

# Decision Making in Conference Preparation: A Critical Decision Audit of Expert Interpreters

Po-yun Chan Tze-wei Chen

Conference preparation (CP) is critical to interpreting quality, yet the decision-making process remains underexplored. This Critical Decision Audit (CDA) study examined expert interpreters' CP decisions using the Naturalistic Decision Making (NDM) paradigm. Twelve expert Mandarin-English interpreters documented CP events through diaries, from which eight main decision points were identified. Analysis revealed 54 distinct cues and strategies that experts employed during CP and 26 expert-novice differences as perceived and recalled by the expert participants, many previously undocumented in interpreting literature. The findings expand existing knowledge of CP by illuminating cognitive aspects of expertise, offering insights for practitioners and trainers. This study bridges NDM and interpreting research, contributing a cognitive perspective to CP understanding.

*Keywords:* conference preparation, naturalistic decision making, critical decision audit, expertise studies, interpreting pedagogy

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Po-yun Chan (Corresponding Author), Contract-based Assistant Professor, Graduate Institute of Translation and Interpretation, National Taiwan Normal University, E-mail: poyunchan@gmail.com

Tze-wei Chen, Associate Professor, Graduate Institute of Translation and Interpretation, National Taiwan Normal University, E-mail: d9425@ntnu.edu.tw

## 會議口譯準備——以關鍵稽核法剖析專家決策

詹柏勻 陳子瑋

會議口譯準備（conference preparation, CP）與口譯品質密不可分，惟口譯員在準備過程所做的決策仍有待闡明。本研究以自然決策（naturalistic decision making, NDM）為理論基礎，採關鍵決策稽核法（critical decision audit, CDA）剖析會議口譯準備流程中的關鍵決策，系統性分析專業認知技能。共 12 位達專家水準的中英口譯員透過會議準備日誌記錄實際準備工作，分析後歸納出八大重要決策點。研究者以預擬之深究問題探討各決策點中所採用的策略與所關注的線索（cues），以及專家認知中的專家－新手差異。結果得出 54 個專家採用的策略與線索，以及 26 項專家與新手間的差異。研究有助拓展會議口譯準備現有知識範疇，並從認知角度檢視準備流程，凸顯專家決策過程的思維特徵，可供口譯員、教師與學生參考。

關鍵詞：會議口譯準備、自然決策、關鍵決策稽核、專技研究、口譯教學

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## Introduction

Conference interpreters work across specialized domains and must rapidly acquire domain knowledge through conference preparation (CP) to sustain quality. CP begins upon assignment acceptance (Moser-Mercer, 1992), involving gathering essential details—such as themes, settings, and terminology (Kader & Seubert, 2015; Luccarelli, 2006)—to reduce ear-voice span and enhance accuracy (Díaz-Galaz, 2011; Díaz-Galaz et al., 2015; Fantinuoli, 2017; Kalina, 2015; Luccarelli, 2006). Gradually, this process evolves into a refined expertise through practice (Chan & Chen, 2023; Chan & Ju, 2022; Luccarelli, 2006).

CP research has evolved from prescriptive to empirical approaches. Early studies provided theoretical guidance (Fantinuoli, 2017; Gile, 2002; Setton & Dawrant, 2016a, 2016b), while recent work has empirically examined CP effectiveness (Díaz-Galaz et al., 2015) and processes via observation, diaries, and interviews (Chan & Chen, 2023; Chang et al., 2018; Han, 2015). However, CP decision making requires examination. Setton and Dawrant (2016b) noted that theoretical breakdowns, expert accounts, and actual performance are three different things. As such, understanding CP as a component of interpreting expertise (Fantinuoli, 2017; Luccarelli, 2006) requires examining how interpreters use past experience to assess progress and make key decisions during preparation. To bridge this gap, this study adopted the Critical Decision Audit (CDA) method (Borders & Klein, 2017) within the Naturalistic Decision Making (NDM) paradigm. NDM aims to investigate real-world decision making in high-stakes, uncertain settings (Boyes et al., 2019; Hoffman & Klein, 2017; Hutton & Klein, 1999; Klein, 1997/2009; Klein et al., 1986; Phillips et al., 2004; Ross et al., 2006).

This approach is appropriate as expert decision making is often tacit and difficult to articulate (Clark et al., 2008; Hoffman et al., 1998). Such a

methodological choice could help uncover experts' covert mental models and contextual cues. This is particularly important as experts possess "rich repertoires of patterns, being able to make fine discriminations that may be invisible to novices, having sophisticated mental models of how things work, and having resilience to adapt to complex and dynamic situations" (Klein, 2015, p. 165). Experts accumulate patterns that help them assess situations and make decisions without comparing multiple options (Klein, 2008, 2019; Klein et al., 2010, as cited in Klein, 2015).

Building on Chan and Chen's (2023) work, this study examined experts' CP decision-making cues and strategies, while also exploring perceived novice behaviors through experts' retrospective accounts. The findings should help expand existing task descriptions (Klein & Militello, 2001) and inform instructional design for CP (Clark et al., 2008), facilitating knowledge transfer while highlighting CP's importance in academic and professional contexts.

## **Literature Review**

CP, with its many dimensions, defies a singular methodological approach. The literature is rich in theoretical discussions and prescriptive guidelines (Gile, 2002, 2009; Gillies, 2019; Kader & Seubert, 2015; Luccarelli, 2006; Setton & Dawrant, 2016a) but often lacks empirical grounding; only recently have studies explored how interpreters prepare for conferences (Kalina, 2015).

### **Language, Knowledge, and Time: The Interconnected Elements of CP**

Empirical research reveals the interconnected characteristics of CP. Language and knowledge components are closely interwoven (Chan & Chen, 2023; Fantinuoli, 2017; Gile, 2002). Since specialized terminology can cause cognitive

overload (Fantinuoli, 2016), interpreters compile terminological glossaries (Chan & Ju, 2022; Chang et al., 2018; Fantinuoli, 2016; Jiang, 2013) which create knowledge systems (Pignataro, 2012) that bridge linguistic and domain gaps between interpreters and participants (Fantinuoli, 2016, 2017, 2021). When time-constrained, interpreters prioritize either knowledge or language based on perceived criticality (Chan & Chen, 2023).

Indeed, time criticality is a salient feature of CP, with interpreters often facing increasing time pressure (Donovan, 2001; Gile, 2002; Rütten, 2015). When time is limited, professionals typically prioritize terminology over other preparation aspects (Gile, 2009), and their strategies evolve as assignments approach, replacing time-consuming techniques with more efficient ones (Han, 2015). Experienced interpreters also develop better time allocation and readiness assessment (Chang et al., 2018).

## **CP as Developing Expertise**

Beyond these interconnected elements, CP has been conceptualized as developing expertise (Chan & Chen, 2023; Chan & Ju, 2022; Luccarelli, 2006). Professional interpreters demonstrate this in several ways. These include accumulating domain knowledge, preparing materials efficiently, conducting anticipatory program reviews, and employing global rather than micro-contextual strategies (Chan & Chen, 2023; Chang et al., 2018; Luccarelli, 2006; Moser-Mercer et al., 2000; Riccardi, 2005).

## **Bridging Research Gaps Through Decision-Making Approaches**

Research on expert preparation can contribute to expertise development and interpreter training, yet current understanding remains incomplete. Although Chan and Chen (2023) examined last-minute preparation in simulated settings,

comprehending decision making throughout the entire CP process remains essential. To understand CP as a form of expertise, it is fundamental to ask how interpreters leverage prior experiences and maintain situational awareness across different phases.

Therefore, the next phase is to analyze the critical decision points. A decision can be defined as “a commitment to a course of action that is intended to yield results that are satisfying for specified individuals” (Yates, 2003, p. 24). Studying expert decision making helps understand their situation assessment and awareness (Hutton & Klein, 1999).

Unlike firefighting, healthcare, and military command—where expert decision making has been extensively studied within NDM (Klein, 1997/2009, 2008)—interpreting studies have rarely applied this perspective to CP. As a cognitively demanding, time-sensitive task, CP represents a fitting subject for NDM application (Chan & Chen, 2023). Given this evident research gap, this study adopted NDM as its theoretical framework.

## **Naturalistic Decision Making: A Framework for Understanding Expert Cognition**

To contextualize this framework, decision-making research spans formal-empiricist, rationalist, and naturalistic paradigms (Cohen, 1993). While traditional research emphasized option comparison in controlled settings (Klein, 2008), NDM emerged in 1989 to investigate decision making in complex, real-world environments (Zsombok, 1997/2009). NDM focuses on contexts involving uncertainty, time pressure, high stakes, and ill-defined problems (Boyes et al., 2019; Hoffman & Klein, 2017; Klein, 1997/2009, 2022).

