

Conference Preparation From the Perspective of Naturalistic Decision Making— An Expertise Approach

Po-yun Chan Tze-wei Chen

Although conference preparation (CP) has been widely reported to be the foundation for successful interpreting, little is known regarding how interpreters prepare in real-life settings and adapt their preparation strategies to the context. To fill this research gap, the present study analyzed and compared the CP strategies and processes of interpreting novices, intermediates, and experts from the perspective of naturalistic decision making (NDM), a research paradigm for elucidating an expert's decision-making processes in natural settings with characteristics including time pressure and high stakes. This study adopted observation and interviews as the methods of data collection. Twenty-four participants (ten novices, six intermediates, and eight experts) were asked to prepare for a mock assignment within 30 minutes by using a slide deck. The desktop activity of the participants was recorded by a screen-recording program, HyperCam, for analysis. A semistructured interview was conducted after the participants had prepared. The results indicate that the participants focused on different facets of preparation, which were mainly the language and knowledge facets, when they faced time constraints. Most notably, the experts were better able to assess the characteristics of the context on the basis of their experience, whereas novices focused more on microcontextual details. By connecting NDM with CP, the present study offers an exploratory description of CP in time-pressure situations, yields insights into how experts master preparation, and offers suggestions on how trainees can attain CP expertise.

Keywords: conference preparation, naturalistic decision making, expertise studies, interpreter training

Received: July 26, 2022

Revised: November 4, 2022

Accepted: December 2, 2022

Po-yun Chan, Adjunct Lecturer, 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

自然決策中的會議口譯準備——專技觀點

詹柏勻 陳子瑋

會議口譯準備（conference preparation, CP）係確保口譯品質的關鍵要素，然而相關研究有限，且多為規範性論述，鮮少描述口譯員的實際準備過程。為使文獻更趨完整，本研究採自然決策（naturalistic decision making, NDM）研究典範，比較口譯專家、新手與生手之準備策略。自然決策研究以描述性觀點探究專家在自然、真實的環境之下，如何因應時間壓力等條件限制做出決策。故此，本研究欲檢視專家口譯在時間限制之下的會議準備策略，並與新手和生手進行比較。研究採觀察法與訪談等方式，邀請 24 位受試者（十位生手、六位新手與八位專家）於 30 分鐘之內利用電腦和簡報檔案準備口譯工作。研究者現場透過螢幕投影觀察受試者的準備過程，並以 HyperCam 程式錄製。受試者準備完成後，接受半結構式訪談，說明準備策略與關鍵決策點。研究結果顯示，在時間壓力之下，三組受試者所著重的準備重點不同（如偏重語言或是知識習得），其中專家組由於工作經驗較為豐富，因此較能依經驗判斷限時準備狀況，並以大局為重，而新手或生手則較重視準備資料的細節。研究結果可望供口譯教學者參考，協助口譯學生了解專家如何準備口譯工作，進而精進會議口譯準備技能。

關鍵詞：會議口譯準備、自然決策、專技研究、口譯教學

收件：2022 年 7 月 26 日

修改：2022 年 11 月 4 日

接受：2022 年 12 月 2 日

Introduction

The process in which the interpreter examines the various aspects of a specific assignment and consciously decides how and what to prepare—i.e., active preparation (Luccarelli, 2006)—has become a subject of academic interest. It is believed that interpreters do a better job if they prepare in advance (Díaz-Galaz, 2011; Díaz-Galaz et al., 2015; Luccarelli, 2006). However, while conference preparation (CP) has been recognized as a critical feature of professional practice (Díaz-Galaz, 2011; Díaz-Galaz et al., 2015; Gile, 2002; Association Internationale des Interprètes de Conférence [AIIC], 1999), relevant research has largely remained prescriptive, distilled from the experience of professionals with practical or theoretical orientations (e.g., AIIC, 1999; Gile, 2002, 2009; Gillies, 2019; Luccarelli, 2006; Setton & Dawrant, 2016).

Indeed, the literature has paid limited attention to the actual preparation processes (Díaz-Galaz, 2011; Scaglioni, 2013), which calls for more descriptive studies to unravel the interpreter's CP process as is in the real world. Such studies should inform pedagogy by exploring how seasoned interpreters prepare for conferences, if CP is indeed a skill to be learned and perfected over time (Luccarelli, 2006).

To fill the gaps, the present study attempted to examine CP from the perspective of naturalist decision making (NDM), which seeks to study how the decision maker uses experience to make decisions in real-world, natural settings characterized by features such as time pressure (Klein, 1997; Ross et al., 2006). As interpreters often have only limited preparation time at their disposal (Setton & Dawrant, 2016), studying how experts make CP decisions in the real world may help unveil their tried-and-tested CP strategies and expedite transition towards expertise.

Literature Review

The literature review attempts to provide a conceptual scaffold for CP and NDM. The first part examines the various dimensions of CP discussed in the literature, including general concepts, stages and forms, language and knowledge acquisition in CP, sources and tools, issues of time constraints, and its relation to expertise development. The second part, as an endeavor to bring the two worlds together, charts the development of NDM, from early approaches of decision making research to expert-novice differences observed in NDM studies.

Conference Preparation

The interpreter's work starts the moment when he/she agrees to interpret for a conference (Moser-Mercer, 1992). This is the time when the interpreter begins to assemble various pieces of information regarding the assignment, consciously decides on CP strategies and scope, and finds ways to contextualize with the conference (Luccarelli, 2006).

The value of preparation as the *sine qua non* of successful interpreting has been widely recognized. Diligent preparation is a pillar of quality interpreting, second only to proper working conditions (AIIC, 1999). What's more, the CP process serves to prepare the interpreter to handle the unexpected and maintain his/her usual powers for anticipation and monitoring (Luccarelli, 2006), setting off a chain of positive events such as sparer attention and better online self-monitoring (Setton & Dawrant, 2016). Preparation also helps bridge the information gap between participants and interpreters as incidental audiences (Díaz-Galaz, 2011; Scaglioni, 2013).

Several key forms and methods of CP have been discussed in the literature (Gillies, 2019; Donovan, 2001, as cited in Luccarelli, 2006; Kutz, 2003, as cited in Rodríguez & Schnell, 2009). Gillies' (2019) discussion on CP, for example, covered a

wide scope of dimensions, including general knowledge, topic preparation, language activation, practice, and the situation (including venues, procedure, names, speakers, audience, and content).

While CP presupposes a “pre-booth” nature (Taylor, 1993), it may extend into the conference or even after it (Gile, 2009; Luccarelli, 2006; Rodríguez & Schnell, 2009). The study of Chang et al. (2018), for example, examined how professional interpreters dealt with unfamiliar topics in a process of knowledge preparation before, during, and after a conference. Gile (2009) also chronologically divided preparation into advance preparation, last-minute preparation, and ongoing preparation during the meeting. In addition, interpreters also need long-term preparation in L1 and L2 language and general background knowledge (Gillies, 2019; Luccarelli, 2013). Setton and Dawrant (2016) bridged the mode/time dichotomy and provided a guideline for event preparation, topic preparation, last-minute/on-site preparation, and preparation during and after the meeting.

As a critical benefit, preparation helps to activate both terminology and contextual information (Gillies, 2019). Indeed, language and knowledge have emerged in the literature as the two critical facets of preparation. On the language front, interpreters often compile terminological information in the form of a glossary to speak professionally at work (Gillies, 2019; Rodríguez & Schnell, 2009). Jiang’s (2013) study revealed that nearly 70% of AIIC interpreters surveyed would build a glossary for most or all meetings. This widespread practice could be attributed to the fact that correct use of terminology is highly valued as a yardstick of evaluating performance by conference participants (Farghal & Shakir, 1994; Kurz, 2001; Moser, 1995, as cited in Luccarelli, 2006; Kurz, 1989, as cited in Pöchhacker, 2016). Translation accuracy, as measured by the correct use of terminology, could be most adversely affected without preparation (Díaz-Galaz, 2011).

Interpreters also learn about and review relevant concepts when preparing for a conference and extracting new terms (Gile, 2002; Xu, 2018). Indeed, terminological preparation is also a learning process, which forms the knowledge foundation for interpreting (Fantinuoli, 2017; Luccarelli, 2006; Moser-Mercer, 1992).

The interpreter then builds up as many concepts as possible and establishes relations among them to facilitate translation output (Moser-Mercer, 1978). Such local or “encounter-specific” knowledge enhancement can be done through the interpreter imagining and researching anything that speakers could possibly mention (Setton & Dawrant, 2016).

