters, proficient interpreters, and professional interpreters. The findings of the current thesis research, such as that the source dimension and level of IA tend to vary as interpreters develop their expertise, can offer interpreting instructors more specific and tailored teaching suggestions in terms of different level of students.

8.4 Thesis Limitations and recommendations for future research

The current thesis research is subject to certain methodological limitations which need to be acknowledged. The details are discussed in the following sections.

8.4.1 Sample and data collection

This research encompasses interviews (Study 1) and questionnaires (Study 3), with both components involving participant engagement and data collection. There are two potential limitations in data sampling. First, the samples across the two studies consist of three interpreter categories: novice, proficient, and professional interpreters, differentiated by educational level and experience. To be specific, novices are defined as undergraduate students majoring in English translation and interpreting, proficient interpreters as master students majoring in English interpreting, and professionals as practicing experts that possess expertise and experience of no less than two years.

However, it is acknowledged that variability within groups, such as differing levels of knowledge and practical interpreting experience among proficient interpreters, may pose a limitation. Secondly, participants for the interviews were selected via purposive sampling, based on recommendations. Although it is a suitable method (see section 3.4.2), it risks limited diversity due to its reliance on interconnected networks, potentially confining the sample to a small circle.

In terms of data collection, there is a notable gender disproportion among participants. In Study 1 interviews (See Section 4.2), there were 5 novice interpreters (3 females, 2 males), 5 proficient interpreters (all females), and 5 professional interpreters (2 females, 3 males). The lack of male participants in the proficient group may introduce bias if gender influences IA sources and levels. Similarly, questionnaire data revealed gender imbalance across all groups: 17 males and 121 females among novices, 15 males and 69 females among proficient interpreters, and 8 males and 26 females among professionals (See Section 7.1.2). This disparity reflects the inherent broader gender imbalance in conference interpreting, where females dominate both interpreting learning and professional market (Marianacci, 2015; Mastropietro, 2012). Despite this context, the gender imbalance in the study sample must be acknowledged as a limitation. Additionally, the single-instance data collection without longitudinal follow-up limits insights into dynamic aspects of interpreting skills and anxiety, which can fluctuate based on situational factors.

Therefore, future research may wish to address these limitations by incorporating longitudinal data analysis, involving more standards in participants grouping, and striving for greater gender balance in study samples.

8.4.2 IASM Model validation and expansion

The proposed IA Source Model (IASM) was validated using quantitative data from the pre-stage of interpreting only. As explained earlier (see Section 1.3.1 and section 2.1.3), the choice of only focusing on the pre-stage was made because interviews in Study 1 showed that higher IA was reported in the pre-stage compared to the while-stage, and the existing literature rarely distinguishes between these stages. Given higher levels of IA in the pre-stage but fewer studies in this regard, it is more of interest to investigate IA sources and IA levels in the pre-stage. However, this focus constitutes a limitation, as the IASM validation did not extend to the while-stage. Therefore, it is recommended that future

research could collect quantitative data during the while-stage of interpreting, so as to enhance the robustness and comprehensiveness of the IASM and better understand IA sources and levels in the while-stage of interpreting.

Moreover, future studies are also recommended to discuss the strategies for the preparation of interpreting tasks and how they could affect the IA level. The IASM highlights the role of the Defence Mechanism in initiating secondary appraisal and reducing IA levels, facilitated by highly over-learned or automatic coping resources. Therefore, it can be inferred that the highly over-learned or automatic coping resources are conducive to reduced IA level. This leads to the question of whether there are any certain methods in preparing for the coming interpreting task in order to better empower the activation of defence mechanisms and therefore lower the IA level? Also, Study 3 indicates that preparatory activities in the pre-stage tend to effectively lower IA levels across all interpreter groups. But notably, novice and proficient interpreters who are interpreting students experienced only a slight decrease in IA during preparation, whereas professional interpreters showed a significant reduction. This discrepancy suggests a gap of preparation methods for real-world interpreting tasks in current textbook and classroom teaching.

Given these indications, investigating effective preparation methods to reduce IA and improve performance is essential. Such methods, linked to hands-on experience, could serve as valuable resources for addressing challenging scenarios for interpreting students. Future studies on this topic could provide practical guidance for interpreting students, educators, and professionals, enhancing interpreting training and education.

Summary

In final summary, this thesis research not only addresses the identified research gaps comprehensively but also provides insightful implications for interpreters in their learning and professional practice, for interpreting instructors in their training and educational approaches, as well as for society as a whole in raising the awareness of psychological wellbeing of interpreting profession. By innovatively constructing the IASM, segmenting IA, and comparing IA across various levels of competence and expertise, this study contributes new knowledge to the field. Additionally, it proposes directions for future

research aimed at further refining and expanding the understanding of IA and its impact on interpreting performance. These contributions enhance both theoretical insights and practical applications within interpreting education and practice.

References

Adler, A. (1964). *Problems of neurosis*. New York: Harper & Row.

Admin. (2024), *5 Common Misconceptions About Interpretation Services*. Retrieved September 15, 2025, from https://translationsandinterpretations.com.au/blog/5-common-misconceptions-about-interpretation-services/#:~:text=As%20touched%20on%20above%2C%20interpretation%20services%20require,the%20subject%20matter%20being%20interpreted%20as%20well

AIIC. (2023, August 16). *Code of Professional Ethics.* https://aiic.org/company/roster/companyRosterDetails.html?companyId=13403&companyRosterId=120

Aishwarya, N. K. (2024, July 21). *Understanding Likert Scales: Advantages, Limitations, and Questions.* https://www.entropik.io/blogs/understanding-likert-scales-advantages-limitations-and-questions

Alamgeer, Z. (2023, September 14). *Time Horizon in Research Onion.* https://theinnovidea.com/time-horizon-in-research-onion/

Alba, J. W. (2012). In defence of bumbling. *Journal of Consumer Research*, *38*, 981–987. https://doi.org/10.1086/661230

Albl-Mikasa, M. (2013). Developing and cultivating expert interpreter competence. *The Interpreters' Newsletter*, 18, 17–34. https://doi.org/10.21256/zhaw-4081

Alexieva, B. (1997). A typology of interpreter-mediated events. *The Translator*, 3(2), 153-174.

American Psychiatric Association, DSM-5 Task Force. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5™* (5th ed.). American Psychiatric Publishing, Inc. https://doi.org/10.1176/appi.books.9780890425596

Ando, H., Cousins, R., & Young, C. (2014). Achieving saturation in thematic analysis: Development and refinement of a codebook. *Comprehensive Psychology*, 3(4), 1-7.

American TESOL Institute (n.d.) Retrieved August 18, 2025, from https://americantesol.com/lucky-method.html

Anpar Research, (2020, August 26). *How To Design a Good Questionnaire. https://www.anparresearchltd.com/post/how-to-design-a-good-questionnaire*

Archer, M., Bhaskar, R., Collier, A., Lawson, T., & Norrie, A. (1998). *Critical Realism: Essential Readings*. Routledge.

Arnáiz Castro, P., & Pérez-Luzardo Díaz, J. M. (2016). A study on the correlation between anxiety and academic self-concept in interpreter trainees. *Circulo de Linguistica Aplicada a la Comunicacion*. 67. 57-88

Artino, A.R. (2012). Academic self-efficacy: from educational theory to instructional practice. *Perspect Med Educ* 1, 76–85. https://doi.org/10.1007/s40037-012-0012-5

Artusi, R., Verderio, P., Marubini, E. (2002). Bravais-Pearson and Spearman correlation coefficients: meaning, test of hypothesis and confidence interval. *The International Journal of Biological Markers,* 17(2). 148-151

Atkinson, D. P. (2012). *Freelance Translator Success and Psychological Skill: A Study of Translators Confidence with Perspectives from Work Psychology*. PhD thesis. University of Auckland.

Atkinson, D. P., & Crezee, I. H. (2014). Improving psychological skill in trainee interpreters. *International Journal of Interpreter Education*, *6*(1), 3-18.

Aubagna, M. (2021, March 10). *How to Write Scale Questions.* https://skeepers.io/en/blog/write-scale-questions/

Aubrey, A., (2024). *Stressed out? These 8 skills can help boost mood and reduce anxiety.* Accessed on August 16, 2025, at https://www.npr.org/sections/shots-health-news/2024/09/27/nx-s1-5082364/anxiety-stress-positive-coping-class-skills

Babbie E. (2010). *The practice of social research*. 12th Edition. Belmont, USA: Wadsworth

Babura, B. I., Adam, M. B., Samad, A. R. A., Fitrianto, A., & Yusif, B. (2018, November). Analysis and assessment of boxplot characters for extreme data. In *Journal of Physics: Conference Series.* 1132(1), p. 012078. IOP Publishing.

Bachman, L. F. (1990). *Fundamental Considerations in Language Testing*. London: Oxford University Press.

Baessler, J., and R. Schwarzer. (1996). "Evaluación de la autoeficacia: Adaptación española de la escala de autoeficacia general [Self-efficacy assessment: spanish adaptation of the general self-efficacy scale.]" Ansiedad y estrés 2(1), 1-8.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review*, 84(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1990). Perceived Self-Efficacy in the Exercise of Personal Agency. *Journal of Applied Sport Psychology* 2 (2). 128–163. doi:10.1080/10413209008406426.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopaedia of human behaviour* (Vol. 4, 71-81). New York: Academic Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman & Company

Bandura, A. (2006). Guide for constructing self-efficacy scales. In: Pajares F, Urdan T, (eds) *Self-efficacy Beliefs of Adolescents*. New York: Information Age Publishing. 307−337.

Bandura, A. (2008). An agentic perspective on positive psychology. In S. J. Lopez (Ed.), *Praeger perspectives. Positive psychology: Exploring the best in people* (Vol. 1., pp. 167–196). Westport, CT: Praeger Publishers/Greenwood Publishing Group.

Bandura, A., & Schunk, D. H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. *Journal of personality and social psychology*, *41*(3), 586-598. doi:10.1037/0022-3514.41.3.586

Bandura, A., Adams, N. E., Hardy, A. B., & Howells, G. N. (1980). Tests of the generality of self-efficacy theory. *Cognitive therapy and research*, 4, 39-66.

Bandura, A., Taylor, C. B., Williams, S. L., Mefford, I. N., & Barchas, J. D. (1985). Catecholamine secretion as a function of perceived coping self-efficacy. *Journal of Consulting and Clinical Psychology*, 53, 406–414.

Bao, Gang [鲍刚], (1996), Methodology for preparing "professional terminology memorisation" before interpretation [译前准备“术语强记”的方法论]. *Journal of Beijing International Studies University [北京第二外国语学院学报]*.(03), 42-45

Bao, Gang [鲍刚]. (2011) *Interpretation Studies [口译理论概述]* Beijing: China Translation & Publishing Corporation [中国对外翻译出版社]

Barik, H.C. (1973). Simultaneous Interpretation: Temporal and Quantitative Data. *Language and Speech* 16 (3): 237–70

Barriball K. L. & While A. (1994). Collecting data using a semi-structured interview: a discussion paper. *Journal of Advanced Nursing*. 19(2), 328-335. DOI:10.1111/j.1365- 2648.1994.tb01088.x

Bartłomiejczyk, M. (2006). Strategies of Simultaneous Interpreting and Directionality. *Interpreting* 8 (2): 149–174.

Bates, K. S. (2016). *Anxiety and Self-efficacy Constructs within Interpretation.* Master thesis. University of Kansas.

Bearman, M. (2019). Eliciting rich data: A practical approach to writing semi-structured interview schedules. *Focus on Health Professional Education: A Multi-Professional Journal*, *20*(3), 1-11.

Beattie, S., Woodman, T., Fakehy, M., & Dempsey, C. (2016). The role of performance feedback on the self-efficacy–performance relationship. *Sport, Exercise, and Performance Psychology*, 5(1), 1.

Beck, A., Rush, A., Shaw, B., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford Press

Behfar, K., & Okhuysen, G. A. (2018). Perspective—Discovery within validation logic: Deliberately surfacing, complementing, and substituting abductive reasoning in deductive inquiry. *Organisation Science*, *29*, 323–340

Bell, B. S., & Kozlowski, W. J. (2002). Goal orientation and ability: Interactive effects on self-efficacy, performance, and knowledge. *Journal of Applied Psychology*, 87(3), 497.

Bernard, HR. (2002). *Research methods in anthropology: Qualitative and quantitative approaches.* 3rd. AltaMira.

Bertaux, D. (1981). *Biography and society: the life history approach in the social sciences*. California: Sage Publications.

Bezzouacha, I. (2025). The Intersection of AI and Cognitive Load in Simultaneous Interpreting: New Frontiers. *Cahiers de Traduction*, 31(1), 124-130.

Bhandari, P. (2022, May 6). *Questionnaire Design: Methods, Questions, Types and Example.* https://www.scribbr.co.uk/research-methods/questionnaire-design/

Bhaskar, R. (2008). *A Realist Theory of Science*. London and New York: Routledge.

Bhaskar, R., (1994). *Plato etc: the problems of philosophy and their resolution*. New York: Verso.

Biggs, A., Brough, P., & Drummond, S. (2017). Lazarus and Folkman's psychological stress and coping theory. In C. L. Cooper & J. C. Quick (Eds.), *The handbook of stress and health: A guide to research and practice* (pp. 351–364). Wiley Blackwell. https://doi.org/10.1002/9781118993811.ch21

Birks, M., & Mills, J. (2015). *Grounded Theory: A Practical Guide*. London: Sage.

Blaikie, N. (2000). *Designing Social Research*. Cambridge, England: Polity Press.

Blaikie, N., & Priest, J. (2017). *Social research: Paradigms in action* John Wiley & Sons.

Bolaños-Medina, A. (2014). Self-efficacy in Translation. *Translation and Interpreting Studies* 9(2). 197−218.

Bolaños-Medina, Alicia & Núñez, Juan L. (2018). A Preliminary Scale for Assessing Translators' Self-efficacy. *Across Languages and Cultures.* 19 (1). 53-57. *DOI: 10.1556/084.2018.19.1.3*

Bontempo, K. & J. Napier. (2011). Evaluating emotional stability as a predictor of interpreter competence and aptitude for interpreting. *Interpreting* 13(1): 85-105.

Bouffard-Bouchard, T. (1990). Influence of Self-efficacy on Performance in a Cognitive Task. *The Journal of Social Psychology* 130. 353–363. doi:10.1080/00224545.1990.9924591

Branden, N. (2011). *How to raise your self-esteem: the proven action-oriented approach to greater self-respect and self-confidence*. Bantam.

Brehob, K., et al. (2001). Usability Glossary. http://www.usabilityfirst.com

Bryant, A., & Charmaz, K. (2007). *The SAGE Handbook of Grounded Theory*. SAGE Publications.

Bulman, R. J., & Wortman, C. B. (1977). Attributions of blame and coping in the "Real world": several accident victims react to their lot. *Journal of Personality and Social Psychology.* 35. 351-363

Cai, Xiaohong [蔡小红] (2001). Process of Consecutive Interpreting and Competence Development An empirical study of consecutive interpreting by Chinese-French interpreters and students of interpreting [交替传译过程及能力发展——中国法语译员和学生的交替传译活动实证研究]. *Modern Foreign Languages [现代外语],* 24(3), 276-284 .

Cai, Xiaohong [蔡小红], (2005). On the Teaching Evaluation of Training Programmes for Interpreters. [论口译教学训练评估]. *Chinese Translators Journal [中国翻译]. 26(6), 58-61.*

Campbell, R. N. (1984). *The New Science: Self-esteem Psychology*. Lanham.

Cao, D. (1996). Towards a model of translation proficiency. *Target*. 8(2). 325-340.

Cao, Yu [曹娱], (2025). The Cross-cultural Communication Path and Ecological Evolution of Chinese Culture in the Era of Artificial Intelligence [人工智能时代中华文化的跨文化传播路径及生态演变]. *New Perspective [新锐视角],* 4, 78-83

Carpenter, A. (n.d.) *What is ANOVA?* Retrieved June 4, 2024, from https://www.qualtrics.com/en-au/experience-management/research/anova/

Carrig, M. M., & Hoyle, R. H. (2011). Measurement choices: Reliability, validity, and generalizability.

In A. T. Panter & S. K. Sterba (Eds.), *Handbook of ethics in quantitative methodology* (pp. 127–157). Routledge/Taylor & Francis Group.

Carroll, J. B. (1972). Fundamental considerations in testing for English language proficiency of foreign students. In H. B.Allen & R. N. Campbell (Eds.), *Teaching English as a second language: A book of readings* (p. 313–320). NewYork: McGraw Hill.

Chalmers, J. A., Heathers, J. A., Abbott, M. J., Kemp, A. H., & Quintana, D. S. (2016). Worry is associated with robust reductions in heart rate variability: a transdiagnostic study of anxiety psychopathology. *BMC psychology*, *4*, 1-9.

Chan, A. L. J. (2011). Effectiveness of translator certification as a signalling device: Views from the translator recruiters. In *Identity and status in the translational professions* (pp. 31-48). John Benjamins Publishing Company.

Chang, Chia-chien & D. Schallert. (2007). The impact of directionality on Chinese/English simultaneous interpreting. *Interpreting.* 9(2): 137-176.

Chang, H.-J., Huang, K.-C., & Wu, C.-H. (2006). Determination of Sample Size in Using Central Limit Theorem for Weibull Distribution. *Information and Management Sciences*, 17(3). 31-46.

Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. Los Angeles, CA: Sage Publications.

Charmaz, K. (2014). *Constructing Grounded Theory* (2nd ed.). SAGE Publications

Chen, G., Gully, S. M. & Eden, D. (2001). Validation of a New General Self-Efficacy Scale. *Organisational Research Methods* 4(1). 62−83.

Chernov, G. (2004). *Inference and Anticipation in Simultaneous Interpreting*. John Benjamins.

Chiang, Yung-Nan. (2006). *Constructing two Anxieties Constructs: An Interdisciplinary Study of EF Anxiety and Interpretation Anxiety*. PhD Dissertation, University of Texas at Austin.

Chiang, Yung-Nan. (2009). Foreign language anxiety in Taiwanese student interpreters. *Meta*, *54*(3), 605-621.

Chiang, Yung-Nan. (2010). Foreign language anxiety and student interpreters' learning outcomes: Implications for the theory and measurement of interpretation learning anxiety. *Meta: Translators' Journal* 55 (3). 589-601.

China Translation Association, (2025) *2025 Development Report on China's Translation Industry [2025 中国翻译行业发展报告]*. Retrived August 11, 2025, from https://www.sgpjbg.com.cn/baogao/630782.html?bd_vid=3278063273557116079

Chmiel, A., P. Janikowski & A. Cieślewicz. (2020). The eye or the ear? Source language interference in sight translation and simultaneous interpreting. *Interpreting* 22(2). 187-210.

Clark, Herbert & Eve V. Clark. (1977). *Psychology and Language*. London: Harcourt Brace Jovanovich, Publishers.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). New York, NY: Routledge.

Collier, A. (1994). *Critical realism: An introduction to Roy Bhaskar's philosophy*. New York, NY:

Verso.

Constantinou, C. S., Georgiou, M., & Perdikogianni, M. (2017). A comparative method for themes saturation (CoMeTS) in qualitative interviews. *Qualitative Research*, 17(5). 571—588.

Cook, D. A., & Beckman, T. J. (2006). Current concepts in validity and reliability for psychometric instruments: theory and application. *The American journal of medicine*, *119*(2), p166-e7

Cooley, W. W., & Lohnes, P. R. (1971). *Evaluation research in education*. New York.

Cooper, C. L., Davis, R. & Tung, Rosalie L. (1982). Interpreting stress: sources of job stress among conference interpreters. *Multilingua*l, 1(2), 97-107.

Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (3rd Ed.). Thousand Oaks, CA: Sage Publications.

Corley, K. G. (2015). A commentary on "What grounded theory is" Engaging a phenomenon from the perspective of those living it. *Organisational Research Methods*, *8*, 600–605. https://doi. .org/10.1177/1094428115574747

Corley, K. G., & Gioia, D. A. (2011). Building theory about theory building: What constitutes a theoretical contribution?". *Academy of Management Review*. *36*. 12–32. https://doi.org/10.5465/ amr.2009.0486

Creswell, J. W. (1994). *Research design: Quantitative and qualitative approaches*. California: Sage publication, Inc.

Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Thousand Oaks, CA: Sage Publications.

Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (third edition). Upper Saddle River, NJ: Pearson.

Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.

Dattalo, P. V. (2014). A demonstration of canonical correlation analysis with orthogonal rotation to facilitate interpretation. Virginia Commonwealth University, Richmond, Virginia.

David, D.V. (2006). Social survey. In Victor Jupp (Eds.) *The SAGE dictionary of social research methods.* (pp. 284-285). London, United Kingdom: Sage Publications. https://doi.org/10.4135/9780857020116

Davies, P., & Rinvolucri. M. (1990). *The confidence book*. Harlow, U. K.: Longman.

Daviu, N., Bruchas, M. R., Moghaddam, B., Sandi, C., & Beyeler, A. (2019). Neurobiological links between stress and anxiety. *Neurobiology of stress*. 11. 1-9. https://doi.org/10.1016/j.ynstr.2019.100191

De Winter, J. C., Gosling, S. D., & Potter, J. (2016). Comparing the Pearson and Spearman correlation coefficients across distributions and sample sizes: A tutorial using simulations and empirical data. *Psychological methods*, *21*(3), 273.

Deng, Jianghua & Zhang, Jinling [邓建华&张金玲], (2008). Clarifying the Positioning of Interpreting Teaching Objective, Cultivating Multi-level Interpreters [口译教学目标定位与多层次口译人

才培养]. *Journal of Shenyang Normal University (Social Science Edition) [沈阳师范大学学报(社会科学版)]. 32(4), 172-174*

Deng, Xiaoling [邓小玲]. (2018). Parallel or sequential – A debate over the teaching sequence of consecutive and simultaneous interpreting [进阶还是平行——交传、同传课程设置顺序之争]. *Foreign Language Education in China [外语教育研究前沿]*. 1(2). 19-25, 90-91.

Deng, Yuan & Zhu, Jianping [邓媛&朱健平]. (2016). An empirical study on the relationship between interpreting strategies and cognitive processing anxiety [口译认知加工焦虑与口译策略关系的实证研究]. *Journal of Hunan University (Social Sciences)[湖南大学学报]* (6). 107-112.

Deng, Yuan [邓媛], (2018), *A Research on Cognitive Analysis and Coping of Interpreting Anxiety [口译焦虑认知解读与干预]*. Doctor thesis, Hunan University.

Denscombe, M. (2008). Communities of practice. A research paradigm for the mixed methods approach. *Journal of Mixed Methods Research*, 2, 270-283. doi:10.1177/1558689808316807

DeVellis, R.F. 2017. *Scale Development: Theory and Applications* (4th Ed.) [M]. Thousand Oaks, CA: Sage Publications, Inc.

Dhakal, K. (2022). NVivo. *Journal of the Medical Library Association: JMLA*, *110*(2), 270. doi: 10.5195/jmla.2022.1271.

Dhamani, K., Richter, M. S. (2011). Translation of research instruments: research processes, pitfalls and challenges. *Africa Journal of Nursing and Midwifery*, 13(1), 3-13.

Diaz, M. T. (2019). *Cognitive and Emotional Aspects of Interpreter Training*. Routledge.

Díaz-Galaz, S., Padilla, P., & Bajo, M. T. (2015). The role of advance preparation in simultaneous interpreting: A comparison of professional interpreters and interpreting students. *Interpreting*, *17*(1), p1-25.

DiCicco-Bloom B. & Crabtree B. F. (2006) The qualitative research interview. *Medical Education.* 40(4), 314-321. DOI:10.1111/j.1365-2929.2006.02418.x

Ding, Ning [丁宁], (2025). Interpreter Agency: A new Perspective for Researching Conference Interpreting in the AGI era [通用人工智能时代人类译员的施为性：以会议口译员为例]. *Technology Enhanced Foreign Language Education [外语电化教学]* 2. 10-16+98

Dong, Y. (2018). Complex dynamic systems in students of interpreting training. *Translation and Interpreting Studies* 13(2). 185-207.

Dong, Y., Li, Y., & Zhao, N. (2019). Acquisition of interpreting strategies by student interpreters. *The Interpreter and Translator Trainer*, *13*(4), 408-425. DOI: 10.1080/1750399X.2019.1617653

Dong, Yanping; Cai, Rendong; Zhao, Nan & Lin, Jiexuan. [董燕萍；蔡任栋；赵南；林洁绚], (2013). An Empirical Study on Interpreting Competence Structures in Student Interpreters [学生译员口译能力结构的测试与分析]. *Journal of Foreign Languages [外国语]. 36(4), 75-85.*

Dong, Zhenzhen [董珍珍]. (2007). *On the Preparation for Conference Interpretation in the*

Perspective of Effort Model [从认知负荷模型看会议口译译前准备].[Paper Presentation]. The 2007 Annual Meeting of Fujian Foreign Language Society and the 4th Foreign Language Teaching Seminar in East China [福建省外文学会 2007 年会暨华东地区第四届外语教学研讨会], pp 247-251

Donovan, C. (2006). Conference Interpreter Training- Constraints and responses. *Forum* (1). 1-22.

Downing, S. M. (2004). Reliability: on the reproducibility of assessment data. *Medical education*, *38*(9), p1006-1012.

Dragsted, B. & I. Hansen. (2009). Exploring translation and interpreting hybrids: The case of sight translation. *Meta* 54(3). 588-604.

Dreger, R. M. (1985). Real and random P-technique analyses of the State-Trait Anxiety Inventory and their relation to R-technique analyses. *The Southern Psychologist*, 2. 17-28.

Dudovskiy, J. (2022). *An ultimate guide to writing a dissertation in business studies: Step-by-step assistance*. (6th ed.). Research Methodology.

Dugas, M. J., Gagnon, F., Ladouceur, R., & Freeston, M. H. (1998). Generalised anxiety disorder: A preliminary test of a conceptual model. *Behaviour research and therapy*, *36*(2), 215-226.

Duffy, M.E. (2006). Translating instruments into other languages. *Clinical Nurse Specialist*. 20(5), 225–226.

Egan, T. M. (2002). Grounded theory research and theory building. *Advances in Developing Human Resources,* 4(3). 277-295. http://dx.doi.org/10.1177/15222302004003004

Endler, N. S. (1983). Interactionism: a personality model, but not yet a theory. In *Nebraska Symposium on Motivation. Nebraska Symposium on Motivation 1982: personality--current theory and research* (pp. 155-200). Lincoln, NE: University of Nebraska Press.

Endler, N. S., & Parker, J. D. A. (1992). Interactionism revisited: reflections on the continuing crisis in the personality area. *European Journal of Personality*, 6. 177-198.

Endler, N. S., Speer, R. L., Johnson, J. M., & Flett, G. L. (2000). Controllability, coping, efficacy, and distress. *European Journal of Personality*, *14*(3). 245-264.

Endler, N.S., & Kocovski, N.L. (2001). State and trait anxiety revisited. *Journal of anxiety disorders*, 15(3), 231-245.

Eppich, W. J., Olmos-Vega, F. M., & Watling, C. J. (2019). Grounded theory methodology: key principles. *Healthcare Simulation Research: A Practical Guide*, 127-133.

Eremenco, S.L., Cella, D. & Arnold, B.J. (2005). A comprehensive method for the translation and cross-cultural validation of health status questionnaires. *Evaluation Health Professionals.* 28(2), 212–232.

Eysenck, M. W. (1979). Anxiety, learning, and memory: A reconceptualisation. *Journal of Research in Personality*, 13(4), 363–385. https://doi.org/10.1016/0092-6566(79)90001-1

Fantinuoli, C. (2018). Interpreting and technology: The upcoming technological turn. *Interpreting Studies Journal*, 20(3), 45-62.

Feltz, D. L. (2001). Self-Efficacy Beliefs of Athletes, Teams, and Coaches. In *Handbook of Sport*

Psychology (2nd ed), edited by R. N. Singer, H. A. Hausenblas, and C. Janelle, NewYork: John Wiley. pp340–361.

Ferdowsi, S., & Razmi, M. H. (2022). Examining associations among emotional intelligence, creativity, self-efficacy, and simultaneous interpreting practice through the mediating effect of field dependence/independence: A path analysis approach. *Journal of Psycholinguistic Research, 51*(2), 255–272. https://doi.org/10.1007/s10936-022-09836-0

Ferreira, F. & N. Patson. 2007. The 'good enough' approach to language comprehension. *Language and Linguistics Compass* 1(1-2).71-83.

Finnis, J. (1980). *Natural law and natural rights*. Oxford: Clarendon Press

Fischer, E. (2021). The case for qualitative research. *Journal of Consumer Psychology*, Forthcoming.

Fletcher, A.J., 2017. Applying critical realism in qualitative research: methodology meets method. International journal of social research methodology, 20 (2). 181–194. doi:10.1016/j.indmarman.2008.06.004.

Freeman, M. (2014). The hermeneutical aesthetics of thick description. *Qualitative Inquiry,* 20 (6). 827–833.

Freud, S. (1917). Introductory lectures on psychoanalysis, 1975 In *the Standard edition of the complete psychological works of Sigmund Freud.* London: Hogarth Press.

Freud, S. (1926). Inhibitions, symptoms and anxiety. 1975. In *Th standard edition of the complete psychological works of Sigmund Freud.* London: Hogarth Press

Gall, M. D., Gall, J. P., & Borg, W. R. (2003). *Educational research: An introduction* (7th ed.). Boston, MA: Pearson.

Galletta A. (2012) Mastering the Semi-structured Interview and Beyond: From Research Design to Analysis and Publication. New York University Press, New York.

Gao, Bin [高彬]. (2019). The changing patterns of language choices in note-taking during English Chinese consecutive interpreting: A study of interpreting trainees [英汉交替传译笔记中的语言选择发展规律——基于口译学习者的横向研究]. *Chinese Translators Journal[中国翻译]* (1). 83-90.

Gao, Bin & Zhao, Zhuxuan [高彬&赵竹轩], (2024) Technnical Challenges and Pedagogical Recommendations for Remote Interpreting: An Empirical Study from the Perspective of Professional Interpreters. [远程口译的技术挑战与教学对策——职业译员视角的实证研究] *Technology Enhanced Foreign Language Education [外语电化教学],* 3, 62-68+117

Gehlbach, H., & Brinkworth, M. E. (2011). Measure twice, cut down error: A process for enhancing the validity of survey scales. *Review of General Psychology*. 15(4). 380-387.

Gentzler, E., 2001. *Contemporary Translation Theories*. Multilingual Matters Limited.

Gerhardt, M. W., & Brown, K. G. (2006). Individual differences in self-efficacy development: The effects of goal orientation and affectivity. *Learning and individual differences*, *16*(1), 43-59.

Gerver, D. (1969) "The Effects of Source Language Presentation Rate on the Performance of

Simultaneous Conference Interpreters," in Pöchhacker and Shlesinger (eds) (2002). 53–66.

Gerver, D. (1971). *Aspects of Simultaneous Interpretation and Human Information Processing*. PhD thesis. Oxford University.

Gerver, D. (1974). The Effects of Noise on the Performance of Simultaneous Interpreters: Accuracy of Performance. *Acta Psychologica*, 38, 159-167.

Gerver, D., Longley, P., Long. J. & Lambert, S. (1984). Selecting Trainee Conference Interpreters: A Preliminary Study. *Journal of Occupational Psychology* (1), 17-31 .

Gieshoff, A. C. (2021). Interpreting quality and effort in expert and novice interpreters. In *7th Young Linguists' Meeting in Poznań: Rethinking language and identity in the multilingual world, Poznań, Poland, 23-25 April 2021* (pp. 47-48). Adam Mickiewicz University.

Gile, D. 1991. The processing capacity issue in conference interpretation. *Babel* 37(1), 15-27.

Gile, D. 1995, *Basic Concepts and Models for Interpreter and Translator Training*. Amsterdam / Philadelphia: John Benjamins Publishing Company .

Gile, D. 1999. Testing the Effort Models' tightrope hypothesis in simultaneous interpreting: A contribution. *Hermes* 23. 153-172.

Given, L.M. (2016). *100 Questions (and Answers) About Qualitative Research*. Thousand Oaks: Sage.

Glaser, B, & Strauss, A.L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine.

Godoy, L. D., Rossignoli, M. T., Delfino-Pereira, P., Garcia-Cairasco, N., & de Lima Umeoka, E. H. (2018). A Comprehensive Overview on Stress Neurobiology: Basic Concepts and Clinical Implications. *Frontiers in behavioural neuroscience*, 12, p. 127.

Gong, Longsheng [龚龙生] (2006). The influence of psychological stress on the decoding process of interpretation [心理压力对口译解码过程的影响]. *Computer-assisted Foreign Language Education [外语电化教学]*. 108. 40-43

Gong, Yuyan [龚雨燕]. (2020). *On Interpreting Anxiety, Motivation, and Self-efficacy among MTI Students in CFAU [外交学院MTI学生口译焦虑、学习动机和自我效能的相关性研究]*. MTI thesis. China Foreign Affairs University

Grady, M.P. (1998). *Qualitative and Action Research: A Practitioner Handbook*. Bloomington: Phi Delta Kappa Educational Foundation.

Gray, J. A. (1987). *The psychology of fear and stress.* Cambridge: Cambridge University Press.

Grix, J. (2004). *The Foundations of Research*. New York, NY: Palgrave Macmillan.

Gu, Qihui [古琦慧]. (2009) A Research on the Interpretation Curriculum Development – In the Perspective of an Interpreter's Competence [口译课程发展刍议——译员能力的视角] *Shandong Foreign Language Teaching Journal [山东外语教学]*. 131(4), 109-112.

Guest, G., Bunce, A., & Johnson, L. 2006. How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59—82.

Gumul, E. (2021). Reporting stress in simultaneous interpreting. The analysis of trainee interpreters'

retrospective reports and outputs. *Journal of Linguistics, Philology and Translation. ONOMÁZEIN,* Special Issue VIII. 16-42. DOI: 10.7764/onomazein.ne8.04

Hagaman, A. K., & Wutich, A. (2017). How many interviews are enough to identify metatheses in multisided and cross-cultural research? Another perspective on Guest, Bunce, and Johnson's (2006) landmark study. *Field Methods*, 29(1), pp. 23-41

Haig, B. D. (2005). An abductive theory of scientific method. *Psychological Methods*, *10*, 371–388. https://doi.org/10.1037/1082-989X.10.4.371

Hansen, I. G., & Shlesinger, M. (2007). The silver lining: Technology and self-study in the interpreting classroom. *Interpreting*, *9*(1), 95-118.