Although rarely applied to interpreting despite extensive expertise studies (Ericsson, 2000), NDM boasts strong empirical support across fields (Hoffman &

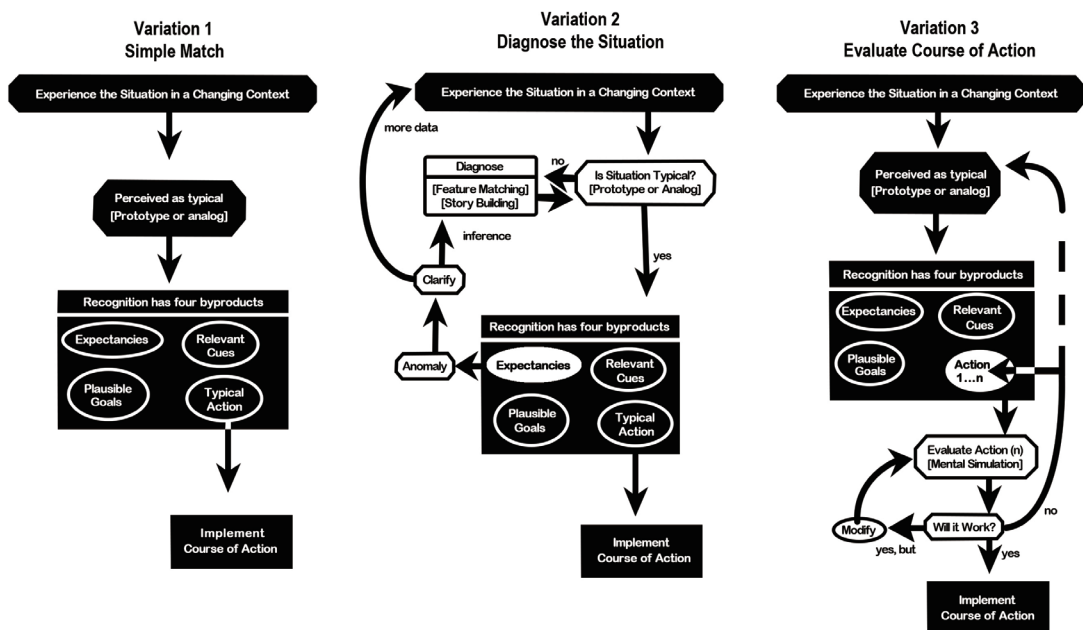
Klein, 2017; Klein, 1997/2009). It argues that experts rely on accumulated patterns to assess situations and decide without explicitly comparing options (Klein, 2008, 2019). These patterns include what Klein (2015) describes as “rich repertoires” and “sophisticated mental models” (p. 165).

### Recognition-Primed Decision Model and Situational Awareness

Central to the NDM approach is its understanding of how experts make decisions. In NDM, expert decision making involves situational assessment and experience-based recognition, leading to viable actions (Klein, 2019; Klein et al., 1989). Figure 1 illustrates the Recognition-Primed Decision model, showing how experts evaluate actions without comparing multiple options (Klein, 1997/2009, 2015).

**Figure 1**

*The Recognition-Primed Decision (RPD) Model*



Note. Recreated from “Expert Decision Making,” by R. J. Hutton and G. Klein, 1999, *Systems Engineering*, 2(1), p. 40. Copyright 1999 by John Wiley & Sons.

Research shows that 80-90% of difficult decisions follow this approach (Crandall et al., 2006; Klein, 2017). Central to RPD is situation awareness— “the perception of elements in the environment within a volume of time and space, comprehension of their meaning, and projection of their status in the near future” (Endsley, 1988, p. 97). Experts focus on situation assessment, while novices emphasize generating action courses (Randel et al., 1996). This distinction between expert and novice behavior is reflected in interpreting, where experts prioritize overall strategy while novices use micro-level approaches (Chan & Chen, 2023).

### **Cognitive Task Analysis and Critical Decision Audit**

Given its tacit nature, expert decision making depends on knowledge that is difficult to articulate (Clark et al., 2008; Hoffman et al., 1998; Klein, 2015). Indeed, research indicates that experts are unaware of about 70% of their decisions (Clark et al., 2008). Cognitive Task Analysis (CTA) addresses this by using knowledge elicitation, data analysis, and representation techniques to uncover underlying mental models and contextual cues (Crandall et al., 2006).

Among CTA methods, the Critical Decision Method (CDM) is widely used for exploring challenging incidents through retrospective interviews (Clark et al., 2008; Hoffman et al., 1998; Klein et al., 1989; Klein & Militello, 2001). Its approach employs four sweeps with cognitive probes to elicit information on cues, decision processes, analogues, goals, alternatives, and selection criteria (Klein et al., 1989). Given CDM’s significant demands on time, resources, and experience (Borders & Klein, 2017), researchers have developed the Knowledge Audit (KA) as a streamlined alternative with predefined probes (Crandall et al., 2006; Militello & Hutton, 1998).<sup>1</sup>

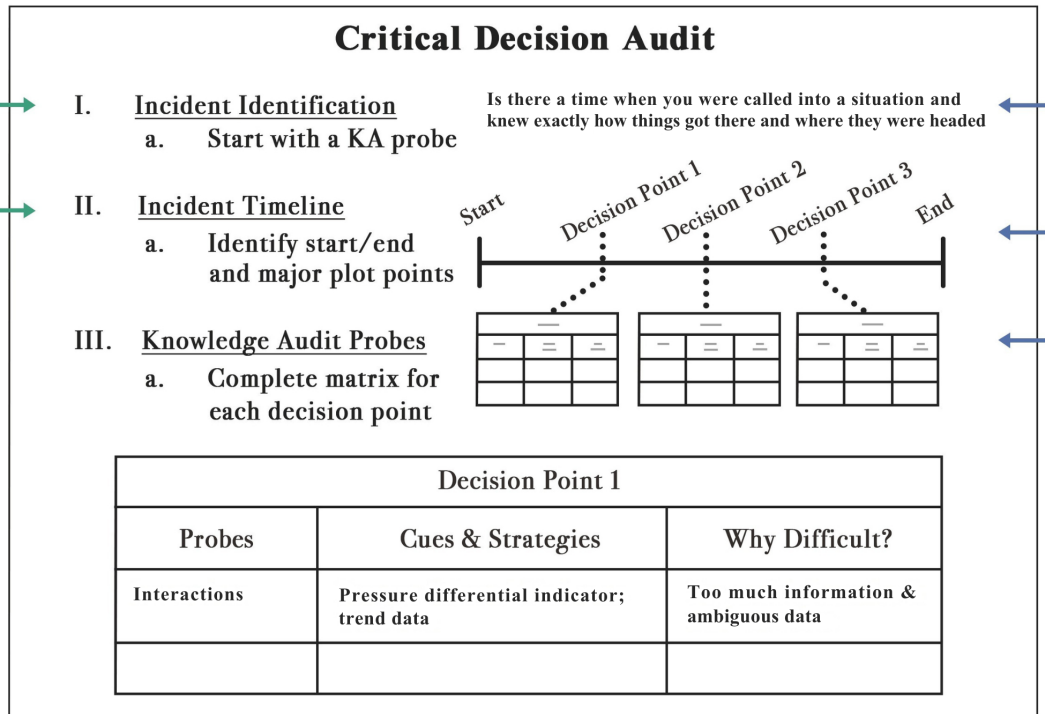
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<sup>1</sup> These include Past & Future, Big Picture, Noticing, Job Smarts, Opportunities/improvising, and Self-Monitoring to explore different dimensions of expertise.

The Critical Decision Audit (CDA) combines CDM and KA advantages while maintaining accessibility (Borders & Klein, 2017). CDA follows three key steps: Incident Identification,<sup>2</sup> Incident Timeline,<sup>3</sup> and Knowledge Audit Probes.<sup>4</sup> Through this structured process, the knowledge elicited is presented in a matrix format capturing expertise aspects, cues and strategies used, and novice challenges, as illustrated in Figure 2.

**Figure 2**

*An Illustrative CDA Matrix*



*Note.* Recreated from “The Critical Decision Audit: Blending the Critical Decision Method & the Knowledge Audit,” by J. Borders and G. Klein, 2017, *Naturalistic decision making and uncertainty. Proceedings of the 13th bi-annual naturalistic decision making*, p. 36. Copyright 2017 by University of Bath.

<sup>2</sup> Where interviewees identify complex incidents or use KA probes to prompt recall.

<sup>3</sup> Creating a preliminary timeline highlighting key events.

<sup>4</sup> Using open-ended questions to explore cognitive aspects, cues noticed, and decision strategies.

CDA is more time-efficient and user-friendly, requiring less improvisation than CDM alone while maintaining analytical depth (Borders & Klein, 2017). Combining knowledge elicitation methods is encouraged for its proven benefits (Crandall et al., 2006; Hoffman et al., 1998; Miller, 2001/2009).

