
RESEARCH ARTICLE

The Influence of Speed on Error Rates in Simultaneous Interpreting: An Observational Study (English to Arabic)

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ABSTRACT

In simultaneous interpreting, the rate of source speech (SR) plays an important role in the quality of the interpreter. As the rate of speech increases, interpreters have to process and translate words faster, which can lead to more errors. This phenomenon is because faster speech harms the interpreter's attention and work, causing more omissions, additions, and other linguistic and paralinguistic errors. The impact of these errors can affect the accuracy and quality of interpretation, which highlights the need to understand how changes in speech rate affect performance and the production of good strategies to solve problems. This study examines how the rate of speech (SR) affects the quality of simultaneous interpreting (SI), particularly to assess the impact of the rate of speech on the interpreter. For this purpose, a method was adopted that was divided into seven categories based on Barik's (1971) classification. These categories include segment omission, word and phrase-level omission, deviation of meaning, addition, incomplete sentence, full pause, and long pause. In this study, the performance of six United Nations interpreters with many years of experience was evaluated using six audios ranging from 124 to 164 words per minute (wpm). Findings indicated that higher speaking frequency led to more errors, especially in word and segment omissions. This emphasizes the importance of addressing specific strategies to overcome the challenges that rapid speech can pose to the accuracy and effectiveness of simultaneous interpreting.

KEYWORDS

Simultaneous Interpreting; Observational Study; English to Arabic; source speech

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1. Introduction

Simultaneous interpreting (SI) is known to be a complex and cognitively demanding task because it involves the real-time processing of auditory input and the simultaneous production of spoken output. It is a very mentally taxing assignment, and can lead to severe mental overload, and mental exhaustion. Research shows that interpreters are required to do many cognitive tasks at once, for example listening, comprehending and translating at the same time (Chernigovskaya et al., 2019; Gile, 2009; Injoque-Ricle et al., 2015; Korpál Stachowiak-Szymczak, 2019; Mizuno, 2017). Interpreters' performance is affected by a range of technical and non-technical factors. Technical aspects include audio quality, speech speed, and speaker accent, while non-technical factors include interpreters' personal skills and the stress levels they face. For example, too fast speaking rates, poor sound quality, or complex names and numbers can compromise the accuracy of interpretation (Gile, 2009; Korpál Stachowiak-Szymczak, 2019).

A recurring problem is that the quality of interpretation is often judged solely on the final product, without considering the conditions of the original speaker. For example, a common complaint is that speakers speak too fast, but when this situation is examined in detail, the actual input is not always considered (Barghout et al., 2015; Gerver, 1971; Han Riazi, 2017; Pio, 2003).

Research on the impact of high speaking rates on interpretation quality shows mixed results. Some studies suggest that faster speaking rates may result in more errors and omissions, while others argue that these rates may improve performance in certain contexts. This discrepancy highlights the importance of conducting further studies to understand how varying speaking rates affect interpretation (Shlesinger, 2003; Vančura, 2013; Gerver, 1971).

The fundamental question of this research is therefore: "How does increased speaking rates influence the total number of errors in simultaneous interpreting?" Furthermore, what types of errors are more frequent during fast-paced conversations? This study aims to shed light on the challenges faced by interpreters in high-pressure situations and to propose ways to improve the quality of simultaneous interpreting under such conditions.

Quality

Simultaneous interpretation plays a vital role in many contexts such as diplomatic meetings, international conferences and business exchanges. The quality of this interpretation depends not only on the accuracy of the message, but also on its fluency. Indeed, a precise but jerky message can alter the true meaning of the original. One of the main challenges faced by interpreters is the cognitive management of the workload: listening, understanding, translating and speaking at the same time (Gile, 2009). This task becomes even more complex when the speech rate is fast, the subject is complex or the quality of the technical equipment is insufficient (Pöchhacker, 2016). Thus, the level of training and experience of the interpreter greatly influences the quality of his or her work. Research shows that experienced interpreters are better equipped to manage these variables, ensuring a more accurate and fluent interpretation (Moser-Mercer, 2005).

Interpreters preparation before an event, especially on the topic being discussed, can improve the quality of their interpretation. As Katan (2004) points out, cultural and contextual knowledge of a speech allows for more faithful and consistent interpretation. In addition, constant feedback and regular assessment of interpreters' performance are essential to maintain high standards. Gile (1995) emphasizes the importance of post-event evaluations and self-assessment to foster continuous improvement. The use of new technologies, such as artificial intelligence-assisted interpretation systems, can also improve the effectiveness and efficiency of the process (Fantinuoli, 2018).