Hao, Qi [郝齐] (2019). *The Effects of Pre-task Preparation on the Performance of Consecutive Interpreting – From the perspective of the Scheme Theory [译前准备对交替传译产出质量的影响——从图式理论角度分析].* Master Thesis, Guangdong University of Foreign Studies.

Hayes, A. (2024a, June 27). *Descriptive Statistics: Definition, Overview, Types, and Examples.* https://www.investopedia.com/terms/d/descriptive_statistics.asp

Hayes, A. (2024b, August 19). *How Stratified Random Sampling Works, with examples.* https://www.investopedia.com/terms/stratified_random_sampling.asp#toc-advantages-and-disadvantages-of-stratified-random-sampling

He, Wenbing [何文缤] (2017). Locutionary factors' influence on trainee interpreters with different interpreting anxiety degrees in English-Chinese consecutive interpreting [英汉交替传译中言内因素对不同口译焦虑级度学生译员的影响]. Master thesis. *Guangdong University of Foreign Studies [广东外语外贸大学].*

Herbert, J., 1952. *The Interpreter's Handbook: How to Become a Conference Interpreter*, Geneva: Georg.

Hessing, T., (2018). *Canonical Correlation Analysis.* Retrieved June 1, 2024, from https://sixsigmastudyguide.com/canonical-correlation-analysis/

Heuven, E., Bakker, A. B., Schaufeli, W. B., & Huisman, N. (2006). The role of self-efficacy in performing emotion work. *Journal of Vocational Behaviour*, 69(2), 222-235.

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 94*(3), 319–340. https://doi.org/10.1037/0033-295X.94.3.319

Hild, A. (2014). The role of self-regulatory processes in the development of interpreting expertise. *Translation & Interpreting Studies*, 204 (3)

Hilton, A. & Skrutkowski, M. (2002). Translating instruments into other languages: developing and testing processes. *Cancer Nursing*. 25(1), 1–7.

Holmes, V.M. (1988). Hesitations and Sentence Planning. *Language and Cognitive Processes* 3(4). 323–361

Holton, J. A. (2008). Grounded Theory as a General Research Methodology. *The Grounded Theory Review*, 7(2), 67-89.

Holton, J. A. (2010). The Coding Process and Its Challenges. *Grounded Theory Review: An International Journal,* 9(1), 21- 40.

Horwitz, E. K., M. B. Horwitz & J. Cope, 1986. Foreign language classroom anxiety. *The Modern Language Journal* 70 (2), pp.125–132.

Hotelling, H. (1936). Relations between two sets of variates. Biometrika, 28. 321– 377.

Hou, Yanxia [侯彦霞] (2012). Exploration into the Training Objectives and Methods of Interpretation Teaching in General Undergraduate Institutions [一般本科院校口译教学培养目标与培养方式探讨]. *Journal of Henan Science and Technology [河南科技].* 22: 115.

Hu Lianchun [胡连春]. (2006). Analysis of Interpreters' Vulnerability to Stress and Coping Strategies. [口译员心理压力分析及应对策略]. Master thesis, Shanghai International Studies University.

Hu, Zhiming; Cheng, Hao; & Liu, Xuran [胡志明,程灏,刘旭然]. (2020). Definition of the Concept of Public Service Capability and Analysis of Its Elements—Qualitative Research Based on Grounded Theory Paradigm [公共服务能力概念界定及要素解析——基于扎根理论范式的质性研究]. *Journal of UESTC (Social Sciences Edition) [电子科技大学学报(社科版)*]. 22(2), 54-59.DOI:10.14071/j.1008-8105(2019)-3018.

Hua, Liang., & Dai, Huiping [花亮 & 戴惠萍]. (2016). The Effect of Separated Training Zones on Release of English Translation Professional Students' Listening Anxiety: and Intervention Study [分区教学对缓解口译专业学生听力焦虑的作用:一项干预研究.心理与行为研究]. *Studies oof Psychology and Behaviour [心理行为研究],* 14(2), 177-180.

Huang, Gui-yan [黄贵燕]. (2013). On the enlightenment of "affective filter hypothesis" in interpreting master professional translation teaching [论"情感过滤假设"对翻译硕士专业口译教学的启示]. *Research on Foreign Languages [外语研究].* 6. 393-394

Huang, Y [黄友义]. (2023, December 25). *Congratulation letter from Huang Youyi.* http://www.aticicg.org.cn/2023-12/25/content_42612289.html

Hubscher-Davidson, S. (2020). Ethical stress in translation and interpreting. In *The Routledge handbook of translation and ethics* (pp. 415-430). Routledge.

Hulstijn, J. H. (2011). Language proficiency in native and nonnative speakers: An agenda for research and suggestions for second-language assessment. *Language Assessment Quarterly*, *8*(3), p229-249.

Intellectus Consulting, (n.d.) *Conduct and Interpret a Canonical Correlation.* Retrieved May 24, 2024, from https://www.statisticssolutions.com/free-resources/directory-of-statistical-analyses/canonical-correlation/

Izard, C.E., (1977). *Human Emotions.* New York & London: Plenum Press

Jääskeläinen, Riitta; Tirkkonen-Condit, Sonja – Amsterdam, 2000. *Tapping and Mapping the Processes of Translation and Interpreting*. John Benjamins Publishing Company

Jain, D. (2023, November 22). *Advantages and Disadvantages of Questionnaires.*

https://www.educba.com/advantages-and-disadvantages-of-questionnaires/

Janiszewski, C., & Van Osselaer, S. M. (2022). Abductive theory construction. *Journal of consumer psychology*, *32*(1), 175-193. https://doi.org/10.1002/jcpy.1280

Jansen, D. & Warren, K. (2023, April 2) *What is Research Methodology.* https://gradcoach.com/what-is-research-methodology/

Jiang, Juanxiu & Chen, Yuping [蒋娟秀 & 陈宇平], (2018). Quantitative exploration of English interpreter's ability based on Analytic Hierarchy Process [基于层次分析法的英语口译员能力量化探究]. *English Teachers [英语教师]*. 18(23),47-54.

Jiang, Peiyun [江佩芸] (2020). *Problems arising from lack of extralinguistic knowledge in English-Chinese consecutive interpreting and solutions – a case study based on a speech given by Ian Newton. [英汉交替传译中言外知识不足引起的问题及改善措施——以"Ian Newton 谈新冠疫情下的难民危机"模拟会议为例].* Master Thesis, Graduate Institute of Interpretation and Translation, Shanghai International Studies University.

Jiménez Ivars, A., Pinazo Catalayud, D. & Ruiz i Forés, M. (2014). Self-efficacy and Language Proficiency in Interpreter Trainees. *The Interpreter and Translator Trainer* 18(2). 167−182.

Jiménez Ivars, A, and Pinazo Calatayud, D. (2001): "I failed because I got very nervous. Anxiety and performance in interpreting trainees: An empirical study", *The Interpreters' Newsletter* 9, pp.21-39.

Joseph F. Hair, Jr., Rolph E. Anderson, Ronald L. Tatham and William C. Black. (1998). Chapter 8: Canonical Correlation Analysis. *Multivariate Data Analysis,* 5th edition. Prentice Hall, Inc.

Jouffre, S. (2004). The procedures of measure: Questionnaires and scales. In *A sociocognitive approach to social norms* (pp. 86-109). Routledge.

Kalina, S. (2000). Interpreting Competences as a Basis and a Goal for Teaching. *The Interpreters' Newsletter* 10. pp 3-32.

Kalina, S. (2000). Interpreting Competences as a Basis and a Goal for Teaching. *The Interpreters' Newsletter* (10), 3-32

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of advanced nursing*, *72*(12), 2954-2965.

Kang, Zhifeng [康志峰], (2011). Source, Level and Impact of Anxiety in the Interpretation. [口译焦虑的动因、级度及其影响]. *Foreign Languages Research [外语研究]*. 21(4), pp.81-85.

Kang, Zhifeng [康志峰]. (2012). Effects and influence of interpretation anxiety on consecutive interpretation [口译焦虑对交替传译的效应与影响]. *Chinese science & Technology Translators Journal [中国科技翻译]*. 25(1), 19-21

Kang, Zhifeng (康志峰), (2012), Research on the source of degree of multimode interpreting anxiety [多模态口译焦虑的级度溯源]. *Foreign Language Education [外语教学]*, 33(3), 106-109

Kang, Zhifeng [康志峰] (2014) Cognitive Psychology of Interpretation: Paradigms and Prospects[口译认知心理学:范式与前瞻] *Contemporary Foreign Language Studies [当代外语研究]* 11, 52-56

Kao, Po-Chi, and Philip Craigie, (2013): "Evaluating student interpreters' stress and coping strategies", *Social Behaviour and Personality* 41 (6), 1035-1044.

Kaplan, H. B. (1996). *Psychosocial stress. Perspectives on structure, theory, life-course, and methods.* New York: Academic Press.

Karademas, E. C., & Kalantzi-Azizi, A. (2004). The stress process, self-efficacy expectations, and psychological health. *Personality and individual differences*, *37*(5), 1033-1043.

Karwowska, Z. (2022, November 7). *Canonical Correlation Analysis – simple explanation with a python example.* https://medium.com/@pozdrawiamzuzanna/canonical-correlation-analysis-simple-explanation-and-python-example-a5b8e97648d2

Keiser, W. (1978). Selection and Training of Conference Interpreters. In D. Gerver & H. W. Sinaiko. *Language Interpretation and Communication*. New York and London: Plenum Press.

Khan, S. N. (2014). Qualitative research method: Grounded theory. *International journal of business and management*, *9*(11), 224-233.

Kim, A. & Park, I. Y. (2001). Construction and Validation of Academic Self-efficacy Scale. *The Journal of Educational Research.* 39 (1). 95−123.

Kim, J. H. (2000). Foreign language listening anxiety: A study of Korean students leaning English. Doctoral dissertation, The University of Texas, Austin.

Kimmons, R. (2022). Mixed methods. *Education Research*, *63*(5), 631-641.

Kirkegaard, S.A. (1844). *The concept of Dread.* 2nd Ed. Princeton, NT: Princeton University Press

Klinger, E. (1975). Consequences of commitment to and disengagement from incentives. *Psychological Review,* 82, pp1-25.

Klonowicz, T. (1994). Putting one's heart into simultaneous interpretation. In S. L. a. B. Moser-Mercer (Ed.), *Bridging the gap: Empirical research in simultaneous interpretation*. Amsterdam and Philadelphia: John Benjamins.

Knapp, T. R. (1978). Canonical correlation analysis: a general parametric significance-testing system. *Psychological Bulletin*, *85*(2), 410.

Korpal, P. (2017). *Linguistic and psychological indicators of stress in simultaneous interpreting*. Poznań: Wydawnictwo Naukowe UAM.

Korpal, Paweł, 2016: "Interpreting as a stressful activity: physiological measures of stress in simultaneous interpreting", *Poznan Studies in Contemporary Linguistics* 52 (2), 297-316.

Kriston, A. (2012). The importance of memory training in interpretation *articol*. https://dspace.upt.ro/xmlui/handle/123456789/5763

Kuang, H., & Zheng, B. (2022). Note-taking effort in video remote interpreting: effects of source speech difficulty and interpreter work experience. *Perspectives*, *31*(4), 724–744. https://doi.org/10.1080/0907676X.2022.2053730

Kurz I. (1983a). Temperatures Inside and Outside Booths – A Comparative Study. *AIIC Bulletin XI/2*, pp. 67-72.

Kurz I. (1983b). CO2 and O2 Levels in Booths at the End of a Conference Day – A Pilot Study. *AIIC Bulletin XI/3*. pp. 86-93.

Kurz, I. (1997) Interpreters: Stress and Situation-Dependent Control of Anxiety. In Kinga klaudy and János kohn (eds.) *Transferre Necesse Est. Proceedings of the 2nd International Conference on Current Trends in Studies of Translation and Interpreting*. Budapest: Scholastica, pp. 201-206.

Kurz, I. (2003). Physiological stress during simultaneous interpreting: a comparison of experts and novices. The Interpreters' Newsletter, (13), pp.51-67

Kurz I. and Kolmer H. (1984). Humidity and Temperature Measurements in Booths. *AIIC Bulletin XII/2*, pp. 42-43.

Kvale, S. (2007). *Doing interviews.* Thousand Oaks, CA: Sage.

Kyriakou, K., Resch, B., Sagl, G., Petutschnig, A., Werner, C., Niederseer, & Pykett, J. (2019). Detecting moments of stress from measurements of wearable physiological sensors. *Sensors*, 19(17), 3805.

Lado, R. (1961), *Language testing*. New York, NY: McGraw-Hill

LaPolla, R. J. (2019). The origin and spread of the Sino-Tibetan language family. *Nature* 569(7754), 1-2. DOI: 10.1038/d41586-019-01214-6

Laroslavschi, M. (2011). Becoming an interpreter: Assessment and self-assessment in untutored practice sessions. *Cognition, Brain, Behavior*, *15*(2), p229.

LaRossa, R. (2005). Grounded Theory Methods and Qualitative Family Research. *Journal of Marriage and Family*, 67(4), 837-857.

Lather, P. (1986). Research as praxis. *Harvard Educational Review, 56(*3), 257-277.

Lazarus, R. S. (1991a). *Emotion and Adaptation.* New York & Oxford: Oxford University Press

Lazarus, R. S. (1991b). Progress on a cognitive-motivational-relational theory of emotion. *Am Psychol.* 46(8), 819-34. doi: 10.1037//0003-066x.46.8.819. PMID: 1928936.

Lazarus, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review of Psychology*, 44, pp 1–21

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.

LeDoux, J. E. (1996). *The Emotional Brain: The Mysterious Underpinnings of Emotional Life*. Simon & Schuster.

Lee, J. (2018). Feedback on feedback: Guiding student interpreter performance. *Translation & Interpreting: The International Journal of Translation and Interpreting Research*, *10*(1), p152-170.

Lee, S. B. (2014). An Interpreting Self-efficacy (ISE) Scale for Undergraduate Students Majoring in Consecutive Interpreting: Construction and Preliminary Validation. *The Interpreter and Translator Trainer* 8(2). 183−203.

Leeson, L., (2005). Making the effort in simultaneous interpreting: Some considerations for signed

language interpreters." JANZEN, T. (ed). *Topics in Signed Language Interpreting: Theory and Practice.* Amsterdam/Philadelphia: John Benjamins, pp. 51-68.

Leustek, J., (2017) Contrast Analysis. In Allen, M. (Ed.) *The sage encyclopaedia of communication research methods.* (Vols. 1-4). SAGE Publications, Inc, https://doi.org/10.4135/9781483381411.n93

Li, C. Q., & Yang, W. (2022). *Time-dependent reliability theory and its applications*. Elsevier.

Li, Xixi [李希希]. (2021). Retrospection and Introspection on Interpreting Competence Research in China and Abroad (1931-2019) [国内外口译能力研究(1931—2019) : 回顾与反思]. *Foreign Language and Literature [外国语文].* 37(1). 113-121.

Li, Yinghui & Dong, Yaning [李颖卉&董燕萍], 2020. The research on the influence of interpreter's anxiety on the acquisition of interpreting strategies [焦虑对口译学员口译策略习得的影响研究] *Foreign Language World [外语界]. 197 (2), pp 73-80.*

Li, Zhi & Li, Defeng [李智&李德凤]. (2019). Research on Information Technology competence of Interpreters in the Era of Artificial Intelligence [人工智能时代口译员信息技术素养研究]. *Chinese Translators Journal [中国翻译].* 6: 80-87.

Liang, Jie [梁洁] (2021). Research on metacognition in interpreting training from expert-novice paradigm [从专家-新手范式看口译员元认知能力的培养]. *Modern Communication [现代交际].* 17, pp.62-64

Lin, L. Y., & Chen, C. S. (2006), "The influence of the country-of-origin image, product knowledge and product involvement on consumer purchase decisions: an empirical study of insurance and catering services in Taiwan", *Journal of Consumer Marketing*, 23(5), 248-265

Lindemann, N., (2023, June 7). *12 advantages and disadvantages of questionnaires.* https://pointerpro.com/blog/questionnaire-pros-and-cons/

Linneberg, M. S., & Korsgaard, S. (2019). Coding Qualitative Data: A Synthesis Guiding the Novice. *Qualitative Research Journal*, 19(3), 259-270.

Liu, Heping & Lei, Zhonghua [刘和平&雷中华]. (2017). Reflection on the Trend of Professionalisation and Specialisation in Interpreting: Challenges and Strategies [对口译职业化+专业化趋势的思考:挑战与对策]. *Chinese Translators Journal [中国翻译].* 38(4), 77-83.

Liu, Heping [刘和平]. (2005) *Interpretation Theory and Teaching [口译理论与教学].* Beijing; China Translation and Publishing Corporation [中国对外翻译出版公司].

Liu, Heping [刘和平]. (2007) Preparation before translation and quality of interpretation [译前准备与口译质量] *Journal of Language and Literature Studies [语文学刊].* 7(2), 73-76.

Liu, Huiling [刘惠玲]. (2016). *An empirical study on interpreters' anxiety during the interpreting process – take interpreters' performance in the interpreting class as example.* [口译过程中译员焦虑现象的实证研究——以口译课堂中译员表现为例]. Master thesis, Fujian Normal

University.