### **Application to CP Research**

CDA is ideal for studying CP's blend of structure and adaptability. While following similar stages, CP lacks universally accepted methods (Xu, 2018), making it both routine and non-routine. Additionally, as conference interpreters, the researchers bring domain expertise, eliminating the need for bootstrapping sessions (familiarization processes) (Crandall et al., 2006) while providing authentic insights into the profession.

This study thus utilized CDA to explore expert decision making in CP, addressing three research questions:

1. What are the major decision points during CP?
2. What cues and strategies do experts rely on when preparing for assignments?
3. What pedagogical implications can be drawn from these discoveries?

The primary objective was to identify critical CP decisions as naturalistic tasks. By documenting professionals' decision-making strategies, this study aimed to expand existing task descriptions (Klein & Militello, 2001). It also sought to inform instructional design, a hallmark goal of CTA-based research (Clark et al., 2008; Hoffman et al., 1998; Militello & Hutton, 1998).

## Method

This study employed the CDA, a CTA tool that uses structured probes to examine the cognitive aspects of expert decision making in CP (Borders & Klein, 2017).

### Participants

Twelve expert Mandarin-English conference interpreters (9 female, 3 male, aged 30-50) were recruited via professional networks using purposive sampling, given the specialized population. All participants met International Association of Conference Interpreters' (AIIC's) 150 working day minimum, with 11 having at least five years of experience, a sample size consistent with qualitative research saturation principles and previous CTA studies (Boyes et al., 2019; Guest et al., 2006; Klein et al., 1986; Randel et al., 1996; Somers, 2020). It should be noted that this study's criteria for expert, while based on established professional standards, primarily reflect professional standing and serve only as a proxy for the cognitive dimensions of expertise.

The heterogeneity of participants' experiences is evident in the assignments they chose for this study (Table 1). These assignments included physical (50%), hybrid (41.67%), and virtual (8.3%) meetings; half-day formats were the most common (66.67%), and simultaneous interpreting was the predominant mode (75%). Participants P1 and P2 also served as pilot subjects; their data were included since the protocol required no major methodological changes, a common practice in qualitative studies with hard-to-recruit expert populations.

**Table 1***Assignments Chosen by the Participants*

Participant	Topic(s)	Duration	Format	Interpreting mode	Familiarity with the topic
P1 (pilot 1)	Trade regulations	Half day	Hybrid	CI	Yes
P2 (pilot 2)	Culture and education	Half day	Hybrid	SI	Yes
P3	Politics and finance	More than one day	Physical	SI	No
P4	Telecommunication, supply chain issues, and environmental protection	Full day	Physical	SI	Yes
P5	Sports	Half day	Hybrid	SI	No
P6	Sports and gender	More than one day	Hybrid	SI	No
P7	Technology	Half day	Physical	CI	Yes
P8	Performing arts	Half day	Physical	CI	No
P9	Medicine and pharmaceuticals	Half day	Virtual	SI	Yes
P10	Commerce	Half day	Hybrid	SI	Yes
P11	Social innovation	More than one day	Physical	SI	Yes
P12	Politics and technology	Half day	Physical	SI	No

**Materials***CP Diary*

The primary data collection instrument was a CP diary, which invited participants to chronologically log all preparation-related events, from contract signing to final material review, in a timeline format. This event-contingent approach (Bolger et al., 2003) enhanced ecological validity, and consistency across entries was encouraged through regular reminders sent to participants until their assignment was completed.<sup>5</sup>

<sup>5</sup> The full diary template and CDA interview guidelines are available in the appendices of the first author's doctoral dissertation (Chan, 2023).

### ***CDA Interview Guidelines***

Interview guidelines adapted from standard KA probes were customized for the interpreting context. Based on pilot feedback, five main probes from established CDA methodology (Borders & Klein, 2017; Militello & Hutton, 1998) were selected: Past & Future, Big Picture, Noticing/Paying Attention, Job Smarts/Technology, and Opportunities & Improvising. Follow-up questions examined specific cues, strategies, and novice challenges at each decision point.

### ***Procedure***

Participants completed CP diaries documenting their preparation process for assignments between April and May 2023. CDA interviews conducted via Webex after assignment completion lasted an average of 67 minutes and followed the three-step CDA process. Throughout interviews, concurrent notes were taken in a CDA matrix, an example of which is shown in Table 2. Real-time matrix completion on shared screens enabled immediate participant verification for accuracy.

**Table 2**

*An Example CDA Matrix for Each Decision Point*

Decision point 1		
Probes	Cues & strategies	Why difficult?
Interactions	Pressure differential indicator, trend data	Too much information & ambiguous data

*Note.* Adapted from Borders & Klein (2017).

### **Data Analysis**

The analysis proceeded in two stages. First, diary events were categorized into major decision points using a codebook, and reliability was verified with a second

coder. Initial discrepancies were resolved through discussion and consensus to refine the categories, resulting in a final inter-coder agreement of 75.51%. Second, interviews were transcribed verbatim in Mandarin Chinese and initially analyzed in the original language to preserve linguistic nuances. The transcripts were then analyzed sequentially. First, task-level coding was conducted within each of the eight decision points to identify specific cues and strategies. Following this, thematic coding was applied across the entire dataset to identify overarching macro-level themes that cut across individual decision points. The thematic analysis was inductive, following Braun and Clarke's (2006) approach to identify emergent themes shared across participants. A reliability check on a subset of the data yielded a Cohen's kappa of 0.66, indicating substantial agreement (Landis & Koch, 1977).

## Results

This section presents the results, examining the eight major decision points with key cues, expert strategies, and expert-novice differences.

### Major Decision Points in CP

Analysis of 152 recorded diary events yielded eight major decision points. An overview of these findings, which include 54 cues/strategies and 26 expert-novice differences, is presented in Table 3. The eight decision points are: (1) Logistics management and requirements gathering, (2) Reception and handling of conference materials, (3) Studying/annotating materials and glossary making, (4) Reception and comparison of different versions of materials, (5) Non-material-initiated

preparation, (6) Final preparation before the meeting, (7) Preparation on the day of the conference, and (8) Collaboration and coordination with colleagues. The following subsections will detail each decision point.

**Table 3**

*The Number and Breakdown of Cues, Strategies, and Expert-Novice Differences Across the Eight Decision Points*

Decision point	Cues & strategies	Expert-novice differences**
1. Logistics management & requirements gathering*	8	7
2. Reception & handling of conference materials	7	5
3. Studying/annotating materials & glossary making	11	3
4. Reception & comparison of different versions of materials	3	2
5. Non-material-initiated preparation	10	2
6. Final preparation before the meeting	4	2
7. Preparation on the day of the conference	4	2
8. Collaboration & coordination with colleagues	7	3
Total	54	26

*Note.* \*The numbering of decision points does not indicate a fixed sequence, as interpreters may engage with them recursively. \*\*“Why Difficult” has been reframed as “Expert-Novice Differences” to capture insights across all probes. The differences are based on experts’ retrospective reflections on novice behaviors, not on direct data collected from novices.

Each subsection details a decision point with its CDA matrix findings. The Past & Future and Big Picture probes are discussed together since past experiences inform experts’ broader understanding.

### ***Decision Point One: Logistics Management and Requirements Gathering***

Table 4 summarizes the findings for this decision point.

**Table 4***Decision Point One: Logistics Management and Requirements Gathering*

Probes	Cues & strategies	Expert-novice differences
Past & future/big picture	<ul style="list-style-type: none"> <li>• Asking for the right types of materials (9)<sup>6</sup></li> <li>• Stressing early provision of materials to clients (2)</li> <li>• Availability of bilingual versions of materials (2)</li> <li>• Language of the presentation/directionality of interpreting (2)</li> <li>• Technical aspects of the meeting (4)</li> </ul>	<ul style="list-style-type: none"> <li>• Inability to determine what materials are needed or missing potentially useful ones</li> <li>• Ways of communicating with clients</li> <li>• Lower accuracy of translation of technical terms</li> <li>• More preparation time in the absence of such knowledge</li> </ul> <p>N/A</p>
Noticing/paying attention	<ul style="list-style-type: none"> <li>• Lack or inaccessibility of materials (4)</li> </ul>	<ul style="list-style-type: none"> <li>• Not knowing how to prepare in the absence of materials</li> </ul>
Job smarts/technology	<ul style="list-style-type: none"> <li>• Ways to communicate more effectively with clients (7)</li> </ul>	<ul style="list-style-type: none"> <li>• Not daring to request materials from the client</li> </ul>
Opportunities & improvising	<ul style="list-style-type: none"> <li>• Confidential materials (3)</li> </ul>	<ul style="list-style-type: none"> <li>• Not knowing how to ask for confidential materials</li> </ul>

**Past & Future/Big Picture: Requesting the Right Types of Materials, Ensuring Timely Provision, Securing Bilingual Versions, Confirming Language and Directionality, and Anticipating Technical Aspects.** Drawing from extensive experience, experts systematically requested materials using templates (P1, P4, P6, P8, P9), seeking comprehensive documents including agenda, slides, videos, guest lists, speeches, and speaker bios (P6, P7, P9, P10) to ensure readiness and professionalism (P4).

