A Psycholinguistic Approach to Consecutive Interpretation: Identifying Problems Among Saudi Interpreters

Ebtisam S. Aluthman[1] & Haifa M. Al-Buraidi[2]

[1] Department of Applied Linguistics, College of Languages. Princess Nourah bint Abdulrahman University (PNU), P. O. Box 84428, Riyadh 11671, Saudi Arabia

[2] Department of Translation, College of Languages. Princess Nourah bint Abdulrahman University (PNU), P. O. Box 84428, Riyadh 11671, Saudi Arabia

Correspondence: Ebtisam Aluthman, Department of Applied Linguistics, College of Languages, Princess Nourah bint Abdulrahman University (PNU), Saudi Arabia. E-mail: esaluthman@pnu.edu.sa

Abstract

The complexities associated with the interpretation process have raised considerable attention from researchers. The multifaceted nature of interpretation, which involves transferring meaning from one language to another in real time, presents a range of cognitive, linguistic, and practical challenges. This study comprehensively examines problems encountered by Saudi interpreters while performing consecutive interpretation. The analysis is grounded in Gile's Effort Models (1995), which investigates the cognitive mechanisms underlying challenges across four phases: listening and understanding, note-taking, note-decoding, and expressing and reformulating. Using a questionnaire as the primary data collection tool, the study applies quantitative analysis to investigate the reported problems among 102 trainee and professional Saudi interpreters. The study reveals insights into the problems encountered by the participants during different phases of consecutive interpretation, such as note-taking, coherence maintenance, handling information density, managing nervousness, and ensuring memory reliability. These findings align with previous empirical studies in the field, emphasizing the importance of understanding the cognitive and practical difficulties inherent in the process of consecutive interpretation. Overall, this study contributes to the existing knowledge base on interpreter challenges while also highlighting the universal nature of these difficulties and the need for customized ongoing interpreter training programs.

Keywords: consecutive interpretation, interpretation problems, professional interpreters, trainees

1. Introduction

The complexity and challenges inherent in the interpretation process have been widely acknowledged by researchers both within and outside the interpretation research paradigm. Prominent scholars such as Gile (1995), Moser-Mercer (1997), and Sebber (2015) have described interpretation as a complex and demanding task due to the occurrence of multiple cognitive processes in a constrained time frame. This inherent complexity poses problems with the ability to repeat or clarify once the interpretation has commenced. Gile (1995) and Moser-Mercer (1997) emphasized the cognitive simultaneity of interpretation and highlighted the distinctive mental processes involved. The cognitive load imposed on interpreters is considerable, encompassing processes such as comprehension of the source language message, analysis of its meaning, formulation of an equivalent message in the target language, and effective delivery – all evolving concurrently. The interaction of these cognitive processes, occurring in rapid succession, intensifies the complexity of the interpretation task.

In *A History of Psycholinguistics: The Pre-Chomskyan Era*, Levelt (2013) claimed that while many psycholinguists often attribute the initiation of their field to the cognitive revolution directed by Noam Chomsky in the late 1950s and 1960s, the roots of empirical psycholinguistics can be traced back to as early as the late 18th century. Psycholinguistics, which is alternatively referred to as the psychology of language, is a specialized branch within the field of psychology. It is dedicated to examining the processes through which living beings, be they humans or other animals, acquire, comprehend, and generate language in various forms, such as spoken, written, or signed language (Levelt, 2013; Harley, 2014; Gass & Mackey, 2015). Psycholinguistics investigates how human beings think, process, and express ideas through language. The field of psycholinguistics includes a broad spectrum of areas. It investigates aspects such as the mechanisms behind language production and comprehension, the intricacies of first and second language acquisition, and the study of language-related disorders, most particularly aphasia, which disrupt a person's language abilities. Within the context of translation studies, there is also increasing interest in understanding the cognitive aspects underlying translation and interpretation processes.

Interpretation is a complex activity that involves speaking in one language while listening to another. The cognitive processes underlying interpretation have gained attention in recent years, and researchers in this field have drawn upon insights from diverse disciplines, such as psychology, linguistics, and psycholinguistics, to shed light on the complicated mechanisms of interpretation (Lee et al., 2006). Ferreira

and Schwieter (2022) pointed out that this interdisciplinary approach has brought together practitioners and researchers from various fields, fostering a deeper understanding of interpretation from multiple perspectives. This cross-disciplinary effort seeks to uncover the patterns of how interpreters effectively navigate the complex task of speaking in one language while simultaneously comprehending another. Within this evolving body of research, several key themes have emerged. These include the examination of cognitive effort, the quest for accuracy, and the exploration of working memory in the context of interpretation (Carroll, 2004; Gile, 1995). Gile's Effort Models (1995), in particular, have provided a well-tested framework for understanding the difficulties encountered during interpretation.