Liu, M. (2024). Effects of technology-based practice on Chinese university students' interpreting emotions and performance. *Sustainability*, *16*(13), 5395.

Liu, M. [刘敏华]， Schallert, D. L. & Carroll, P. J. (2004) Working Memory and Expertise in Simultaneous Interpreting. *Interpreting*. (1), 19-42 .

Liu, Meng [刘猛]. (2014). *An Empirical Study on the Relationship Between Cognitive Ability and Consecutive Interpreting Competence [认知能力与交替传译能力的关系—基于国内翻译硕士院校的实证研究]*. Shanghai: Shanghai International Studies University

Liu, Mingxin [刘鸣心]. (2009). Objective positioning for interpreting teaching and cultivating the specialised interpreters [口译教学目标定位与专业型口译人才培养]. *Journal of Liaoning Institute of Science and Technology [辽宁科技学院学报]*. 11(2), 73-74.

Locke, E. A. (2007). The case for inductive theory building. *Journal of Management*, *33*, 867–890. https://doi.org/10.1177/0149206307307636

Longley, P., (1989). The use of aptitude testing in the selection of students for conference interpretation training. In I. G. a. J. Dodds (Ed.), *The Theoretical and Practical Aspects of Teaching Conference Interpretation*. Udine: Campanotto. Pp.105-108

Lörscher, W. (1991). *Translation Performance, Translation Process and Translation Strategies: A Psycholinguistic Investigation*. Tübingen: Gunter Narr.

Lotus Localize, (2024). *Top 5 essential interpreting skills every interpreter needs to master***.** Retrieved September 15, 2025, from https://lotus-localize.com/top-5-essential-interpreting-skills-every-interpreter-needs-to-master/

Luo, H., (2013). Foreign Language Anxiety: Past and Future. *Chinese journal of applied linguistics*, 36(4), 442-464.

Luo, Yi [罗逸]. (2020). *The Effects of Pre-task Preparation on Interpreting Quality – a report on the interpreting task of a lecture at Guangzhou Academy of Fine Arts [译前准备对口译质量的影响——广州美术学院讲座实践报告]*. Master thesis, Guangdong University of Foreign Studies.

Ma, Xia & Ji, Chuanfeng [马霞&季传峰], (2019). A Study on the Correlation between Interpretation Qualification Certification Examinations and the Development of Interpretation Competence[口译资格认证考试与口译能力发展相关性研究]. *Think Tank Era [智库时代]*,1, p260-262

Mackintosh, J. (2003). The AIIC workload study – Executive summary. http://www.aiic.net/viewpage.cfm/article. P.659

Mackintosh., I. 2003. The AIIC workload study -- Executive summary. *Forum.* 1(2), pp 189-214.

MacNamara, A., & Barley, B. (2018). Event-related potentials to threat of predictable and unpredictable shock. *Psychophysiology*, *55*(10), 13206.

Mandal, Sudipto; Kashyap, Shivram; Lao, Jacky; and Rollett, Anthony, (2021). Data Analytics for Materials Science, Canonical Correlation Analysis (CCA) Part 2. Carnegie Mellon University,

Pittsburgh, PA.

Mannan, S., & Afni, M. (2020). Best practices of Semi-structured interview method. *Chittagong Port authority*, 1-12.

Marianacci, A., (2015, December 4). *Gender in Conference Interpreting: Social Constructs Sexism and Biases.* https://translationswitham.com/2015/12/04/gender-in-conference-interpreting-social-constructs-sexism-and-biases/

Marrero, Agustín. (2020). Elestrés en situaciones de interpretación: un estudio comparati vo entre interpretación de conferencias e interpretación para los Servicios Públicos. *Rocznik Przekładoznawczy.* 15, 119-140.

Mashhady, H., Fatollahi, M. & Pourgalavi, M. (2015). Self-efficacy and Prediction of Note-taking Inclination among Undergraduate Translation Students. *Theory and Practice in Language Studies* 5(11). 2366−2372.

Mastropietro, R. (2012, February 9). *Who make better translators, men or women?* https://www.rosettatranslation.com/who-make-better-translators-men-or-women/

Masud, A. A., (2024) *Inductive vs Deductive Research: Difference of Approaches.* Retrieved November 27, 2024, from https://www.questionpro.com/blog/inductive-vs-deductive-research/

Maulida, D., & Saehu, A. (2022). The Procedures of Consecutive Interpreting. *Linguists: Journal Of Linguistics and Language Teaching*, 8(1), 130-142. doi: http://dx.doi.org/10.29300/ling.v8i1.6339

Mayorga, A., & Gleicher, M. (2013). Splatterplots: Overcoming overdraw in scatter plots. *IEEE transactions on visualization and computer graphics*, *19*(9), 1526-1538.

McGuire, W. J. (1997). Creative hypothesis generation in psychology: Some useful heuristics. *Annual Review of Psychology*, *48*, 1–30

Mei, Chang [梅畅], (2019). *An empirical study on the correlation between student interpreters' anxiety and academic self-efficacy in English-Chinese simultaneous interpreting.* [学生译员英汉同传过程口译焦虑与学习自我效能感关系的实证探究] Master thesis, Beijing Foreign Studies University.

Melnikovas, A. (2018). Towards an Explicit Research Methodology: Adapting Research Onion Model for Futures Studies. *Journal of futures Studies*, *23*(2). 29-44

Meloun, M., & Militky, J. (2011). *Statistical data analysis: A practical guide*. Woodhead Publishing, Limited.

Mertens-Hoffman. (2001). *A Study of Workload and Burnout in Simultaneous Interpreting. Integrative Summary Report*, Tel-Aviv, Mertens-Hoffman

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis* (2nd Ed.). Thousand Oaks, CA.: Sage Publications.

Mingers, J. (2006). *Realising Systems Thinking: Knowledge and Action in Management Science.* New York: Springer.

Molina-Azorin, J. F., Tarí, J. J., Lopez-Gamero, M. D., Pereira-Moliner, J., & Pertusa-Ortega, E.

(2018). The implementation and advantages of mixed methods in competitive strategy and management systems. *International Journal of Multiple Research Approaches.* 10(1). 412-421 https://doi.org/10.29034/ijmra.v10n1a28

Mordkoff, A. M. (1964) The Relationship Between Psychological and Physiological Response to Stress. *Psychosomatic Medicine* 26(2), 135-150.

Moriarty, J. (2011). Qualitative methods overview. School for Social Care Research. *National Institute for Health Research* https://eprints.lse.ac.uk/41199/1/SSCR_Methods_Review_1-1.pdf

Morse, J. (2007). "Sampling in Grounded Theory." In *The SAGE Handbook of Grounded Theory*, edited by A. Bryant, and K. Charmaz, pp. 229-244. London: SAGE.

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International journal of Qualitative Methods*, 1(2), 13-22.

Moser-Mercer B. (2000). The rocky road to expertise in interpreting: Eliciting knowledge from learners", in M. Kadric; K. Kaindl and F. Pöchhacker (ED) *Translationswissenschaft Festschrift für Mary Snell-Hornby zum 60. Geburtstag.* pp. 339-352.

Moser-Mercer, B. (2003). Remote interpreting: Assessment of human factors and performance parameters. *Joint project International,* 10(2), 1-18.

Moser-Mercer, B., Alexander K. and Marina K. (1998), Prolonged turns in interpreting: Effects on quality, physiological and psychological stress (pilot study), *Interpreting* 3(1). 47-64

Mowrer, O.H. (1953). A stimulus response analysis of anxiety and its role as a reinforcing agent. In *Readings in Learning* L. M. Stolurow (Ed) Englewood Cliffs, NJ: Prentice Hall.

Mu, Lei; Liang, Weiling; & Liu, Xinyuan [穆雷，梁伟玲，刘馨媛]. (2024). China's Standards for Translator and Interpreter Competence Assessment and China's Standards of English Language Ability Translation and Interpreting Competence Scales [《中国翻译能力测评等级标准》与《中国英语能力等级量表》翻译能力等级量表对比研究]. *Foreign Languages in China [中国外语]*. 21(3), 87-97.

Mun, Y. Y., & Hwang, Y. (2003). Predicting the use of web-based information systems: self-efficacy, enjoyment, learning goal orientation, and the technology acceptance model. International Journal of Human-Computer Studies, 59(4), 431-449.

Myers, M. D. (2008). *Qualitative Research in Business & Management*. London: SAGE Publications.

Nelson, J. (2017). Using conceptual depth criteria: addressing the challenge of reaching saturation in qualitative research. *Qualitative Research*, 17(5). 554—570.

Noble, H., & Mitchell, G. (2016). What is Grounded Theory? *Evidence-Based Nursing*, 19(2), 34-35.

NUPIT. 2004. What do Interpreters and Translators Talk About Among Themselves? A survey of employment conditions among interpreters and translators. London: NUPIT. 4

Nweke, E., & Orji, N. (2009). *A Handbook of Political Science*. Abakaliki: Department of Political Science Ebonyi State University

O Leary, A. (1992). Self-efficacy and health: Behavioral and stress–physiological mediation.

Cognitive Therapy and Research, 16, 229–245

Olshansky, E.F. (2015). Generating theory using grounded theory methodology. In: de Chesnay, M. (ed.). *Nursing Research Using Grounded Theory: Qualitative Designs and Methods in Nursing*. New York: Springer.

Pajares, F., & Urdan, T. (Eds.). (2006). Self-efficacy beliefs of adolescents. Greenwich, CT. *Adolescence and education*: Vol. 5: Information Age Publishing.

Palmer, M. W. (1993). Putting things in even better order: the advantages of canonical correspondence analysis. *Ecology*, *74*(8), 2215-2230.

Pan, Chenxi & Min, Xuan [潘晨曦&闵璇]. (2017). On reasons and impacts of interpreting learning anxiety [口译学习焦虑成因及其影响研究]. *Journal of Heihe University [黑河学院学报]*. 3. 154-155

Panksepp, J. (1982). Towards a general psychobiological theory of emotions. *Behavioural and Brain Sciences.* 5, 407-467

Partala, T., & Surakka, V. (2003). Pupil size variation as an indication of affective processing. *International journal of human-computer studies*, *59*(1-2), 185-198.

Patton, MQ. (2002). *Qualitative research and evaluation methods*. 3rd. Sage Publications; Thousand Oaks,

Penny, U. (2000). *Teaching listening comprehension*. Beijing: Foreign Language Teaching and Research Press.

Phair, D., & Warren, K. (2021, January). *Saunders' Research Onion.* https://gradcoach.com/saunders-research-onion/

Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of educational psychology*, *82*(1), 33.

Pintrich, P. R., and E. V. de Groot. (1990). Motivational and Self-regulated Learning Components of Classroom Academic Performance. *Journal of Educational Psychology* 82 (1): 33–40. doi:10.1037/0022-0663.82.1.33

Pintrich, P. R., E. van De Groot, and D. H. Schunk. (2002). *Motivation in Education: Theory, Research, and Applications*. Upper Saddle River, N.J: Merrill Prentice-Hall.

Plant, J. L., S. M. van Schaik, D. C. Sliwka, C. K. Boscardin, and P. S. O'Sullivan. (2011). "Validation of a Self-efficacy Instrument and Its Relationship to Performance of Crisis Resource Management Skills. Advances in Health Sciences Education 16: 579–590. doi:10.1007/s10459-011-9274-7

Pöchhacker, F. (2004). *Introducing Interpreting Studies*. London: Routledge.

Pöchhacker, F. (2011). Assessing aptitude for interpreting: The SynCloze test. *Interpreting* 13(1): 106-120.

Pöchhacker, F. (2015). *The Routledge Encyclopaedia of Interpreting Studies*. London and New York: Routledge

Pöchhacker, F. (2016). *Introducing Interpreting Studies* (2nd ed.). Routledge.

Polit D. S. & Beck C. T. (2010) *Essentials of Nursing Research. Appraising Evidence for Nursing Practice*. 7th edn. Lippincott-Raven Publishers.

Pollack, (2005). United Nations, a day in the life of real interpreters. Accessed on September 11, 2023, at https://www.youtube.com/watch?v=sUuliWL4LyI

Price, P. (2015). *Research methods in psychology, 2nd Canadian Edition*. Bccampus

Qian, S., Orasan, C., Do Carmo, F., & Kanojia, D. (2023). Challenges of human vs machine translation of emotion-loaded chinese microblog texts. In *Proceedings of Machine Translation Summit XIX, Vol. 2: Users Track*. pp. 217-236

Qiu, G. (2023). Towards the effects of translators' emotional intelligence and anxiety on their translation quality. *Heliyon.* 19(9). doi: 10.1016/j.heliyon.2023.e19276

Qualtrics (n.d.) *Sampling methods, types & techniques.* Retrieved May 25, 2024, from https://www.qualtrics.com/en-gb/experience-management/research/sampling-methods/

Rajabi, S., & Yousefi, K. (2022). The interrelationship between Iranian translation students' classroom anxiety, emotional intelligence, and the quality of their consecutive interpreting performance. *Journal of Research in Techno-based Language Education*, *2*(2), 62-79

Rakhimova, G., & Khujaniyazova, G. (2024). Cultural Semantics in Translation. *SYNAPSES: Insights across the Disciplines*, 1(4), 175–178

Ravakhah, A.; Dastjerdi, H. V.; & Ravakhah, M. (2015). Translation and anxiety: a study of anxiety effect on translator's performance in terms of speed and accuracy. *Theory and Practice in Language Studies.* 5(5). 1053-1059. DOI: http://dx.doi.org/10.17507/tpls.0505.21

Rebekić, A., Lončarić, Z., Petrović, S., & Marić, S. (2015). Pearson's or Spearman's correlation coefficient-which one to use? *Poljoprivreda*, *21*(2), 47-54.

Regmi PR, Waithaka E, Paudyal A, Simkhada P, van Teijlingen E. Guide to the design and application of online questionnaire surveys. *Nepal J Epidemiol*. 2016;6(4); 640-644.

Reis, H. T., & Judd, C. M. (2000). *Handbook of research methods in social and personality psychology*. Cambridge University Press.

Riccardi, A. (2005). On the Evolution of Interpreting Strategies in Simultaneous Interpreting. *Meta* (2). 753-767 .

Riccardi, A. (2015). Stress in Franz PöchhAcker (ed.) *Routledge Encyclopedia of Interpreting Studies.* London/New York: Routledge, 405-407.

Riccardi, A., Marinuzzi, G., & Zecchin, S. (1998). Interpretation and stress. *The Interpreters' Newsletter*, 18, 93-106.

Richards, K. (2003). *Qualitative inquiry in TESOL*. New York, NY: Palgrave Macmillan.

Ringeisen, T., Lichtenfeld, S., Becker, S., & Minkley, N. (2019). Stress experience and performance during an oral exam: the role of self-efficacy, threat appraisals, anxiety, and cortisol. *Anxiety, stress, and coping*, 32(1), 50–66. https://doi.org/10.1080/10615806.2018.1528528

Rojo López, A. M., Foulquié-Rubio, A. I., Espín López, L., & Martínez Sánchez, F. (2021). Analysis of speech rhythm and heart rate as indicators of stress on student interpreters. *Perspectives*, 29(4), 591–607. https://doi.org/10.1080/0907676X.2021.1900305

Roland, R. A. (1982). *Translating world Affairs*. Jefferson, NC/London: Mcfarland.

Roscoe, J. T. (1975). *Fundamental research statistics for the behavioral sciences* (Second ed.). New York: Holt Rinehart and Winston

Rosendo, L. R., & Galván, M. C. (2019). Coping with speed: An experimental study on expert and novice interpreter performance in the simultaneous interpreting of scientific discourse. *International Journal of Translation*, 65(1), 1–25

Roziner, I. & M. Shlesinger. (2010). Much ado about something remote: Stress and performance in remote interpreting. *Interpreting* 12(2): 214-247.

Rui, Fei [芮菲] (2019). Discussion on the Causes and Countermeasures of Anxiety in Interpreting [刍议口译产出焦虑的成因和对策]. *Overseas English [海外英语]*. (16),57-58+65

Russo, M., & Rojc, M. (2012). "The impact of preparation on stress and performance in interpreting." *Interpreting*, 14(1), 75–98

Sabatini, E. (2000). Listening comprehension, shadowing and simultaneous interpretation of two 'non-standard' English speeches. *Interpreting* 5(1): 25-48.

Saldaña, J. (2016). *The Coding Manual for Qualitative Researchers* (3rd Ed.). Sage Publications Ltd.

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students*. England: Pearson Education Limited

Saunders M, Lewis, P., & Thornhill, A. (2019). *Research methods for business students*. (8th edition). London: Pearson.

Sbaraini, A., S. M. Carter, R. Wendell Evans, and A. Blinkhorn. (2011). "How to Do a Grounded Theory Study: A Worked Example of a Study of Dental Practices." *BMC Medical Research Methodology* 11: 128.

Schunk, D. H., & DiBenedetto, M. K. (2016). Self-efficacy theory in education. In *Handbook of motivation at school* (pp. 34-54). Routledge.

Schunk, D. H., & Usher, E. L. (2012). Social cognitive theory and motivation. In R. M. Ryan (Ed.), The *Oxford handbook of human motivation* (pp. 13–27). New York, NY: Oxford University Press.