As terminological preparation is also a form of knowledge acquisition, the two components in CP may be hard to separate. Still, Setton and Dawrant (2016) cautioned against confusing terminology with knowledge, as interpreters should avoid knowing how to say everything without knowing its meaning. Gile (2002) also discussed “borderline cases” in which terminological search and content-oriented preparation overlap, arguing that terminological preparation involves some conceptual learning and vice-versa. However, whether interpreters place equal emphasis on language and knowledge acquisition in CP remains uninvestigated.

Studies have indicated that conference documents are the most useful and popular material among interpreters as they are highly relevant to the conference and contain specific information not easily found elsewhere (Gile, 2002). CP strategies may differ based on the types of documents available (Gillies, 2019). According to the AIIC (1999) and Luccarelli (2006), such documents may include the agenda, PowerPoint presentations, glossaries, lists of participants, speaker biographies, and so forth. On-site briefings and presentation walkthroughs with speakers may also help prevent operational problems and facilitate content anticipation (Gillies, 2019; Setton & Dawrant, 2016).

Interpreters may also look for complementary sources because the core documents presuppose some relevant knowledge by the user and do not provide the basic information that laypersons need (Díaz-Galaz, 2011; Gile, 2002). Common additional sources include background documents (e.g., textbooks, press and journal articles, encyclopedias, or other content-oriented documents), monolingual/bilingual dictionaries and glossaries, human resources, pre-meeting briefing/Q&A session, and electronic sources (AIIC, 1999; Díaz-Galaz, 2011; Gile, 2002; Luccarelli, 2006, 2013; Setton & Dawrant, 2016). In particular, the World Wide Web (WWW) has been recommended as a medium for preparation (AIIC, 1999). Gillies (2019) also suggested using Wikipedia as a place to begin for a general understanding of a topic.

With such variety of resources, the interpreter is advised to select only a few quality sources because their clarity, relevance, accessibility, or degree of detail may not be well-ordered (Setton & Dawrant, 2016). Still, how interpreters sift through a sea of information remains little studied.

Time Constraints in CP

Lucky is the interpreter who has sufficient time to prepare to the fullest, making time constraints a salient feature in CP. The time available for preparation has been regarded as one of the factors of interpreting difficulty (Setton & Dawrant, 2016).

The standard AIIC contract requires that conference documents be delivered to interpreters not later than 15 days before the conference (Moser-Mercer, 1992). Adequate remunerated time for preparation is also considered part of the optimal working conditions (Setton & Dawrant, 2016). Unfortunately, in reality, relevant texts may arrive only days, hours, minutes, or seconds in advance (Setton & Dawrant, 2016). Therefore, preparation time may range from ample, short notice

(20-30 minutes), to last-minute. The authors argued that for topic preparation, one should ensure that time is well-spent on selecting quality sources. Some documents may need to be prepared in the booth, and the student interpreter needs to adopt appropriate strategies to prepare on site (Luccarelli, 2006).

For all the discussions and anecdotal evidence confirming time constraints in CP, how interpreters tailor their preparation strategies to changes in context remains unknown. Gillies (2019) suggested that preparation time be proportionate to the time needed to interpret a topic. However, little is known about how interpreters, if ever, prioritize their time for preparation. The present study marked an attempt to fill such gap.

CP and Expertise Development

Luccarelli (2006) maintained that CP entails skills that the novice does not necessarily possess but can be acquired and perfected over time. The glossary-building component of CP, for example, has been shown to play a critical role for the expertise development of trainees in terms of both knowledge and terminology acquisition (Chan & Ju, 2022).

What sets experts apart from novices, in fact, is the focus of expertise studies. This strain of research, stemming from the field of chess (Ericsson, 1996, 2001; Moser-Mercer, 1997), examines the ways experts attain high levels of performance and analyzes the reproducible dimensions of expert performance (Ericsson, 1996). Expertise studies aim to establish a general theory of expert performance acquisition and scientifically explain exceptional achievements and why experts can reproduce their performance anytime when needed (Ericsson, 2001).

Comparing novice-expert differences in expertise studies is crucial in underscoring the evolution and acquisition of interpreting competence (Riccardi, 2005). For example, the novice and the expert differ in their knowledge structures,

base, and organization (Moser-Mercer, 1997; Moser-Mercer et al., 2000). Professional interpreters, for example, have more comprehensive knowledge thanks to more exposure to various domains and can access concepts faster. What's more, experts employ more global plans, whereas novices tend to adopt microcontextual plans (Moser-Mercer et al., 2000). With more experience, interpreter is theoretically better prepared to work in various contexts without being unduly overloaded (Riccardi, 2005). Such experiential expertise enables experts to anticipate what the conference is about when first seeing the program, making their preparation more targeted and organized (Luccarelli, 2006).

It is in the context of novice-expert differences that the study sought to examine how interpreters with varying seniority conduct CP differently, from the perspective of a discipline that has seldom crossed paths with interpreting studies—naturalistic decision making (NDM).

Decision Making Research

How experts make decisions (i.e., expert decision making) has been a major topic of scholarly interest within the judgment and decision making (JDM) community. This strand of research examines the decision-making skills of experts and the application of expertise to decision making. Research has shown that experts make more competent judgments as against their novice counterparts (Shanteau, 1988). By looking at how expert decision makers excel in their jobs, novices should also be able to transition faster towards expertise (Ross et al., 2006).

Several paradigms and approaches have been adopted in the study of decision making. The earliest classical or normative paradigm attempted to construct a normative, prescriptive model under which the decision maker rationally compares the pros and cons of alternatives at once before deciding on an optimal solution. The biases and heuristics approach (i.e., the rationalist paradigm), also subsumed

under the classical tradition, marked a slight departure from the original approach. This is because the paradigm evaluated human decision quality against normative standards (Hutton & Klein, 1999) for discussions on the research tradition, see also Klein (1997), Phillips et al. (2004), Shanteau (1988). Researchers observed that human judgment or error was at play in decision making, which led to results deviant from normative theories (Phillips et al., 2004; Shanteau, 1988).

The classical approach came under criticism because its experiments were conducted primarily in static, well-defined laboratory settings with low ecological validity (Hutton & Klein, 1999). As such, the NDM paradigm emerged in the 1980s as a reaction against the traditional paradigm (Hutton & Klein, 1999; Mosier et al., 2018; Ross et al., 2006). In contrast to earlier research that examined decision making in a context-free environment, the NDM approach studies how the decision maker uses experience to make decisions in natural settings (Klein, 1997; Phillips et al., 2004; Ross et al., 2006).

The catalyst for the emergence of NDM research was the need to study decision making in contexts with characteristics where formal techniques are hard to apply, such as time pressure, ill-defined or competing goals, high personal stakes, dynamic settings, and unreliable or incomplete information (Hutton & Klein, 1999; Klein, 1997, 2008; Klein et al., 1986; Phillips et al., 2004; Ross et al., 2006). Early researchers studied subjects such as fire ground commanders, who had to make time-pressed decisions with high stakes (Klein, 2008; Klein et al., 1986; Mosier et al., 2018; Ross et al., 2006), and found that expert decision makers rarely had the luxury of time to compare different courses of action (COAs) but only adopted a plausible one after assessing the situation. They matched the situation at hand with a prototype in their experience and assessed only one option at a time. While one or more options may be considered, only one is examined at a given moment in a serial manner.

NDM researchers regard the expert as “having 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). Arguably more experienced, experts rely mostly on intuition (rather than choose among several options), which is enabled by a process of pattern recognition, retrieval, and matching and facilitated by the utilization of cues in a situation-aware manner (Wiggins, 2020).

Expert-Novice Differences in NDM

Several expert-novice differences have been observed in NDM research. For example, experts are keener on finding a readily-available option and improving on it rather than looking for the best one (Ross et al., 2006). What’s more, experts focus more on assessing a situation based on their knowledge base, training, and experience, while novices are more intent on generating a COA (Randel et al., 1996). Experts also spend more time trying to understand the problem, compared with novices who start right off and work with the surface features of the problem (Phillips et al., 2004). Last but not least, experts are not easily sidetracked by irrelevant information and know what is relevant (Shanteau, 1988).