In 1971, Barik developed a taxonomy for classifying errors made in simultaneous interpretation into one of three categories: omissions; additions; and, substitutions. These categories allow us to analyze deviations from the source text "However, such deviations can only be considered errors leading to significant interpretational deviations when they clearly affect the meaningful conveyance of the message or hinder the act of communication (Altman, 1994; Korpala, 2019). When evaluating the quality of a simultaneous interpreter, not just accuracy but also fluency is important. Accuracy is required for the message to be transmitted, reflecting what the original message meant, while fluency relates to the natural, easy and fast delivery of that same message. The concept of fluency is highly complex with no simple definition in interpreting and second language studies. Therefore, Song (2020) defines fluency as the capacity to deliver the intended meaning instantly in real-time and cognitive pressure, consisting of silence and hesitation in performance so that listeners are not disrupted. This enables us to consider a broader range of factors highlighting the role that accuracy and even flow should play when evaluating quality.

A research framework was created, which categorized errors on two macro-level criteria: semantic accuracy and fluency. While not comprehensive, this framework provides a range of error types relevant to the current work. This is a model for examining and talking about errors that divides them into seven types, which are distinguished by whether they harm the faithfulness of the communicated meaning or the fluency of its delivery.

Segment omissions refer to the omission of larger chunks of information, leading to a substantial loss of context and meaning. Such omissions can disrupt the listener's understanding by removing crucial parts of the discourse (Gile, 2009). Similarly, Word and phrase-level omissions involve missing specific words or phrases, resulting in errors that can mislead or confuse the audience (Pöchhacker, 2004). Deviation of meaning occurs when the interpreter misinterprets or incorrectly translates words or phrases, leading to a distortion of the intended message (Mason, 2006). Addition can significantly impact interpretation quality in various ways. Qualifier addition, for instance, introduces adjectives or adverbs not present in the source language, which can potentially alter the tone or nuance of the message (Kelly, 2005). Similarly, Elaboration addition involves unnecessarily complex explanations of otherwise simple information, which may obscure the original message and lead to misinterpretation (Baigorri-Jalón, 2007).

Furthermore, Relationship addition introduces conjunctions or linking words that are not found in the source text, thereby affecting the coherence and flow of the interpretation (Tipton, 2011). Lastly, Closure addition involves adding elements to complete sentences that were not part of the original material, which can potentially misrepresent the source content (Seleskovitch, 1999).

For delivery fluency error, unfinished sentences are the thoughts of interpreters left incomplete, an inherent deficiency producing meaningless and unorganized information making it difficult to understand (Moser-Mercer 2000) Moreover, filled pauses such as hesitation sounds "uh" or "ehm", may impede the flow of interpretation and distract listeners (Lambert, 2004). This contribution is particularly relevant because, in the English-French language pair, unfilled pauses, defined as pauses with no additional content that is liable to break the flow of speech and distract listener attention (Angelelli 2004), occur most frequently during an interpreting assignment.

Methodology

Method of data collection

This study examines how the rate of source speech (SS) affects the quality of simultaneous interpretation (SI) using six audio samples from the United Nations Digital Recordings Portal (<https://conf.unog.ch/digitalrecordings/en>). These samples, which include speeches of various speakers and their interpretations by various interpreters, are divided into two groups: three audios at normal speed (124 words per minute) and three at fast speed (164 words per minute). The interpreters selected for this study have many years of experience in the multilateral field, having handled both normal and fast speeds during their careers.

Data analysis

For the analysis, the interpretations were transcribed and segmented into meaning units (sentences). Seven types of errors were identified according to Barik's (1971) classification: segment omission, sentence-level word omission, meaning deviation, addition, incomplete sentences, full pauses, and long pauses. The first four were categorized as linguistic errors, while the last three were classified as paralinguistic. Error patterns, along with differences in the frequency and types of errors at various speech rates, were then analyzed to assess interpretation accuracy and fluency in a comparative manner.

Table 1

Category of error	Code	Linguistic/Paralinguistic Error
Segment omission	SO	Linguistic Error
Word/phrase-level omission	WPO	Linguistic Error
Additions	ADD	Linguistic Error
Deviation of meaning	DM	Linguistic Error
Unfinished Sentence	US	Paralinguistic Error
Filled pause	FP	Paralinguistic Error
Long Pause	LP	Paralinguistic Error

These results were reported using descriptive statistics; this method offers a clear illustration of the errors through different speech rates and interpreters.

