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Effects of presentation delivery rate on errors in simultaneous interpreting: A pilot study

Aulia Addinillah Arum
Department of Linguistics, Faculty of Cultural Science, Universitas Gadjah Mada
Jl. Sagan, Caturtunggal, Kec. Depok, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55281

ABSTRACT

Although the success of information rendition in simultaneous interpreting (SI) is susceptible to many factors, the speed of the source speech (SS) is perceived as one of the most challenging *problem triggers*. However, previous studies that examine the effects of SS in SI have reported different results. Therefore, this study aims to examine the effects of normal and fast source speech rates on simultaneous interpreting performance through error analysis. In this pilot study, seven error categories are employed, i.e., *segment omission, word-and-phrase level omission, addition, unfinished sentence, filled pause, and long pause*, which are derived from error classifications by Barik (1971). The first four categories are part of linguistic errors, whereas the last three categories are part of paralinguistic errors. Two videos with a speed of 124-wpm (words per minute) and 184-wpm were used as the source speeches and three professional interpreters with more than seven years of experience were recruited as research participants. It is revealed that the fast speech rate has increased the frequency of errors. Additionally, segment omission appears to be the category mostly impacted by SS speed. Therefore, the result of this study suggests interpreters' training institutions pay more attention to coping tactics learning and acquisition in their courses. Nevertheless, more replication studies are still required to verify this finding.

Keywords: Linguistic errors; paralinguistic errors; simultaneous interpreting; speech rate

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INTRODUCTION

Most interpreting researchers have agreed that simultaneous interpreting (SI) is the most complex and energy-draining task with a heavy cognitive load (Chernigovskaya et al., 2019; Gile, 2009; Injoque-Ricle et al., 2015; Korpal & Stachowiak-Szymczak, 2019; Mizuno, 2017). Furthermore, interpreting performance may also be affected by multiple factors, from technical to non-technical, and from the input factor (the speakers) to the output factor (the interpreters themselves). The issues that emerge from the input factor are termed problem triggers, which include names, numbers, enumerations, fast speeches, strong foreign accents, poor speech logic, poor sound, etc. (Gile, 2009; Korpal & Stachowiak-Szymczak, 2019). Unfortunately, more often than not, clients of an actual interpreting service often criticize interpretation quality solely based on the interpreting output without considering the input factor, particularly the source-speech quality. Meanwhile, fast speech rate has been proven to be the most challenging problem trigger in delivering accurate renditions of information, which becomes one parameter of high-quality interpretation (Barghout et al., 2015; Gerver, 1971; Han & Riazi, 2017; Pio, 2003). Interestingly, some studies reported the opposite result, i.e., fast source speech does not significantly affect the interpreting performance (Shlesinger, 2003; Vančura, 2013).

* Corresponding Author
Email: aulia.addinillah@mail.ugm.ac.id

In addition to the different results from studies on the effects of presentation rate on SI, another important justification for conducting the present study is the fact that the majority of previous studies that examine interpreting performance from English into Indonesian only focused on the identification and description of strategies applied by the interpreters (Afrina & Ardi, 2021; Kuswoyo & Audina, 2020; Purnomo, 2017; Trisnawati & Netta, 2020). Meanwhile, despite being categorized as isolating languages (Englebretson, 2014; Meyer, 2009), Indonesian and English contain different morphological characteristics. Indonesian makes productive use of reduplication and allows affixation or derivational morphology for nominalization and other processes (Englebretson, 2014). This morphological characteristic has made Indonesian contain more polysyllabic words than English, which may result in a longer time required to render the meaning of a word into Indonesian.

To date, there are only very few reports on how the input factors, particularly different source-speech rates, affect the quality of interpretation from English into Indonesian. Nonetheless, there are multiple studies on the effect of fast-speech rate with different language pairs, e.g., French to English (Gerver, 1971), English to Hebrew (Shlesinger, 2003); German to Italian (Pio, 2003), etc. One of the earliest studies on the effect of source-speech rate on interpreting performance was conducted by Gerver (1971). The study was conducted by comparing the number of words correctly repeated in shadowing performances and interpreting performances. Unlike interpreters, shadowers only have to repeat, not to understand what he hears. Consequently, there are significantly more words correctly shadowed than were correctly interpreted at a higher presentation rate. Gerver (1971) also suggests that only at the rate of 168 wpm the performance of shadowers deteriorates, while interpreters' performances decline with each rate increase. It is also reported that interpreters were able to optimize their performance up to the rate of 120 wpm. At input rates above 120 wpm, the interpreters were lagging further behind and making more errors (Gerver, 1971)