Hutton and Klein (1999) concluded that skilled decision makers can quickly respond because they rely on experience to find a workable COA as the first one considered instead of generating a set of them (also in Randel et al., 1996). In addition, in novel situations, experts focus more on important and critical information, whereas novices are overwhelmed with information and are keen on evaluating COAs. Situational awareness also sets experts apart from novices, enabling the decision maker to judge a situation as typical or atypical and arrives at a workable, but not necessarily the best, solution (Hutton & Klein, 1999; Mosier et al., 2018; Phillips et al., 2004).

Bridging NDM and CP: Research Questions

Time criticality is one of the most prominent features of decision making in complex and dynamic systems (O'Hare, 1992, as cited in Phillips et al., 2004). While interpreters have to live with time constraints in CP, the link between CP and NDM has yet to be established. To fill the research gap, this study was intended to offer an exploratory description of CP in time-pressured situations. It is in such unusual situations that the decision maker's strategies can be more effortful because he/she has to leave the habitual mode and become deliberate in making decisions (Hutton & Klein, 1999). The study aimed to observe the CP processes of subjects and answer the following research questions:

1. Are there any observed similarities and differences in the CP strategies and processes between novices, intermediates, and experts within a time limit?
2. What pedagogical implications can be drawn from the observations?

Once the decision-making processes of experts are brought to light, learners can understand why task accomplishment can be successful for experts. Instructors, on the other hand, can develop decision scenarios for learners to practice making difficult decisions within a tight time limit with a view to improving decision quality (Klein, 1997; Phillips et al., 2004).

Methods

Research Design

This mixed-method study adopted an approach to data gathering that combined two main methods—observation (computer screen recording) and semi-

structured interview. In addition, a questionnaire was designed to elicit the background information of the subjects.

Participants

A total of 24 subjects participated in this study. At the time of the study, all of them either were studying or had finished their training at the only three graduate institutes offering translation and interpreting programs in northern Taiwan—Fu Jen Catholic University (FJU), National Taiwan Normal University (NTNU), and National Taiwan University (NTU). The subjects were categorized into three groups. The Novice Group consisted of ten students who were in their first or second year of study and had not taken the professional exam that marked the end of their required training; the Intermediate Group was made up of six interpreters who had finished the required training and taken the professional exam but had yet reached the expert level, defined as having 150 days of working experience (AIIC, 2022). The rest of the subjects fell into the Expert Group, comprising eight interpreters who had taken the professional exam and reached the expert level.

Materials

The Questionnaire

The researchers designed a questionnaire (see Appendix A) to be administered prior to the mock preparation, including questions on the participants' background, learning and working experience, and whether they were familiar with the topic of usage-based insurance (UBI)—the subject of the material used in the mock preparation exercise.

The Preparation Material

The CP material with which the subjects prepared was originally an English

PowerPoint presentation (converted into PDF format) that one of the researchers had worked on in a real conference on vehicle technologies. The 14-page slide deck, edited with the speaker's consent, was chosen from a real-world conference with a view to recreating the research and reading done by professional interpreters prior to an actual conference (Díaz-Galaz et al., 2015).

Discussing the methodological implications for CP research, Díaz-Galaz et al. (2015) suggested selecting topics not commonly encountered in class or in the professional world. The subject of the presentation—usage-based insurance (UBI)—was a relatively new, emerging concept. In Taiwan, the first UBI-related insurance policy did not exist until 2016 (Lin, 2016).

The Interview Guideline

The guideline of the post-preparation, semi-structured interview (see Appendix B) was designed to obtain information on the participants' CP processes, such as time allocation, differences of CP strategies in real vs. mock-up settings, differences of CP methods with/without time restraints, emphasis on language vs. knowledge acquisition, online data selection criteria, and so forth.

Setting and Procedures

The Mock Preparation

The mock preparation sessions were conducted from January 16th to January 25th, 2017. Within 30 minutes, the subjects individually prepared for a 20-minute English-to-Chinese consecutive interpretation assignment in Taiwan on a designated desktop computer with internet access. The desktop activity of each participant was recorded by a screen-recording program, HyperCam, for analysis afterwards. The researchers concurrently took notes of the screen activity on a projected display.

The participants were orally given contextual information on the assignment (e.g., theme of the conference) before starting to prepare. They were asked to use only the designated computer but no other electronic devices. They could stop the preparation anytime if they thought that their preparation had been sufficient. After the preparation, the participants were interviewed.

Rationale of the Mock Preparation Design

Reviewing the decision-making processes is valuable because the real world provides limited opportunity for experience (Klein, 1997). The use of observational and interview data also conformed to the research tradition of expert decision making (Phillips et al., 2004).

The 30-minute preparation time was chosen based on Setton and Dawrant's (2016) category of short notice preparation (20 to 30 minutes), which also reflected a recent trend where PowerPoint presentations are brought to the venue to interpreters on USB drives. In such context, knowledge acquisition mainly involves around documents that arrive just before the beginning of the conference (Gile, 2009).

Observation and Video Recording

Observation may be used to understand participants, behaviors, processes, or artifacts (Angelelli & Baer, 2016). It has also been used in expertise studies to record what occurs in natural settings (Clancey, 2006).

As a way of observation, video recording has been deemed valuable for the unobtrusive collection of rich, empirical data of actual computer usage in natural work settings (Tang et al., 2006; Thorsteinsson & Page, 2008). Video recording can also be combined with other data such as semi-structured interviews for triangulation purposes (Thorsteinsson & Page, 2008). In translation studies, screen recording has been used to capture the screen activity of the translator in a real-time manner (Angelelli & Baer, 2016). If data is systematically gathered, summary

statistics may also be obtained to understand the duration of various activities (Clancey, 2006).

The main advantage of video recording is that it obtrusively collects data without disturbing the subjects (Tang et al., 2006; Thorsteinsson & Page, 2008). While gathering data in the real world may provide greater ecological validity, the researcher may have to manipulate the conditions where the subjects work in an experimental setting (Angelelli & Baer, 2016), hence the quasi-real setting employed in this study. In field observations, the researcher may have to rely on note-taking about the ongoing or recently concluded activities (Angelelli & Baer, 2016), as was also arranged in this study.

Data Analysis

All the video and interview data were coded using the MAXDQA 12® software. For the video data, the codings were designated as per the CP sub-activities of the subjects. The lengths (measured in seconds) and number of occurrences of each coding were tallied for statistical analysis. On the other hand, the interview data were also coded to identify common themes in the transcripts. The excerpts of interview transcriptions to be cited in the study were translated by the researchers from Mandarin into English.

Coded data, including the verbal transcripts and computer screen information, can be converted into quantitative data by calculating the frequencies for each coded category (Sandelowski, 2000, as cited in Borycki & Kushniruk, 2005). Therefore, descriptive statistics, including total counts, simple averages, and percentage, were produced for this study to indicate how each coding was spread among the three subject groups.

Results

This section presents the qualitative and quantitative results of the study. Abbreviations will be used to refer to the subjects in each group. For example, N1 is short for Novice No. 1, I2 for Intermediate No. 2, and E3 for Expert No. 3.

The Pre-preparation Questionnaire

CP and the Interpreting Classroom

All of the subjects indicated that their graduate instructors had touched on the concepts of CP, albeit to varying degrees. As many as 71% of the subjects reported having been thoroughly instructed on CP, mostly in the form of experience sharing by the instructor. N7 mentioned that his/her instructor(s) had touched on the importance of the glossary, briefing with the speaker, the context and audience of the event, and the speaker's background, while N9's instructor(s) shared what he/she would do after receiving conference materials, including briefing with the speaker and checking the working environment at the venue. Overall, the instructions on CP in the classroom seemed to be in line with the prescriptive guidelines offered in the literature.

Some instructors provided opportunities for students to practice CP in the classroom. More than half (54%) of the subjects had such experience in the form of, for example, brainstorming sessions with keywords or synopsis of the talk (N7 and I5) or in-class search drills where students tried various search strategies under time constraints (B4). Most came in a setting similar to that of this study: Students were given conference materials to prepare within a time limit (N2, N3, N4, I3, I4, and E6). Such exercises did affect the subjects' preparation strategies in the study. N2 learned the importance of a quick initial scan to grasp the outline of the talk,

while N3 focused on assessing material difficulty. As can be seen, CP drills had an impact because students could learn by doing and establish their CP procedures by experiment.