Researchers have sought to identify the cognitive intricacies inherent in the interpretation process. A crucial focus has been on investigating the problems and challenges encountered by interpreters from a psycholinguistic perspective. Most of them are based on the premise that "the path to understanding humans' ability to interpret may even be longer than we thought when considering product quality" (Ferreira & Schwieter, 2022, p. 349). Despite the body of literature in this field, considerable unexplored areas remain. A comprehensive understanding of the cognitive foundations of interpretation continues to persist. Except for the study conducted by Al-Harahsheh and his colleagues in 2020, there is a noticeable shortage of research conducted within the Arabic context, particularly within the Saudi Arabian context, concerning this specific subject. The primary objective of this empirical study is to bridge this existing research gap in the domain of cross-cultural studies.

This research is focused on the examination of challenges encountered by two distinct groups involved in consecutive interpreting (CI) practice: individuals who are new to this field (trainees) and those who have acquired considerable expertise (professionals). Proficiency in this context is a key variable, as it is assumed that a higher level of proficiency in both the source and target languages is a fundamental requirement for successful interpretation (Angelelli, 2015). This research was a component of the broader research project, "Problems and strategies observed among Saudi interpreters' performance in consecutive interpreting process," conducted at the College of Languages at an academic institution. This research is significant as CI is experiencing a growing demand, particularly in the context of Saudi Arabia's 2030 vision, which has positioned the nation as a global center for international events, encompassing a wide array of fields including politics, economics, education, sports, and tourism, among others.

2. Gile's Effort Models and Short-Term Memory

The study of cognitive processes in the fields of translation and interpretation has gained increasing attention from scholars since the early 1980s due to the substantial cognitive challenges inherent in these activities. Moghadas (2015, p. 251) characterized the cognitive processes associated with interpretation as a collection of mental activities encompassing attention, language comprehension, working memory, target language production, problem solving, and similar facets. Gile's Effort Models have been the main models used in experimental research (Petit, 2005; Gumul, 2006; Chang & Schallert, 2007) in the pursuit of developing a pedagogical tool to support interpreters in addressing interpretation problems that are not only limited to the interpreters' lack of linguistic and extralinguistic knowledge but also to the complicated cognitive processes inherent to the act of interpretation (Gumul, 2017, p.18). In other words, the primary objective of the models was not to explore the interpretation process but rather to investigate the cognitive mechanisms underlying the persistent challenges encountered by even proficient interpreters.

Gile (1995) indicated that the problems frequently encountered by novice and even expert interpreters during interpretation are attributed to the insufficient accessibility of "mental energy," which is essential for executing the cognitive operations that underlie the process of interpretation. Gile (1995) asserted that the demands of interpretation frequently exceed the existing mental energy capacity. In such instances, interpretation is adversely impacted, leading to errors in mental energy management that manifest in interpretation errors. According to Giles's Effort Models (1995), the practical aspects of interpretation can be divided into three efforts: listening and analysis, production, and short-term memory. Essentially, these models focus on CI limitations, and as such, they do not propose specific mental structures or information-processing sequences. Each of these efforts represents a stage or cognitive task involved in the process of interpretation.

- *Listening and analysis effort:* This phase of interpretation, as described by Gile (2009, p. 160), is characterized as comprising all comprehension-oriented processes, starting with the subconscious analysis of sound waves conveying the source-language speech that reaches the interpreters' ears, progressing through the identification of words, and closing in the ultimate determinations regarding the meaning of the utterances. During this stage, interpreters are required to actively comprehend the content of the source language before initiating the interpretation process. This recognition process necessitates an analysis of the auditory features inherent in the sounds delivered by the speakers. Factors such as a high density of source speech, deterioration of sound quality, pronounced accents, and errors in grammar and lexicon contribute to an elevation in the mental processing demands on interpreters. Consequently, these factors have an impact on the listening and analysis model.

- *Production effort*: According to Gile (2009, p. 192), the production effort stage includes a series of processes that span from the mental representation of the intended message to the planning of the speech and the execution of the speech plan. These processes, according to Gile (2009), are based on cognitive processing and making decisions that result from comprehending the source language and forming it in the target language. In other words, this process involves formulating and expressing the interpreted message in the target language. This includes making grammatical choices as well as considering fluency and coherence. Indicators such as hesitancy, challenges in recalling accurate lexical items, and difficulties in syntactic

decision-making are primary signs suggesting that interpreters are encountering problems. However, it is at this stage of interpretation that interpreters cognitively apply a variety of problem-solving strategies (Russell & Takeda, 2015).