Nevertheless, what has been reported by Gerver is not always supported by the subsequent studies. The studies by Shlesinger (2003) and Vančura (2013) have generated the opposite result. Shlesinger (2003) conducted an experimental study to reveal the effects of different source-speech rates (120 wpm and 140 wpm) on the rendition of long left-branching noun phrases (i.e., a noun preceded by a long string of adjectives) from English (second language) to Hebrew (first language). This study has revealed that performance at the higher rate was consistently better than at the slower rate. A similar result was also reported by Vančura (2013) who conducted a study on a corpus that comprised the recordings of simultaneous interpretation from English into Croatian (first language). His study has shown that there is no positive correlation between the ST speech rate and the overall evaluation mark of the interpretations (Vančura, 2013).

On the other hand, the studies conducted by Barghout et al. (2015), Dose (2020), Korpal and Stachowiak-Szymczak (2019), and Pio (2003), have supported the hypothesis which states that a high speech rate will lead to a less successful rendition of the target text. Pio (2003) has shown that a fast presentation rate has negative impacts on interpretation quality since it leads to frequent errors in terms of meaning and fluency. Furthermore, this study has also shown that both professional interpreters and interpreting students, produced significant numbers of omissions when they interpret fast speeches. Nevertheless, the number of errors produced by professional interpreters is also significantly less than interpreting students, which indicates the benefit of extensive experience in coping with fast speeches. Barghout et al. (2015) have also revealed that interpreters tend to produce more omissions when facing fast speeches. However, the kind of omissions identified in their study is perceived as a coping strategy since what has been omitted is mainly redundant information from the source speeches. Furthermore, fast source speech rate and high lexical density also become the determinants of the filled pause occurrence in SI (Plevoets & Defrancq, 2016)

When conducting a study on simultaneous interpreting, I would argue that using spontaneous speech will generate more reliable and generalizable results. As reported by Boughaba (2021), the frequency of disfluencies in the rendition of spontaneous speeches is significantly higher than the renditions of non-spontaneous speeches. The study conducted by Dose (2020) is one of the very few studies that examined interpreting performance in an actual professional setting with naturally occurring discourse, i.e., the European Parliament's plenary debates. Through this study, she examined the change of approach in interpreting the -ing clauses from English to German in slow, medium, and fast speeches. Dose (2020) has also reported that interpreters' use of omissions increases with increasing source speech delivery rate. Furthermore, Korpal and Stachowiak-Szymczak (2019) also examined professional and student interpreters' performances when they encounter combined problem triggers, i.e., fast speeches and number interpreting. The result of their study indicates that fast speeches compromise number interpreting accuracy. Similar to Pio's (2003) study, it is also revealed that professional interpreters produce more accurate interpretations, irrespective of the speed of source texts, indicating the possible necessity of specific training for students in dealing with

problem triggers, such as numbers (Korpal & Stachowiak-Szymczak, 2019).

To close the research gap in the field of simultaneous interpreting from English to Indonesian, this pilot study is conducted to examine the effects of normal and fast source-speech delivery rates on the frequency of errors produced in SI. To achieve this goal, the following research questions should be answered: 1) Does a high source-speech delivery rate increase the frequency of errors in simultaneous interpreting performances? 2) What is the most impacted category of error by a high source-speech delivery rate?

Defining the Quality of Interpretation

The concept of interpretation quality involves many different variables and perspectives, and thus it is very difficult or even impossible to formulate a uniform working definition of interpreting quality applicable to all kinds of interpreting situations and all the viewpoints involved (Zwischenberger, 2010). Furthermore, Zwischenberger (2010) claims that any single contribution to SI-quality assessment can only explain a small part of the overall construct of quality. To resolve the issue of quality definition in SI, the viewpoints of meaning accuracy and delivery fluency were adopted. The same viewpoints are also adopted as the basis of SI evaluation by Pio (2003). Moreover, it is also stated by Vančura (2013) that quality can be defined as a balance between content and form.