Real CP Experience

The vast majority (92%) of the subjects reported having prepared for real assignments (including practicum sessions). Adding support to the quasi-real setting of the mock preparation in the study is the fact that all out of the 92% of the subjects used the computer for their preparation, a finding consistent with the literature on the interpreter's use of digital means or the World Wide Web for preparation (AIC, 1999; Luccarelli, 2013).

Knowledge of UBI (Usage-Based Insurance)

The final question of the questionnaire examined whether UBI was an emerging concept unknown to most of the subjects. The majority (88%) of the subjects reported having never heard of UBI. The novelty of UBI would necessitate the need for the subjects to conduct additional research to understand relevant concepts.

Screen Recording

The following sections present the results from the recorded screen activities, with the rankings of each group or option indicated in bold after the figures in the table to highlight the differences.

Preparation Duration

Table 1 compares the time spent by the three groups on the preparation:

Table 1*Preparation Time (n=24)*

	Total	Average	Number of subjects who used up the time
Novices (n=10)	17,722	1772.2 (1)	9/10 (90%) (1)
Intermediates (n=6)	10,393	1732.17 (2)	5/6 (83%) (2)
Experts (n=8)	12,293	1536.62 (3)	4/8 (50%) (3)

Unit: second. Standard rounding to the second decimal place.

The subjects' total preparation time could be a measure of subjective preparation sufficiency. The majority (90%) of the novices used up the 30 minutes, with N4 commenting that 30 minutes went by really fast and were not enough. In comparison, only half of the expert group spent the full time for the preparation, with E1 indicating that most real-world situations were not as laid-back.

One reason for such a novice-expert difference could be that experts have better contextual awareness. For example, E2 deliberately saved some time to attend to other matters before the presentation started, as a form of situation preparation (venue) (Gillies, 2019): "In emergency situations, the last few minutes should be used to calm your nerves. I would also use the last minutes to consider non-content related aspects of the assignment, such as where to sit or stand" (E2).

It is also possible that the expert, according to the literature, has built more comprehensive knowledge from having worked in a lot of domains in the past, as discussed in the literature. Both E3 and E6 mentioned that they had previously worked on assignments of similar themes, thus being able to prepare faster: "I have interpreted a conference on this topic before, so I know how Taiwan is doing in this area. I know how I should prepare" (E6).

While the literature pointed out that the expert's preparation is more targeted and organized than the novice's (Luccarelli, 2006), preparation time alone cannot

reveal whether it is truly the case unless being examined with other aspects of observation, as will be shown in the following sections.

Situation Assessment

Research suggests that experts focus more on assessing a situation and spend more time trying to understand the problem, as against the novice, who would start immediately, focus on the surface features of the problem, and is more eager to generate a COA (Phillips et al., 2004; Randel et al., 1996; Ross et al., 2006). To reveal such potential differences, Table 2 compares the percentage of subjects in their respective groups who, when first opening the PDF file, scanned the slides from the first to the last page without any other action, as an indicator of assessing the situation:

Table 2

Initial Scan of the Slides From the First to the Last Page, Without Any Interruption (n=24)

	Total	Average	Number of subjects engaging in this activity	Average percentage of the total time
Novices (n=10)	440	44 (3)	6/10 (60%) (3)	2.4 (3)
Intermediates (n=6)	1,203	200.5 (1)	4/6 (67%) (1)	11.6 (1)
Experts (n=8)	562	70.25 (2)	5/8 (63%) (2)	4.6 (2)

Unit: second. Standard rounding to the second decimal place.

Among all the groups, the lowest percentage occurred in the novice group (60%), using an average of only 2.4% of their time scanning the slides. This shows that the novices did spend relatively less time evaluating the situation and were more intent on doing online research.

According to the interviews, the subjects first scanned the slides to assess the number of pages or amount of the content (N2, N4, N7, I3, I5, I6, and E7), or to

assess the difficulty, scope, or subject of the presentation (N2, N5, N7, N8, I6, I8, and E6). Notably, more experts (E2, E3, E6, and E8), as well as N3 and I2, mentioned that they made the scan to grasp the outline and structure of the presentation. The experts' focus on the structure of the presentation suggested that the experts did adopt more global plans (Moser-Mercer et al., 2000).

The interviews also showed that the novices were mainly deciding on their online search strategies (N2, N4, N6, N7, and I7). In contrast, the more experienced subjects focused on assessing their scope of preparation (N8, I3, E1, and E4) and time allocation (E2 and E7). E7, for instance, pondered on how thorough the preparation would be based on the amount of information and focused on the general context of the presentation. In contrast, novices, such as N7, focused more on terminological research: "After the first read, I chose some keywords, some of which I probably did not understand, or some terms. I went on to make a list of the terms and Google them" (N7).

Most subjects in the three groups decided on one option after the first scan (N5, N6, I3, I5, I6, E2, E4, E5, E6, and E7). This marker of expertise—immediate and intuitive decision making—was present in all the groups. Some of the novices and one intermediate (N2, N8, N9, N10, and I2) adopted a "do-and-adjust" approach and did not arrive at any specific strategy. Interestingly, it was only in the novice group that some subjects (N3, N4, and N7) compared between various options available—an indicator of novice decision making. N3 considered either studying the speaker's background first or assessing the presentation difficulty first; N4 chose between researching into UBI first and reading the slides first. In short, while the three groups all had subjects who decided on a strategy after the first scan, it was only in the novice group that some subjects compared between various options:

I think that I was more like comparing different strategies. I did not have a specific strategy in mind. Maybe I could explain [the content] based on the

logical context of the presentation without having to do any research. I also thought that maybe I did not have to use Word but just wrote things down. (N7)

In short, while the three groups all had subjects who decided on a strategy after the first scan, it was only in the novice group that some subjects compared between various options, a result consistent with the literature.

Focus on the Slides

This coding examines the additional time that the subjects spent reading the slides, excluding the first scan:

Table 3

Slide-Reading Time (Excluding the First Scan) (n=24)

	Total	Average	Percentage of total time
Novices (n=10)	4,721	472.1 (2)	27 (2)
Intermediates (n=6)	3,766	627.67 (1)	36 (1)
Experts (n=8)	3,090	386.25 (3)	25 (3)

Unit: second. Standard rounding to the second decimal place.

According to Table 3, the experts saw the lowest share of their time (25%) devoted to slide-reading, suggesting that they focused less on the presentation itself and spent more time doing other activities, such as viewing websites or looking up terms online. Moreover, less slide-reading time could also mean that the experts were less concerned about microcontextual detail.

Attention to Terminological Correspondence

As terminological search has been shown to be a critical component of CP, the next few codings examined to what extent the subjects devoted their limited CP time to ensure terminological correspondence.

The first coding here (Table 4) concerns the time that the subjects spent on search activities based on the lengths of time when the subjects used search engines, consulted online dictionaries, or simply read the search result page(s) to look for the translation of terms:

Table 4*Search Time (n=24)*

	Total	Average	Percentage of total time
Novices (n=10)	4,271	427.1 (1)	24 (2)
Intermediates (n=6)	1,623	270.5 (3)	16 (3)
Experts (n=8)	3,059	382.38 (2)	25 (1)

Unit: second. Standard rounding to the second decimal place.

Upon the first look, the experts spent the highest percentage of their time (25%) on search activities, followed closely by novices (24%). However, a closer look is needed to discover what kinds of terms that the two groups focused on, hence the next coding:

Table 5*Time Spent on Looking up Terms Not Found in the Slides (n=24)*

	Total	Average	Number of subjects engaging in this activity	Average percentage of search time
Novices (n=10)	594	59.4 (2)	8/10 (80%) (2)	14 (2)
Intermediates (n=6)	65	10.83 (3)	2/6 (33%) (3)	4 (3)
Experts (n=8)	698	87.25 (1)	8/8 (100%) (1)	22.8 (1)

Unit: second. Standard rounding to the second decimal place.

Table 5 shows that all the experts looked up terms not contained in the slides and spent the highest portion of their search time doing so, in line with the suggestion that the interpreter should imagine and research what speakers could possibly mention (Setton & Dawrant, 2016). What's more, they also anticipated what the conference was about based on experience (Luccarelli, 2006). For example, E5 anticipated that the audience might raise questions regarding the chartered nature of the insurance industry but he/she was unsure of the Chinese equivalent of "charter." E4 tried to look up insurance-related terms based on his/her anticipation.

The time the subjects spent translating the slides could also reveal how much they attended to terminological correspondence. The next coding (Table 6) tallies the time when the subjects added footnotes to the PDF file for translation or typed the translation in a separate file. Another indicator is the time that the subjects spent making a glossary on the computer (Table 7).