Schunk, D. H., and F. Pajares. (2005). "Competence Perceptions and Academic Functioning." In *Handbook of Competence and Motivation,* edited by A. J. Elliot and C. S. Dweck, 85–104. New York: Guilford.

Schwarzer, R. (1999). Proactive Coping Theory. Paper presented at the 20th International Conference of the Stress and Anxiety Research Society (STAR), Cracow, Poland, July 12–14.

Schyns, B. & von Collani, G. (2002). A New Occupational Self-efficacy Scale and its Relation to Personality Constructs and Organisational Variables. *European Journal of Work and Organisational Psychology* 11(2). 219−241.

Scott, D., (2005). Critical realism and empirical research methods in education. *Journal of the philosophy of education*, 39 (4), 633–646.

Scovel, T. (1978). The effect on foreign language learning: A review of the anxiety research. *Language Learning*, 28(1), 129–142. https://doi.org/10.1111/j.1467-1770.1978.tb00309.x

Seleskovitch, D., (1978). Language and Cognition. In D. Gerver, & H. W. Sinaiko (Eds.), *Language Interpretation and Communication*. Boston, MA: Springer. pp. 333-341

Setton, R., Dawrant, A., (2016) *Conference Interpreting: A Complete Course*. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Shavelson, R. J., and R. Bolus. (1982). Self Concept: The Interplay of Theory and Methods. *Journal of Educational Psychology* 74, 3-17. doi:10.1037/0022-0663.74.1.3

Shaw, S., & Hughes, G. (2006). Essential characteristics of sign language interpreting students: Perspectives of students and faculty. *Interpreting*, 8(2), 195-221.

Shedletsky, R., & Endler, N. S. (1974). Anxiety: the state-trait model and the interaction model. *Journal of Personality*, 42, 511-526.

Sherer, M., J. E. Maddux, B. Mercandante, S. Prentice-Dunn, B. Jacobs, and R. W. Rogers. 1982. "The Self-efficacy Scale: Construction and Validation." *Psychological Reports* 51: 663–671. doi:10.2466/pr0.1982.51.2.663

Shermatov, F. (2024). Specialized Interpreting Skills. *Development and Innovations in Science*, *3*(9), p5-9. https://doi.org/10.5281/zenodo.13729787

Sherwood, A., & Carels, R. A. (2007). Blood Pressure. In *Encyclopedia of Stress* (ed) George Fink. Academic Press, California. Pp. 331-338

Shi, Xingsong & Niu, Yilin [史兴松&牛一琳]. (2020). A Comparative Study of the Models for MTI Education at Home and Abroad [国内外翻译硕士人才培养模式对比研究]. *Chinese Translators Journal [中国翻译]*. 5: 63-70.

Shlesinger, M. (2000) *Strategic allocation of working memory and other attentional resources*, PhD dissertation, Bar-Ilan University.

Simelane-Mnisi, S. (2018). Role and importance of ethics in research. In *Ensuring research integrity and the ethical management of data* (p. 1-13). IGI Global Scientific Publishing.

Simister, N. & James, D. (2020). Quantitative and Qualitative Methods. *Intrac for Civic Society, M&E Training & Consultancy.* https://www.intrac.org/app/uploads/2017/01/Quantitative-and-qualitative-methods.pdf

Slife, B.D., & Rychlak, J. F. (1982). Role of affective assessment in modelling aggressive behaviour. *Journal of Personality and Social Psychology.* 43, 861-868.

Snape D, Spencer L (2003) The foundations of qualitative research, in Ritchie J, Lewis J (eds) *Qualitative Research Practice: a Guide for Social Science Researchers and Students*, (pp. 1–23). SAGE Publications Ltd, London.

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of business research*, *104*, 333-339.

Spielberger, C. D. (1966). *Anxiety and behaviour*. New York: Academic press.

Spielberger, C. D. (2019). Anxiety, cognition and affect: A state-trait perspective. *Anxiety and the anxiety disorders*, 171-182.

Spielberger, C. D. (1983). *Manual for the state-trait anxiety inventory* (Form Y). Palo Alto, CA:

Consulting Psychologists Press.

Staats, A.W. & Eifert, G.H. (1990). The paradigmatic behaviourism theory of emotions basis for unification. *Clinical Psychology Review,* 10, 539-566

Stachowiak, K. (2014). Mind's not lazy: On multitasking in interpreters and translators. *Konińskie Studia Językowe 2*(3), 293-313.

Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological bulletin*, *124*(2), 240.

StatSoft. (2024) *Canonical Analysis.* Occidental College, accessed from https://sites.oxy.edu/lengyel/m150/textbook/stcanan.html

StatSoft (n.d.). *Canonical Analysis.* Retrieved May 28, 2024, from https://sites.oxy.edu/lengyel/m150/textbook/stcanan.html

Stewart, L. (2024) *What is abductive reasoning? In-depth guide & examples*, *ATLAS.ti*. https://atlasti.com/research-hub/abductive-reasoning.

Strauss, A. L., & Corbin, J. (1990). *Basics of Qualitative Research*. Thousand Oaks CA: Sage Publications.

Strauss, A. L., & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (2nd Ed.). Newbury Park, CA: Sage Publications.

Streefkerk, R. (2023, June 22). *Qualitative vs. Quantitative Research: Differences, Examples & Methods.* https://www.scribbr.com/methodology/qualitative-quantitative-research/

Strongman, K. T., (1995). Theories of anxiety. *New Zealand Journal of Psychology*, 24(2), pp. 4-10.

Stutchbury, K. (2021). Critical realism: an explanatory framework for small-scale qualitative studies or an 'unhelpful edifice'? *International Journal of Research & Method in Education*, *45*(2), 113–128. https://doi.org/10.1080/1743727X.2021.1966623

Sullivan, H. S., (1953). *The collected works of Harvey Stack Sullivan* (Vol. I). Edited by H. S. Perry and M. L. Gawel. New York: W. W. Norton & Co.

Sultana, J. (2020), "Determining the factors that affect the uses of Mobile Cloud Learning (MCL) platform Blackboard- a modification of the UTAUT model", *Education and Information Technologies volume*, 25. 223-238.

Sun, H., Han, Y. (2024). Chinese Students' Perception and Demand on AI Assisted Interpretation Technology and Its Implication on Education of Interpreters. In: Kubincová, Z., *et al.* Emerging Technologies for Education. SETE 2023. Lecture Notes in Computer Science, vol 14606, pp 283-294. Springer, Singapore. https://doi.org/10.1007/978-981-97-4243-1_22

Taylor, S. (2015) *Random Sampling.* https://corporatefinanceinstitute.com/resources/data-science/random-sampling/

Taylor, S. J., Bogdan, R., & DeVault, M. (2016). *Introduction to qualitative research methods: A guidebook and resource*. 4th edn. John Wiley & Sons Inc.

Tenenhaus, A., Philippe, C., Guillemot, V., Le Cao, K. A., Grill, J., & Frouin, V. (2014). Variable selection for generalized canonical correlation analysis. *Biostatistics*, *15*(3), 569-583.

Tengli, M. (2020). Research Onion: A Systematic Approach to Designing Research Methodology. *Retrieved from sharing, learning and networking for innovation.* Available at: https://www.researchgate.net/publication/357284560_RESEARCH_ONION_A_SYSTEMATIC_APPROACH_TO_DESIGNING_RESEARCH_METHODOLOGY#fullTextFileContent

Thomas, G., (2013). *How to do your research project: as guide for students in education and applied social sciences. (2nd Edition).* Los Angeles: SAGE.

Thomas, M. (1994). Assessment of L2 proficiency in second language acquisition research. *Language Learning*, 44, p307–336

Thomson, S. B. (2010). Grounded theory - sample size. *Journal of Administration and Governance*, *5*, 45–52

Tikly, L., (2015). What works, for whom, and in what circumstances? Towards a critical realist understanding of learning in international and comparative education. *International journal of educational development*, 40, 237–249. doi: 10.1016/j.ijedudev.2014.11.008

Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological Theory*, *30*, 167–186. https://doi.org/10.1177/0735275112457914

Tomozeiu, D., Koskinen, K., & D'Arcangelo, A. (2016). Teaching intercultural competence in translator training. *The Interpreter and Translator Trainer*, *10*(3), 251-267.

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management,* 14, 207–222. https://doi.org/10.1111/1467-8551.00375.

Translation Services Toronto. (n.d.). *Interpreting Skills and Competences.* Retrieved October 24, 2024, from https://multi-languages.com/interpretations-shtml/interpreters_competencies-shtml/

Trochim, W. M. K. (2006). *Research methods knowledge base.* http://www.socialresearchmethods.net

Turner D. W. (2010) Qualitative interview design: a practical guide for novice researcher. *The Qualitative Report*, 15(3), 754-760. https://doi.org/10.46743/2160-3715/2010.1178

Urquhart, C. (2013). *Grounded Theory for Qualitative Research: A Practical Guide*. Thousand Oaks: Sage.

Ursin, H., & Eriksen, H. R. (2004). The cognitive activation theory of stress. *Psychoneuroendocrinology*, 29(5), 567–592

Valiante, G. (2000). *Writing Self-Efficacy and Gender Orientation: A Developmental Perspective*. Atlanta: Emory University.

Vita, A. (2014). *Gile's Effort Models for Interpreting.* Accessed on August 18, 2025, at *https://www.alessandravita.com/wp/giles-effort-model-interpreting/*

Vollstedt, M., & Rezat, S. (2019). An Introduction to Grounded Theory with a Special Focus on Axial Coding and the Coding Paradigm. *Compendium for Early Career Researchers in Mathematics Education*, 13, 81-100.

Walczynski, Marcin, (2019). *Psycho-Affective Factors in Consecutive Interpreting*, Berlin: Peter Lang.

Wan, Hongyu & Jia, Yichen [万宏瑜&贾亦忱]. (2023). Review and Prospect for 40-year research on Interpreting Notes in China and Abroad [国内外口译笔记研究40年：回顾与前瞻]. *Translation Research and Teaching [翻译研究与教学]*. (01):8-16.

Wang W, Xu Y, Wang B and Mu L (2020) Developing Interpreting Competence Scales in China. *Front. Psychol*. 11:481. doi: 10.3389/fpsyg.2020.00481

Wang, Binhua & Mu, Lei., [王斌华 & 穆雷] (2012). Survey report on Professional interpreting training programmes outside China and implications on China' translation & Interpreting education [国外专业口译教学的研究报告], *Foreign Language World [外语界]*. (5), 24-33.

Wang, Binhua [王斌华] (2006). *Conference Interpreting: Theory, Skills and Practice [口译：理论 技巧 实践]*.Wuhan: Wuhan University Press.

Wang, Binhua [王斌华]. (2007). Assessment of "Interpreting competence" and "Interpreter competence" - A Preliminary Study on the Objective Evaluation Model of Interpreting. ["口译能力"评估和"译员能力"评估——口译的客观评估模式初探]. *Foreign Language World [外语界]*. 3: 44-50.

Wang, Binhua [王斌华]. (2012). From Interpreting competence to Interpreter competence: Expansion of Professional Interpreting Teaching Philosophy. [从口译能力到译员能力:专业口译教学理念的拓展]. *Foreign Languages and Their Teaching [外语与外语教学]*. 6 (267), 75-78.

Wang, Biyan [王碧燕]. (2016). *Modes of Translator Training Home and Abroad: Differences & Inspirations [国内外翻译人才培养模式差异与启示]*. Master Thesis, Fujian Normal University.

Wang, Fei & Han, Chong [王非&韩翀]. (2013). Australian Master's Programmes in Interpretation: Content, Features, Thoughts [澳大利亚口译硕士课程:内容、特色与启示]. *East Journal of Translation [东方翻译]. (01), 30-35.*

Wang, Honglin [王洪林]. (2020). On Constructing the Training Model of Professionalised Interpreters in the New Era [职业化应用型口译人才培养模式构建]. *Journal of Zhejiang Wanli University [浙江万里学院学报]*.33(1). 97-101.

Wang, Huashu & Li, Zhi [王华树&李智]. (2020) A Study on Translation Technology in the Age of Artificial Intelligence: Connotation, Classification and Trends. [人工智能时代的翻译技术研究:内涵、分类与趋势]. *Foreign Languages and Cultures [外国语言与文化]*. 4(1), 86-95

Wang, Huashu; Li, Zhi; & Li, Defeng [王华树, 李智, 李德凤]. (2018). An Empirical Research on Professional Interpreters' use of Interpreting Technologies [口译员技术应用能力实证研究：问题与对策]. *Shanghai Journal of Translators [上海翻译]*. 5: 70-77+88

Wang, Jiaying [王嘉颖].(2022) *Comparing the Effects of Immediate and Delayed Teacher Feedback on Interpreting Anxiety of Interpreting Learners [教师即时和延时反馈对口译学习者口译焦*

虑影响的比较研究] Doctoral Thesis. Xiamen University.

Wang, Lu [王璐]. (2018). The Influence of Interpreting Cognitive Psychology on Interpreting Quality – Contrast between professional interpreters and student interpreters [口译认知心理对口译质量的影响——职业译员与学生译员对比研究]. *Journal of Huaibei Normal University (Philosophy and Social Sciences) [*淮北师范大学学报（哲学社会科学版)*]*. 39(5), 71-77.

Wang, W., Lee, H., & Fetzer, S.J. (2006). Challenges and strategies of instrument translation. *Western Journal of Nursing Research*, 28(3), 310–321.

Wang, Xiaolu [王晓露]. (2014). Interpretation work stress and coping strategy [口译工作压力及其对策]. *Chinese Science & Technology Translators Journal [中国科技翻译]*. 27(2). 20-23

Wang, Y. (2025). Reducing anxiety, promoting enjoymentand enhancing overall English proficiency: The impact of AI-assisted languagelearning in Chinese EFL contexts. *British Educational Research Journal*, 00, 1–26. https://doi.org/10.1002/berj.4187

Wang, Yuzhu [王雨竹], (2021). *The effect of anxiety on the performance of novice simultaneous interpreters [口译焦虑对同声传译质量的影响——以学生译员为例]* Master thesis, Beijing Foreign Studies University.

Welch, C., Piekkari, R., Plakoyiannaki, E., & Paavilainen-Mantymaki, E. (2011). Theorising from case studies: Towards a pluralist future for international business research. *Journal of International Business Studies*, 42, 740-762.

Weng, Y., Zheng, B., & Dong, Y. (2022). Time pressure in translation: Psychological and physiological measures. *Target*, 34(4), 601-626.

Williams, M., & Moser, T. (2019). The Art of Coding and Thematic Exploration in Qualitative Research. *International Management Review*, 15(1), 45-55.

Willis, J. W. (2007). *Foundations of qualitative research: Interpretive and critical approaches*. Thousand Oaks, CA: Sage Publications.

Woolfolk, A. 2001. *Educational psychology*. Boston: Allyn & Bacon

Wrubel, J., Benner, P. & Lazarus, R. S. (1981). Social competence from the perspective of stress and coping. In Wing, J. & Syme, M. (Eds.), *Social Competence.* New York: Guilford.

Wu, Hao. [吴昊]. (2008). Research on anxiety in English Listening class among non-English major college students [非英语专业大学生的英语听力课堂焦虑研究]. *Journal of Hefei University of Technology, social science section [合肥工业大学学报，社会科学版]* , (4), 153-158.

Wu, Shuli [邬姝丽], (2010). Assessment of Interpreting Competence in English Majors in Higher Education Institutions and Its Implications for Interpreting Teaching [高校英语专业口译能力评估及其对口译教学的启示]. *Chinese Translators Journal [中国翻译]*. 4, 37-39.

Wu, Zhiwei [伍志伟], (2017). The interrelationship among in-class peer-assessment, interpreting anxiety and interpreting performance [口译课堂同伴互评与口译焦虑、口译水平的关系].

Language Education [语言教育]. 5(4), 33-37

Wu, Zhiwei [伍志伟]. (2019). Text characteristics, perceived difficulty and task performance in sight translation: An exploratory study of university-level students. *Interpreting* 21(2): 196-219.

Xie, Ailei & Chen, Jiayi (谢爱磊 & 陈嘉怡). (2021). Determining Sample Size in Qualitative Research: Saturation, its Conceptualisation, Operationalisation and Relevant Debates [质性研究的样本量判断——饱和的概念、操作与争议]. *Journal of East China Normal University (Educational Sciences) [华东师范大学学报(教育科学版)]*, 39(12): 15-27.

Xu, Huarong [许华蓉]. (2016). *A Study on the Correlation between Note-taking and Interpreting Exam anxiety of MTI Student Interpreters. [MTI学生译员口译笔记与口译考试焦虑的相关性研究]*. Master's thesis. Hunan University

Xu, Min & Li, Jinyu [徐敏&李锦钰]. (2016). Research on Interpreters' Anxiety and Its Adjustment Methods [口译员焦虑心理及其调适方法研究]. *Journal of Hubei University of Economics (Humanities and Social Sciences) [湖北经济学院学报(人文社会科学版)]*. 13(10), 128-129.

Xu, Ming [许明]. (2008). Cognitive researches on interpretation in the west: An overview [西方口译认知研究概述]. *Chinese Translators Journal [中国翻译]* (1): 16-21

Xu, Ming. [许明], (2007). The psychological foundations of translational cognitive research [口译认知研究的心理学基础]. *Journal Of Tianjin Foreign Studies University [天津外国语学院学报]*. (6), 69-73

Xu, Ran [徐然]. (2018). Construction of pre-translation preparation mode for interpreting based on corpus technology [基于语料库技术的口译译前准备模式建构]. *Chinese Translators Journal [中国翻译]*. 39(3), 53-59.