The theory of meaning-based translation by Larson (1998), particularly the notion of propositional meaning, may become the fundamental principle in evaluating meaning accuracy in an interpretation. The general idea of this theory is that translation quality should not be viewed only based on the word-for-word correspondence but should also include an evaluation of the underlying meaning embedded in the proposition. According to Larson (1998), a proposition is a grouping of concepts into a unit that communicates. The concepts embedded in a proposition are related to each other through a system of *relations.* A proposition coded in the source language (SL) could be encoded in the target language (TL) in various ways. However, a good translator/interpreter must look for the most natural form in TL (Larson, 1998). Furthermore, Kemp (2013) states that a proposition is determined by a sentence *with respect to*, or *at*, a context. Context is defined as a set containing at least the time of utterance, place of utterance, identity of speaker and audience, and object indicated by demonstrations, if any (Kemp, 2013). In brief, evaluating interpretation quality based on its propositional meaning should not only consider the lexical choices and grammatical structure but also socio-cultural context and communication situations.

Errors as Quality Indicators

One common indicator applied in SI-quality assessment is the number of language errors in the target speech (Gile, 1994). Furthermore, error analysis is considered a reliable tool for SI quality assessment, particularly, with regard to the standard of accuracy and completeness (Falbo, 2015). However, defining error in interpreting practice is as complicated and problematic as defining quality. Barik (1971) was among the first scholars who introduced the taxonomy of errors encountered in simultaneous interpreting. He proposed the classification of errors based on the degree of meaning deviation from the original message and the interpretation.

In general, errors categorization according to Barik (1971) may come from *omissions*, *additions,* and *substitutions*. However, omissions, substitutions, and additions are not necessarily an indication of errors. Omissions, additions, and substitutions will only be considered errors when they cause a significant deviation of meaning from the source text and severe damage to the communication (Altman, 1994; Korpal, 2019). In addition to meaning accuracy, fluency also becomes one common consideration in forming the perception of interpretation quality (Macías, 2006). The concept of fluency is a multi-level, multi-dimensional construct, and there are no generally consented definitions of fluency in previous research on either interpreting or English as a second language (Song, 2020). Nevertheless, Song (2020) proposes a comprehensive definition of fluency that can be applied in evaluating SI quality. It refers to the smooth, clear, efficient, and intelligible oral transfer of the original message into the target language under temporal and cognitive constraints, with reasonable pausing and/or hesitations and leaving the listeners with a sense of ease. (Song, 2020, p. 6)

Derived from the viewpoints of meaning accuracy and delivery fluency, a non-exhaustive categorization of errors is developed as the research framework. There are seven categories of errors applied in this study, namely *segment omissions*, *word and phrase-level omissions*, *deviations of meaning*, *additions*, *unfinished sentences*, *filled pauses*, and *unfilled pauses*.

Segment omission is identified as an error when the interpreter omits any information above word and phrase level. Meanwhile, *word and phrase-level omissions* refer to the omitted words and/or phrases that result in gross error. Despite the small unit of the omitted lexical item, word, and phrase-level omission may also lead to inaccurate meaning in TL. *Deviation of meaning* may occur from a total misinterpretation or incorrect interpretation at the word and phrase level. *Addition* means adding irrelevant information or excessive elaboration of information into the interpretation. There are four

types of additions according to Barik (1971): (1) *qualifier addition* (adding adjectives or adverbs in the interpretation but not existing in TL); (2) *elaboration addition* (excessively elaborating simple information into a more complex sentence which may cause trace decay); (3) *relationship addition* is when the interpreter adds some conjunctions that are not originally in the source language. (4) *closure addition* is an addition that co-occurs with rephrasing, omission, or misinterpretation to give closure to the end of a sentence in TL but does not give anything substantial into the sentence. An *unfinished sentence* refers to an error made by the interpreter when he/she fails to convey the complete information. The *filled pauses* and *unfilled pauses* which can be identified as errors are the ones that occur due to the interpreter's hesitations. According to Canepari (1985), as cited by Cecot (2001), filled pauses (*uh, ehm*, vowel lengthening at the end of a word) are considered the most disturbing element for listeners. However, when deliberately produced by a speaker, such as breathing pauses, pauses have a communicative function since they can emphasize the new and most important information and it helps to provide time to plan discourse (Cecot, 2001).

METHOD

Method of data collection

The primary data of this study is the transcriptions of interpretations at a normal and fast rate. To collect the data, an experiment was conducted by using two different videos in which one video represents the normal rate and another represents the fast rate. The speed of the normal-rate video is 124 WPM, while the fast rate is 184 WPM. These two presentational videos can be publicly accessed from the TedX channel on YouTube, a video-sharing platform. The normal-rate video entitled "How to Cope with Anxiety" is presented by Olivia Remes (see https://youtu.be/WWloIAQpMcQ), while the fast-rate video entitled "How to Stay Calm When You Know You'll Be Stressed" is presented by Daniel Levitin (see https://youtu.be/8jPQjjsBbIc). The duration of the normal and fast-rate videos is 15 and 12 minutes respectively. Such durations are within the acceptable criteria for one interpreting shift by AIIC (The International Association of Conference Interpreters).