Table 6*Translating Slides (n=24)*

	Total	Average	Percentage of subjects engaging in this activity	Average percentage of total time
Novices (n=10)	1,423	142.3 (1)	2/10 (20%) (1)	8 (1)
Intermediates (n=6)	358	59.67 (2)	1/6 (17%) (2)	3.4 (2)
Experts (n=8)	296	37 (3)	1/8 (13%) (3)	2.4 (3)

Unit: second. Standard rounding to the second decimal place.

Table 7*Glossary Making (n=24)*

	Total	Average	Percentage of subjects engaging in this activity	Average percentage of total time
Novices (n=10)	1,181	118.1 (1)	4/10 (40%) (1)	6.7 (1)
Intermediates (n=8)	206	34.33 (3)	1/6 (17%) (2)	2 (3)
Experts (n=6)	646	80.74 (2)	1/8 (13%) (3)	5.2 (2)

Unit: second. Standard rounding to the second decimal place.

The novice group had the highest percentage (20%) of the subjects who translated the slides on the computer, spending an average of 8% of their time translating. They also topped the chart in terms of the average time devoted to slides translation and the share of subjects doing so in the same group, suggesting the importance of language preparation to this group. In particular, N1 made an initial decision to translate the entire slides to the best of his/her ability.

As for glossary making, one expert spent the longest time (646 seconds), although such case could be considered an outlier. The novice group, on the other hand, had the highest figure across the board, suggesting how the novices valued terminological correspondence. While several of the subjects made a manual glossary by jotting down terms on a sheet of paper, Table 7 reveals that even in time-critical situations, these subjects still produced a glossary, suggesting an emphasis on lexical correspondence.

For the next coding under terminological correspondence, the researchers selected four terms/expressions in the slides that are not domain-specific, shown in Table 8. Chances are likely that these terms/expressions do not require much research to understand. Still, some of the subjects looked them up.

Table 8*Number of Subjects Who Searched for Translation of Non-Domain-Specific Expressions*

	Entrant	First-mover advantage	Low-hanging fruit	Move fast or die not trying
Novices	6/10 (60%) (1)	4/10 (40%) (1)	5/10 (50%) (1)	1/10 (10%) (2)
Intermediates	1/6 (17%) (2)	2/6 (33%) (2)	1/6 (17%) (3)	1/6 (17%) (1)
Experts	0/8 (0%) (3)	2/8 (25%) (3)	2/8 (25%) (2)	0/8 (0%) (3)

The novice group had the highest percentage in three out of the chosen terms/expressions, suggesting that they cared about expression-level correspondence. Language limitations were also cited, for example, by N2, who had never heard of the term “entrant,” while N3 was not sure whether “low-hanging fruit” carried positive or negative connotations. Still others knew what those terms/expressions meant but cited the need to find a better, more precise translation, mostly if time permitted (N7, I3, I5, and E8).

Again, it could be inferred that the novices tended to focus more on the micro-contextual and language aspect of preparation, while the experts focused less on those aspects in comparison.

Knowledge Acquisition

As an indicator to examine whether the subjects engaged in knowledge acquisition beyond terminological search during CP, the next coding shows the time they engaged in website content viewing.

Table 9*Website-Reading Time (n=24)*

	Total	Average	Percentage of total time
Novices (n=10)	3,718	371.8 (3)	21 (3)
Intermediates (n=6)	3,209	543.83 (1)	31 (2)
Experts (n=8)	4,072	509 (2)	33 (1)

Unit: second. Standard rounding to the second decimal place.

The time of website viewing was tallied based on the total duration of time when an opened website was shown in the screen recording. The main goal of this coding was to measure how much the subjects engaged in knowledge acquisition; therefore, the time that the subjects spent on searching for translation of terms and using an online dictionary was excluded.

Of all the groups, the experts spent the highest portion of time reading websites, showing that they were relatively more concerned about more in-depth knowledge acquisition than acquiring term translations alone. In fact, a lot of the novice interviewees said that they would not bother to click open the websites at all if they deemed what they saw on the search result page was sufficient (N4, N6, N7, and N10), suggesting that they were less interested in learning deeper into the terms.

While the novices seemed to focus more on language as against knowledge acquisition, the dichotomy was not clear-cut among the subjects. Those who prioritized language preparation cited the audience's perception as the reason (N1, N3, N8, N10, E1, E2, and E6):

I presumed that there would be people from the insurance industry in the audience...If you use some of their terminology when talking about claims or car insurance...even if you miss some of the original ideas, you will find it easier to win the audience's trust, which, in turn, facilitates communication. (E1)

In particular, N9, E2, and E6 stressed the priority given to language in time-limited preparation, showing that the subjects did make a deliberate decision in the time-constrained situation.

For those who chose to focus more on knowledge acquisition, one common reason was the need to clearly explain ideas in their own words (N4, I3, I5, I6, E7, and E8):

If time is limited, even if I cannot use very authentic or idiomatic Chinese as it is in English on the slides, which contains some instances of word play or good expressions, I could at least make sure that I did not convey the wrong ideas. (I5)

As was clear, time restriction did affect the subjects' decision-making priorities. If time allowed, some of them would cover what they had missed in the preparation. For example, N1, N3, N10, and E6, who focused on language in the mock preparation, indicated that they would have invested more time in background reading to acquire relevant knowledge. On the other hand, some of those who focused more on knowledge (N4, I3, I5, and E7) in the study said they would have paid more attention to language if they had more time:

Because of time constraint, I thought for some concepts it was enough simply to understand them and explain them even if I could not express them beautifully. But after I go home, I might go look up some of their Chinese translations and whether there are different or more concise ways of expressing them. (I3)

Language and knowledge preparation may overlap (Gile, 2002). Yet, at least in time-critical situations, the subjects made a conscious decision to focus more on one than the other. In the interview, the subjects also mentioned what they would have done if given more time. As many as 15 out of the 24 subjects would watch content-related videos online or videos of the same speaker of the presentation (N2, N3, N4, N7, N9, I2, I3, I4, I5, I6, I8, E2, E5, E7, and E8). In addition, around one-

third of the subjects (N7, N8, I3, I4, I6, E2, and E5) said that they would build a glossary or enrich the one they compiled in the mock preparation. Some (N3, I6, E2, E7, and E8) would even practice interpreting relevant videos (Gillies, 2019) if time permitted. While the subjects had varying focuses if given more time, it was clear that they would prioritize various aspects of preparation when facing time constraint.

Tools and Sources

The final theme that emerged from the video data was how the subjects screened and prioritized various online sources.

Table 10

Preferred Sources

	Chinatimes (27)	Business Next (21)	Wikipedia (20)	Global Information (14)
Novices	325	413	135	44
Intermediates	1,162 (2)	151	358	60
Experts	460	158	163	265
Total	1,947 (1)	722 (4)	656	369
	Investopedia (14)	Apple Daily (13)	NAIC (11)	Synergytek (10)
Novices	121	188	230	256
Intermediates	153	158	111	91
Experts	103	353	432	0
Total	404	699 (5)	773 (3)	347

Unit: second.

The interpreter is advised to select data sources rather than view them randomly (Setton & Dawrant, 2016). Table 10 lists the top eight websites that the subjects viewed based on the number of times they read the websites, indicated in

the parenthesis beside the website name. The total time they spent on each website, however, could be a more accurate indicator of their preferences. Among the top five, media/news websites took up three notches (*Chinatimes*, *Business Next*, and *Apple Daily*), with the other two taken up respectively by an association website (NAIC, The National Association of Insurance Commissioners) and Wikipedia.

The interviews confirmed such preferences. Media/news websites were most favored by the subjects, with 17 of them expressing such preference in the interviews (six novices, five intermediates, and six experts). Some (N3, N7, and E5) viewed media/news websites because of their credibility. Most did so mainly to acquire terms and expressions (N3, I4, I6, I8, E5, and E6). Governmental websites or glossaries were ranked second among the subjects, with 14 of them mentioning such preference (N1, N2, N3, N7, N8, N9, N10, I2, I3, E2, E4, E5, E6, and E8). Wikipedia was constantly mentioned in the interview, too, as a useful site to acquire domain-specific knowledge (N1, N5, N6, N10, I3, I4, I6, E1, E2, E5, and E8)—consistent with the suggestion of Gillies (2019).