Experts tailored requests to event types: briefing books for press conferences (P7, P9), Q&A documents for liaison interpreting (P8), and bilingual protocols for clinical meetings (P9). Academic conferences often required full papers (P1).

<sup>6</sup> The number in parentheses after each cue and strategy represents the number of participants who provided elaborations on the respective cues and strategies during the interview sessions.

Novices may only make generic requests, often omitting critical items like guest lists (P1, P4, P8, P9).

Experts emphasized timeliness by setting deadlines and following up with reminders (P1, P5), while novices often avoided requesting materials early, fearing they would seem pushy (P5).

Experts recognized the value of bilingual materials—particularly when Taiwanese presenters prepared slides in Mandarin but delivered speeches in English (P2, P3). They explicitly confirmed delivery language to avoid wasted preparation (P2), unlike P10 who once prepared for the wrong direction entirely.

Experts also explicitly confirmed the language of delivery to avoid preparing in the wrong direction. Some encountered cases where the slide language did not match the spoken language, leading to wasted preparation (P2). P10 once prepared for the wrong direction early in their career due to such ambiguity.

Finally, experts verified technical aspects—seating arrangements, equipment, and microphone setup (P1, P8)—with special attention to audio feeds for hybrid events (P6), reflecting situational foresight that novices were still developing.

**Noticing/Paying Attention: Lack or Inaccessibility of Materials.** Participants reported frustrations with missing or inaccessible materials (P1, P10-P12), often stemming from organizational bottlenecks (P1) or confidentiality concerns (P10).

When materials were withheld, experienced interpreters leveraged online research and accumulated experience to anticipate content, while novices felt paralyzed. Experts developed strategies for building long-term knowledge through systematic note-taking and glossary creation during assignments (P10).

**Job Smarts/Technology: Ways to Communicate More Effectively With Clients.** Experts strategically framed document requests by emphasizing material necessity and preparation risks, highlighting accuracy importance (P6, P12) or

using quality disclaimers (P9, P10). One interpreter charged fees for late documents (P7). Novices, however, often hesitated to communicate needs, compromising preparation (P1).

**Opportunities & Improvising: Confidential Materials.** When materials were restricted due to confidentiality, experts came up with alternative solutions, such as signing non-disclosure agreements (NDAs) (P2, P10, P11). Some reassured clients by deleting materials after assignments (P10, P11). Novices, however, often did not take advantage of NDAs; instead, they accepted restrictions and struggled to interpret from hard copies on-site (P2).

### *Decision Point Two: Reception and Handling of Conference Materials*

The findings for this decision point are detailed in Table 5.

**Table 5**

*Decision Point Two: Reception and Handling of Conference Materials*

Probes	Cues & strategies	Expert-novice differences
Past & future/big picture	<ul style="list-style-type: none"> <li>• Checking whether the files can be downloaded and opened (9)</li> <li>• Inconsistencies in the files received (3)</li> <li>• A quick scan of the materials received (5)</li> <li>• Notes contained in the slides (3)</li> </ul>	<ul style="list-style-type: none"> <li>• Failing to check the file status</li> <li>N/A</li> <li>• Failing to properly assess the content of materials</li> <li>• Failing to be aware that notes are included in the slides</li> </ul>
Noticing/paying attention	<ul style="list-style-type: none"> <li>• Unexpected surprises regarding content and format (2)</li> </ul>	N/A
Job smarts/technology	<ul style="list-style-type: none"> <li>• Renaming materials with numbers based on the order on the agenda (6)</li> <li>• Initial sorting and categorization of materials (6)</li> </ul>	<ul style="list-style-type: none"> <li>• Difficulty in locating the right files</li> <li>• Not knowing what materials need studying</li> </ul>
Opportunities & improvising	N/A	N/A

**Past & Future/Big Picture: File Accessibility, Content Consistency, Preliminary Scans, and Embedded Notes.** Upon receiving CP materials, expert interpreters typically verified file accessibility and functionality, checking for issues such as expired links, corrupted files, or missing passwords to avoid last-minute complications (P2, P4-10, P12). This proactive step, often overlooked by novices (P12), reflected a heightened awareness of technical reliability developed through experience.

Beyond accessibility, experts also cross-checked different versions of materials for inconsistencies. P4 recalled receiving mismatched slides and scripts that required clarification with the client, while P12 noted discrepancies between preliminary and final versions of presentations. To mitigate such risks, experts communicated proactively with clients and set expectations to reduce last-minute disruptions.

In addition, experts conducted quick material scans to gauge completeness, scope, and complexity (P4, P5, P9)—a “disaster management” approach that determined preparation requirements. While novices merely acknowledged receipt (P5), experts identified technical details such as embedded videos or formatting errors early. They also leveraged embedded speaker notes (P5, P6, P10) to extract intentions and structure—elements novices often missed. This practice demonstrated experts’ ability to exploit underutilized resources for CP optimization.

**Noticing/Paying Attention: Unexpected Surprises Regarding Content and Format.** Experts also focused on formatting and technical compatibility of preparation materials (P1, P11). P1 would ensure that fonts and text are displayed correctly without issues that may have arisen during file conversion, such as overlapping content, while P11 preferred editable files for ease of annotation.

### **Job Smarts/Technology: File Naming, Sorting, and Digital Organization.**

To streamline preparation and collaboration, many experts renamed and numbered files by agenda sequence (P1, P2, P5, P7, P9, P10, P12)—particularly valuable for multi-speaker events requiring quick access and workload division. Others created hierarchical folder systems for sessions or days (P3-P5, P8, P11, P12). Cloud platforms facilitated real-time collaboration through syncing and co-editing. Unfamiliar with these practices, novices often struggled to locate documents efficiently (P4).

### ***Decision Point Three: Studying and/or Annotating Materials, Including Glossary Making and Translating Materials***

Studying preparation materials is critical for acquiring specialized knowledge before assignments (Nicodemus et al., 2022). Table 6 presents the findings identified at this decision point.

**Table 6**

*Decision Point Three: Studying and/or Annotating Materials, Including Glossary Making and Translating Materials*

Probes	Cues & strategies	Expert-novice differences
Past & future/big picture	<ul style="list-style-type: none"> <li>• The level of annotation (5)</li> <li>• The thoroughness of preparation (6)</li> <li>• Glossary use (7)</li> </ul>	<ul style="list-style-type: none"> <li>• More focused on details</li> <li>• Not seeing the forest for the trees</li> <li>• Inefficient use of the glossary</li> </ul>
Noticing/paying attention	<ul style="list-style-type: none"> <li>• Initial assessment of materials (4)</li> </ul>	N/A
Job smarts/technology	<ul style="list-style-type: none"> <li>• Language of the presentation (2)</li> <li>• Glossary reuse (3)</li> <li>• Use of technology—machine translation (10)</li> <li>• Use of technology—speech-to-text for pre-recorded videos (10)</li> <li>• Use of technology—generative AI (6)</li> </ul>	N/A
Opportunities & improvising	<ul style="list-style-type: none"> <li>• Disproportionately large amounts of materials (10)</li> <li>• Material difficulty beyond expectations (4)</li> </ul>	N/A

**Past & Future/Big Picture: Material Annotation, Preparation Thoroughness, and Glossary Use.** Annotation, thoroughness considerations, and glossary use constituted interconnected aspects of interpreters' workflow. While widely practiced among experienced interpreters (P1, P2, P4, P5, P7), annotation remained selective in their approach, with experts highlighting only essential content—direct quotes, conclusions, or technical terms—rather than annotating materials indiscriminately (P1, P2, P4). Having evolved from exhaustive annotation to more selective approaches, P4 and P10 recognized that detailed markup did not necessarily improve performance when speakers deviated from slides. In contrast, novices often annotated extensively, assuming meticulous preparation guaranteed better output (P4, P8, P10), whereas experts valued adaptability and big-picture awareness equally.

Strategic efficiency characterizes expert preparation. As P11 observed, seasoned interpreters selectively studied materials yet maintained quality output, focusing on overarching themes rather than micro-details (Chan & Chen, 2023; Moser-Mercer et al., 2000).

Beyond annotation practices and preparation thoroughness, glossary use reflected this strategic mindset. Experts created more structured glossaries (P5, P8) and used color coding (P4, P11) to organize terms by topic or function, prioritizing high-frequency terminology and organization/project names for easy retrieval during interpretation (P2, P11). These glossaries were often shared among colleagues to foster collaboration (P10). Novices, however, typically compiled glossaries without clear categorization, hindering efficient term retrieval during interpretation (P4). This expert-novice comparison reveals an evolutionary path from exhaustive to efficient preparation methods as interpreters gain experience.