The presentational videos from TedX are selected as our source speeches instead of creating pre-written scripts based on the following logical reasons. First, this study strives to create a nearly-naturalistic setting despite being an experiment. Thus, choosing a naturally occurring spoken discourse as the source speech is perceived as more ideal since it results in authentic interpreting. To ensure the authenticity of interpretations, no pauses in the middle of the SI nor repetitions were allowed. Second, using pre-recorded videos is more efficient, and third, both speakers in the normal and fast-rate videos are native English speakers with neutral accents which is important to ensure the clarity of the speech.

By adopting the purposive sampling approach, three professional interpreters with more than seven years of experience were recruited as research participants. These three interpreters have obtained an excellent track record in delivering both simultaneous and consecutive interpretations of various topics and have served multiple clients from national to international organizations. This study purposely selected source-speech videos with longer durations compared to other previous studies, such as the studies by Gerver (1971) and Pio (2003). This is done to ensure the richness of data despite the small number of participants.

Procedure

The simultaneous interpreting experiment was conducted in a Remote Simultaneous Interpreting (RSI) mode using the interpreting feature in Zoom. Given that the data collection was done during the confinement period due to Covid 19, offline interactions with multiple people were not allowed. Moreover, since the pandemic broke out, RSI has become a common practice for clients. This practice is perceived as a breakthrough innovation for the language service industry.

Each participant was instructed to simultaneously interpret the normal-rate video first. To do this, the participants were assigned to Zoom virtual booth where they can listen to the source speech with headphones. The interpreters were not given any written material nor any verbal information regarding the content of the source speech. Only the general topic of the source speeches was given to the interpreters. After completing the first interpretation, the participants were asked if they wanted to take a break but all of them chose to continue with the second interpretation with the fast-rate video. Throughout all interpreting performances, the researcher was also present in the Zoom meeting to directly observe participants' performances. The interpretation was also remotely recorded and saved in a cloud storage tool. The transcription stage was done after all audio recording was completed. In total, there were eight transcriptions generated with a total duration of 45 minutes for the normal-rate video interpretation and 36 minutes for the fast-rate video interpretation.

Method of data analysis

As discussed in the preceding section, seven categories of errors are applied, i.e., *segment omission*, *word/phrase-level omission*; *addition*, *deviation of meaning*, *unfinished sentence*, *filled pause*, and *long pause.* The first four categories are classified as linguistic errors that function to examine the meaning accuracy of the interpretation.

On the other hand, the remaining three categories are classified as paralinguistic errors that function to examine the delivery fluency. The vocalized filled pause, such as *euh*, *ehm*, and vowel lengthening at the end of a word is the type of filled pause that is considered an error in this study. The analysis was done by assigning a code representing the type of error on the interpretation transcription. The following table shows the code and the type of error it represents:

Table 1
The Codes of Each Category of Error

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

After the errors in interpretation transcriptions were identified, quantitative and qualitative analyses were conducted. The quantitative analysis was done by calculating the total number and the mean of each category of error from each participant. In the reporting, the result of quantitative analysis is presented in form of descriptive statistics. Meanwhile, the qualitative analysis was done to further elaborate on the result of the quantitative analysis. The qualitative analysis also provides in-depth explications of error identifications and their implication for the delivery of meaning and fluency.

FINDINGS

Variety of Error Occurrences in Individual Performances

Individually, each participant has a different tendency in making errors throughout the interpretation. Based on the individual interpretations of the normal-rate speech in the Table 2, participant 1 tends to produce more *segment omissions*, participant 2 produced a significant number of *filled pauses*, whereas participant 3 produced a high frequency of *deviations of meaning*. In terms of the least frequent errors in the normal-rate speech interpretation, this study has also found high variability among the three participants. Participant 1 has made the least frequent unfinished sentences, participant 2 has made the least frequent filled pause, while participant 3 has made the least frequent additions. This result may indicate that coping strategies used when interpreting a speech at a normal rate are very distinct from one interpreter to another one. The following table shows more detailed information on the error frequency produced by each participant.