In the event of time constraints, the subjects also screened the vast amount of information online by using other criteria. For example, 11 of the subjects (N2, N3, N5, N6, N7, N8, I4, E1, E4, E5, and E6) would choose those websites that appeared first on the search result page. N6 and N8 mentioned that those that turned up first enjoyed the highest number of hits among all.

When screening the translation of terms or expressions across websites, nine of the subjects (N4, N5, N6, N8, I7, I8, E4, E7, and E8) mentioned that when they encountered more than one translation for a term, they would make the final choice based on the number of times a certain translation appeared during their search. Another screening criterion for usages or expressions was to choose first from websites in traditional Chinese used in Taiwan, as against simplified Chinese. This was brought up by 12 interviewees (N1, N2, N3, N7, N8, N9, N10, I6, I8, E2, E4,

and E5). One possible reason for such preference could be that the subjects were told that the talk for the mock preparation was held in Taiwan, hence the need to use the appropriate translation in the local context.

Self-Evaluated Preparation Sufficiency

By the end of the interviews, the subjects were asked to rate their subjective level of confidence from one to 100 after the preparation. It is noteworthy that none of the subjects gave themselves a full mark. Thirteen of the subjects (N9, N10, I2, I3, I4, I5, E1, E2, E3, E4, E5, E7, and E8) cited unexpected factors at work that could not be fully prepared for before the assignment: “The preparation time was short, so I still felt not fully prepared. That said, one’s confidence cannot reach 100%, because if you are in the profession, you should know that there are a lot of factors beyond your control” (E5).

Unexpected factors also included speaker style (e.g., speed and accent) (N8, I3, E1, E4, E6, and E7). Perhaps interpreters have to live with the fact that the job of interpreting cannot be perfect. This was mentioned only by the experts (E2, E3, E4, E5, and E8):

I think that interpreting is a job full of uncertainty. For me, the confidence score cannot be 100%...It is about how to adjust your mindset. I should tell myself...that this is the best I could do at the moment, because I have given it everything [as much] as I can. There is nothing more. (E4)

However, several subjects indicated that their confidence level could be raised, for example, through briefing with the speaker and knowing more about the speaker (N6, N9, N10, I3, I4, I5, I6, I8, E2, E3, E4, E5, and E7) and having more time for preparation (N2, I2, I4, E4, and E7).

As can be seen, the preparation time for each assignment is always limited. This was aptly described by E4, who commented that one could not prepare for an

assignment forever because with over-preparation, he/she would go past the point of diminishing returns, thus wasting time and reducing efficiency.

The Value of Experience in CP

CP takes experience to master (Luccarelli, 2006). Indeed, all of the eight experts mentioned that their experience had shaped their CP strategies. Some would consider the context of the assignment (e.g., the client, the organizer, the audience, and spatial arrangement at work) in their preparation (E1, E3, E5, and E6). Others cited the role of their domain-specific knowledge as they had worked in various domains in their career (E2, E3, and E6). Still others talked about their experience of having prepared for assignments within a time limit that shaped their strategy in the exercise (E1, E4, E5, E7, and E8). Indeed, as NDM researchers pointed out, having been exposed to similar situations allows experts to better develop situation awareness and adapt to complex situations by matching patterns and cues from experience (Klein, 2015; Wiggins, 2020).

The findings highlighted the value of experience in developing, if not perfecting, one's CP practices. The interviewees' accounts testified to the argument that the experienced interpreter is theoretically better prepared to work in various contexts without being unduly overloaded (Riccardi, 2005).

Inferential Statistics

The non-parametric Kruskal-Wallis H test was conducted to examine whether there existed any significant differences between experts (n=8) and non-experts (n=16, combining novices and intermediates) in the codings. Among all, "slide-reading time (excluding the first scan)" and "time spent on looking up terms not found in the slides" were significantly different among the two groups:

Table 11

Results of the Kruskal-Wallis H Test for Differences Between Experts and Non-Experts

Coding	Group	N	Mean	Standard deviation	Mean rank	Asymptotic significance
Slide-reading time (excluding the first scan)	Experts	8	386.25	226.36	16.9375	0.05
	Non-experts	16	511.06	207.64	10.2813	(borderline)
Time spent on looking up terms not found in the slides	Experts	8	87.25	59.44	8.5	0.031
	Non-experts	16	41.19	54.35	14.8	

Unit: second. Standard rounding to the second decimal place.

The results in Table 11 show that the non-experts spent significantly more time reading the slides but less time looking up terms not found in the slides compared to their expert counterparts.

The Pearson’s chi-squared test was also conducted to reveal whether the number of subjects engaged in the coded activities differed significantly between the two groups. Those who did the coded activities were given the value 1, while those who did not were given the value 0. Among all the codings, only the number of those “spending time looking up terms not found in the slides” was significantly different between experts (eight out of eight) and non-experts (10 out of 16):

Table 12

Results of the Pearson’s Chi-Squared Test for Differences Between Experts and Non-Experts

	Coding	Value	df	Asymptotic significance (2-tailed)
Pearson Chi-Square	spending time looking up terms not found in the slides	4.000	1	0.046

The results from the inferential analysis reveal that first, the experts spent a significantly higher portion of their search time on searching for terms not in the conference material, as indicated in Table 11. Table 12 also reveals that the number of experts engaged in the activity was also significantly higher. This tied in with the suggestion that the interpreter should imagine and research what speakers could possibly mention (Setton & Dawrant, 2016). The experience of the experts enables them to anticipate what the conference is about when first seeing the program (Luccarelli, 2006). Third, the experts spent significantly less time in reading the slides (excluding the first scan), suggesting that they were less concerned about microcontextual detail.

Discussion

Observed Similarities and Differences in the CP Strategies and Processes Among the Groups Within a Time Limit

Preparation Duration

Overall, the experts spent the least time finishing the 30-minute CP task, in terms of both duration and the percentage of subjects who used up all the time (50% for the experts vs. 90% for the novices). Perceptions of time differed across the groups, with the novices indicating a sense of urgency. Even in time-pressed situations, the experts could better manage their time without being unduly overloaded (Riccardi, 2005).

Situation Awareness

The results of the study seemed to be consistent with previous findings, with the novices spending the lowest share of their time assessing the nature of the

presentation by scanning the slides from the first to the last page without any interruption. The experts spent more time evaluating the difficulty, scope, and structure of the talk, suggesting the adoption of more global plans (Moser-Mercer et al., 2000). The novices, in contrast, tended to start right off dealing with the surface features (Phillips et al., 2004).

The novices were also more intent on deciding on their online search strategies, while the experts focused more on their overall preparation strategy. What's more, it was only in the novice group that some subjects compared between various options available, suggesting that the novices were more inclined to evaluating COAs (Hutton & Klein, 1999; Randel et al., 1996).

Focus on the Slides

The experts in the study spent the lowest portion of their time on slide-reading, suggesting that they were less concerned about micro-contextual detail and more engaged in other activities. The experts also spent the highest share of their time viewing websites, suggesting that they focused more on in-depth knowledge acquisition. In comparison, the novices were less interested in reading further into the terms that they looked up online.

Terms Searched

The experts spent the highest percentage of their time doing term search, highlighting the importance of terminology preparation to them. However, another coding revealed that all the experts (100%) looked up terms not found in the slides. The results seemed to confirm that the experts are better able at anticipation when first seeing the CP material and imagining what the speaker could possibly mention (Luccarelli, 2006; Setton & Dawrant, 2016).

Attention to Terminological Correspondence

The novice group had the highest percentage of subjects who translated the slides (20%) and compiled a glossary (40%), showing that lexical correspondence was important to them even in time-pressed situations.

Such preference of novices was also confirmed by the finding that the highest percentage of them conducted terminological search on three out of the four general, non-technical expressions in the slides. The reasons included language proficiency limitations and the need to find a precise translation of those expressions if time permitted.

Prioritizing Language vs. Knowledge in CP

While language preparation seemed to take primacy over knowledge acquisition for the novices, the dichotomy was not clear-cut, as was mentioned in the literature (Gile, 2002). Still, most of the subjects across the three groups prioritized one over the other. This was further corroborated by the interviews, where some subjects expressed their willingness to cover what they had missed in the preparation (language or knowledge).

Those who focused more on language preparation cited the audience's perception and preference for specialized speak, attesting to the importance of terminological correspondence underscored in the literature. Those who cared more about knowledge acquisition were driven by the need to clearly explain ideas in their own words. Regardless of the reasons, the subjects' attention to language or knowledge was in line with the stages and forms mentioned in the literature on advance preparation, adding descriptive depth to discussions on CP.