- *Short-term memory effort*: This effort pertains to an interpreter's ability to temporarily retain and manage information. It involves holding onto parts of the source message while processing and generating an interpretation. In other words, the discrepancy between an interpreter's reception of information and their subsequent output involves retaining the source language segments in memory until they are interpreted into the target language (Gile, 2009, p. 165). This short-term memory function is essential for maintaining the coherence of the interpretation.

As explained by Gile (1999, p. 154), "contrary to a widespread paradigm in cognitive science, the testing and the development [of the Effort Models] can focus on their validation as operational tools, rather than on architectural validation and component and/or flow additions and corrections." Gile's Effort Models offer a valuable framework for explaining and predicting the performance of interpreters. They are instrumental in understanding the cognitive load and demands placed on interpreters during their work. What is distinctive about Gile's approach is his emphasis on practical validation and operational utility. Rather than seeking to validate these models in terms of cognitive mechanisms, he prioritizes their usefulness as tools for understanding and enhancing interpretation performance. In other words, Gile's framework focused on the applicability of the Effort Models as working models rather than theoretical constructs.

Gile's Effort Models do, however, share certain cognitive resources, such as long-term memory. Nonetheless, in the context of interpretation, there exist components that are not common across Gile's three efforts, including comprehension, production, and short-term operational procedures. Ferreira and Schwieter (2022) highlighted the significance of short-term memory within Gile's (1995) interpretative models. Short-term memory, also referred to as active or primary memory, denotes the capacity to hold temporarily a limited amount of information in mind. Short-term memory plays a critical role in the interpretation process by acting as a short-duration repository for sensory inputs, and effectively functioning as a buffer for stimuli acquired through the five senses. Gile (1995, p. 155) stated that short-term memory plays a key role in the process of interpretation. He emphasized the need for the simultaneous coexistence of source-speech elements and target-speech elements in short-term memory during simultaneous interpretation. In the initial stage of consecutive interpretation, short-term memory is further tasked with retaining source-speech elements and their corresponding written representations of words and concepts. Gile (1995, p. 155) further explained that short-term memory is subjected to various operations and, hypothetically, the establishment of connections and components that are not frequently employed in the memory of a non-interpreting listener. These operations may include the maintenance of separate memory stores for the source speech and the target speech, processes of inhibition and activation, as well as links with the mental lexicon in both languages.

It is within this process of the coexistence of source-speech elements and target-speech elements in short-term memory that pauses might be decided by interpreters when conducting tasks. Ear-voice distance is grounded in an understanding of the memory-capacity limitation that extends beyond the simultaneous automatic processes engaged in comprehension and production. In this regard, Gile (1999) articulated three crucial assumptions. First, he maintained that each of the Effort Models includes nonautomatic components that necessitate the utilization of attentional resources. The second assumption is related to the competitive nature of the three Effort Models: as they share cognitive resources, their coexistence strengthens the overall processing capacity requirements. The third assumption relates to the operating conditions of interpreters, suggesting that they often work at or near their cognitive capacity limits. In relation to the purpose of the present study, Gile's (1995) Effort Models framework is best considered a conceptual tool to explain interpreters' cognitive limitations. Gile (1999, p. 169) maintained that by understanding the extent to which interpreters operate close to their cognitive "saturation" point, the precise amount of capacity consumed by triggers, and the specific temporal sequence of failure in their cognitive processes, we can enhance the testing and practical application of the Effort Models.

3. Related Works

In the context of investigating interpreters' cognitive limitations, Staes (2016) conducted an analysis of students' difficulties with interpreting into English. He examined the mistakes made by eight interpretation students in Belgium using an analysis of their interpretations from Dutch (A-language) to English (B-language). Their interpretation trainers were then provided with two questionnaires. The first questionnaire asked about the students' most frequent mistakes, and the second asked for their views on the students' feelings about B-language interpreting. Staes (2016) highlighted the interpreters' difficulties with content-related and understanding the source text (ST); moreover, the note-taking technique is problematic somehow. Regarding the A- and B-languages, Staes (2016) concluded that producing a target text (TT) in the student's native language is easier than expressing it in a foreign language. Even though students and trainers noted that grammar poses major problems in B-language, the researcher's analysis proved the opposite: the students did not commit grammatical errors. Moreover, the trainer noted that the students had insufficient vocabulary knowledge, which was confirmed by the researcher. Comparing the ST and the TT revealed that some omissions had been made, which they could have used as a coping mechanism if they were unable to remember or failed to grasp the meaning of the ST, even if the SL was their mother tongue. The researcher attributed this occurrence to students' excessive focus on taking notes or to their lack of knowledge on the subject matter.