Table 2
Errors Frequencies at the Normal-Rate Speech (124 wpm)

Error / Participant	SO	WPO	DM	ADD	US	FP	LP
Participant 1	18	5	11	4	2	15	6
Participant 2	9	2	12	16	3	24	1
Participant 3	7	11	20	2	5	3	8
Mean	**11.3**	**6**	**14.3**	**11**	**3.3**	**14**	**5**

Interestingly as shown in Table 3, when our participants interpreted the speech at a fast rate (184 wpm), all of them showed a more similar tendency. In the interpretation of the fast-rate speech, segment omission appeared to be the most frequent error produced by all participants. On the other hand, each participant still showed a significant variability of error frequencies in the remaining categories. The following table shows detailed information on the error frequencies in the interpretation of the fast-rate speech.

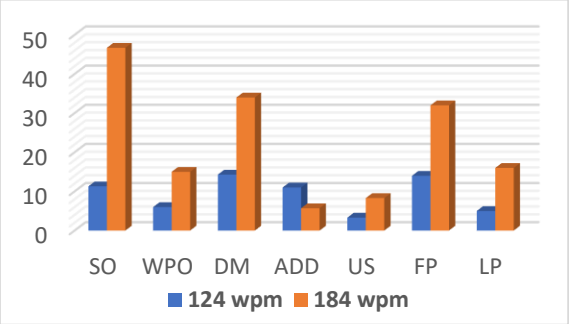
Table 3
Errors Frequencies at the Fast-Rate Speech (184 wpm)

Error / Participant	SO	WPO	DM	ADD	US	FP	LP
Participant 1	39	9	26	6	10	36	9
Participant 2	66	10	46	5	11	41	14
Participant 3	35	26	30	6	4	19	25
Mean	**46.7**	**15**	**34**	**5,7**	**8.3**	**32**	**16**

The figure 1 shows the difference in error frequency in the interpretation of normal and fast speech. Based on the arithmetic mean of each error category, it is clearly shown that almost all categories have significantly increased with an increasing source-speech rate. Interestingly,

addition appears as the only category of error that has declined in number despite the fast delivery rate. Chart 1 also suggests that *segment omission* has become the most impacted error category since the mean of error frequency has risen to more than four times compared to the segment omissions that occurred in the normal-rate speech. The second most impacted error category by fast delivery rate is the *deviation of meaning* and it is followed by the *filled pause* as the third most impacted error category. On the other hand, among all categories which experience a significant rise in frequency, the *unfinished sentence* appears to be the least impacted error category.

Figure 1
Mean of Errors Frequency in the Interpretation of 124-wpm & 184 wpm SS



The cases of errors impacting meaning delivery
The cases of segment omissions and word/phrase omission
The categories of errors applied to assess meaning accuracy in the interpretations are the linguistics errors that consist of *segment omission*, *word/phrase omission*, *deviation of meaning*, and *additions.* More often than not, the participants made more than one error in one utterance. The following excerpt shows an example of how multiple errors were made and how they can impact the delivery of meaning in the target language.

Excerpt 1

Source speech:	**"To show you the impact anxiety has on someone's life**, I will just mention that anxiety can lead to depression, **school dropout**, suicide."
Interpretation:	*"***[SO]** *Dan saya hanya akan akan menyebutkan bahwa kecemasan bisa menimbulkan depresi,***[WPO]**, *keinginan bunuh diri."*
Identified Error(s):	**SO, WPO.**

First of all, the above excerpt contains three propositions. In the first proposition, the speaker is showing the impact of anxiety on someone's life, in the second one, the speaker is mentioning the impact of anxiety, and in the last, anxiety can lead to depression, school dropout, and suicide. The first proposition that initiates the utterance indicates the purpose of the speaker. Unfortunately, the interpreter has failed to render the first proposition to the target language by omitting it in this interpretation, thus a code of *segment omission* was assigned. Due to this segment omission, the propositional meaning was not fully conveyed and the sense of purpose intended by the speaker was not captured by the audience. In addition, a phrase-level omission (WPO) was also identified in the third proposition. Based on Larson's (1998) theory of the classification of propositions, the third proposition is categorized as a State Proposition with *Anxiety* representing the concept of *Thing* that becomes the central concept of the utterance, while *depression*, *school dropout*, and *suicide* are the concept of *Attribute* associated to the central concept. In this State Proposition, the interpreter only rendered *depression* and *suicide* as the impact of anxiety while *school dropout* was left uninterpreted.

Excerpt 1 shows the case of segment and word/phrase-level omissions in a single complex sentence containing multiple propositions.

In the following excerpt 2, another case of omission that occurs in inter-utterances is examined. Based on syntactic perspective, the utterance in excerpt 2 consists of two sentences.