This quantitative analysis was complemented by a qualitative approach, providing a more detailed view after the identification of errors. The interpretation transcripts were analyzed and errors were systematically classified using a comprehensive framework, in line with the mixed approach applied in the present study, as well as with the methods used by Barik (1971) in his influential work on error analysis in simultaneous interpretation. Additionally, a quantitative analysis was carried out, which included the calculation of the frequency of each error type and the average error per interpreter, following the approach of Creswell and Clark (2017), who highlight that statistics and quantitative data must be complemented with a qualitative analysis. The qualitative part of the research allowed for exploring the causes of errors such as omissions and incomplete pauses, revealing how these affected both the delivery of the message and the fluency of the interpretation. This, in turn, sheds light on the different cognitive and mechanical challenges that interpreters face in different situations. This combined approach not only measured the frequency of errors, but also analyzed their impact on the communicative effectiveness of simultaneous interpreting, a topic that Pöchhacker (2004) also addressed in his study on cognitive demands and interpreter performance.

Findings

Errors Frequencies at the Normal-Rate Speech (124 wpm)

Error	SO	WPO	DM	ADD	US	FP	UP
Part participant							
Interpreter 1	6	11	0	9	5	15	5
Interpreter 2	5	7	0	11	1	2	4
Interpreter 3	11	14	2	3	3	3	6
Mean	7.33	10.67	0.67	7.67	3.00	6.67	5.00

The analysis of error frequencies made by three interpreters at an average speed of 124 words per minute (wpm) reveals key aspects of the challenges of simultaneous interpretation. This analysis identifies common patterns in errors and points to areas where interpreters may need more support or practice.

Regarding the absence of entire information segments of the source speech, the average is 7.33. This would tend to indicate that at times interpreters simply cannot follow the pace of the speaker; thus, whole information segments are lost. Some contributing factors may involve cognitive overload or failure to process complex information at a rapid rate accurately.

The omissions, on the word or phrase level, are the highest with an average of 10.67. It follows from this data that interpreters prefer to maintain the flow of speech, even if that involves leaving out what they perceive as less relevant information. This high frequency would suggest that the interpreters resort to this strategy as a way to manage the cognitive load during the interpretation.

Changes of meaning are much more infrequent, averaging 0.67. The low frequency would suggest that, despite omissions of words or phrases, interpreters manage to maintain the overall meaning of the speech in most instances. Despite the difficulties inherent in their task, preserving the original meaning seems to be a priority.

The addition of information that was not present in the original speech has an average of 7.67. This type of error may be due to interpreters' attempts to compensate for the loss of meaning or to clarify the ideas presented. Although these additions can improve the coherence of the speech, they can also introduce inaccuracies, highlighting the importance of finding an appropriate balance between what is omitted and what is added.

The average for incomplete sentences is 3.00, showing that interpreters sometimes do not close a sentence before proceeding to the next idea. This occurs mostly in the case of high speech flow, whereby interpreters have to leave a sentence uncompleted as they race to keep pace with the speaker. This aspect affects the flow and continuity of the interpretation as interpreters working in such conditions have to choose whether to complete a sentence or to advance with the speech.

Filled pauses (such as "uh" or "ehm") have a moderate frequency, with a mean of 6.67. These pauses could be due to interpreters needing additional time to process information or reorganize their thoughts. While these pauses can fragment the flow of the interpretation, they also provide interpreters with brief moments to keep pace with speaker.

The mean for unfilled pauses is 5.00. Interpreters use such pauses while processing the content for continuation of the interpretation. Sometimes these pauses become longer when the interpreter needs more time to listen and think, which disturbs the flow of the interpretation. However, these pauses can also be a useful tool for maintaining accuracy and avoiding major errors.

These results collectively provide a comprehensive view of the challenges interpreters face at normal speech rates. While they successfully manage overall meaning, the strategies they employ to manage cognitive load, such as omitting or adding information, can influence the quality of interpretation, and their balanced use is essential for effective interpretation.

Errors Frequencies at the Normal-Rate Speech (164 wpm)

participant		
Interpreter 4		
Interpreter 5		
Interpreter 6		
	30.00	8.00

The analysis of error frequencies at a fast speech rate of 164 wpm reveals notable variations among the interpreters. Segment omission errors (SO) were recorded as 31 for Interpreter 4, followed by 27 for Interpreter 5 and 22 for Interpreter 6. With a mean frequency of 26.67, this indicates that interpreters have significant challenges in retaining complete segments of speech at these higher speeds.

Word-and-phrase level omissions (WPO) also showed variations with respect to this same criterion, with Interpreter 4 recording 39 mistakes as compared to 32 from Interpreter 5 while Interpreter 6 had the lowest total of just 19. Thus, interpreting words and phrases became difficult for these interpreters as the speech speeds increased most probably because they had less processing time left to perform their tasks according to WPO's average frequency which was 3.00.