Yan, Rong & Zhang, Lei [闫嵘&张磊]. (2015). The Influence of Task Complexity, Task Difficulty, and Self Efficacy on Foreign Language Writing [任务复杂度、任务难度和自我效能感对外语写作的影响]. *Foreign Languages World [外语界]*. 1, 40-47.

Yang, Chengshu & Deng, Minjun [杨承淑&邓敏君]. (2011). The Decision Process in Interpretation of Experienced and Novice Interpreters [老手与新手译员的口译决策过程]. *Chinese Translators Journal [中国翻译]*. 4, 54-59.

Yang, Chenshu [杨承淑] (2005). *Interpretation Studies [口译教学研究: 理论与实践]*. Beijing; China Translation and Publishing Corporation [中国对外翻译出版公司].

Yang, Dongmin [杨冬敏], (2023). Bridging MTI Education and the Translation Accreditation Test: The Status Quo and Suggestions [MTI 教育与翻译资格考试的衔接: 现状与建议]. *Translation Research [翻译研究]* 2: 48-59

Yang, Jiaming, (2025). Interpreting Teaching in AI Era: Opportunities and Challenges. *Sino-US*

English Teaching, *22*(5), 158-162

Yang, Ke [杨科]. (2017). A Two-dimensional Study on Working Memory and Anxiety in Interpretation [口译工作记忆和焦虑二维度研究]. *News Dissemination [新闻传播]*. 7, 7-10.

Yang, X. (2024, December). Research on the Application Path of Artificial Intelligence in Interpretation Courses. In *2024 5th International Conference on Information Science and Education (ICISE-IE)*. *IEEE*, pp. 454-458

Yang, Zhihong [杨志红]. (2014). An empirical study on the relationship between Chinese students' English proficiency and their ability to translate from Chinese to English [中国学生英语能力与汉译英能力关系的实证研究]. *Foreign Languages and Their Teaching [外语与外语教学]*. 1, 54-59. DOI:10.13458/j.cnki.flatt.004416

Young, D.J. (1992). Language Anxiety from the Foreign Language Specialist's Perspective: Interviews with Krashen, Omaggio Hadley, Terrell, and Rardin. *Foreign Language Annals*, 25(2), 157-172.

Yu, S. (2023). Scaffolding strategies for training anxiety-stricken novice interpreters. *Journal of Social Science Humanities and Literature*, 6(5), 138-149.

Yu, Shuimiao [于水苗]. (2022). *An Empirical Study on the Correlation Between Interpretation Anxiety and Self-Efficacy of MTI Students [MTI 学生口译焦虑和自我效能感相关性的实证研究]* Master thesis. Inner Mongolia University

Yu, Xiaofeng [俞晓峰], (2020). *A study of MTI students' interpretation anxiety -- causes and strategies [翻译硕士学生口译焦虑研究——成因与对策]*. Master thesis. Inner Mongolia University.

Yu, Zhenyuan [余振远]. (2012). *Market-Based Education for Master of Translation and Interpreting (MTI) Student [市场视角下的翻译硕士(MTI)培养]*. Master thesis, Jilin University.

Zareai, M. (2010). Self-efficacy and Interpretation Quality. *Interpreting and Translation Studies*. 14(1), 325−342.

Zhan, Boyun & Ru, Mingli [詹柏匀&汝明麗]. (2022). The Student Interpreter's Glossary: An Expert-Novice Perspective. [口譯學生的詞彙表調查—專技觀點] 翻譯學研究集刊. 25, 133-176.

Zhang, Ailing & Sheng, Hao [张爱玲&盛皓], (2025). Recalibrating the Interpreting Industry in the AIGC Era with a Review of the SCIC Conference [生成式人工智能时代口译行业何去何从——兼评欧委会口译总司合作高校会议]. *Journal of Foreign Languages [外国语]*. 48(3), 107-113

Zhang, Bei & Deng, Yi [章蓓&邓轶], (2025). An Exploratory Study of the Impact of Demotivators on Interpreting Learners [口译学习者负动机影响因素研究]. *Journal of University of Shanghai for Science and Technology (Social Science) [上海理工大学学报（社会科学版）]*. 47(3), 256-264

Zhang, Jiliang [张吉良]. (2003). Discussion on interpreters' pre-task preparation of interpretation [论译员的口译准备工作]. *Chinese Science & Technology Translators Journal [中国科技翻译]*.

16(3), 13-17.

Zhang, Jiliang. & Chai, Mingjiong. [张吉良&柴明颍]. (2008). An Overview of Interpreter Training Programs Overseas and Their Implications for China [国外口译专业概况及其对我国口译办学的启示]. *Journal of PLA University of Foreign Languages [解放军外国语学院学报.]* 11, 59-64.

Zhang, Qingzong & Liu Xiaoyan [张庆宗&刘晓燕]. An empirical study on the relationship between self-efficacy, reading strategies, and reading performance in English reading [英语阅读自我效能感、阅读策略和阅读成绩关系的实证研究]. *Educational Research and Experiment [教育研究与试验].* 1, 92-96.

Zhang, R. Z. and Liu, J. Y. (2024) Effects and Causes of VR-Supported Interpreting Learning Environment on the Interpretation Classroom Anxiety of Student Interpreter. *Open Journal of Applied Sciences*, 14, 398-410. https://doi.org/10.4236/ojapps.2024.142028

Zhang, Risheng & Yuan, Limin [张日昇&袁莉敏]. (2004). Research on the Relationship bet ween Foreign Language Anxiety, Self-efficacy and English Performance [大学生外语焦虑、自我效能感与外语成绩关系的研究]. *Psychological Development and Education [心理发展与教育].* 3, 56-61.

Zhang, Wei [张威]. (2012). Working memory and interpreting expertise in simultaneous interpreting: Roles and impacts [工作记忆与口译技能在同声传译中的作用与影响]. *Foreign Language Teaching and Research [外语教学与研究]* (5): 751-764.

Zhang, Zeren [张泽人]. (2018). Research On the Self-efficacy of Interpreting Learners [论口译学习者的自我效能感]. *English Square [英语广场].* 8, 28-30.

Zhang, Zhixin [张志新]. (2018). A Study on the Features and Developmental Tendencies of Students' Note-taking in English-Chinese Consecutive Interpreting [口译学员交传笔记特征及发展趋势研究]. *Journal of Changchun Normal University [长春师范大学学报].* 37(9), 81-85.

Zhao, N. (2023). Speech disfluencies in consecutive interpreting by student interpreters: The role of language proficiency, working memory, and anxiety. *Frontiers in psychology*, *13*, 1-9. https://doi.org/10.3389/fpsyg.2022.881778

Zheng, Xun [郑洵]. (2017) Discussion on interpretation learning anxiety and its coping strategies among undergraduate students in translation major [刍议翻译专业本科学生口笔译学习焦虑及对策] *Journal of Lanzhou Institute of Education [兰州教育学院学报].* 33 (5). 127-131

Zhong, Weihe & Zhan, Cheng [仲伟合&詹成]. (2016). Construction of Teaching System for Interpretation Major – Theory and Practice of Teaching System for Interpretation Major at Guangdong University of Foreign Studies [口译专业教学体系的构建——广外口译专业教学体系理论与实践]. *Chinese Translators Journal [中国翻译].* 6, 39-42.

Zhong, Weihe [仲伟合], (2019). *Interpreter Training – The Approach of Guangdong University of Foreign Studies [口译教学——广外模式的探索与实践],* Beijing: Foreign Language Teaching and Research Press.

Zhong, Weihe [仲伟合]. (2003). Knowledge Requirement for Interpreters and Their Implication to Interpreting Course Designing [译员的知识结构与口译课程设置]. *Chinese Translators Journal [中国翻译]*. 24(4), 63-65.

Zhong, Zhenni [钟珍妮]. (2016). *On Problem Triggers and Corresponding Strategies in CN-EN Simultaneous Interpretation for Chinese Colloquial-style Speeches –A Comparative Study of Novice Interpreters and Expert Interpreters [*中英同传中口语体发言的难点和应对策略——基于新手译员与专家译员的比较研究*]*. Master thesis, Beijing Foreign Studies University

Zhou, Jing [周静], (2017). The Correlative Research between Social Support of Interpreting Learners and Interpreting Anxiety – an Investigative Study among Interpreting Trainees from Seven Universities in Guangdong. [口译学习者社会支持与口译焦虑相关性研究——基于广东七所高校翻译本科专业学生的调查]. *Journal of Changchun Normal University [长春师范大学学报]* 3(36). 182-187.

Zhou, Yali & Jiang, Xuefang [周亚莉&蒋雪芳]. (2013). Current Situations and Reflection on the Education Research of Master's Programmes of Translation and Interpretation in China (MTI) [翻译专业硕士(MTI)教育研究现状与反思]. *Journal of Guangxi College of Education [广西教育学院学报]*. 1, 138-143.

Zhu, Xiaomin [朱晓敏]. (2022). *An Empirical Research on MTI Student Interpreters' Interpreting Anxiety Based on Emotion Studies and the Interpreting Anxiety Scale [关于MTI学生口译员口译焦虑的实证研究——基于情绪研究和《口译焦虑量表》的应用]*. Master thesis, Guangdong University of Foreign Studies.

Zhuang X, Yang Z, Cordes D. (2020). A technical review of canonical correlation analysis for neuroscience applications. *Hum Brain Mapp*. 41(13), 3807-3833. doi: 10.1002/hbm.25090. Epub 2020 Jun 27. PMID: 32592530; PMCID: PMC7416047.

Appendices

Appendix 4.1-1 Interview questions (English)

Interview consent form

Invitation

You are being invited to take part in a research project. Before you decide whether to take part, it is important for you to understand why the research is being done and what it will involve, including the research purpose, content, procedures, data reservation and protection, and possible benefits. Please take time to read the following information carefully. Ask questions if anything is not clear or you would like more information.

Project title

Interpretation anxiety: where it comes from in consecutive interpreting and how it varies across interpreters of different proficiency?

What is the purpose of the project?

This research aims to investigate the interpretation anxiety (IA) that interpreters would experience when performing the interpretation tasks. Choosing this topic is because interpreting, which is defined as a "fairly complex form of human information processing involving the reception, storage, transformation, and transmission of verbal information", is often considered as a highly anxiety-provoking task due to its extreme cognitive load. However, despite the critical role that anxiety plays in determining interpretation performance, there is lack of research in this topic. Therefore, in this research we would like to understand the possible sources of IA in the process of consecutive interpreting, and whether and (if yes) how the IA sources and IA levels would vary across interpreters of different level of proficiency.

Why have I been invited to participate?

You have been invited to participate in this study because, as a novice/ proficient/ professional interpreter, you can help us better explore the possible IA sources and understand how they are varying across different level of proficiency.

What does taking part involve?

You will be asked a number of questions regarding interpretation anxiety. The interview will take place in the classroom at a time that it is convenient for you and will last approximately 50 minutes. The interview will be audio-recorded / video-recorded.

Are there any possible benefits or risks in taking part?

By sharing your experiences with us, you will be helping the researcher better conduct the research and understand more about IA. There are no significant risks anticipated from participation in this research project.

How Will My Data Be Looked After during the project?

All your data will be processed and stored in accordance with the General Data Protection Regulation (GDPR) along with the Data Protection Act 2018 (DPA). The project will also be guided by and adhere to the UWTSD's data protection guidance and regulations. All personal details, including contact details, addresses, phone numbers etc., will be kept strictly confidential within the research team, stored on password-protected and encrypted devices and/or University secure servers, in accordance with the General Data Protection Regulation, and the latest University's data security protocols.

What If I Want to Withdraw from The Project?

Agreeing to participate in this project does not oblige you to remain in the study or to have any further obligations to the research project or team. If at any stage you no longer want to be part of the study, you can withdraw from the project by contacting the researcher via the email: 2000299@student.uwtsd.ac.uk. You should note that your data may be used in the production of formal research outputs (e.g. journal articles, conference papers, reports) prior to your withdrawal and so you are advised to contact the research team at the earliest opportunity should you wish to withdraw from the study. If you withdraw from the project, there is no need to explain the reason, and under such circumstance, your interview data would not be used for this research.

Thank you for taking time to read the participant information, and please sign here as you are giving your consent to take part in this interview.

Signature:

Date:

Interview questions

Part 1: Basic information (general)

1. Name
2. Gender
3. Age
4. Study/work status
5. Level of education (only for interpreting students)

Part 2: Basic information (group-specific)

For interpreting student (novice and proficient groups)

6. Which school are you currently attending? What is your major and grade?
7. During the interpreting study: When did you start to learn consecutive interpreting?
8. What interpreting-related courses have you taken? What did you learn from the courses?
9. Have you had any practice, competition or internship experience related to consecutive interpreting?
10. Do you hold any interpreting-related qualifications. If yes, what are they?

For professional interpreters (professional group)

6. Interpreting learning time: When did you start to learn consecutive interpretation?
7. Interpreting learning experience: Which school did you attend and what major did you learn?
8. Interpreting working time: when did you start to work as a professional interpreter? Roughly how many interpreting working hours in a year? / In roughly how many conferences do you work as a (consecutive) interpreter in a year? Was it the recent work experience?
9. interpreting working experience: what types of conferences have you mostly interpreted for? (conference level, in which industry?)
10. Do you hold any interpreting-related qualifications. If yes, what are they?

Part 3: General profile of participant's interpreting anxiety

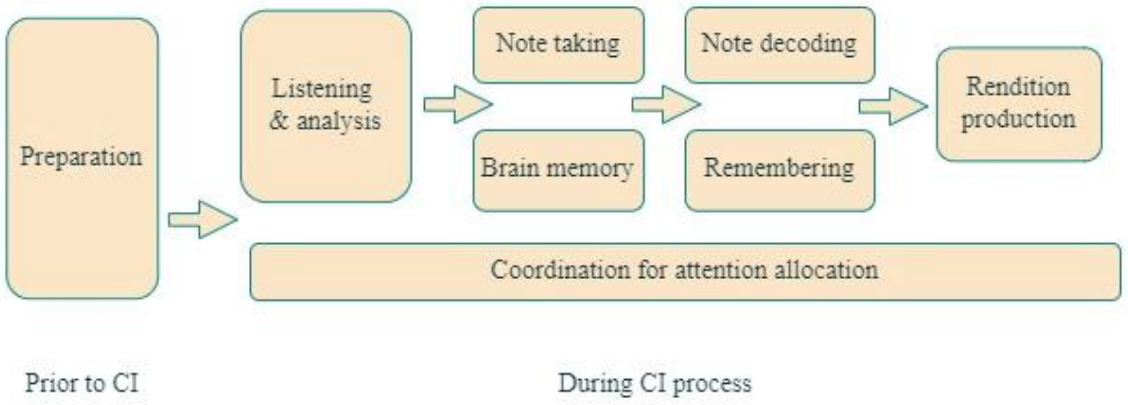
This study defines interpretation anxiety as "A feeling of anxiety caused by the interpreting itself during the whole consecutive interpreting task. It may be manifested as: nervousness, sweating, body shaking, sweaty palms, rapid heartbeat, frequent urination,

incoherent speech, blank in the brain, etc." Please carefully recall the interpretation learning and working process and answer the following questions.

11. Did you ever feel anxious during the consecutive interpreting task? (If yes, further elaborate how it feels and mostly when it comes to exist.)
12. how much do you score your overall IA level during CI task? if the maximum level is 100?

Part 4: Explore the possible sources and the level of IA

13. Please see the flow chart below which shows the process of an interpreting task. Which step (or steps) in the overall process of a consecutive interpreting task that most likely to make you feel anxious? Why? Please share some experience. (in pre-stage and while-stage respectively)



14. Which factor(s) in a particular step(s) makes you feel the most anxious? Pease share your experience. If there are multiple factors, please describe and rank the degree of anxiety brought by each factor. (in pre-stage and while-stage respectively, and explore every possible factor and discuss them in details)

15. Compare the two stages that prior to and during consecutive interpreting process, which stage do you think involves more anxiety? Please explain the reason and share your experience.

16. In consecutive interpretation, can you control your emotion to a certain extent when anxiety arises? If so, how to do it?

17. Are there any other situations in consecutive interpreting that make you feel anxious? If yes, please further elaborate.

18. Are there any other observations regarding consecutive interpreting or interpreting anxiety that you would like to add?

That is the end of the interview. Thank you again for your participation.