In the same year, Pratiwi (2016) conducted qualitative research entitled "Common Errors and Problems Encountered by Students: English into Indonesian Consecutive Interpreting," focusing on students' common errors and problems. He analyzed and categorized the reasons behind the errors. The study examined the performance of six students in a liaison interpreting class (from English to Indonesian) at Bandung University by analyzing video recordings of the students' final results. He also conducted a semi-structured interview. Pratiwi

(2016) concluded that the most common errors were additions; literal translation; inadequate language proficiency, including lexical errors and incorrect translation; and non- conservation of paralinguistic features, including fillers, repetition, and incomplete sentences. The suggested reasons underlying these errors were nervousness, lack of language proficiency, time pressure, lack of practice, lack of vocabulary, concentration, and environment.

Hairuo (2015) conducted an error analysis study titled "Error Analysis in Consecutive Interpreting of Students with Chinese and English Language Pairs." He analyzed the errors in CI (Chinese-English) of 14 contestants who interpreted in the national finals of the 3rd CTPC Cup All China Interpreting Contest in 2014, utilizing the videos of their interpretations during that contest. He identified three problem triggers during the CI task in both directions (C–E) and (E–C). Nouns (or names) were considered problem triggers, as interpreters were unable to cope with them, especially when caught by surprise.

The study by Ribas (2012), which is closely related to the scope of the present study, involved the provision of an initial and post questionnaire to 15 participants of different proficiency levels of translation from novice undergraduates to advanced postgraduates in Spain. In addition to questionnaires, he utilized speech recordings of authentic consecutive interpretation. He investigated the problems encountered by each group in the CI process, the strategies they applied, and the differences between them. The pilot study showed that the kinds of problems encountered differed according to training level. Significantly, the novice students encountered problems more often and tended to use strategies more frequently than the advanced students. He argued that the advanced students had likely reported using fewer strategies because they had mastered them, so they were not aware of using them, or because they no longer faced as many problems. He noted that the advanced students drew on a wider range of strategies. The novice students were found to have resorted to adding incorrect information, which they believed to be true even if the information was not mentioned by the speaker, to avoid leaving a gap in their interpretation. Both groups agreed on using the same strategies to address similar problems. Both advanced and novice students appeared to use omitting, common sense, summarizing, paraphrasing, generalizing, and resorting to memory. However, in the reformulating into the target language phase, only advanced students used omitting, summarizing, applying common sense, and paying more attention strategies. mission, addition of meaning, and deviation of meaning.

Al-Harahsheh et al. (2020) investigated trainees' problems and challenges using Gile's (2009) Effort Models during a CI task (En-Ar) involving the interpretation of various types of texts downloaded from the Voice of America (VOA) Learning English website. The sample included 50 senior students from a CI course in the Department of Translation at Yarmouk University, Jordan. They also used a questionnaire to elicit information about the actual challenges the students encountered while performing the CI task. The analysis revealed that the most significant problems were misunderstanding the ST and problems with memory, in addition to facing linguistic problems with finding the appropriate equivalent or providing the correct grammar and structure. Other problems related to a lack of knowledge in both languages led to poor and incoherent interpretation. Omitting important information was observed, which may have occurred due to listening, note-taking, or loss of concentration problems. Hesitation due to low confidence while engaged in CI was also noted.

With the exception of the research conducted by Al-Harahsheh et al. (2020), this review of the existing literature concerning problems encountered in the practice of CI, specifically in relation to variations in interpreters' competency, demonstrates a noticeable absence of experimental inquiries dedicated to the examination of difficulties observed in Arabic settings. The present study is, therefore, particularly significant, as it addresses a cross-cultural gap within the interpretation field. It undertakes a comprehensive analysis of challenges within the CI process as reported by interpreters from Saudi Arabia, an area heretofore unexplored in this field of scholarly investigation. This study compares CI performance in two stages of training, novice and professional, and explores the problems encountered in the CI process by Saudi professional interpreters and trainees at an academic institution.

4. Methodological Framework

Numerical analysis was used to comprehensively examine the differences between the two sample groups (novice and professional interpreters) in their approaches to CI tasks. The analysis categorized the problems reported by the participants using a predefined framework that fundamentally drew upon Gile's Effort Models (2009, pp. 175-176). Gile's framework consists of four distinct phases in CI: listening and understanding, note-taking, note-decoding, and expressing and reformulating. The framework adopted for this study is illustrated in Table 1. Most of the problems noted in Table 1 were addressed in this study's questionnaire, except for the problems relating to lack of restitution speed, overuse of connectors, and expression, as these could only be identified after analyzing an interpreter's real CI performance, which was out of this research's data collection scope.