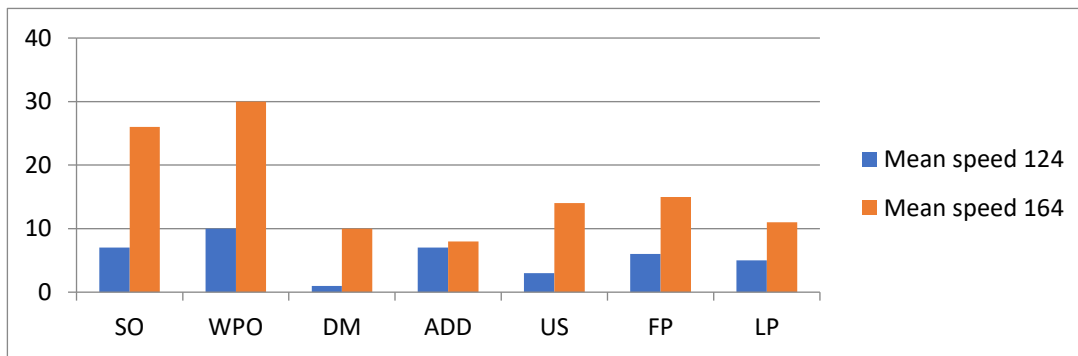
In terms of addition errors (AD), only 5 were made by Interpreter 6 while Interpreter 5 had the highest frequency at 11 instances in this case study consisting of mean frequency of additions being 8.00. Consequently, it is possible that some interpreters would compensate for lack of understanding or smoothness at high speed by providing extra information in order to be fluent during rapid speech rate situations observed here.

Unfinished sentence errors (US) were reported to be high for Interpreter 4, who had 15 errors while Interpreter 6 had the least of 12. The calculated average was 14.67, which is an indication that the interpreters found it hard to finish their sentences in a timely manner during quick speech speed and therefore putting them under pressure making the process really tense.

Interpreter 4 had more filled pauses (FP) than any other interpreter with a total of 21 occurrences whereas on the other hand, Interpreter 6 had seven as the least number of these errors. The mean frequency was 15.33 hence pointing out at filled pause as one of options available to interpreters on how to deal with them.

Interpreter 5 was found to have the most unfilled pauses with a frequency of 14 whereas interpreter 6 had the least with 12. The average for these frequencies was 11.00. Long pauses evidence that interpreters needed more time to process the information which is a direct reaction to fast speech and results in interruptions of their interpreting activity.

Figure 1
Mean of Errors Frequency in the Interpretation of 124-wpm & 164 wpm SS



In the second sentence, there is another key gap as part of the term "to minimize the quantity of Aboriginal youngsters under supervision" is missing leading to ambiguity and incoherence in its meaning. This missing information has served to make less precise that particular aim of the map thereby reducing its overall effectiveness. Also omitted from the last part of the interpretation is the paragraph indicating that "the roadmap has been developed with Aboriginal communities across WA". This segment is crucial in highlighting the involvement of Indigenous Australians which plays a major role in the legitimacy and effectiveness of the roadmap. Therefore, if this part is omitted, it means that the listener will not fully understand how it was constituted and the significance behind it.

The final omission is found in the expression "to aid the future course of WA's child protection strategy"; this is a significant phrase that describes how the roadmap will be used to develop a long-term plan for child protection in WA. Omitting this part results in a lack of understanding regarding the importance of the roadmap for strategies and subsequently weakens the overall message.

Excerpt 2:

Source speech:

The council acts **as a peak body for its members** who work to support the **safety and wellbeing** of **Aboriginal** children and their families living on **Noongar** country. We requested the country visit **being alarmed at the increasing rate** of Aboriginal children removed from their mothers and families, **discriminatory and biased** approaches adopted by the authorities, lack of proper investment into Aboriginal led services including early intervention and **prevention**.

Interpretation:

وسعيانا (WPO) لتعزيز وضع الأطفال (WPO) الذين يعيشون في بلادنا (WPO) . وطلبنا إجراء زيارة قطرية (WPO) نظرا للأطفال الذين انتزعوا من أمهاتهم وأسرهم . وبسبب السياسات (WPO) التي اعتمدها السلطات وعدم التحقيق في هذه الخدمات بما في ذلك التدخلات الأولى (WPO)

The source speech outlines the council's role as a peak body that concentrates on the health and safety of Aboriginal children and also their families residing in Noongar land, as indicated in the cited speech. It states that the council is worried about increasing number of Aboriginal children who were taken away from their mothers and families, biased approaches taken by the authorities, and inadequate funding for Aboriginal led initiatives such as early intervention and prevention programs. Because of these concerns, the council requested for a country visit to tackle these pressing issues.

In the Arabic simultaneous interpretation, word and phrase omissions (WPO) have been noted which affect accuracy very much. The first omission was about the phrase describing the council as a 'peak body' which supports 'safety and wellbeing' of Aboriginal children and families. This makes it impossible to understand any part of the authority's work, hence minimizing what one understands concerning the authority.