Appendix 4.1-2: Interview questions (Chinese)

访谈知情同意书

您将被邀请参加一个关于口译焦虑的访谈。本知情同意书将为您提供您一些信息，在您决定是否加这次访谈之前，请仔细阅读以下内容。它可以帮助您了解该访谈的目的、内容、程序、数据保存，以及对您可能的益处影响。请您仔细阅读，如有任何疑问请向负责人员提出，并请相关人员给予解释，直至您对本次访谈完全理解。

研究项目主题：

口译焦虑：交替传译过程中口译焦虑的来源，以及口译焦虑在不同熟练程度的口译员之间的差异

项目研究的目的？

本研究旨在调查口译员在执行口译任务时产生口译焦虑的情况。口译被定义为“相当复杂的人类信息处理形式，涉及言语信息的接收、存储、转换和传输”，由于高度的认知负荷，它通常被认为是一项高度焦虑的任务。然而，尽管焦虑在决定口译表现方面起着关键作用，但这方面的研究仍然缺乏。因此，在本研究中，我们希望了解译员在进行口译任务的时候产生焦虑的可能来源，以及焦虑来源和焦虑程度在不同层次译员之间的差异情况。

为什么邀请我参加？

您被邀请参加这项研究，因为作为口译初学者/中级译员/职业译员，您可以帮助我们更好地探索口译焦虑可能的来源，并了解焦虑来源和焦虑程度与口译学习层次/工作经验时间长短之间的关联。

访谈将涉及什么？

您会被问到一些关于个人基本情况和口译焦虑的相关问题，访谈将在您方便的时间进行，持续约 50 分钟，访谈将被录像或录音。

参加访谈有什么好处或可能的风险？

通过与我们分享您的经验，您将帮助研究人员更好地进行研究，并了解更多有关于口译焦虑真实有效的信息。预计参与本研究项目不会产生明显风险。

数据将如何保存？

您所有数据将根据《通用数据保护条例》（GDPR）和《2018 年数据保护法案》（DPA）进行处理和存储。该项目还将遵循 UWTSD 的数据保护指南和规定。所有个人信息，包括联系方式、地址、电话号码等，将在研究团队内严格保密，并根据《通用数据保护条例》存储在受密码保护和加密的设备和/或大学安全服务器上。

如果后期我想退出该项目怎么办？

同意参与本访谈并不意味着您必须继续参与研究或对研究项目或团队承担任何进一步的义务。如果在任何阶段您不再想参与研究，您可以通过电子邮件联系研究人员退出该项目：2000299@student.uwtsd.ac.uk. 您应注意，在退出研究之前，您的数据可能会用于正式研究成果（如期刊文章、会议论文、报告）的制作，因此建议您尽早联系研究团队。如果您后期希望退出研究，无需说明原因，这种情况下您的访谈数据将不会用于该研究。

如果您决定参加访谈，请您签署知情同意书。

签名：

日期：

访谈问题

第一部分：受访者基本情况（总体）

1. 姓名
2. 性别
3. 年龄
4. 学习或工作状态
5. 学历层次（针对口译学生）

第二部分：受访者基本情况（分组）

针对新手译员和中级译员组：

6. 所在学校、专业及年级。

7. 口译学习时间：从什么时候开始学习交替传译？

8. 学习过哪些口译相关课程？学习了哪些口译相关内容？

9. 是否有交替传译相关实践、比赛、实习经历？

10. 是否有口译相关资质证书？

针对职业译员组：

6. 口译学习时间：从什么时候开始学习交替传译？

7. 口译学习经历：曾经就读的学校及专业，学习了哪些口译相关内容？

8. 口译工作时间：从什么时候开始口译实践工作？一年大概为多少场/多少小时会议提供口译服务，交替传译的服务场次/小时数大概为多少？口译工作经历是近期的吗？

9. 口译工作经验：你提供最多口译服务的会议是什么类型的？（会议级别，属于哪个行业等？）

10. 是否有口译相关资质证书？

第三部分：了解受访者交替传译过程中口译焦虑总体情况

本研究对口译焦虑的定义：在整个交替传译任务过程中，由口译本身所带来或引起的紧张不安或者对当下或者未来感到担忧的感觉。可能表现为：紧张、冒汗、身体发软发抖、手心出汗、心跳加快、尿意频繁、语无伦次、大脑空白等。

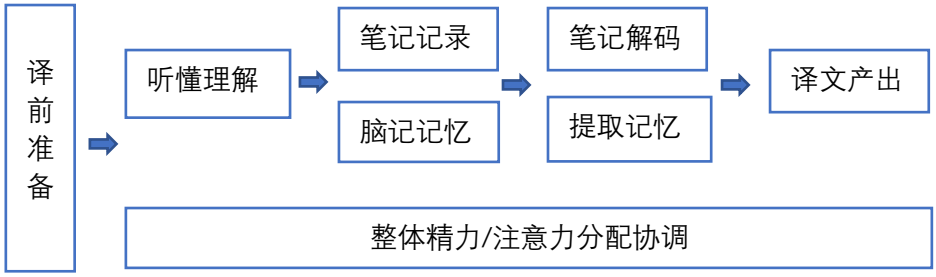
请仔细回忆口译学习过程，并回答下面的问题：

11. 在交替传译任务过程中是否有感到过焦虑？（若是，请详细描述焦虑感受及焦虑出现的情况）。

12. 若焦虑的最高值为100，交替传译任务过程中你总体感受到的焦虑值可以打多少分？

第四部分：探究受访者交替传译过程中口译焦虑的具体来源因素和程度

13. 下图展现的是交替传译任务过程中的步骤，在交替传译任务的整个过程中，哪个（或哪几个）步骤最容易让你感到焦虑？为什么？请分享您的经历。（可以分译前和译中两个阶段讨论）



14. 在某一特定步骤中，具体是哪个（或哪几个）因素最容易让你感到焦虑？请分享您的经历。若有多个因素，请对不同因素带来的焦虑的程度进行描述和打分/排序。（可以分译前和译中两个阶段讨论，尽可能探索每个可能的焦虑因素并开展细致讨论）

15. 比较口译任务中的准备阶段和实际进行阶段，您认为哪个阶段涉及更多的焦虑？请解释原因并分享您的经验。

16. 在交替传译中，当焦虑产生时，您能在某种程度上控制自己的焦虑情绪吗？如果可以，您是如何做的？

17. 在交替传译中，是否还有其他让您感到焦虑的情况？如果有，请详细说明。

18. 您是否有任何其他关于交替传译和口译焦虑的观察或想法想要补充？

访谈结束，谢谢。

Appendix 6.1-1: Initial Interpreting Self-efficacy Scale (English)

Assume that you are going to carry out an interpreting task. Take a look at the situations below and use the scale provided to rate the degree of your confidence of completing the coming interpreting task.

Rate your degree of confidence from the following five options: ① cannot do at all, ② slightly can do, ③ moderately can do, ④ very certain can do, and ⑤ extremely certain can do. Choose the option that most matches your feeling.

No.	Item	Rate from 5 options
1	When the source speech in the coming interpreting task has a difficult accent, I feel …	①②③④⑤
2	When the coming task requires intensive note-taking ability, I feel…	①②③④⑤
3	When unexpected challenges arise while preparing interpretation task, I feel...	①②③④⑤
4	When the coming task requires certain professional domain knowledge that unknown to me, I feel …	①②③④⑤
5	When the English listening comprehension in the coming task is difficult, I feel …	①②③④⑤
6	When I have to quickly search information and prepare for the coming interpreting task in a very limited time, I feel …	①②③④⑤
7	When cultural background knowledge is needed in the coming interpreting task, I feel …	①②③④⑤
8	When someone will comment on my following interpretation performance, I feel …	①②③④⑤
9	If I do not have the background / contextual knowledge about the speech in the coming task, I feel …	①②③④⑤
10	When the coming interpreting task has a high level of requirement on English vocabulary, I feel …	①②③④⑤

11	If the expectation for my interpreting performance is high, I feel …	①②③④⑤
12	If the upcoming interpreting task has a high level of requirement on memory ability, I feel …	①②③④⑤
13	When I am not provided with much preparation materials in advance, I feel...	①②③④⑤
14	If I am suddenly called to provide interpretation for the following content, I feel …	①②③④⑤
15	If the coming task is very formal, I feel …	①②③④⑤

Appendix 6.1-2: Initial Interpreting Self-efficacy Scale (Chinese)

假设您需要完成一项口译任务，下面给出了 15 种情形，请评估每种情形下您对完成该项口译任务的自信程度。

每种情形有 5 个选项：①完全没有信心, ②只有一点信心, ③有一些信心, ④比较有信心, ⑤非常有信心。请依次选择最符合您感受的选项。

No.	Item	Rate from 5 options
1	当接下来口译任务中译出语存在较难的口音时，我感觉...	①②③④⑤
2	当接下来的口译任务对交传笔记能力要求较高时，我感觉...	①②③④⑤
3	在准备口译任务过程时出现意料之外的挑战时，我感觉...	①②③④⑤
4	当接下来的口译任务涉及我不熟悉的领域的专业知识时，我感觉...	①②③④⑤
5	当接下来的口译任务英文听力理解较难的时候，我感觉...	①②③④⑤
6	当需要在很短时间内快速查询资料进行译前准备时，我感觉…	①②③④⑤
7	当接下来的口译任务涉及文化背景知识时，我感觉...	①②③④⑤
8	当有人会评价我接下来的口译表现时，我感觉…	①②③④⑤
9	如果我不了解接下来口译任务的背景情况，我感觉...	①②③④⑤
10	当接下来的口译任务对英文词汇量要求高时，我感觉…	①②③④⑤
11	当大家对我接下来的口译表现期待很高时，我感觉...	①②③④⑤
12	如果接下来的口译任务对记忆力要求高时，我感觉…	①②③④⑤
13	当没有获得太多译前准备材料时，我感觉...	①②③④⑤
14	当我突然被点到为接下来的内容进行口译时，我感觉...	①②③④⑤
15	当接下来的口译任务很正式时，我感觉…	①②③④⑤

Appendix 6.2-1: Refined Interpreting Self-efficacy Scale (English)

Assume that you are going to carry out an interpreting task. Take a look at the situations below and use the scale provided to rate the degree of your confidence of completing the coming interpreting task.

Rate your degree of confidence from the following five options: ① cannot do at all, ② slightly can do, ③ moderately can do, ④ very certain can do, and ⑤ extremely certain can do. Choose the option that most matches your feeling.

No.	Item	Rate from 5 options
1	When the source speech in the coming interpreting task has an unfamiliar accent, I feel …	①②③④⑤
2	When the coming task requires intensive note-taking ability, I feel…	①②③④⑤
3	When the coming task requires certain professional domain knowledge that unknown to me, I feel …	①②③④⑤
4	When the English listening comprehension in the coming task is difficult, I feel …	①②③④⑤
5	When I have to quickly search information and prepare for the coming interpreting task in a very limited time, I feel …	①②③④⑤
6	When cultural background knowledge is needed in the coming interpreting task, I feel …	①②③④⑤
7	When someone will comment on my following interpretation performance, I feel …	①②③④⑤
8	If I do not have the background / contextual knowledge about the coming task, I feel …	①②③④⑤
9	When the coming interpreting task has a high level of requirement on English vocabulary, I feel …	①②③④⑤
10	If the expectation for my interpreting performance is high, I feel …	①②③④⑤
11	If the upcoming interpreting task has a high level of requirement on memory	①②③④⑤

	ability, I feel …	
12	If I am suddenly called to provide interpretation for the following content, I feel …	①②③④⑤
13	If the coming task is very formal (e.g., exam, competition or the conference attendee has a very high-level position), I feel …	①②③④⑤

Appendix 6.2-2: Refined Interpreting Self-efficacy Scale (Chinese)

假设您需要完成一项口译任务，下面给出了 13 种情形，请评估每种情形下您对完成该项口译任务的自信程度。

每种情形有 5 个选项：①完全没有信心, ②只有一点信心, ③有一些信心, ④比较有信心, ⑤非常有信心。请依次选择最符合您感受的选项。

No.	Item	Rate from 5 options
1	当接下来的口译任务中源语存在不熟悉的口音时，我感觉...	①②③④⑤
2	当接下来的口译任务对交传笔记能力要求较高时，我感觉...	①②③④⑤
3	当接下来的口译任务涉及我不熟悉的领域的专业知识时，我感觉...	①②③④⑤
4	当接下来的口译任务英文听力理解较难的时候，我感觉...	①②③④⑤
5	当需要在很短时间内快速查询资料进行译前准备时，我感觉…	①②③④⑤
6	当接下来的口译任务涉及文化背景知识时，我感觉...	①②③④⑤
7	当有人会评价我接下来的口译表现时，我感觉…	①②③④⑤
8	如果我不了解接下来口译任务的背景情况，我感觉...	①②③④⑤
9	当接下来的口译任务对英文词汇量要求高时，我感觉…	①②③④⑤
10	当大家对我接下来的口译表现期待很高时，我感觉...	①②③④⑤
11	如果接下来的口译任务对记忆力要求高时，我感觉…	①②③④⑤
12	当我突然被点到为接下来的内容进行口译时，我感觉...	①②③④⑤
13	当接下来的口译任务很正式时（例如，考试、竞赛或者参会人员级别高），我感觉…	①②③④⑤

Appendix 6.3-1: Initial Interpreting Anxiety Scale (English)

The following are 15 items depicting possible psychological states in the context of consecutive interpreting. Please read the statements and judge to what extent each statement matches your real situation (or real feeling) by putting a "√" on one of the five options: ① Strongly disagree; ② Disagree; ③ Neutral; ④ Agree; ⑤ Strongly agree.

No.	Item	choice
1	I lose sleep over worrying about possible failure in the coming interpreting task.	①②③④⑤
2	While preparing the interpreting task, my anxiety will be notably reduced if I have done interpreting task with similar topic or agenda before. (R)	①②③④⑤
3	If I have not used one of the languages in interpretation for a while, I would be worried that my performance in the coming interpreting task would be worse.	①②③④⑤
4	My English listening ability is good and therefore I do not feel anxious about missing out the English input in the coming interpreting task. (R)	①②③④⑤
5	I feel anxious about having to listen and take notes simultaneously in the coming interpreting task, because I always find it hard to coordinate these two efforts.	①②③④⑤
6	If I know that my listeners understand both languages, I will feel worried even before the task begins that they may notice my interpreting mistakes.	①②③④⑤
7	My knowledge of English syntax is good and therefore I do not worry about my English output in the coming interpreting task. (R)	①②③④⑤
8	If I get ill or not feeling well as the task is approaching closely, I will be worried about my interpreting performance.	①②③④⑤
9	I worry that I cannot clearly deliver speaker's message in the upcoming interpreting task.	①②③④⑤
10	I feel very nervous when the coming task requires me to do interpreting in public.	①②③④⑤
11	I worry that my general knowledge is not good enough to avoid making a major mistake in the coming interpreting task.	①②③④⑤
12	I have learnt a certain amount of interpreting strategies, so I can calmly use proper strategies to deal with possible situations in the coming interpreting task. （R）	①②③④⑤
13	My heart will beat rapidly if I'm informed of any change in the content or the	①②③④⑤

	form of the interpreting task when it is about to start.	
14	I feel anxious about my note-taking skills in the coming interpreting task, because it is usually hard for me to catch the key points and logic in notes.	①②③④⑤
15	When the upcoming interpreting task requires unfamiliar domain knowledge and few preparation materials are provided, I will be very anxious.	①②③④⑤

Appendix 6.3-2: Initial Interpreting Anxiety Scale (Chinese)

在下面关于交替传译的 15 个描述中，每个描述有 5 个选项：① 完全反对、②比较反对、③中立、④比较同意、⑤完全同意。请依次选择最符合您情况的选项。

No.	Item	choice
1	我因担心即将要来的口译考试或者口译任务可能做不好而睡不好觉。	①②③④⑤
2	如果之前做过类似主题的会议，我的紧张感会明显缓解。(R)	①②③④⑤
3	如果一段时间没有使用其中一种语言，我会认为语言能力有所退步，并担心接下来的口译任务。	①②③④⑤
4	我觉得自己的英语听力很好，因此我不担心接下来的口译任务中可能会漏听重要信息。(R)	①②③④⑤
5	协调听和记对我来说很难，我甚至在口译任务开始前就会因此感到不安。	①②③④⑤
6	如果口译所服务的双方懂一点彼此的语言，我会很担心他们发现我在接下来的任务中可能有的失误。	①②③④⑤
7	我觉得自己的英文句法知识很好，因此我不担心接下来的口译任务中的英文表达。(R)	①②③④⑤
8	临近口译任务时，若是身体不适会让我很担心口译完成效果不好。	①②③④⑤
9	我很担心在接下来的口译任务中无法将说话人的意图表述清楚。	①②③④⑤
10	当接下来需要当众口译时，我会感到害怕。	①②③④⑤
11	我总担心自己的百科知识不够而导致接下来的口译中出现常识性错误。	①②③④⑤
12	我积累了一定的口译策略，我可以从容地运用合适的策略来应对接下来的口译任务中可能出现的情形。(R)	①②③④⑤
13	如果在口译快开始时被告知有口译内容或形式上的变化，我会心跳加快感到紧张。	①②③④⑤
14	我很担心接下来的口译任务中的笔记，因为我往往只能听到什么写什么，抓不住重点和线索。	①②③④⑤
15	当接下来的口译任务涉及我不熟悉的专业领域知识时，我感到很焦虑。	①②③④⑤

Appendix 6.4-1: Refined Interpreting Anxiety Scale (English)

The following are 13 items depicting possible psychological states in the context of consecutive interpreting. Please read the statements and judge to what extent each statement matches your real situation (or real feeling) by putting a "√" on one of the five options: ① Strongly disagree; ② Disagree; ③ Neutral; ④ Agree; ⑤ Strongly agree.