**Noticing/Paying Attention: Initial Assessment of Content, Slide Format, and Presentation Language.** Upon receiving CP materials, experts conducted

quick scans to assess scope and demands (P9, P11, P12). They checked slide counts, complexity, and presentation duration to allocate time strategically—spending more on technical content and skimming simpler ones (P11). When slides were brief or image-heavy, they proactively sought background knowledge to anticipate potential talking points (P11).

Verifying presentation language was also crucial (P2, P4). P4 recalled a case where a Mandarin speaker unexpectedly switched to English, disrupting prior annotation. To prevent such misalignment, experts confirmed the delivery language early, ensuring preparation efforts aligned with actual needs.

**Job Smarts/Technology: Glossary Reuse, Machine Translation, Speech-to-Text Tools, and Generative AI.** Experts drew on a variety of technology-supported strategies to streamline their preparation workflows and reduce redundant effort. One such practice was glossary reuse. Rather than compiling new lists for each assignment, interpreters such as P1, P2, and P10 maintained long-term and evolving glossaries. These master lists enabled quick reference and built a reliable repository of domain-specific terminology. Novices, by contrast, often compiled glossaries as one-off efforts, lacking foresight for future use (P10).

Machine translation (MT) tools (DeepL, Google Translate, Termsoup) were widely used for annotation (P1-P4, P6, P8-P11), especially for technical terms and dense content (P1, P3, P9). Experts viewed MT as a starting point only, emphasizing post-editing for accuracy and clarity (P1, P2, P4, P9).

Speech-to-text platforms (e.g., Otter.ai) became essential for processing pre-recorded speeches (P3-P11). Interpreters often machine-translated the transcripts into Mandarin and then selectively refined them, focusing on technical (P5) or emotionally charged segments (P7). Some verified subtitle availability beforehand (P5), while others preferred traditional interpreting over machine-generated transcripts (P9).

More recently, generative AI (e.g., ChatGPT) has entered interpreters' toolkit for grasping unfamiliar topics, summarizing texts, and generating terminology (P1, P4, P6-P8, P11). When materials were sparse, it helped anticipate themes (P6)—sometimes accurately predicting discussion content (P7). Some used it for synonyms or field-specific collocations (P1, P7). Despite benefits, interpreters remained cautious about fact-checking and errors (P6), treating AI as a complementary rather than standalone tool.

**Opportunities & Improvising: Managing Large Volumes and Unexpected Difficulty of Materials.** Many experts (P2-7, P9-12) reported encountering disproportionately large preparation materials, such as 100-page slide decks for 10-minute presentations. Under time constraints, interpreters made strategic decisions—prioritizing key slides, focusing on introductions, conclusions, and core terminology, or skimming less relevant sections (P2, P5, P7, P9, P11). Some (P2, P4, P6) still reviewed entire decks when unfamiliarity with content could affect comprehension, while others, such as P6, divided workload with colleagues.

To enhance efficiency, some participants (P2, P9) initially studied shorter materials to establish foundational knowledge before tackling complex decks—an incremental approach preventing burnout while ensuring topic familiarization. Conversely, novices often over-invested in exhaustive preparation for dense presentations, neglecting other critical sessions (P2, P5, P9, P10) and spending excessive time on content barely discussed during actual events.

The psychological burden of facing overwhelming materials also played a role. As P9 noted, less experienced interpreters might strive for perfection to gain peace of mind, fearing that incomplete preparation could compromise their performance. However, experts emphasized the need to balance thoroughness with efficiency.

Several experts (P5, P8, P10, P12) encountered materials with unexpectedly

high technical difficulty. Their strategies diverged—P8 focused on terminology mastery over full comprehension, using code-switching when needed, while P12 conducted initial online research to build conceptual frameworks before detailed slide engagement. Over time, experts learned to gauge their limits and selectively accept assignments based on content complexity and time constraints (P10).

### ***Decision Point Four: Reception and Comparison of Different Versions of Materials***

Receiving conference materials is an ongoing process of continuous updates. Unlike the initial material handling addressed in Decision Point Two, this decision point examines how interpreters assess and manage updated versions of materials. Though relatively minor, this process remains crucial, as shown in Table 7.

**Table 7**

*Decision Point Four: Reception and Comparison of Different Versions of Materials*

Probes	Cues & strategies	Expert-novice differences
Past & future/big picture	<ul style="list-style-type: none"> <li>• Initial comparison to assess the degree and content of change (3)</li> <li>• Aspects of the update to attend to (2)</li> </ul>	N/A
Noticing/paying attention	N/A	• More preparation time due to inadequate assessment N/A
Job smarts/technology	N/A	N/A
Opportunities & improvising	• Complete change of content (2)	• Inability to study all materials alone

**Past & Future/Big Picture: Assessing the Degree and Significance of Material Updates.** When receiving updated materials, expert interpreters did not passively accept them but actively compared new versions with older ones to assess the scope and significance of changes (P1, P2, P5). For instance, P2 and P5 focused on changes in slide count to flag additions or deletions. If minimal changes were

found, P2 typically skipped reviewing the update, whereas P1 still reviewed even minor revisions and transferred annotations accordingly to maintain coherence.

Experts also relied on experience to determine which changes needed attention. P1 noted guest lists and speech texts frequently receive last-minute updates, especially in emcee scripts. While stylistic changes rarely impact interpretation, updates referencing recent events or omitting sensitive content can significantly alter delivery and meaning. This discernment allowed experts to prioritize effectively, unlike novices who often reviewed all versions indiscriminately, thus wasting preparation time.

**Opportunities & Improvising: Complete Change of Content.** Major revisions occasionally rendered old materials obsolete. Experts adapted by scanning new versions for difficulty and dividing preparation among colleagues (P2). However, P2 observed that novices might hesitate to propose collaboration, fearing they would offend senior interpreters. In cases of extensive changes, P5 reannotated the materials, underscoring the adaptability of experienced interpreters in handling substantial revisions efficiently. Overall, many of these strategies to manage material revisions remain inadequately documented in the literature.

***Decision Point Five: Non-Material-Initiated Preparation Both Before and After the Receipt of Preparation Materials***

While CP based on conference materials is standard practice, research suggests that expert interpreters go beyond provided materials, leveraging anticipatory powers to enhance their knowledge (Chan & Chen, 2023). Unlike novices, who may rely solely on available materials or struggle with inefficient time allocation, experienced interpreters engage in proactive research to fill gaps and improve contextual understanding. The strategies they employ at this stage are summarized in Table 8.

**Table 8**

*Decision Point Five: Non-Material-Initiated Preparation Both Before and After the Receipt of Preparation Materials*

Probes	Cues & strategies	Expert-novice differences
Past & future/big picture	<ul style="list-style-type: none"> <li>• Speaker information (4)</li> <li>• Accumulation of content and linguistic knowledge (2)</li> <li>• Supplementary sources of materials (4)</li> <li>• When to start and stop (5)</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> <li>• Over- or underpreparing</li> <li>N/A</li> <li>N/A</li> </ul>
Noticing/paying attention	N/A	N/A
Job smarts/technology	N/A	N/A
Opportunities & improvising	<ul style="list-style-type: none"> <li>• No material—press release and other client-related information (6)</li> <li>• No material—information on the agenda (2)</li> <li>• No material—videos of speakers (6)</li> <li>• No material—early glossary building (4)</li> <li>• No material—time as a determinant (5)</li> <li>• No material—subject matter difficulty as a determinant (6)</li> </ul>	<ul style="list-style-type: none"> <li>• More extensive preparation</li> <li>N/A</li> <li>N/A</li> <li>N/A</li> <li>N/A</li> </ul>

**Past & Future/Big Picture: Researching Speaker Information, Building Subject Knowledge, Using Supplementary Sources, and Managing Preparation Timing.** Expert interpreters extended preparation beyond provided materials, proactively researching speakers and broadening subject-matter understanding (P5, P7, P9, P10, P12). Many located videos or podcasts featuring presenters to familiarize themselves with accents, delivery styles, and recurring themes (P7, P9, P12)—an anticipatory approach helping them foresee challenges and adjust strategies accordingly (P8, P12).

For content preparation, experts acquired background knowledge in technical domains (P5, P9) by sourcing online glossaries (P9) or extracting terminology from audiovisual content (P5). In specialized contexts, P9 joined patient support groups for medical conferences, while P5 researched sporting events and cybersecurity

regulations to build conceptual understanding.

Experts also complemented content acquisition by keeping parallel texts—legal articles or audit standards—in both working languages for reference during interpretation (P3, P5). Some downloaded complete source texts or sourced bilingual materials for accuracy in nuanced topics (P1, P8), reflecting their proactive approach to addressing gaps in CP materials.