The second omission takes place as the interpreter leaves out the phrase "being alarmed at the increasing rate" with regard to children being removed. By doing this, it makes request for a country visit by this council less urgent;

thereby weakening its sense of urgency and concern. The original text depicts an increasing problem that calls for immediate intervention, but omitting this detail significantly weakens its seriousness.

In another instance, however, phrases like discrimination and bias are omitted when discussing the approaches that these authorities use. By omitting these words from such expressions, this omission brings about considerable vagueness in terms of criticizing those in positions of power. The original text illustrates these behaviors which are necessary in understanding how serious the issues at hand are. The interpretation lacks clarity and loses its force without them.

Finally, the expression 'lack of appropriate investment for Indigenous-run services' is completely omitted. This omission has serious consequences because it takes away from a large chunk of what was intended by the speaker. It is important for comprehending the broader context to underline insufficient funding towards Aboriginal owned services like early prevention and intervention. Not including this information denies listeners one major issue which in turn makes the whole point weaker.

The case of addition and deviation of meaning

Excerpt 3

Source speech:

Since the visit in November 2023, the state Government has significantly increased **investment** into Aboriginal community organizations to assist with provision of out-of-home care services

ومنذ زيارة نوفمبر ألفين وثلاثة وعشرين فإن حكومة الدولة قد زادت **التحقيقات (DM)** في منظمات السكان الأصليين لتقديم المساعدة.

An error is made during simultaneous interpretation due to fast delivery, namely, a deviation of meaning (DM). The phrase "significantly increased investment" is wrongly translated as "زادت التحقيقات," which means "increased investigations" rather than "increased investment." This deviation results in a change in the original message meaning leading to misunderstanding of what they are doing on behalf of the government. Rather than stating

that good financial assistance is coming in, it suggests that more investigatory measures have been put in place by the government within indigenous community groups.

This error is significant as it changes the entire meaning and tone of the text. The original text highlights how supportive they are while the translated version hints at something potentially negative or intrusive. Such deviation may lead to misunderstanding or even confusion among the audience because the intended positive message about increasing investment in community services is lost. This analysis depicted just how fast delivery might lead to critical errors in meaning, which might reduce effectiveness and clarity in the case of simultaneous interpretation.

Excerpt 4:

Source speech :

The UK is committed to playing its part in the international efforts to ensure the development democratic values and integration of AI into the military domain is consistent with security, stability and our democratic principle

Interpretation :

نحن ملتزمون بلعب دور **نهائي (AD)** دوليا لضمان دمج وتطوير الذكاء الاصطناعي في الجانب العسكري وأن يتمشى ذلك مع استقرار وأمن وقيمنا الديمقراطية.

The addition of the term "final" (نهائي) in Arabic completely changes the meaning. The essence of original English speech emphasizes on the support that UK will give to global actions for which there are no specifications of what kind of involvement is expected. Yet, playing its part implies that it has always been taking part in these international communal actions. But since it appears in Arabic text this way, the word also implies that the role played by UK is not only contributing but also final or decisive.

Thus creating another meaning altogether from what was intended. It remains neutral about how deeply involved UK can get if one speaks English language while on other hand Arabic interpretation might portray UK as having a more defining or directive position in those international undertakings with addition of final word 'نهائي' possibly distorting what English statement meant; that is more about UK's involvement rather than any ultimate responsibility.

Excerpt 5 :

Source speech:

The roadmap has been developed with Aboriginal communities across WA and will build on a number of existing initiatives being delivered to support the future direction of WA's child protection strategy

Interpretation

في هذا الصدد و -استراتيجية غرب أستراليا أه ل -أه سلامة الأسرة أه هي استراتيجية لعشر سنوات أه **وتحمل شعار المساء (AD)** أو الطريق إلى الأمان .

In the Arabic simultaneous interpretation, there is an addition: "وتحمل شعار المساء," which translates to "and carries the slogan of the evening." The translation is not available in the original source text in English but rather just "our ten-year family and domestic violence strategy."

This particular addition has added ambiguous information particularly through the introduction of a 'slogan' that was missing from the initial message. The audience may thus be confused or misinterpret it thinking there is a definite slogan attached to it. It means that the focus for these words may be altered since they no longer deal with the initial aim but shifts toward another understanding point altogether.

Secondly, the term شَعَارِ الْمَسَاءِ could bear various interpretations especially when one is not aware of its implications.. Hence, this creates further confusion as one

who interpreted it introduces something which was never

intended by the speaker. Fidelity is important hence why many interpreters always emphasize upon it during simultaneous interpretation because any additional unnecessary element can easily distort meaning entirely.