Table 1. Problems in CI

CI Phases	Problems
Listening and understanding	• Lack of understanding of the source speech • Numbers • Lack of common sense • Speed of source speech delivery • Unfamiliarity with the topic • Sound problems • Length of the source speech • Information density • Lack of practice

	• Lack of attention/concentration
Note-taking	• Lack of understanding of the source speech
	• Speed of delivery of the source speech
	• Information density
	• Lack of practice
	• Numbers
Decoding notes	• Unable to understand their own notes
	• Lack of restitution speed
	• Lack of connectors
	• Unclear notes
	• Memory problems

Note. Adapted from Basic concepts and models for interpreter and translator training by Gile, 2009, pp. 175-176.

The primary data collection tool utilized was a questionnaire. The data it yielded was subject to quantitative analysis, specifically in the context of sample clustering groups. Various statistical measures, such as means, frequencies, percentages, and standard deviations, were computed and aggregated, with subsequent cross-tabulation organized according to distinct groupings. Participants were explicitly informed about the confidential and entirely anonymous nature of their participation, prioritizing their privacy and security throughout the process. The first section of the questionnaire sought general information about the participants. The reliability of the questionnaire was validated through a process of psychometric testing and statistical analysis utilizing Cronbach's alpha test. Cronbach's alpha test is a widely used statistical measure of internal consistency and reliability. It assesses the extent to which all items within a questionnaire measure the same underlying construct. A higher Cronbach's alpha value (typically above 0.70) indicates greater internal consistency. All the items in the questionnaire used in the present study met this criterion. Moreover, a pilot test with a smaller group of participants was conducted to identify any potential issues with item wording, response options, or instructions that may affect respondents' understanding of the questions and, hence, the questionnaire's reliability.

Given the research's focus on the Saudi community, the initial question pertained to the participant's nationality, as this criterion played a pivotal role in the study. If the participants were not Saudi, their responses were automatically skipped or disregarded. Subsequent questions inquired whether the participant was a trainee or professional interpreter, with the latter group further detailing their years of experience and gender. The subsequent four sections of the questionnaire aligned with Gile's model of the CI process into four distinct phases: listening and understanding, note-taking, note-decoding, and reformulating. Each of these sections was accompanied by a brief description, elucidating the key aspects of the phase. In each section, the participants were asked to identify the frequency with which they encountered specific challenges during that phase.

The study sample was categorized into two distinct groups. The first group comprised 51 undergraduate novice students enrolled at an academic institution during the academic year 2021-2022. These students were actively engaged in the CI course for a period of six weeks following prior exposure to simultaneous interpretation courses. The second group consisted of 51 Saudi professional interpreters. Within this group, 31 interpreters possessed more than three years of practical experience, while the remaining 20 professionals had three or fewer years of experience in the field of interpretation.

5. Results

5.1 Listening Phase

Table 2. Problems faced by trainees and professionals in the listening phase

Problem	Choices	Trainees		Professionals			
		n	%	n	%	M	SD
1- How often do you find it hard to understand the source speech?	Never	8	15.6%	13	25.5 %	1.81	0.44
	Sometimes	42	82.4%	37	72.5%		
	Always	1	2.0%	1	2.0%		
2- How often do you find the speech topic unfamiliar to you?	Never	15	29.4%	15	29.4%	1.73	0.49
	Sometimes	34	66.7%	36	70.6 %		
	Always	2	4.0%	0	0.0%		
3- How often do you face problems understanding the numbers mentioned in the speech?	Never	15	29.4%	21	41.2%	1.88	0.76
	Sometimes	16	31.4%	26	51.0%		
	Always	20	39.2%	4	7.8%		
4- How often does the speaker's speed in delivering the source speech affect your understanding?	Never	2	4.0%	7	13.7%	2.38	0.65
	Sometimes	15	29.4%	30	58.8%		
	Always	34	66.7%	14	27.5%		
5- How often does your lack of attention/concentration while the speaker is talking affect your understanding of the	Never	3	5.9%	11	51.6%	2.20	0.66
	Sometimes	21	41.1%	33	64.7%		
	Always	27	52.9%	7	13.7%		

source speech?							
6- How often does the length of the source speech (a bit longer) affect your understanding?	Never	2	4.0%	12	23.5%	2.24	0.68
	Sometimes	21	41.2%	29	56.9%		
	Always	28	54.8%	10	19.6%		
7- How often does the poor sound quality of the recording affect your understanding of the source speech?	Never	6	11.8%	5	9.8%	2.38	0.68
	Sometimes	19	37.2%	22	43.1%		
	Always	26	50%	24	47.0%		

Table 2 reveals the most notable problems encountered by both groups of participants in the listening phase. The majority of both trainees and professionals reported difficulty understanding the source speech (82.4% for trainees and 72.5% for professionals). The mean score for both groups was 1.81, indicating that, on average, they sometimes find understanding the source speech challenging. The majority of both trainees and professionals also reported that they sometimes find the speech topic unfamiliar (66.7% for trainees and 70.6% for professionals).