Experts also demonstrated strategic judgment about when to begin and end supplementary research, starting with official materials and supplementing only when time and relevance warranted (P5, P7, P9, P10), while avoiding excessive depth for accessible content (P5). Novices struggled with this balance—either overpreparing through tangential reading or underpreparing by limiting themselves to slides (P5). As Chan and Chen (2023) noted, this ability to regulate preparation scope distinguishes expert interpreters, ensuring both readiness and efficiency.

### **Opportunities & Improvising: Preparation Without Provided Materials.**

Interpreters often face assignments where official preparation materials are unavailable, requiring them to proactively gather information. The experts in this study employed multiple strategies to compensate for the lack of materials by looking for alternative sources to anticipate potential content.

When materials were unavailable, experts searched for press releases and company information (P1, P2, P3, P5, P7-10), scanning websites, industry reports, and news articles to learn about client background, events, and terminology. Some researched broader industry contexts and sector-specific trends (P5, P10). Additionally, experts utilized the event agenda as a guide (P2, P9, P12), using session titles and speaker names to conduct preliminary research via Google and Wikipedia. If available, the event's official website provided useful contextual information, such as speaker backgrounds and conference themes (P9, P12).

A widely used strategy involved watching speaker videos (P4, P5, P8-12),

particularly when the speaker's accent, speech patterns, and past speaking topics were unfamiliar. Experts emphasized that this approach helped mitigate difficulties in comprehension and delivery (P11). Some interpreters specifically noted that past recorded talks often covered similar themes to upcoming speeches, making them valuable preparation resources (P11).

For assignments expected to involve technical content, some interpreters began early glossary compilation (P2, P5, P10, P11). They identified key terminology from publicly available sources and gradually refined the glossary as more materials became available (P11). This allowed them to structure their terminology database efficiently and anticipate conceptual challenges.

Overall, experts used discretion in determining the extent of non-material-based preparation, balancing efficiency with effectiveness. Time availability played a crucial role (P2, P8, P11, P12); interpreters prioritized urgent assignments or those with existing materials while delaying research for events scheduled further ahead. Subject matter difficulty also influenced the decision—experts invested more time in preparing for complex or highly technical topics (P2, P4-6, P11, P12).

Despite their proactive approach, experts remained mindful of overpreparation. Some novices, by contrast, risked “going down the rabbit hole,” spending excessive time exploring tangential concepts without clear boundaries (P5). Experts, in contrast, strategically allocated time, stopping additional research once they gained a functional understanding of the topic (P4).

### ***Decision Point Six: Final Preparation Before the Meeting***

Interpreters must be fully contextualized before they begin their assignments (Setton, 1999). The final stage of CP involves refining key aspects of CP, ensuring logistical readiness, and securing sufficient rest. Table 9 outlines the main findings at this decision point.

**Table 9***Decision Point Six: Final Preparation Before the Meeting*

Probes	Cues & strategies	Expert-novice differences
Past & future/big picture	<ul style="list-style-type: none"> <li>• Going over materials (1)</li> <li>• Final glossary management (4)</li> <li>• Confirmation of travel and equipment (1)</li> </ul>	<ul style="list-style-type: none"> <li>• Less familiarity with materials</li> <li>N/A</li> <li>N/A</li> </ul>
Noticing/paying attention	N/A	N/A
Job smarts/technology	N/A	N/A
Opportunities & improvising	<ul style="list-style-type: none"> <li>• Sufficient sleep (2)</li> </ul>	<ul style="list-style-type: none"> <li>• Sacrificing sleep for preparation</li> </ul>

**Past & Future/Big Picture: Reviewing Materials, Final Glossary Management, and Logistical Confirmation.** Experts reviewed key materials again in the final hours before assignments (P4), memorizing names and organizational details, and skimming slides for last-minute refreshers. Emcee scripts were prioritized due to higher stakes and delivery pressure (P4).

Glossary management and print-out were also a critical part of last-stage preparation. Experts printed concise, accessible glossaries, ensuring quick reference during assignments (P1, P3, P4, P8). Consecutive interpreters preferred single-sided printouts for easy flipping, while simultaneous interpreters highlighted key terms or organized longer glossaries digitally (P4, P8). Some used color coding to emphasize unfamiliar terms for quick recognition (P8).

Beyond content review, experts took logistical precautions to ensure smooth execution. They double-checked travel arrangements, confirmed routes to the venue, and verified that all essential equipment—notebooks, chargers, and necessary documents—were packed and functional (P4). These steps helped prevent avoidable stress on the day of the assignment.

**Opportunities & Improvising: Balancing Sufficient Sleep.** Some experts recalled receiving large volumes of documents the night before an assignment,

which initially led them to sacrifice sleep to review all the materials (P4, P12). Over time, however, they prioritized rest over exhaustive last-minute study, recognizing that fatigue negatively impacts performance more than missing minor details (P4). Instead of staying up late, some interpreters opted to scan new materials briefly the next morning, ensuring they remain alert and focused (P4).

### ***Decision Point Seven: Preparation on the Day of the Conference***

The final hours before an assignment provide a crucial window for interpreters to make last-minute preparations. Table 10 presents the key strategies of experts to optimize performance on the day of the assignment. While many of these strategies align with established research on last-minute CP (Chan & Chen, 2023; Chang et al., 2018; Gile, 2009), the participants also highlighted CP activities undertaken during their commute to the venue.

**Table 10**

*Decision Point Seven: Preparation on the Day of the Conference*

Probes	Cues & strategies	Expert-novice differences
Past & future/big picture	<ul style="list-style-type: none"> <li>• Early arrival at the venue (4)</li> <li>• Final review of materials (4)</li> <li>• Final logistical confirmation (3)</li> </ul>	<ul style="list-style-type: none"> <li>• Feeling hurried and psychologically unprepared</li> <li>N/A</li> <li>N/A</li> </ul>
Noticing/paying attention	N/A	N/A
Job smarts/technology	N/A	N/A
Opportunities & improvising	<ul style="list-style-type: none"> <li>• Last-minute arrival of materials (6)</li> </ul>	<ul style="list-style-type: none"> <li>• Not seeing the forest for the trees</li> </ul>

**Past & Future/Big Picture: Early Arrival, Final Material Review, and Logistical Confirmation.** Experts arrived early to adapt to the environment, interact with key figures, and conduct final reviews of materials (P1, P7, P9, P12). Some inquired about updated materials (P1, P9), while others met speakers to brief

them on interpreting requirements and clarify content questions (P1, P7, P9, P12). P9 even recommended requesting early speaker arrivals for a quick summary of key slides, treating this as a strategic advantage to refine comprehension and anticipate speaker delivery styles.

When speaker briefings were unavailable, experts adapted by observing pre-meeting discussions. P1 described this as “eavesdropping” on informal conversations, which help interpreters absorb contextual details and anticipate critical talking points. Engaging with clients was another strategy; P1 and P12 gained valuable insights by inquiring about key negotiation issues in bilateral meetings. P7 also used this time to establish rapport with speakers and clients, which helped build mutual trust and confidence.

In contrast, novices often failed to recognize the strategic value of early arrival (P11). Some focused solely on punctuality without leveraging the extra time for preparation, while others entered the meeting rushed and psychologically unprepared. P11 noted that novice interpreters might struggle with the first 30 seconds of interpreting if they had not properly composed themselves, a crucial factor since clients often form lasting impressions early on.

Besides interacting with speakers and clients, experts made use of commute time and pre-conference moments to review key materials (P6, P7, P11, P12). While some conducted a quick scan of presentation slides (P12), glossary review was emphasized as a higher priority. P11 read glossary entries aloud during the commute, reinforcing recall of key terminology. P6 marked unfamiliar terms for focused review, while P12 practiced pronouncing speaker names and affiliations to avoid mistakes—especially when speakers placed high importance on the accurate articulation of their titles.

Experts also conducted technical and logistical confirmations (P1, P7, P11)—checking sound quality and internet stability for remote interpretation (P1),

microphone positioning for consecutive interpreting (P11), and reconfirming interpreting expectations with speakers (P7). Their mindfulness extended to personal presentation, with P7 and P11 emphasizing proper attire for consecutive interpreting's visible audience engagement.

**Opportunities & Improvising: Last-Minute Arrival of Materials.** Despite thorough preparation, interpreters frequently faced last-minute materials just before assignments (P1, P4, P6, P7, P9, P12). Experts addressed this challenge by prioritizing big-picture comprehension, quickly scanning for structure, key messages, and crucial terminology (P1, P7, P9). Rather than attempting to process every detail, they focused on overarching themes and anticipated content areas that required more attention (P12). This aligns with findings from Chan and Chen (2023), which highlight the importance of strategic prioritization in time-sensitive CP.