The cases of errors impacting fluency delivery

Paralinguistic errors, such as pauses, do not usually affect either the structure or the meaning of the message. Yet, in ordinary everyday conversations and in SI, these pauses show lack of fluency and may disrupt the flow of communication. In SI, where the expectation is to have a smooth, flowing delivery, these constitute the problem that the audience might view the interpretation as less competent and cohesive. Although the message remains intact, such interferences deteriorate the quality of the whole interpretation; therefore, interpreters should minimize such errors in order to get a polished and professional rendition.

Excerpt 6:

Source :

The state Government's earlier intervention and family support strategy provides early, culturally responsive supports for family engaged with or at risk of contact with the child protection system. and integration of AI into the military domain is consistent with security, stability and our democratic principle

Interpretation:

A. فإيننا ن-نق-نقدم الدعم الثقافي الميكر للأسر (FP) أه وهذه البرامج تشمل عددا كبيرا (FP) أه من آل (FP) أه حل من العمل مع (FP) الأ-مع الأسر وكذلك نحاول أن نبقى الأطفال في أمان.

Arabic interpretation reveals high disfluency rates with regard to filled pauses such as Ah("أه-")، al("أل-") that disrupt the flow and fluency. These pauses exhibit speaker's hesitation which consequently impacts negatively on coherence in swift conditions. The repetition of such fillers is thus a sign of difficulty in the rapid processing and rendering, which may well indicate that the interpreter is laboring under high cognitive load and fast delivery of the source speech. Filled pauses then become an important indication of fluency problems in SI and its inability to provide a smooth, continuous rendition.

Excerpt 7:

Source:

Thank you, The Noongar Family Safety and Wellbeing Council was established in 2015 through the shared concern of many Aboriginal community controlled organizations and advocates about the growing number of Aboriginal children.

Interpretation:

شكراً لك، لقد أقيم هذا المجلس عام 2015 من خلال الاهتمام المشترك لدى العديد من المنظمات والمدافعين عن حقوق السكان الأصليين بشأن العدد المتزايد من الأطفال الأصليين (US)

The translation in Arabic is incomplete because the particular name "The Noongar Family Safety and Wellbeing Council," as expressed in the source speech in English, is replaced by a more general "هذا المجلس" or "this council," assuming the audience knows which one is meant. This decision of the interpreter, guided by the need for fluency, especially in fast delivery, keeps the sentence smooth and still delivers the central message- a council was set up in 2015 because of shared concerns.

However, this reduces the information precision, given that the proper name of the council is not mentioned. The use of fluency over completeness in a fast-delivery situation reflects a common strategy in simultaneous interpretation: interpreters often lighten the content to be able to follow the speaker's pace so that the audience gets an understandable, coherent message, even though some specifics may either fall short or be omitted.

Excerpt 8 :

Source :

One initiative is the pre-birth planning program which occurs in collaboration with our WA health services. This promotes the safety, wellbeing and health of at risk unborn babies and where possible prevents newborn babies from entering care at birth. Since the pilot was initiated in 2018-19, the number of babies entering care within the first seven days of birth has more than halved. Children in care is always a last resort and the WA Government's priority for Aboriginal children who are in care is that they are placed in care arrangements in accordance with the Aboriginal and Torres Strait Islander child placement principle.

Interpretation:

وأحد المبادرات (UP) أه هي ه-هي برنامج أه التخطيط ال(UP) ولادات وكذلك الذي أو الذي يدعم (UP) أه (UP) رفاه وصحة الأطفال من قبل الولادة ويمنح الوفاة عند الولادة وكذلك (UP) منذ أطلق البرنامج التشيبي في ألفين وثمانية و10 وتسعة عدد حالات الأطفال الذين يحتاجون الرعاية خلال الأيام السبعة الأولى قد قلص إلى النصف

In the excerpt above, the unfilled pauses in the simultaneous interpretation show significant challenge because of the rapid delivery of the source speech. These UPs disrupt the natural flow of the interpretation, leading to cognitive overload and discontinuity of the message. While the interpreter pauses to regain pace, the smoothness and coherence of the interpretation are degraded, with the result that the audience cannot follow the content smoothly. This interruption does not only impede comprehension but also has effects on the perceived competence of the interpreter. The use of UPs reflects challenges of pace when the speaker is talking fast, which may result in omitting some information and lowering overall quality of the interpretation. These are very important things to address in regards to fluency and effective delivery.

The findings confirm that interpreters' coping strategies at a normal speech rate are highly individualized. Each interpreter, drawing on their experience, training, and personal strategies, manages the cognitive demands of simultaneous interpretation in unique ways. These individualized tactics result in a wide range of errors, with some interpreters opting to prioritize fluency and coherence over strict fidelity to the source text, while others attempt to maintain a closer adherence to the original speech, even at the risk of producing a less fluid interpretation. This variety in approach highlights to the interpreters' ability to adjust their strategies to the peculiarities of each speech in balancing the competing demands of accuracy, speed and fluency. Flexibility allows the interpreter to manage the interpretation task, even though the resulting errors vary significantly from one interpreter to another. According to Gile, at this speed, interpreters can cope more comfortably with speech complexities, which allows resorting to a wider range of coping strategies and hence a wider range of error types.