Excerpt 2

Source speech:	"Remember, when you're under stress, the brain releases cortisol. **Cortisol is toxic** and it causes cloudy thinking."
Interpretation:	*"Ingat, ya, ketika anda mengalami tekanan, otak kita akan mengeluarkan kortisol.* **[SO]** *Dan ini membuat kita tidak berfikir secara jernih."*
Identified Error(s):	**SO**

The first sentence contains three propositions. The first proposition is encoded in a single word, *Remember*. Despite being a single word, the word *Remember* in the above context indicates an illocutionary force, i.e., commanding the addressee to remember what the speaker is saying, and thus, it is considered as one proposition. The second proposition is a state proposition, i.e., *the addressees under stress*, and the third proposition is an event proposition, i.e., *(their) brain releases cortisol.* The second sentence, on the other hand, is constructed as a complex clause with main clause 1 *(cortisol is toxic)* and main clause 2 *(it causes cloudy thinking)* being coordinated with coordinate conjunction *(and).* In this sentence, each clause represents one proposition. However, it is clearly shown that main clause 1 in the second sentence has been omitted. Therefore, the reason *why* cortisol can cause cloudy thinking cannot be captured by the audience.

The case of addition and deviation of meaning

Additions and deviation of meaning are also part of the linguistic errors that become an issue in meaning delivery. The following excerpt shows an example of how addition and deviation of meaning are committed by the interpreter.

Excerpt 3

Source speech:	"A few years ago, I **broke into** my own house."
Interpretation:	*"Beberapa tahun yang lalu,* **[FP]** ***euh*** *saya* **[ADD]** ***baru saja*** **[DM]** ***masuk*** *ke dalam rumah saya."*
Identified Error(s):	**FP, ADD, DM**.

Three errors are identified in excerpt 3, i.e., *filled pause*, *addition*, and *deviation of meaning*. The addition found in the source speech is represented by the adverbial phrase *(Baru saja)*, specifically the adverbial phrase of time that modifies the verb *(masuk).* Meanwhile, the same form of the adverbial phrase does not exist in the source speech. Thus, there is a meaning shift between the source speech and the interpretation. Deviation of meaning was also identified in the interpretation of the verbal phrase, *Broke into.* This verbal phrase was interpreted into *Masuk* which means *to enter*. *Broke-into* refers to an act of entering a place, e.g., a house or an apartment, by force. On the other hand, *entering* is the superordinate word which means to simply step into a house without any trouble. What was intended by the speaker is actually to share a story where he was locked out of his own house in extremely cold weather, thus he had to *break into* his house by breaking through his basement window. The interpretation into a general (superordinate) word makes the audience could not sense the intensity of the event.

In terms of errors produced at the word or phrase level, we have also found that the information rendition related to numbers and proper names has become a serious challenge to the participants. The following table shows how our participants interpreted the information related to proper names and numbers at a normal delivery rate.

Table 4.

Interpretation of Proper Names and Numbers from Normal Speech Rate (124 wpm)

Category	Source Speech	Participant 1	Participant 2	Participant 3
Proper names	University of Cambridge	University of Cambridge	University of Cambridge	University of Cambridge
	GK Chesterton	Omitted	Casterten	GK Chester
	dr. Victor Frankel	Freckelsen	Dokter Victor Frankel	dr. Victor Frankel
Numbers	1 in 14 people	*1 dari 14 orang*	*1 dari 14 orang*	*1 dari 14 orang*
	42 billion dollars	*42 ribu US dollar*	*42 miliar*	*42 miliar*

Between the two source speeches, the fast-rate speech contains more information related to numbers and proper names. Furthermore, more omissions were also produced by all participants. The following Table 5 shows how each participant rendered information related to proper names and numbers at a fast delivery rate. Almost all full names mentioned in the normal rate and fast rate videos are not properly rendered (either incorrectly pronounced and/or omitted) by the interpreters.

Table 5

Interpretation of Proper Names and Numbers from Fast Speech Rate (184 wpm)