Experts also employed selective term verification. P6 and P12 rapidly identified and checked essential technical terms, but if time was severely limited, they relied on contextual understanding and paraphrasing (P12). By contrast, novices were often fixated on every unfamiliar term, losing time and failing to grasp the broader discourse (P12).

Collaboration further streamlined last-minute preparation. P6 and P9 split review tasks with colleagues, optimizing efficiency. Some used machine translation tools such as Termsoup to process materials quickly, extracting key content into a searchable format for reference (P6). These adaptive strategies enabled experts to navigate last-minute updates efficiently, reinforcing the role of experience in real-time decision making.

### ***Decision Point Eight: Collaboration and Coordination with Colleagues***

Collaboration is integral to team-based simultaneous interpreting. Beyond alternating turns, interpreters coordinate their preparation efforts to enhance efficiency

and ensure consistency. While such practices remain underexplored in the literature, participants shared various collaborative strategies, summarized in Table 11.

**Table 11**

*Decision Point Eight: Collaboration and Coordination With Colleagues*

Probes	Cues & strategies	Expert-novice differences
Past & future/big picture	• Division of preparation workload with colleagues (6)	• Feeling reluctant to propose a division of workload to senior colleagues
	• Familiarity with colleagues (5)	• Following the preparation style of senior colleagues
	• Cross-checks of consistency (2)	N/A
Noticing/paying attention	• On-site arrival of materials (1)	• Feeling reluctant to propose a division of workload to senior colleagues
Job smarts/technology	• Collaboration over the internet (3)	N/A
Opportunities & improvising	• Different paces of preparation between colleagues (2)	N/A
	• Changes to the agenda (4)	N/A

**Past & Future/Big Picture: Workload Division, Familiarity, and Consistency Checks.** Experts commonly divided preparation workload when materials were extensive (P1, P2, P3, P6, P8, P11), splitting speakers by sequence or dividing presentations into halves (P2, P3, P8, P11). This enabled efficient study of last-minute materials (P6), though experts still reviewed all materials to maintain contextual awareness (P2, P6, P8, P11, P12).

Workload division, however, was not always feasible, as some novices may hesitate to propose it to senior colleagues, fearing offense (P1, P2, P5, P8). Others, unfamiliar with collaborative preparation, studied everything independently, sometimes leading to inefficient time use (P2, P3, P5). However, voluntary sharing of glossaries and annotated materials was a way for less experienced interpreters to gain recognition from seniors (P6, P8, P11).

Familiarity with colleagues also influenced collaboration (P2, P3, P5, P11). Experienced interpreters adjusted their approach based on prior collaborations and individual working styles (P3, P11, P12). Some preferred independent preparation when working with unfamiliar colleagues (P11, P12), while others adapted to a colleague's technological preferences, such as using Termsoup for machine-assisted glossaries (P3).

Ensuring consistency was another priority. Experts exchanged glossaries or merged them into shared files (P5, P11). Some used Google Docs for real-time collaboration (P5). Even when not responsible for annotating certain slides, they reviewed their partner's annotations to maintain accuracy and coherence (P5).

**Noticing/Paying Attention: On-Site Arrival of Materials.** When last-minute materials arrived before events (P2), experts quickly assessed complexity and divided workload accordingly, usually led by senior interpreters. Novices, hesitant to suggest collaboration, often struggled to process all materials under time constraints (P2). Chan and Chen (2023) similarly found experienced interpreters managed last-minute preparation more efficiently under pressure, while novices struggle with ad-hoc material handling.

**Job Smarts/Technology: Online Collaboration.** Technology streamlined teamwork, with interpreters leveraging cloud-based platforms to coordinate preparation (P3, P5). Shared Google Drive or Dropbox folders enabled real-time updates and easy access to reference materials (P3). Those familiar with machine-assisted tools, such as Termsoup, used shared project files to sync translation memory and glossaries (P6). Experts also favored working with colleagues who already utilized such platforms, ensuring smoother collaboration (P3).

**Opportunities & Improvising: Adapting to Colleague Work Styles and Agenda Changes.** Differences in preparation pace occasionally disrupted expected collaboration (P1, P8). If one interpreter completed preparation earlier, they often

assisted their colleague by sharing annotated materials (P1). While some colleagues worked at a slower pace, their contributions were still valued (P8).

Changes to the agenda posed another challenge (P3, P5, P11). When speaker order shifted, an interpreter might have to handle consecutive presentations rather than alternating turns, requiring adjustments to preparation (P5). In cases where speakers exceeded their allotted time, interpreters also had to extend their turns or interpret less familiar sections of a talk (P8). Preemptive coordination helped mitigate these issues (P8).

## **Discussion**

This study identified eight major decision points and 54 expert cues and strategies. This section interprets these findings by addressing the research questions, integrating five emergent themes to explain the cognitive underpinnings of expert performance.

### **The Landscape and Logic of Expert Preparation (RQ1 and RQ2)**

This study identified eight major CP decision points from 152 diary events, ranging from logistics management to on-site collaboration. These findings confirm that while CP follows common stages, the process is non-linear and lacks a universally accepted method, aligning with Xu's (2018) observations.

The 54 specific cues and strategies uncovered within these points answer the question of “what” experts do. However, a deeper analysis reveals that these actions are not arbitrary; they are guided by a set of sophisticated, underlying cognitive principles. These previously undocumented insights add empirical depth to existing guidelines and expand task descriptions (Hoffman et al., 1998; Klein & Militello, 2001; Militello & Hutton, 1998). To answer RQ2 more deeply—

exploring the rationale behind these strategies—five emergent themes were identified from the data. These themes explain the cognitive principles underlying expert performance.

### ***The Experience of the Experts That Fosters Situation Awareness and Anticipatory Thinking***

To understand how and why experts rely on the 54 identified cues and strategies (RQ2), the data reveal that extensive experience is the foundational theme. Accumulated experience fosters situation awareness and anticipatory thinking guiding expert actions. This aligns with research showing that experts acquire patterns from similar situations (Ericsson, 1996, 2000, 2006). Expert memory stores job experiences (Shreve, 2002), with experts possessing rich cue repertoires that enhance situation awareness (Klein, 2015, 2022; Wiggins, 2020) and inform responses to common scenarios (Hutton & Klein, 1999).

The findings align with the Recognition-Primed Decision model (Figure 1). Interpreters demonstrated pattern-matching when identifying which slide components speakers would likely read verbatim (P2) or tailoring material requests without comparing alternatives—moving directly from assessment to action, bypassing comparative evaluation typical of analytical approaches.

This interconnection of experience, situation awareness, and anticipation is further confirmed by the data. Experts utilized IF-THEN decision mechanisms (Schneider & Shiffrin, 1977, as cited in Clark et al., 2008), intuitively reacting to situational features. P2 described how slide-reading experience enabled anticipation:

Because I have already read many slides before, I have a general sense of which parts of the slide the speaker is going to read completely. For example, if there is a quote or something in written language on the slide,

you can almost be certain that it will be read out. When preparing for such sections, I would translate all the content in advance. (P2)

Accumulated experience enabled experts to request specific materials tailored to different conference formats and contexts. Some used checklists for generic materials (P1, P4, P6, P8, P9) as previously documented (Chan & Chen, 2023; Chang et al., 2018; Han, 2015), while others requested assignment-specific materials such as pre-prepared Q&As for liaison interpreting (P8), clinical trial protocols for investigator meetings (P9), and full papers for academic conferences (P1).

Experts also demonstrated proactive problem prevention, checking file accessibility (P2, P4-10, P12), practicing challenging name pronunciations (P12), and ensuring knowledge of conference names in both languages (P7).

These discoveries can expedite novice progression. Learning from expert mental models can provide novices valuable insights, saving them from significant trial-and-error.

### ***Time Criticality as a Key Consideration in CP***

The selection and application of the strategies identified for RQ2 is also governed by a second core principle: the experts' acute awareness of time criticality. This finding aligns with existing research identifying time constraints as a critical factor in CP (Donovan, 2001; Gile, 2002; Han, 2015; Rütten, 2015; Xu, 2018), with 49 coded segments in this study emphasizing time's importance. As P1 noted, time management often exceeds interpreters' control.

Experts consider time at every decision point: requesting early materials (P1, P5), assessing content difficulty (P5, P9, P11, P12), prioritizing urgent tasks (P2, P11, P12), and determining supplementary research scope (P2, P7, P9-P11). P9 summarized this approach: "I mainly consider time to determine the cutoff point

for my preparation... If time is limited, I set priorities, with PowerPoint presentations enjoying top priority.” This aligns with research on interpreters’ time allocation efficiency (Chan & Chen, 2023; Chang et al., 2018; Riccardi, 2005) while revealing how time considerations permeate many CP phases.