However, with this increased speech rate, such flexibility is reduced because interpreters of all types tend to face the same difficulty in maintaining exactly the same level of accuracy and completeness. The faster speech rate imposes a greater cognitive load, limiting the range of tactics they may deploy. This results in a conspicuous rise in some error types, especially segment omissions and omissions of words/phrases. This finding suggests that these errors are not only more frequent but also more consistent across different interpreters, implying that fast speech acts as a universal enhancer of their inability to keep pace with source speech. The finding is in agreement with the earlier works of, among others, Barik (1971) and Pöchhacker (2004), who observed that the rate of omission also increased with speech rates, reflecting interpreters' lagging behind in trying to manage the excessive rate of delivery.

These findings also point to the more general consensus in the literature, which holds that increased speech rates are usually associated with a decrease in quality. This has also been pointed out in other studies such as Christoffels, de Groot, and Kroll (2006) and Fabbro, Gran, and Basso (1991), with faster speech rates creating additional cognitive demands on interpreters, often the source of more errors and decreased overall fluency. These findings support the hypothesis that inasmuch as interpreters can cope with various speech rates, there is some threshold beyond which they are no longer able to cope, and their pattern of errors becomes more uniform.

It is noteworthy that the results of the current study also ran contrary to the conclusion of some previous studies which did not find any significant relation between speech rate and interpretation quality. For example, Gerver 1975 and Macizo and Bajo 2006 have argued that professional interpreters might be able to adapt to faster speech rates without a corresponding rise in error frequency thanks to their expertise and experience. These findings, in turn, suggested that familiarity of content with the material and its relative complexity would be more crucial determinants for interpretation quality than the speech rate alone. By contrast, this research shows that speech rate is, in fact, one of the critical factors which would affect the accuracy and fluency of simultaneous interpretation, specifically if the rate surpasses the interpreters' optimal capacity for processing.

This leads to thresholds for SS rates being variable across studies on SI and creates comparability problems and difficulties in drawing consistent conclusions from the results. For instance, the difference between normal and fast speech rates in Shlesinger's study (2003) was smaller, at 20 wpm. The narrower range could explain the lack of significant findings related to modifier retention in her study. In contrast, other studies using wider discrepancies showed much stronger effects and suggested that the threshold used to define "fast" speech can substantially influence the findings of SI studies. These results again suggest that standardized definitions are needed, or at least more clear reporting of the thresholds of speech rate in SI studies, so that more valid comparisons can be drawn between studies.

Another inconsistency among studies that makes the interpretation difficult is the classification of speech rates as "slow", "normal", or "fast. Rivers (1981) and Griffith (1990), for example, have different categories for speech rates, which could account for some conflicting results in research. This problem becomes even more complex when one considers that non-native speakers (the intended recipients of interpreted speech) might perceive and process speech rates in a different way. For instance, a speech rate of 140 wpm might be considered fast in some contexts, but non-native listeners may still comprehend it well, thus redefining what is considered "normal". These inconsistencies emphasize the need to take into account the linguistic background of the listeners when establishing speech rate classifications and analysis. Despite the AICC's recommendation for a slower speech rate of 100-120 wpm in simultaneous interpretation, interpreters frequently encounter faster speech rates in real-world assignments. All of the participants in this experiment agreed that speaking quickly is something that frequently happens in their job. But this real life practice probably makes a strategy for dealing with rapid speech in the interpreter, but it also adds cognitive load, which in turn allows for more mistakes. The discrepancy between recommended and actual speech rates in professional settings raises questions about the practicality of existing guidelines and suggests a need for updated recommendations that reflect the realities of contemporary interpreting practice.

This study only further supports the theory that word/phrase omission or segment omission is the most negatively affected category of error when interpreters must contend with rapid speech. That agrees with Dose (2020) and Pio (2003) who also found more omissions as input rate increased. This can be explained by cognitive overload in which it is hard for interpreters to keep up with rapid delivery, leading to the omission of parts or entire segments of the speech. This is especially bad because it has a direct effect on the level of completeness and correctness of the interpretation which in turn could cause misunderstanding.

The experiment found that mistakes in adding during the fast speech interpretations decreased. This finding diverges from the pattern seen in slower speech, where interpreters may feel more at liberty to embellish or exaggerate the source material, leading to more frequent additions. This is in line with what Altman (1994) found, in that slower speech afforded interpreters the cognitive flexibility to add more information. Fewer additions in rapid speech may indicate that the interpreter is concentrating more on the pace and is less likely to stray from the original speaker's speech. This change in type of error only serves to highlight how fluid interpretation strategies are, they change drastically depending on the speed of the speech.