Table 2 shows a notable difference between trainees and professionals in understanding numbers, with 39.2% of the trainees indicating that they always face difficulties in this area. In contrast, only 7.8% of professionals indicated they always face this problem. The mean score for both groups was 1.88, but the standard deviation was higher, indicating greater variability in responses among the participants. Both groups of participants reported that the speaker's speed in delivering the source speech often affects their understanding. Among professionals, 27.5% reported that they always encounter this issue, while among trainees, this issue was more significant at 70.7%. The mean score for both groups was 2.38, with a relatively low standard deviation, suggesting that this issue was relatively consistent among the participants.

Trainees and professionals provided significantly different responses regarding the problem of lacking attention/concentration while a speaker is delivering a message. Among trainees, 52.9% reported that their lack of attention/concentration while a speaker is delivering a message often affects their understanding. In contrast, among professionals, only 13.7% reported frequently having this issue. The length of the source speech appeared to be a major problem for trainees. They reported that the length of the source speech often affects their understanding, with 54.8% reporting always facing this issue. Among professionals, while still significant, only 19.6% reported always encountering this problem. The mean score for both groups was 2.24, suggesting that, on average, both groups were affected by longer speeches. Table 3 also shows that both groups of participants reported that poor sound quality often affects their understanding, with 50% of trainees and 47% of professionals reporting that they always face this issue. The mean score for both groups was 2.38, with a standard deviation indicating moderate variability.

5.2 Note-taking Phase

Table 3. Problems faced by trainees and professionals in the note-taking phase

Problem	Choices	Trainee		Professional			
		n	%	n	%	M	SD
1-How often does your lack of understanding of the source speech affect your notes?	Never	3	5.9%	8	15.7%	2.20	0.61
	Sometimes	26	51%	34	66.7%		
	Always	22	43.1%	9	17.5%		
2- How often do you face problems writing down the numbers mentioned in the source speech?	Never	12	23.5%	22	43.1%	1.80	0.66
	Sometimes	27	52.0%	27	52.0%		
	Always	12	23.5%	2	4.0%		
3- How often does the speaker's speed in delivering the source speech affect your note-taking process?	Never	4	7.8%	1	2.0%	2.42	0.59
	Sometimes	10	19.6%	39	76.5%		
	Always	37	72.5%	11	21.6%		
4- How often does the information density of the source speech (the amount of information) affect your note-taking process?	Never	2	4.0%	3	5.9%	2.35	0.57
	Sometimes	18	35.3%	38	74.5%		
	Always	31	60.8%	10	19.6%		

Both groups reported that their lack of understanding of source speech affects their note-taking. Among trainees, 43.1% mentioned that they always find it difficult to take notes when they do not comprehend the source speech, while 51% reported that they sometimes face this problem. In contrast, 17.5% of the professional participants reported always facing this issue, and 66.7% indicated they sometimes do. The mean score for this item was 2.20, with a standard deviation of 0.61, indicating variability in responses within the group.

Questions about problems with writing down numbers in the note-taking phase provoked different patterns of responses. Trainees reported less confidence in their ability to write down numbers delivered, with 23.5% stating they never have problems and 23.5% saying they always do. In contrast, professionals' responses suggested higher confidence, with 43.1% indicating they never have problems and only 4% saying they always do. The mean score of 1.80, with a standard deviation of 0.66, suggested a moderate level of variability in responses. Regarding challenges with a source speaker's speed, a significant portion (72.5%) of the trainees reported that this always affects their note-taking, while only 7.8% stated it never does. For professionals, 21.6% reported that speed never affects their note-taking, while 76.5% reported that it sometimes does. Both trainees and professionals reported difficulties comprehending information density. Among trainees, 60.8% mentioned that they always face challenges, while 35.3% sometimes do. For professionals, 19.6% and 74.5% reported always and sometimes facing issues, respectively.

5.3 Note-decoding Phase

Table 4. Problems faced by trainees and professionals in the note-decoding phase

Problem	Choices	Trainee		Professional			
		n	%	n	%	M	SD
1-How often do you find that you are unable to understand your own notes?	Never	8	15.7%	25	49.0%	1.74	0.56
	Sometimes	38	74.5%	25	49.0%		
	Always	5	9.9%	1	2.0%		
2- How often do you experience a lack of connectors between the ideas?	Never	5	9.9%	16	31.4%	1.94	0.59
	Sometimes	34	66.7%	32	62.7%		
	Always	12	23.5%	3	5.9%		
3- How often does your memory let you down at any point?	Never	1	2.0%	5	9.9%	2.12	0.47
	Sometimes	34	66.7%	44	86.3%		
	Always	16	31.4%	2	4.0%		

Table 4 presents the participants' reported responses on the problems they encounter during the note-decoding phase. The results reveal that both trainees and professionals encounter difficulties related to understanding their own notes, the coherence of ideas, and memory reliability during the note-decoding phase of CI. Among trainees, 74.5% reported that they sometimes struggle with understanding their own notes, while 49.0% sometimes do. A total of 66.7% of the trainees reported that they sometimes struggle to comprehend their own notes, while 62.7% said they sometimes do.