### ***The Knowledge Acquisition and Construction Process of the Experts***

Third, answering RQ2 requires understanding that the identified strategies are not employed in a vacuum; they are deeply embedded in a systematic process of knowledge acquisition and construction. This process is critical for interpreters bridging domain gaps between themselves and participants (Fantinuoli, 2016, 2017, 2021) and builds upon previous research demonstrating the relationship between language and knowledge (Gile, 2002; Jiang, 2013; Luccarelli, 2006). Indeed, this study revealed not merely what interpreters do, but how and why they utilize resources and anticipate knowledge needs. Many of these practices, especially those related to glossary use, corroborate and extend the foundational survey of professional interpreters’ habits documented by Jiang (2013).

Experts systematically built domain knowledge across diverse fields, with P10 noting that understanding background prevents fixation on specifics. They efficiently used online resources, including Wikipedia for fundamentals and YouTube for speaker styles, and extracted terminology for glossaries.

Experts developed efficient knowledge-building processes, demonstrated by P2’s approach to researching wind power by starting with Wikipedia fundamentals before exploring company-specific articles. Importantly, they demonstrated the ability to decide when to start and stop the knowledge construction process (Decision Point Five), in contrast to novices who might either focus only on provided materials or explore tangential concepts indefinitely (P5).

### *Expert-Novice Differences in the Big Picture Mindset*

Fourth, the rationale behind the expert strategies identified for RQ2 can be understood by contrasting them with novice approaches, revealing that a big picture mindset is a crucial cognitive principle that distinguishes expert performance. This theme addresses the strategic divide where experts adopt global strategies while novices favor micro-contextual ones (Chan & Chen, 2023; Moser-Mercer et al., 2000), enabling a holistic situation assessment (Borders & Klein, 2017; Militello & Hutton, 1998)

This difference was most evident in preparation thoroughness (Decision Point Three), with experts selectively identifying critical elements while novices exhaustively researched all materials, as P11 demonstrated with a 60-page algae conservation presentation:

Sometimes you need to step back. ... It is impossible to thoroughly understand and annotate everything. ... The more difficult-to-understand the materials are, the more important it is to avoid getting caught up in details and ... grasp what the speaker is trying to convey. (P11)

The big picture mentality served experts well during challenging situations such as last-minute materials (P12) or voluminous content. P2 described this evolution:

Looking back at the times when I had to deal with a hundred-page material in the past, I would usually spend time looking up every single word. However, with more experience, I started to focus on understanding the bigger context. For instance, if there are charts and tables in the presentation, I would focus on understanding the content contained therein, such as the trends and causal relationships that they intend to convey. (P2)

Three subjects (P10-12) used the expression “to not see the forest for the

trees” to describe novices’ narrow perspective. Notably, meticulous preparation and big picture mindset are not mutually exclusive. Many experts acknowledged adopting a more detail-focused approach early in their careers before developing a broader, strategic perspective with experience.

While preparation remains a cornerstone, participants emphasized that foundational skills—active listening, conceptual organization, and on-the-spot adaptation—are indispensable. As P10 noted, interpreters must grasp meaning in real time. Experts highlighted that core competencies enable success even when materials are inaccessible or speaker deviates from prepared content. Thus, interpreting quality is not only a function of preparation, but also of accumulated experience and cognitive agility—underscoring why CP is necessary but not sufficient for high-level performance.

### ***The Role of Technology in the CP Workflow***

Finally, to answer RQ2 in a modern context, the findings show that expert strategies are increasingly mediated and streamlined by technology in the CP workflow. While previous research has focused on process-oriented computer-assisted interpreting tools, this study reveals that experts primarily use generic technologies not extensively documented in CP literature.

Experts used Microsoft Word and Excel for glossaries (Decision Points Three and Seven) and cloud platforms such as Google Drive and Dropbox for organizing materials (Decision Point Two), co-editing (Decision Point Eight), and ensuring annotation consistency (Decision Point Eight).

Translation technologies featured prominently, with most participants using machine translation tools such as Google Translate (P8, P9, P12), DeepL (P2, P3, P8), and Termsoup (P3, P6, P10, P11) primarily for time-saving when translating/

annotating conference materials. Participants exercised discretion by verifying output quality (P1-4, P9, P10) rather than fully relying on machine-generated texts.

Speech-to-text transcription tools such as Otter.ai were frequently used to process pre-recorded presentation videos (P1, P3-11), with some combining transcription with machine translation and post-editing (P4-7, P10, P11).

Half of the participants incorporated AI (specifically ChatGPT) into CP (P1, P4, P6-8, P11), using it for concept explanations (P8), background information on speakers (P6), domain-specific terminology (P1), synonyms (P7), and summarizing key ideas (P4).

### **From Findings to the Classroom: Pedagogical Implications (RQ3)**

This study offers significant implications for interpreter training, particularly for developing scenario-based exercises that challenge students under realistic conditions (Crandall et al., 2006; Klein, 2019). These scenario-based questions are directly derived from the specific cues, strategies, and dilemmas identified across the eight decision points, designed to challenge trainees with the authentic cognitive difficulties that experts reported at each decision point (e.g., handling last-minute materials or navigating collaboration challenges). Table 12 presents sample questions for such training.

Instructors can also create role-play scenarios incorporating the client and speaker roles to make classroom CP more ecologically valid, addressing the disparity between classroom and real-world experiences (Chan & Ju, 2022) identified in this study. Cognitive debriefs following these exercises would also allow trainees to reflect on their decision-making processes (Crandall et al., 2006; Klein, 2019).

**Table 12***Sample Questions to be Used in Scenario-Based Cognitive Exercises for CP*

Decision point	Scenario-based questions and dilemmas
1	How should one request preparation materials from a client? What are the aspects to pay attention to?
1	What should one do in the face of the inaccessibility of materials?
2	What are the crucial factors to consider when receiving CP materials? What potential issues may arise during this process?
2	What strategies can be used to effectively organize conference materials as they are received?
3	How should one effectively manage and study excessively voluminous materials?
3	What are the possible courses of action if the complexity and difficulty of the assignment surpass initial expectations?
4	What are the aspects to pay attention to when the client keeps sending updated versions of materials?
4	What steps should be taken if a speaker provides completely revised presentation slides on the eve of the conference?
5	Apart from presentation slides, what other CP sources are valuable? When is it most beneficial to utilize these sources?
5	How should one decide when to start and stop non-material-based knowledge and language acquisition?
6	How can the night before an assignment be optimally utilized for CP?
7	How can one make the best use of the final minutes before the meeting starts?
7	How can the interpreter deal with materials that arrive at the last-minute on-site?
8	What methods can be used to collaborate with colleagues on CP? What potential challenges might be faced during this collaboration?
8	Would changes to the agenda, such as alterations in the order of speakers, pose a risk when colleagues share the CP workload?

Beyond scenario-based training, another valuable pedagogical tool was developed by directly codifying the expert strategies identified in the data. The material request template in Table 13, for instance, is a codification of the systematic strategies reported by experts in Decision Point One. This template, adapted from a version shared by participant P4, offers novices a structured starting point for communicating with clients about preparation needs.

**Table 13***A Template List of CP Materials to Request From Clients and Logistical Issues to Attend to*

Number	Type(s) of materials
1	The conference brochure/handbook and agenda
2	The list of moderators, speakers, panelists, and VIPs (individuals whose name may be called) and background information
3	Speech scripts, presentation slides, outlines, and drafts
4	Reference materials provided by the organizers, glossaries, and prepared questions and answers
5	Photo(s) of the venue
6	Contact person on-site
7	Documents and information required for reimbursement, processing time for remittance, the 2 <sup>nd</sup> Generation National Health Insurance (NHI) coverage and fee exemption issues, and tax deduction issues
8	Reminder for speakers to control their speaking pace

## Conclusion

This study linked NDM with interpreting studies by using CDA to illuminate cognitive processes in CP—an area where NDM has rarely been applied (Chan & Chen, 2023). By uncovering tacit aspects of CP expertise, this research bridges theory-practice gaps and offers a foundation for developing training approaches. As decision-making research primarily aims to guide instructional design (Clark et al., 2008; Hoffman et al., 1998), these findings may accelerate novices' progress toward expertise (Ross et al., 2006).

Limitations of the study include its sample size and generalizability. Additionally, expert-novice comparisons are based on experts' reflections, not direct data from novices. It is also important to acknowledge the limitations of the expert-novice paradigm itself. As Moser-Mercer (1997) noted, this paradigm may sometimes be overly simplistic, as expertise is better perceived as a continuum rather than a dichotomy. Moreover, defining expertise by seniority may not fully

capture the cognitive skills underlying expert performance. Nevertheless, by uniting NDM and interpreting research through CDA, this study opens up avenues for exploring cognitive dimensions of CP expertise and interdisciplinary work.

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