Fast speech has a significant impact on paralinguistic errors, such as filled pauses, unfilled pauses, and unfinished sentences. The present study's findings align with the research conducted by Plevoets and Defrancq (2016), which similarly observed an increase in paralinguistic errors under conditions of accelerated speech. These errors are indicative of the heightened cognitive load interpreters experience when confronted with fast speech, resulting in disrupted fluency and a less polished delivery. The increased frequency of such errors during rapid speech underscores the critical role of speech rate in affecting both the fluency and intelligibility of interpreted messages. This suggests that achieving fluency in high-speed interpretations requires not only extensive practice but also the implementation of specific strategies to manage the paralinguistic elements of speech.

Word/phrase level omissions were the most affected by fast speech but segment level omissions and meaning deviations also increased but not as much. Proper names and technical terms posed particular challenges, especially under fast speech conditions. The problem of correctly transcribing proper names, especially those not as common, is a big one because if they're transcribed incorrectly, then they either end up being something completely different, or they end up being identified incorrectly. However, the study found that well-known names were more likely to be rendered correctly, even at fast speeds, suggesting that familiarity with the content plays a crucial role in accurate interpretation. The successful interpretation of technical terms, particularly when they are repeated, supports Gile's (1999) theory on "problem triggers" in SI, where certain elements of speech, such as unfamiliar terms, are more likely to cause errors. The results suggest that interpreters should be familiar not only with the general topic but also with the specific terminology of the speech they are interpreting, especially if the speech rates are going to be high.

Limitation

Although this study offers valuable insights into how interpreters manage varying speaking rates, it may not comprehensively reflect the diverse array of coping strategies and error patterns seen among interpreters with differing levels of experience, training, and language proficiency. Diversity in interpreting experience can have a significant impact on how interpreters perceive and process variations in speaking rates.

Furthermore, the simple distinction between "normal" and "fast" speaking rates does not account for individual nuances in interpreters' experience. Indeed, each interpreter may have a subjective interpretation of these rates, influenced by personal elements such as their prior training, exposure to specific topics, and linguistic comfort. For example, two interpreters faced with a speaking rate that is considered fast may adopt very different responses and coping strategies, depending on their comfort with the subject matter or the speaker's delivery style. For example,

an interpreter who is used to dealing with specific technical topics might find a fast speaking rate easier to manage than an interpreter who is less experienced in this area.

Managing fast speaking rates goes beyond merely detecting and fixing errors; it also involves intricate cognitive functions such as selective attention, working memory, and stress management. Delving into these internal cognitive processes could yield a deeper understanding of the challenges interpreters confront.

Taking these cognitive demands into account, future research could not only look at the errors that are made, but also analyze how interpreters manage the mental pressure of speaking at a fast pace, as well as the strategies they adopt to optimize their performance in such situations.

This research has proven that the rate of source speech significantly influences the quality of simultaneous Interpretation. When the rate increases, there is an increase in cognitive load faced by interpreters thus leading to a notable rise in errors particularly in word/phrase omission and segment omission categories. For interpreters dealing with normal speech rates, it is possible for them to have their individualized coping strategies that ensure fluency and accuracy balance out but faster speech rates reduce such flexibility and errors become more uniform. These findings are consistent with previous studies which established a link between higher speech rates and occurrence of omissions but they oppose some other studies which dismiss it as having no significant effect on interpretation quality. At higher speech rates, the drop in addition errors coincides with rise in omissions and paralinguistic errors are indicative of how interpreters predetermine their strategies depending on the source speech. Furthermore, knowledge of content particularly proper names and technical terms remains critical in preserving precision when faced with fast speeches.

This study, however, is not without its limitations, which must be considered when interpreting its results. Firstly, the small sample size of six professional interpreters may not fully capture the diversity of strategies employed across a larger population, limiting the generalizability of the findings. Moreover, the exclusive focus on United Nations speeches restricts the applicability of the results to other types of discourse with varying levels of complexity and stylistic demands. While the fixed speech rates of 124 and 164 wpm serve the study's objectives, speech rates in real-life interpreting scenarios are rarely constant, posing additional challenges for interpreters that are not accounted for in this controlled setting. Additionally, although Barik's (1971) error taxonomy is widely accepted in the field of interpretation studies, it may not sufficiently address the nuanced challenges faced by interpreters in contemporary contexts. Further research with larger, more diverse populations and an expanded framework for error categorization is necessary to deepen our understanding of how speech rate impacts the accuracy and overall quality of interpretation.

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