No.	Item	choice
1	While preparing the interpreting task, my anxiety will be notably reduced if I have done interpreting task with similar topic or agenda before.	①②③④⑤
2	If I have not used one of the languages in interpretation for a while, I would be worried that my performance in the coming interpreting task would be worse.	①②③④⑤
3	My English listening ability is good and therefore I do not feel anxious about missing out the English input in the coming interpreting task. (R)	①②③④⑤
4	I feel anxious about having to listen and take notes simultaneously in the coming interpreting task, because I always find it hard to coordinate these two efforts.	①②③④⑤
5	If I know that my listeners understand both languages, I will feel worried even before the task begins that they may notice my interpreting mistakes.	①②③④⑤
6	My knowledge of English syntax is good and therefore I do not worry about my English output in the coming interpreting task. (R)	①②③④⑤
7	I worry that I cannot accurately deliver speaker's message in the upcoming interpreting task.	①②③④⑤
8	I feel very nervous that I may leave negative impression to the audience due to poor performance in the upcoming interpreting task.	①②③④⑤
9	I worry that my general knowledge is not good enough to avoid making a major mistake in the coming interpreting task.	①②③④⑤
10	I have learnt a certain amount of interpreting strategies, so I can calmly use proper strategies to deal with possible situations in the coming interpreting task. (R)	①②③④⑤
11	My heart will beat rapidly if I'm informed of any change in the content or the form of the interpreting task when it is about to start.	①②③④⑤
12	I feel anxious about my note-taking skills in the coming interpreting task, because it is usually hard for me to catch the key points and logic in notes.	①②③④⑤

13	When the upcoming interpreting task requires unfamiliar domain knowledge and few preparation materials are provided, I will be very anxious.	①②③④⑤

Appendix 6.4-2: Refined Interpreting Anxiety Scale (Chinese)

在下面关于交替传译的 13 个描述中，每个描述有 5 个选项：① 完全反对、②比较反对、③中立、④比较同意、⑤完全同意。请依次选择最符合您情况的选项。

No.	Item	choice
1	如果之前做过类似主题的会议，我的紧张感会明显缓解。	①②③④⑤
2	如果一段时间没有使用其中一种语言，我会认为语言能力有所退步，并担心接下来的口译任务。	①②③④⑤
3	我觉得自己的英语听力很好，因此我不担心接下来的口译任务中可能会漏听重要信息。(R)	①②③④⑤
4	协调听和笔记对我来说很难，我甚至在口译任务开始前就会因此感到不安。	①②③④⑤
5	如果口译所服务的双方懂一点彼此的语言，我会很担心他们发现我在接下来的任务中可能有的失误。	①②③④⑤
6	我觉得自己的英文句法知识很好，因此我不担心接下来的口译任务中的英文表达。(R)	①②③④⑤
7	我很担心在接下来的口译任务中无法将说话人的意图表达准确。	①②③④⑤
8	我担心在接下来的口译任务中表现不好而给人留下不好的印象。	①②③④⑤
9	我担心自己的百科知识不够而导致接下来的口译中出现常识性错误。	①②③④⑤
10	我积累了一定的口译策略，我可以从容地运用合适的策略来应对接下来的口译任务中可能出现的情形。	①②③④⑤
11	如果在口译快开始时被告知有口译内容或形式上的变化，我会感到心慌。	①②③④⑤
12	我很担心接下来的口译任务中的笔记，因为我往往只能听到什么写什么，抓不住重点和线索。	①②③④⑤
13	当接下来的口译任务涉及我不熟悉的专业领域知识时，我感到很焦虑。	①②③④⑤

Appendix 8.1-1: Questionnaire (English)

Questionnaire introduction

You are sincerely invited to participate in this questionnaire, which aims to explore your experience in consecutive interpretation. The questionnaire is divided into four parts, and it takes approximately 8 minutes to complete. This questionnaire lists some situations related to interpretation learning/practice and interpretation anxiety. There is no right or wrong, good or bad answer, please answer according to your actual situation.

This questionnaire is anonymous and will not involve the disclosure of personal identity information. This study will strictly follow the provisions of the General Data Protection Regulations (GDPR) and the UWTSD Data Protection Guidelines. The survey data will be strictly confidential, and all data will be used for academic research only. Thank you for participating in this questionnaire.

Consent form

please read the following content. If you agree with the following items, please select 'I agree' and start the questionnaire. If you do not agree to participate in this survey, then close the webpage and exit. Thank you again for your participation!

1. I have carefully read the content listed in the questionnaire introduction.

2. I voluntarily participate in the questionnaire, and I understand that I can withdraw it at any time without giving a reason.

3. I understand that my personal information will not be used in any reports, publications, or statements, and researchers will make every effort to keep it confidential for me.

4. I agree to participate in this questionnaire.

If you agree to the above, please click "I agree" and start. Thank you again for your participation.

A. I agree

Questionnaire questions

Part I Basic information

Q1. Gender:

A. Male B. Female C. prefer not to say

Q2. Age

(Scroll down from 1 to 100)

Prefer not to say

Q3. Your current interpreting study/ work status:

A. Undergraduate student in Chinese-English interpretation-related programmes

B. Master student in Chinese-English interpretation-related programmes

C. Fulltime interpreter – freelancer

D. Full-time interpreter – in-house interpreter (working in enterprise)

E. Full-time interpreter –working in government

F. Part-time interpreter

G. Others _____

Q4. How long since you have your first engagement as an interpreter in the professional setting?

(Scroll down, from never to more than 30 years)

Q5. Which University are you studying now? (When Q3 choose A or B)

Q6. Which year are you in your undergraduate study? (When Q3 choose A)

A. First year

B. Second year

C. Third year

D. Fourth year

Q7. How long is the length of your Master's programme? (When Q3 choose B)

A. One-year programme

B. Two-year programme

C. Three-year programme

Q8.1 Which year are you in your Master's study? (When Q7 choose B)

A. The first year

B. The second year

Q8.2 Which year are you in your Master's study? (When Q7 choose C)

A. The first year

B. The second year

C. The third year

Q9. How long have you been studied interpreting so far?

(Scroll down from "less than one year" to more than 10 years")

Q10. Do you hold any interpreting-related qualifications / certifications / membership? (can choose multiple answers)

A. None

B. CATTI Interpreting Level III

C. CATTI Interpreting Level II

D. CATTI Interpreting Level I

E. SIA intermediate level

F. SIA advanced level

G. ETIC Senior interpreters & translators

H. AIIC

I. ATA

J. Others: _____

Q11. In average, how many conferences did you attend as interpreter in a year?

A. None

B. 1-5

C. 6-10

D. 11-20

E. 21-30

F. 31-50

G. 51-100

H. 101-200

I. 201-300

J. More than 300

Part II

Q12. Assume that you are going to carry out an interpreting task. Take a look at the situations below and use the scale provided to rate the degree of your confidence of completing the coming interpreting task.

Rate your degree of confidence from the following five options: ①cannot do at all, ②slightly can do, ③moderately can do, ④very certain can do, and ⑤extremely certain can do. Choose the option that most matches your feeling.

No.	Item	Rate from 5 options
1	When the source speech in the coming interpreting task has an unfamiliar accent, I feel …	①②③④⑤
2	When the coming task requires intensive note-taking ability, I feel…	①②③④⑤
3	When the coming task requires certain professional domain knowledge that unknown to me, I feel …	①②③④⑤
4	When the English listening comprehension in the coming task is difficult, I feel …	①②③④⑤
5	When I have to quickly search information and prepare for the coming interpreting task in a very limited time, I feel …	①②③④⑤
6	When cultural background knowledge is needed in the coming interpreting task, I feel …	①②③④⑤
7	When someone will comment on my following interpretation performance, I feel …	①②③④⑤
8	If I do not have the background / contextual knowledge about the coming task, I feel …	①②③④⑤
9	When the coming interpreting task has a high level of requirement on English vocabulary, I feel …	①②③④⑤
10	If the expectation for my interpreting performance is high, I feel …	①②③④⑤
11	If the upcoming interpreting task has a high level of requirement on memory ability, I feel …	①②③④⑤
12	If I am suddenly called to provide interpretation for the following content, I feel …	①②③④⑤
13	If the coming task is very formal (e.g., exam, competition or the conference attendee has a very high-level position), I feel …	①②③④⑤

Part III

Q13. The following are 13 items depicting possible psychological states in the context of consecutive interpreting. Please read the statements and judge to what extent each statement matches your real situation (or real feeling) by putting a "√" on one of the five

options:①Strongly disagree; ②Disagree; ③Neutral; ④Agree; ⑤Strongly agree.

No.	Item	choice
1	While preparing the interpreting task, my anxiety will be notably reduced if I have done interpreting task with similar topic or agenda before.	①②③④⑤
2	If I have not used one of the languages in interpretation for a while, I would be worried that my performance in the coming interpreting task would be worse.	①②③④⑤
3	My English listening ability is good and therefore I do not feel anxious about missing out the English input in the coming interpreting task.	①②③④⑤
4	I feel anxious about having to listen and take notes simultaneously in the coming interpreting task, because I always find it hard to coordinate these two efforts.	①②③④⑤
5	If I know that my listeners understand both languages, I will feel worried even before the task begins that they may notice my interpreting mistakes.	①②③④⑤
6	My knowledge of English syntax is good and therefore I do not worry about my English output in the coming interpreting task.	①②③④⑤
7	I worry that I cannot accurately deliver speaker's message in the upcoming interpreting task.	①②③④⑤
8	I feel very nervous that I may leave negative impression to the audience due to poor performance in the upcoming interpreting task.	①②③④⑤
9	I worry that my general knowledge is not good enough to avoid making a major mistake in the coming interpreting task.	①②③④⑤
10	I have learnt a certain amount of interpreting strategies, so I can calmly use proper strategies to deal with possible situations in the coming interpreting task.	①②③④⑤
11	My heart will beat rapidly if I'm informed of any change in the content or the form of the interpreting task when it is about to start.	①②③④⑤
12	I feel anxious about my note-taking skills in the coming interpreting task, because it is usually hard for me to catch the key points and logic in notes.	①②③④⑤
13	When the upcoming interpreting task requires unfamiliar domain knowledge and few preparation materials are provided, I will be very anxious.	①②③④⑤

Part IV

Q 14. If further divide the whole interpretation process into two stages: pre-stage (from

when you receive the task to the moment right before the task begins) and while-stage (from the beginning of the speech to the end of task itself). In general, please score the anxiety level in these two stages respectively

(score from 0-10 for two stages respectively, where 0 is minimum and10 is maximum)

Q15. Open question: What else factor that could possibly make you anxious before the interpreting task

_____

The end.

THANK YOU AGAIN FOR YOUR TIME AND PARTICIPATION

Appendix 8.1-2: Questionnaire (Chinese)

问卷介绍

诚挚邀请您参与本问卷调查，本问卷旨在探究口译学习者和从业者在交替传译中的体验。问卷共分四部分，完成问卷大约需要 8 分钟。本问卷列出了一些有关口译学习/口译实践的情形，没有对错或好坏之分，请您根据实际情况作答即可。

此问卷为匿名调查，无需署名，不会涉及暴露个人身份的信息，所有数据仅供研究使用。本研究将严格遵循《通用数据保护条例》（GDPR）和 UWTSD《数据保护指南》的规定，调查数据将被严格保密。感谢您利用宝贵时间参与此次问卷调查!

知情同意书

请阅读以下内容，如果您同意以下内容，请选择“我同意”并开始问卷调查；如果您不同意参与本调查，关闭网页退出即可。感谢您的参与!

1. 我已阅读问卷说明中所列出的内容。
2. 我参与问卷调查是自愿的，我明白我可以随时撤回，无需说明理由。
3. 我明白我的个人信息不会在任何报告、刊物或陈述中使用，研究者会尽一切努力为本人保密。
4. 我同意参与此次问卷调查。

如果您同意上述内容，请选择“我同意”并开始问卷，再次感谢您的参与。

A. 我同意

问卷问题

第一部分 基本信息

Q1. 请问您的性别:

A. 男　　B. 女　　C. 不愿告知

Q2. 请问您的年龄

（从 1-100 的下拉列表中选择）

不愿告知

Q3. 请问您目前的口译学习/工作状况

A. 英语口译/翻译类专业本科在读

B. 英语口译/翻译类专业硕士在读

C. 全职口译员—自由译员

D. 全职口译员—企业内部译员

E. 全职口译员—政府部门工作

F. 兼职口译员

G. 其他 _____

Q4. 从第一场真实会议口译开始，您从事口译实践大约有多少年?

(从无-30 的下拉列表中选择)

Q5. 您目前所在的学校（当 Q3 选择 A 或 B 时）

_____

Q6. 您目前是本科几年级?（当 Q3 选择 A 时）

A. 第一年

B. 第二年

C. 第三年

D. 第四年

Q7. 您的硕士阶段学习是几年制？（当 Q3 选择 B 时）

A. 一年制

B. 两年制

C. 三年制

Q8.1 您目前是硕士研究生学习的第几年？（当 Q7 选择 B 时）

A. 第一年

B. 第二年

Q8.2 您目前是硕士研究生学习的第几年？（当 Q7 选择 C 时）

A. 第一年

B. 第二年

C. 第三年

Q9. 到目前，您学习口译多长时间？

(从不足一年到超过 10 年的下拉表中选择)

Q10. 您是否持有口译相关资质证书？（多选）

A. 暂无

B. CATTI 三级口译

C. CATTI 二级口译

D. CATTI 一级口译

E. 上海外语口译证书中级口译

F. 上海外语口译证书高级口译

G. 国际人才英语考试高翻

H. AIIC

I. 美国翻译协会 ATA

J. 其他_____

Q11. 平均一年中，您作为口译员参与真实口译实践的场次大约为：

A. 还没有过

B. 1-5 场

C. 6-10 场

D. 11-20 场

E. 21-30 场

F. 31-50 场

G. 51-100 场

H. 101-200 场

I. 201-300 场

J. 300 场以上

第二部分　量表 A

Q12. 假设您需要完成一项口译任务，下面给出了 13 种情形，请评估每种情形下您对完成该项口译任务的自信程度。每种情形有 5 个选项：①完全没有信心，②只有一点信心，③有一些信心，④比较有信心，⑤非常有信心。请依次选择最符合您感受的选项。

No.	Item	Rate from 5 options
1	当接下来的口译任务中源语存在不熟悉的口音时，我感觉...	①②③④⑤
2	当接下来的口译任务对交传笔记能力要求较高时，我感觉...	①②③④⑤
3	当接下来的口译任务涉及我不熟悉的领域的专业知识时，我感觉...	①②③④⑤
4	当接下来的口译任务英文听力理解较难的时候，我感觉...	①②③④⑤
5	当需要在很短时间内快速查询资料进行译前准备时，我感觉…	①②③④⑤
6	当接下来的口译任务涉及文化背景知识时，我感觉...	①②③④⑤
7	当有人会评价我接下来的口译表现时，我感觉…	①②③④⑤
8	如果我不了解接下来口译任务的背景情况，我感觉...	①②③④⑤
9	当接下来的口译任务对英文词汇量要求高时，我感觉…	①②③④⑤
10	当大家对我接下来的口译表现期待很高时，我感觉...	①②③④⑤
11	如果接下来的口译任务对记忆力要求高时，我感觉…	①②③④⑤
12	当我突然被点到为接下来的内容进行口译时，我感觉...	①②③④⑤
13	当接下来的口译任务很正式时（例如，考试、竞赛或者参会人员级别高），我感觉…	①②③④⑤

第三部分　量表 B

Q13. 在下面关于交替传译的 13 个描述中，每个描述有 5 个选项：① 完全反对、②比较反对、③中立、④比较同意、⑤完全同意。请依次选择最符合您情况的选项。

No.	Item	choice
1	如果之前做过类似主题的会议，我的紧张感会明显缓解。	①②③④⑤
2	如果一段时间没有使用其中一种语言，我会认为语言能力有所退步，并担心接下来的口译任务。	①②③④⑤
3	我觉得自己的英语听力很好，因此我不担心接下来的口译任务中可能会漏听重要信息。(R)	①②③④⑤
4	协调听和笔记对我来说很难，我甚至在口译任务开始前就会因此感到不安。	①②③④⑤
5	如果口译所服务的双方懂一点彼此的语言，我会很担心他们发现我在接下来的任务中可能有的失误。	①②③④⑤
6	我觉得自己的英文句法知识很好，因此我不担心接下来的口译任务中的英文表达。(R)	①②③④⑤
7	我很担心在接下来的口译任务中无法将说话人的意图表达准确。	①②③④⑤
8	我担心在接下来的口译任务中表现不好而给人留下不好的印象。	①②③④⑤
9	我担心自己的百科知识不够而导致接下来的口译中出现常识性错误。	①②③④⑤
10	我积累了一定的口译策略，我可以从容地运用合适的策略来应对接下来的口译任务中可能出现的情形。	①②③④⑤
11	如果在口译快开始时被告知有口译内容或形式上的变化，我会感到心慌。	①②③④⑤
12	我很担心接下来的口译任务中的笔记，因为我往往只能听到什么写什么，抓不住重点和线索。	①②③④⑤
13	当接下来的口译任务涉及我不熟悉的专业领域知识时，我感到很焦虑。	①②③④⑤

第四部分

Q14. 如果将口译任务全过程分为“译前阶段“（从接到口译任务到任务即将开始）

和”译中阶段“（口译过程进行中），总体而言，在这两个阶段我的口译焦虑水平分别为：

（分别从 1-10 中的度量中进行打分，其中 1 为最小，10 为最大）

Q15. 开放问题：是否还有其他因素会让你在口译任务开始前感到焦虑？

_____

结束

非常感谢您的参与！