Category	Source Speech	Participant 1	Participant 2	Participant 3
Proper names	Jeff	*Jeff*	*Jeffee Carsome*	*Omitted*
	Danny Kahneman	*Omitted*	*Danny Kardemen*	*Danny*
	Gary Klein	*Omitted*	*Omitted*	*Omitted*
	Danny	*Danny*	*Omitted*	*Danny*
	Hippocampus (2 times)	*Hipokampus (2 times)*	*Hipokampus (2 times)*	*Hipokampus (2 times)*
	Cortisol (5 times)	*Kortisol (5 times)*	*Kortisol (4 times), Kortesikol (1 time)*	*Kortisol (5 times)*
	Statin (4 times)	*Statin; omitted; ini; obat ini.*	*Omitted (4 times)*	*Statin (4 times)*
	Jerome Groopman	*Omitted*	*Omitted*	*Jerome Groopman*
	Pamela Hartzband	*Omitted*	*Omitted*	*Pamela Hartman*
	Bloomberg.com	*Bloomberg.com*	*Bloomberg.com*	*Bloomberg.com*
	GlaxoSmithKline	*GSK*	*Omitted*	*Glaxo Smith Kline*
Numbers	90 percent	*90 persen*	*90 persen*	*90 persen*
	30 to 50	*30 50*	*30 sampai 50*	*30 sampai 50*
	300 people	*300 orang*	*300 orang*	*300 orang*
	49 surgeries	*49 prosedur pembedahan*	*Omitted*	*Omitted*

Interestingly, in the normal-rate speech, the proper name *Dr. Victor Frankel* was correctly rendered by participants 2 and 3. Nonetheless, the success of rendering proper names might be done by sacrificing the completeness of the subsequent information as shown in the following excerpt.

Excerpt 4

Source speech:	"The famous neurologist **Dr. Victor Frankel** said (1), '**For people who think there's nothing to live for** (2) and **nothing more to expect from life** (3), **the question is getting these people to realize** (4) that **life is still expecting something from them** (5).'."
Interpretation:	*"Ada seorang ahli syaraf yang terkenal namanya dokter Victor Frankel.* **[SO] [US]** *Lebih baik kita membuat- Untuk melihat bagaimana,* **[FP]** *euh kita bisa mengharapkan se-sesuatu dari orang lain"*
Identified Error(s):	**SO, SO, SO, US, FP.**

As shown in excerpt 4, four out of five propositions (marked with a number in brackets) were not rendered by the interpreter. The proposition which is properly rendered in TL is the one containing proper-name-related information. This shows that the attempt to properly render proper names might take extra time for the interpreter so that he/she might lose the chance to capture the subsequent information. Therefore, the rendition of the proper name has resulted in more errors, i.e., three segment-omissions, an unfinished sentence, and a filled pause. Interestingly, when the proper names occurred more than one time in the speech, they will be more likely to be properly rendered by the participants despite being highly technical words, such as *cortisol* and *statin.* When it comes to interpreting numbers, any small mistake can deviate the meaning far from what is intended by the speaker. The following excerpt shows an example of what seems to be a small mistake becoming a significant issue in meaning delivery.

Excerpt 5

Source speech:	"…and each year, it costs over **42 billion dollars** to treat this mental health problem."
Interpretation:	*"…dan setiap tahun, hal ini membutuhkan* ***empat puluh dua*** **[DM]** ***ribu US dollar*** *untuk mengobatinya"*
Identified Error(s):	**DM**.

In excerpt 5, the speaker was saying that the cost to treat mental health problems is *42* ***billion*** *dollars.* Meanwhile, the interpreter has interpreted it into *42* ***thousand*** *US dollars.* This kind of deviation of meaning has resulted in a serious misunderstanding among the audiences. Nevertheless, there are also some cases where the interpreters successfully rendered proper names into TL. In the normal-rate speech, the speaker mentioned the University of Cambridge, and in the fast-rate speech, the speaker mentioned Bloomberg. Both names represent an institution name and they are rendered properly in TL by all participants.

The cases of errors impacting fluency delivery

Paralinguistic errors, particularly pauses, may not change the structure of the message or the meaning of the uttered information. However, in normal communication and SI, in particular, it indicates disfluency and may be deemed inconvenient by the audience.

Excerpt 6

Source speech:	"...they **find it hard** to fall asleep at night…"
Interpretation:	*"…****mereka menemu*****- [US] [FP]** ***euh****, mereka merasa sulit untuk tidur pada saat malam hari"*
Identified Error(s):	**US, FP.**

In excerpt 6, we have identified two categories of paralinguistic errors, i.e., the unfinished sentence and filled pause. In the source speech, the speaker was uttering the idiomatic phrase *find it hard.* The literal translation of the phrase into Indonesian is *Sulit menemukan* or translated back as *difficult to find.* However, the literal translation would generate an odd-sounding interpretation in the target language, thus the interpreter was striving to seek the equivalent idiomatic translation. At the same time, the interpreter was also required to capture the subsequent information string. On the other hand, the interpreter could not identify the phrase as an idiomatic one before s/he listens to the entire utterance. Eventually, this situation has resulted in a high cognitive process that triggers a false start (unfinished sentence) and a filled pause. The unfinished sentence and filled pause that occurred in excerpt 5 did not directly affect the meaning delivery since the interpreter was finally able to make a correction and produce an equivalent and idiomatic interpretation. However, these errors have a significant impact on delivery fluency. Excerpt 7 shows an utterance of the source speech with a fast delivery rate where the speaker was talking about a situation where the audience have to make a decision regarding medical treatment.