Memory reliability appeared to be an issue that disrupts interpreters during the note-decoding phase. Among trainees, 31.4% indicated that they always experience memory lapses, while 66.7% reported that they sometimes do. For professionals, 86.3% reported that they sometimes face this issue.

5.4 Expressing and Reformulating Phase

Table 5. Problems faced by trainees and professionals in the reformulating phase

Problem	Choices	Trainee		Professional			
		n	%	n	%	M	SD
1-How often does your lack of understanding of the source speech affect your final production in the TL?	Never	2	4.0%	14	27.5%	2.03	0.59
	Sometimes	35	64.7%	32	62.5%		
	Always	14	27.5%	5	9.8%		
2- How often do unclear notes affect your final production?	Never	6	11.8%	11	21.6%	2.10	0.65
	Sometimes	24	47.1%	34	66.7%		
	Always	21	41.2%	6	11.8%		
3- How often do you think being nervous during the interpreting process affects your final production?	Never	6	28.6%	15	29.4%	2.11	0.72
	Sometimes	25	49.0%	24	47.1%		
	Always	20	39.2%	12	23.5%		
4- How often do you feel less confident producing the target speech?	Never	8	15.7%	17	33.3%	1.92	0.64
	Sometimes	30	58.9%	30	58.9%		
	Always	13	25.5%	4	7.8%		

A lack of understanding of the source speech affects the final production in the target language. Among trainees, 27.5% reported that this issue always affects their final production, while 64.7% reported that it sometimes does. On the other hand, 9.8% of professionals indicated that they always face this issue, while 62.5% said they sometimes do. The results also indicate that having unclear notes affects the final production. Among trainees, 41.2% reported that unclear notes always disturb their final production, while 47.1% said it sometimes does. For professionals, only 11.8% indicated that unclear notes affects final production, with 66.7% reporting it sometimes does.

Nervousness seems to be a significant problem in the formulation phase of CI, with 39.2% of the trainees reporting that nervousness always affects their final production of the CI, and 49% reporting that it sometimes does. For professionals, 23.5% reported that nervousness always affects their final production, and 47.1% reported that it sometimes does. Among trainees, 25.5% reported that they always feel less confident during the reformulation phase of CI, while 58.9% reported that they sometimes do. Only 7.8% of the professional participants reported that they always feel less confident, with 58.9% reporting that they sometimes do.

6. Conclusion and Implications

Grounded in Gile's (1995) Effort Models, the present study presents a comprehensive examination of the challenges faced by both trainees and professionals in CI. The findings of this research align with previous empirical studies conducted in the same field, such as Ribas (2012), Staes (2016), Pratiwi (2016), and Al-Harahsheh et al. (2020). Similar to these studies, the present study contributes to the growing body of knowledge on the problems encountered by interpreters, emphasizing the significance of understanding the cognitive and practical difficulties inherent in interpretation. By employing Gile's Effort Models as a framework, this study offers valuable insights into the commonalities of difficulties related to note-taking, maintaining coherence in decoding notes, handling information density and long speech, feeling nervous and less confident, as well as ensuring memory reliability during the IC process. The consistency of these difficulties across numerous studies emphasizes their universal nature and importance in the field of interpretation.

In the listening phase, when compared with professionals, trainees often struggle more with numbers, lack of attention, speakers' speed, and the length of speeches. Professionals, on the other hand, seem to be less affected by these factors, but still encounter issues with speaker speed and sound quality. Within the context of training and educational needs, these results suggest a need for more focused training or support for trainees in these areas. The differences between trainees and professionals also indicate that the methods used for training and education should be customized according to the level of interpreters. The results highlight the problem of attention and concentration, particularly among trainees. Strategies to improve focus and concentration, such as mindfulness techniques or providing more engaging content, may be beneficial in training environments.

Both groups reported that speaker speed and poor sound quality could affect their understanding. This implies that efforts should be made to ensure clear and well-paced speech in any context where knowledge dissemination is critical, such as in training sessions or professional presentations. The results indicate that both groups are affected by the length of speeches, suggesting that presenters or instructors should be mindful of the duration of their presentations. Breaking up longer content into smaller, more digestible segments might help improve understanding. Additionally, the reported results highlight the importance of good-quality audio equipment and proper sound management in any context where speech is being delivered.