CP Tools and Sources

Under time constraints, all the subjects had little difficulty using the internet for preparation. However, they consciously determined which sources to trust and view first. Among all, media and news websites stood out as the most popular

because of their credibility, followed by websites or glossaries that provided subject-specific information. In addition to screening information, the subjects also judged whether the translation of terms was acceptable based on the number of times a translation appeared on the search page or by distinguishing between traditional and simplified Chinese usages.

Pedagogical Implications

One of the most important applications of NDM research is for novices to observe how experts make decisions in real-world settings to learn why they can successfully accomplish tasks (Phillips et al., 2004). Since observing how experts prepare for conferences may benefit interpreter training, several pedagogical implications can be drawn from the results of the study.

The Role of Experience

It seems that CP takes experience to master and will grow to be more efficient over time because the experts generally used less time for CP. On the one hand, the language and knowledge built in their career can facilitate CP because of repeated exposures to similar domains. On the other hand, the experts' CP strategies were shaped by constant trial-and-error in various situations. Some experts also pointed out the differences between in-class and real-world CP strategies, which gives importance to in-class CP drills that approximate real CP situations.

In-Class CP Drills as a Bridge to the Real World

Instructors can design CP sessions and manipulate the factors that might affect trainees' strategies, such as time pressure and material availability. Over the long run, students may develop their CP modalities for different contexts. They will also learn how much preparation can help—that is, as some interviewees mentioned, preparation time is always limited, and there are always factors that one cannot prepare for.

The Value of Observation

While direct observations of CP processes may be difficult, the study's findings could provide some insights for consideration. For example, in time-critical situations, the experts focused more on the general structure of the presentation. They were not as intent on dealing with the details in the slides as on grasping through anticipation the structure and studying the concepts underlying the presentation. Instead of starting to prepare right away, the experts assessed the situation based on the information that they had instead of being eager to come up with a solution. Last but not least, the experts were able to prepare faster and did not have to spend as much time on term search presumably because of the language, knowledge, and experience accumulated over the years. The aforementioned findings are empirically grounded in observation results and may complement the prescriptive CP guidelines in the literature.

Increasing Attention to CP in the Classroom

With 71% of the subjects having been given detailed instructions on CP and only 54% an opportunity to prepare in class, there is apparently room for CP to receive more attention in the classroom. Trainees should be given the opportunity to experiment with various CP approaches in in-class situations carefully modeled and controlled by the instructor. As a case in point, Luccarelli (2006) proposed a CP teaching plan with drills in a realistic environment, potentially facilitating students' transition to the world of work.

Limitations and Future Research

First, the efficacy of preparation and the degree to which various CP strategies could aid or hamper performance was not evaluated. Future research could focus on examining how preparation affects interpreting performance by controlling for

variables (e.g., topics, preparation time, and material types). While Díaz-Galaz (2011) and Díaz-Galaz et al. (2015) concluded that such studies yielded mixed or even conflicting results due to methodological constraints, other CP stages may be examined together in relation to interpreting quality, with sound methodological design. The actual renditions of interpreters, for example, can be analyzed with interviews to see if certain choices made during interpreting are attributable to CP, training, and/or experience. The concept of glossary coverage (Gile, 2002) may also help compare the efficacy of CP between different interpreters (that is, how successfully they anticipate the content and scope of a given assignment).

Second, the study only examined the advance preparation phase without considering how the phase could interact with the others identified in the literature that altogether define CP. Research going forward could add fidelity to the task being observed (e.g., in a mock conference setting) or could even consider recording in the booth how interpreters prepare last-minute on-site when receiving conference materials., thereby lending more ecological validity to CP research.

Conclusion

This study brought NDM research to interpreting studies with a focus on the CP processes of novices, intermediates, and experts within a time limit. To answer the first research question, observational data gathered from the video recordings revealed that the subjects had placed emphasis on different facets of preparation—mainly language and knowledge—when facing time constraints. Most notably, the experts were able better to assess the nature of the unusual situation based on the experience accumulated over their career, whereas novices tended to focus more on microcontextual detail.

As to the second research question, the study, while exploratory in nature and small in sample size, may inform interpreting pedagogy by highlighting how

experts prepare for assignments differently from novices. On the one hand, students can learn why such differences exist and recognize the value of perfecting the CP skills over time. Instructors, on the other hand, can consider designing CP sessions in class for students to experiment with various strategies in situations similar to those encountered in real life, such as preparation under time constraints—a condition part and parcel of the professional practice of conference interpreting.

References

- Angelelli, C. V., & Baer, B. J. (2016). *Researching translation and interpreting*. Routledge.
- Association Internationale des Interprètes de Conférence. (1999, December 1). *Practical guide for professional conference interpreters*. https://aiic.org/document/547/AIICWebzine_Apr2004_2_Practical_guide_for_professional_conference_interpreters_EN.pdf
- Association Internationale des Interprètes de Conférence. (2022, December 30). *A practical guide for applicants. Procedures and waivers*. https://aiic.org.br/document/10578/Practical%20Guide%20for%20applicants_Oct22%20EN_FINAL.pdf
- Borycki, E., & Kushniruk, A. (2005). Identifying and preventing technology-induced error using simulations: Application of usability engineering techniques. *Healthcare Quarterly*, 8, 99-105. <http://doi.org/10.12927/hcq.17673>
- Chan, P. Y., & Ju, E. M. (2022). The student interpreter's glossary: An expert-novice perspective. *Studies of Translation and Interpretation*, 25, 133-175.
- Chang, C. C., Wu, M. M., & Kuo, T. G. (2018). Conference interpreting and knowledge acquisition. *Interpreting*, 20(2), 204-231. <https://doi.org/10.1075/intp.00010.cha>
- Clancey, W. J. (2006). Observation of work practices in natural settings. In K. A. Ericsson, N. Charness, P. J. Feltovich, & R. R. Hoffman (Eds.), *The Cambridge handbook of expertise and expert performance* (pp. 127-145). Cambridge University. <https://doi.org/10.1017/CBO9780511816796.008>
- Díaz-Galaz, S. (2011). The effect of previous preparation in simultaneous interpreting: Preliminary results. *Across Languages and Cultures*, 12(2), 173-191. <https://doi.org/10.1556/Acr.12.2011.2.3>
- 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), 1-25. <https://doi.org/10.1075/intp.17>

1.01dia

- Ericsson, K. A. (1996). The acquisition of expert performance: An introduction to some of the issues. In K. A. Ericsson (Ed.), *The road to excellence: The acquisition of expert performance in the arts and sciences, sports, and games* (pp. 1-50). Lawrence Erlbaum Associates.
- Ericsson, K. A. (2001). Expertise in interpreting: An expert-performance perspective. *Interpreting*, 5(2), 187-220. <https://doi.org/10.1075/intp.5.2.08eri>
- Fantinuoli, C. (2017). Computer-assisted preparation in conference interpreting. *Translation & Interpreting*, 9(2), 24-37. <http://doi.org/10.12807/ti.109202.2017.a02>
- Farghal, M., & Shakir, A. (1994). Targeting lexicon in interpreting. *Perspectives: Studies in Translatology*, 2(1), 29-40. <http://doi.org/10.1080/0907676X.1994.9961220>
- Gile, D. (2002). The interpreter's preparation for technical conferences: Methodological questions in investigating the topic. *Conference Interpretation and Translation*, 4(2), 7-27. <https://www.earticle.net/Article/A731>
- Gile, D. (2009). *Basic concepts and models for interpreter and translator training*. John Benjamins. <https://doi.org/10.1075/btl.8>
- Gillies, A. (2019). *Consecutive interpreting: A short course*. Routledge.
- Hutton, R. J., & Klein, G. (1999). Expert decision making. *Systems Engineering*, 2(1), 32-45. [https://doi.org/10.1002/\(SICI\)1520-6858\(1999\)2:1%3C32::AID-SYS3%3E3.0.CO;2-P](https://doi.org/10.1002/(SICI)1520-6858(1999)2:1%3C32::AID-SYS3%3E3.0.CO;2-P)
- Jiang, H. (2013). The interpreter's glossary in simultaneous interpreting. *Interpreting*, 15(1), 74-93. <https://doi.org/10.1075/intp.15.1.04jia>
- Klein, G. (1997). Developing expertise in decision making. *Thinking & Reasoning*, 3(4), 337-352. <https://doi.org/10.1080/135467897394329>
- Klein, G. (2008). Naturalistic decision making. *Human Factors*, 50(3), 456-460.