The results of the present study resonate with Staes's (2016) claim that note-taking technique presents a problem in CI. In responding to the problems encountered during the note-taking phase, the speaker's speed appeared to be the most prominent issue reported by trainees, followed by the information density of the source information. Professionals demonstrated considerably greater ability to handle problems in this phase. Training programs for trainees should consider incorporating strategies to improve comprehension and note-taking. Experience and proficiency appear to have a positive impact on interpreters' competences in the note-taking phase. Professionals appear to be more proficient at note-taking, as they report encountering fewer issues with understanding, capturing numbers, and dealing with information density. This could be attributed to their experience and familiarity with the subject matter, implying that trainees might benefit from mentorship or guidance from experienced professionals.

Both groups of participants reported having difficulty with the information density of source speeches. This suggests that speakers should be aware of the level of detail and complexity of their content while delivering their message in a CI context. Training programs should consider methods such as summarization or visual aids to enhance interpreters' note-taking strategies. Providing access to resources such as note-taking tools or software that can assist in capturing and organizing information may help both trainees and professionals overcome note-taking difficulties.

Regarding the note-decoding phase, the data revealed that comprehending one's own notes, maintaining coherence between ideas while decoding notes, and ensuring memory reliability are critical aspects of CI. These problematic issues are similar to those identified among Arab interpreters in the study by Al-Harahsheh et al. (2020). Interpreter training programs should focus on strategies to enhance these skills. Exploring new technologies, memory aids, and note-taking tools can potentially help interpreters overcome some of these challenges.

The results of this study are in line with the observations of Pratiwi (2016), who found that both trainees and professionals encounter challenges related to understanding, note clarity, nervousness, and confidence when it comes to final production in the target language. While there was some variability in responses within each group, the mean scores suggest that, on average, both groups faced similar levels of issues in these areas. This highlights the significance of comprehensive training programs that address not only language proficiency and interpretation training, but also the psychological and cognitive aspects of interpretation. Training should include strategies to improve comprehension, note-taking skills, and handling nervousness to improve the final production. Professional participants, despite their experience, still face problems in these areas. This implies that continuing professional development and support are essential throughout an interpreter's career.

Authors contributions

Dr. Ebtisam and Miss Hyfa were responsible for designing the study and revising its content. Miss Hyfa also took charge of collecting the data. Dr. Ebtisam was tasked with analyzing the data, drafting the manuscript, and performing further revisions. Both authors have reviewed and given their approval to the final version of the manuscript.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Obtained.

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Data sharing statement

No additional data are available.

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Appendix A

Questionnaire

      I.   **Listening Phase: While you are listening to the speaker...**

1. How often do you find it hard to understand the source speech?

☐Always

☐Sometimes

☐Never

2. How often do you find the speech topic unfamiliar to you?

☐Always

☐Sometimes

☐Never

3. How often do you face problems understanding the numbers mentioned in the speech?

☐Always

☐Sometimes

☐Never

4.   How often does the speaker's speed in delivering the source speech affect your understanding?

☐Always

☐Sometimes

☐Never

5. How often does your lack of attention/concentration while the speaker is talking affect your understanding of the source speech?

☐Always

☐Sometimes

☐Never

6. How often does the length of the source speech (a bit longer) affect your understanding?

☐Always

☐Sometimes

☐Never

7. How often does the poor sound quality of the recording affect your understanding of the source speech?

☐Always

☐Sometimes

☐Never

      II.   **Note-taking Phase: While you are writing down the main ideas...**

1. How often does your lack of understanding of the source speech affect your notes?

☐Always

☐Sometimes

☐Never

2. How often do you face problems writing down the numbers mentioned in the speech?

☐Always

☐Sometimes

☐Never

3. How often does the speaker's speed in delivering the source speech affect your note-taking process?

☐Always

☐Sometimes

☐Never

4. How often does the information density of the source speech (the amount of information) affect your note-taking process?

☐Always

☐Sometimes

☐Never

III. **Note-decoding Phase: When you start reading and converting the notes and symbols that you have written while the speaker was speaking...**

1. How often do you find that you are unable to understand your own notes?

☐Always

☐Sometimes

☐Never

2. How often do you experience a lack of connectors between ideas?

☐Always

☐Sometimes

☐Never

3. How often does your memory let you down at any point?

☐Always

☐Sometimes

☐Never

IV. **Expressing and Reformulating Phase: When you express the source speech ideas in the target language...**

1. How often does your lack of understanding of the source speech affect your final production in the target language?

☐Always

☐Sometimes

☐Never

2. How often do unclear notes affect your final production?

☐Always

☐Sometimes

☐Never

3. How often does nervousness during the interpreting process affect your final production?

☐Always

☐Sometimes

☐Never

4. How often do you feel less confident producing the target speech?

☐Always

☐Sometimes

☐Never