<https://doi.org/10.1518%2F001872008X288385>

- Klein, G. (2015). A naturalistic decision making perspective on studying intuitive decision making. *Journal of Applied Research in Memory and Cognition*, 4(3), 164-168. <https://doi.org/10.1016/j.jarmac.2015.07.001>
- Klein, G. A., Calderwood, R., & Clinton-Cirocco, A. (1986). Rapid decision making on the fire ground. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 30(6), 576-580. <https://doi.org/10.1177/154193128603000616>
- Kurz, I. (2001). Conference interpreting: Quality in the ears of the user. *Meta*, 46(2), 394-409. <https://doi.org/10.7202/003364ar>
- Lin, J. Z. (2016, May 4). *Guonei shouzhang UBI chexian laile* [The first domestic UBI car insurance is here]. Wealth Full Insurance. <http://www.wfib.com.tw/News.aspx?ID=117426>
- Luccarelli, L. (2006). Conference preparations: What it is and how it could be taught. *Conference Interpretation and Translation*, 8(1), 3-26.
- Luccarelli, L. (2013, May 9). *Tips on helping interpreters prepare for your meeting*. Conference Interpreters Asia Pacific. <http://ciap.net/news/tips-on-helping-interpreters-prepare-for-your-meeting/>
- Moser-Mercer, B. (1978). Simultaneous interpretation: A hypothetical model and its practical application. In D. Gerver & H. W. Sinaiko (Eds.), *Language interpretation and communication* (pp. 353-368). Springer. https://doi.org/10.1007/978-1-4615-9077-4_31
- Moser-Mercer, B. (1992). Banking on terminology conference interpreters in the electronic age. *Meta*, 37(3), 507-522. <https://doi.org/10.7202/003634ar>
- Moser-Mercer, B. (1997). The expert-novice paradigm in interpreting research. In E. Fleischmann, W. Kutz, & P. A. Schmitt (Eds.), *Translationsdidaktik: Grundfragen der Übersetzungswissenschaft* (pp. 251-261). Gunter Narr Verlag.
- Moser-Mercer, B., Frauenfelder, U. H., Casado, B., & Künzli, A. (2000). Searching

- to define expertise in interpreting. In B. E. Dimitrova & K. Hyltenstam (Eds.), *Language processing and simultaneous interpreting: Interdisciplinary perspectives* (pp. 107-131). John Benjamins. <https://doi.org/10.1075/btl.40.09mos>
- Mosier, K., Fischer, U. Hoffman, R. R., & Klein, G. (2018). Expert professional judgments and “naturalistic decision making.” In K. A. Ericsson, R. R. Hoffman, A. Kozbelt, & A. M. Williams (Eds.), *The Cambridge handbook of expertise and expert performance* (2nd ed., pp 453-475). Cambridge University. <https://doi.org/10.1017/9781316480748.025>
- Phillips, J. K., Klein, G., & Sieck, W. R. (2004). Expertise in judgment and decision making: A case for training intuitive decision skills. In D. J. Koehler & N. Harvey (Eds.), *Blackwell handbook of judgment and decision making* (pp. 297-315). Blackwell. <https://doi.org/10.1002/9780470752937.ch15>
- Pöschhacker, F. (2016). *Introducing interpreting studies*. Routledge.
- Randel, J. M., Pugh, H. L., & Reed, S. K. (1996). Differences in expert and novice situation awareness in naturalistic decision making. *International Journal of Human-Computer Studies*, 45(5), 579-597. <https://doi.org/10.1006/ijhc.1996.0068>
- Riccardi, A. (2005). On the evolution of interpreting strategies in simultaneous interpreting. *Meta*, 50(2), 753-767. <https://doi.org/10.7202/011016ar>
- Rodríguez, N., & Schnell, B. (2009). A look at terminology adapted to the requirements of interpretation. *Language Update*, 6(1), 21-27.
- Ross, K. G., Shafer, J. L., & Klein, G. (2006). Professional judgments and “naturalistic decision making.” In K. A. Ericsson, N. Charness, P. J. Feltovich, & R. R. Hoffman (Eds.), *The Cambridge handbook of expertise and expert performance* (pp. 403-419). Cambridge University. <https://doi.org/10.1017/CBO9780511816796.023>
- Scaglioni, G. (2013). Simultaneous interpreting from German into Italian: The importance of preparation on a selection of cultural items. *The Interpreters' Newsletter*,

- 18, 81-103. <https://core.ac.uk/download/pdf/41177868.pdf>
- Setton, R., & Dawrant, A. (2016). *Conference interpreting: A complete course*. John Benjamins. <https://doi.org/10.1075/btl.120>
- Shanteau, J. (1988). Psychological characteristics and strategies of expert decision makers. *Acta Psychologica*, 68(1-3), 203-215. [https://doi.org/10.1016/0001-6918\(88\)90056-X](https://doi.org/10.1016/0001-6918(88)90056-X)
- Tang, J. C., Liu, S. B., Muller, M., Lin, J., & Drews, C. (2006). Unobtrusive but invasive: Using screen recording to collect field data on computer-mediated interaction. In P. Hinds & D. Martin (Eds), *Proceedings of the 2006 20th Anniversary Conference on Computer Supported Cooperative Work* (pp. 479-482). ACM. <https://doi.org/10.1145/1180875.1180948>
- Taylor, C. (1993). Vocabulary acquisition for student interpreters: Recommendations on the judicious reading of newspapers. *The Interpreters' Newsletter*, 5, 72-76. <http://hdl.handle.net/10077/4915>
- Thorsteinsson, G., & Page, T. (2008). Piloting new ways of collecting empirical data during the FISTE project. *Educattia*, 21, 215-226. <https://citeseerx.ist.psu.edu/pdf/69b8073bfbc8a5626ba8167ed0d634a9e5b70714>
- Wiggins, M. W. (2020). Cue utilization as an objective metric in naturalistic decision-making. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 64(1), 209-213. <https://doi.org/10.1177/1071181320641051>
- Xu, R. (2018). Corpus-based terminological preparation for simultaneous interpreting. *Interpreting*, 20(1), 33-62. <https://doi.org/10.1075/intp.00002.xu>

Appendix A

The Questionnaire

1. Are you currently a graduate student of translation and interpretation?

_____ Yes.

_____ No. (Please skip Question 2.)

2. Which year are you in your graduate studies?

_____ First year.

_____ Second year.

_____ Third year or above.

3. Have you ever taken the Joint Professional Examination in conference interpretation co-organized by Fu Jen Catholic University, National Taiwan Normal University, and National Taiwan University?

_____ Yes.

_____ No.

4. Have the instructors at your graduate school ever instructed on the concept of CP?

_____ Yes.

_____ No.

5. Have the instructors at your graduate school ever given students the opportunity to prepare for interpreting exercises in class?

_____ Yes.

_____ No.

6. Have you ever prepared for real-life interpreting assignments (including practicum sessions)?

_____ Yes.

_____ No.

7. Do you use computers to prepare for assignments?

_____ Yes.

_____ No.

_____ It depends. Reason(s): _____

8. Have you ever heard of the concept of UBI (usage-based insurance)?

_____ Yes, I have a general understanding of the concept.

_____ Yes, but I am not sure what it is.

_____ No.

Appendix B

The Interview Guideline

- Please briefly explain how you made use of the 30 minutes of preparation time.

Did you:

1. Find the optimal option (by comparing many), or;
2. Identify the best option readily available and working to make it more effective?

Please elaborate on your decision-making process.

- What are the differences between preparing with vs. without a time limit?
- Do you focus more on language or knowledge preparation when preparing within a time limit?
- What are the differences between the mock-up CP setting in the study and real-life situations?
- Have you ever encountered a situation where you received a slide deck at the conference venue or in class and had to prepare onsite within a time limit? If yes, has that experience shaped how you prepared today?
- Have you developed your personal SOP (standard operating procedure) for CP?
- How do you determine the credibility of information during CP?
- How do you decide that it is time to move on rather than dwell on a certain piece of reading during CP?
- Please explain the concept of UBI in Mandarin.
- Please rate how prepared you think you are for this assignment from a scale of 1 to 100. Could the score be potentially raised in any way? It is possible to reach 100?