Excerpt 7

Source speech:	"And I'm going to talk about a very particular medical condition. **But this stands as a proxy for all kinds of medical decision-making**, and indeed for financial decision-making, and social decision-making."
Interpretation:	*"Saya akan bicara tentang situasi medical yang khusus ini.* **[LP] [SO]** *tentang keputusan finansial, kesehatan, sosial."*
Identified Error(s):	**LP, SO**

The main message conveyed by the speaker is that the way we make a decision on medical treatment can also be applied in any situation requiring decision-making. The expressed utterance can be split into two sentences. In this case, only the first sentence was fully conveyed in TL by the interpreter. After a long pause, the interpreter was only able to render some keywords embedded in the complement clause of the second sentence, i.e., decision *(keputusan)*, financial *(finansial)*, health *(kesehatan)*, and social *(sosial)*. Meanwhile, the preceding clause uttered in the source speech was omitted, and eventually, the rendered keywords as mentioned earlier became meaningless. In this excerpt, we can also see that segment omission happened after the long pause which may also become an indication of a high cognitive process. Based on this finding, we can also infer that a paralinguistic error, particularly the long pause, may impact the meaning delivery when it is followed by segment omission(s).

DISCUSSION

Despite the limited research participants, the result of our study can verify that with the normal rate of SS, the coping tactics used by interpreters are very individual, thus the frequencies of each error category made by each interpreter are highly varied. However, when the source speech was delivered at a fast rate, all participants have shown a similar tendency to make more segment omissions. This finding has revealed that the speed of source-speech delivery rate does affect the frequency of errors almost in all categories, which is in line with the result reported by Barghout et al. (2015), Dose (2020), Gerver (1971), Korpal and Stachowiak-Szymczak (2019), and Pio (2003). In contrast, this study shows a different result from that of Vančura (2013) and Shlesinger (2003) who claimed that the speed of presentation rate does not correlate to the quality of interpretation.

In her study, Shlesinger (2003) even reported that a slower presentation rate may entail a greater risk of trace decay. One distinction that could become the root cause of the different results is the discrepancy between the minimum and maximum threshold of the SS rate applied in each study. The following table outlines the discrepancy in SS delivery rate from previous studies:

Table 6

The Minimum and Maximum Threshold of Source Speech Rate Applied in the Previous Studies

The Study	Minimum threshold	Maximum threshold	Discrepancy
Gerver (1971)	95 wpm	164 wpm	69 wpm
Pio (2003)	108 wpm	145 wpm	37 wpm
Shlesinger (2003)	120 wpm	140 wpm	20 wpm
Han & Riazi (2017)	105 wpm	155 wpm	50 wpm
Korpar & Stachowiak-Szymczak (2019)	103 wpm	142.5 wpm	39.5 wpm

Given the discrepancy between the minimum and maximum SS threshold applied in Shlesinger's (2003) study is only 20 wpm, thus the result of her study with respect to the numbers of modifiers retained did not reach significance. The different standards of SS delivery rates applied in the studies of interpreting also indicate a more fundamental problem on the definition of *slow*, *normal*, and *fast* speech. According to Rivers (1981), as cited in Vančura (2013), the rate of slow speech is below 130 wpm, moderately slow at 130-160 wpm, average speech rate is ranging from 160-220 wpm, moderately fast is 190-220 wpm, and fast speech should be above 220 wpm. This categorization, however, was developed based on normal communication situations. Furthermore, Griffith (1990) suggests that fast speech is delivered at 200 wpm, while normal and slow speech is delivered at 150 wpm and 100 wpm respectively. In an experimental study. Fujita (2017) also reported that non-native speakers can comprehend well to verbal information delivered at 140 wpm. The fact that 140 wpm could also be perceived as a *normal* speech rate in other studies may become the reason why Shlesinger (2003) could not prove the null hypothesis.

Moreover, even though the maximum standard of delivery rate applied in simultaneous interpreting is lower, i.e., 100-120 wpm as stipulated by AIIC (Pöchhacker, 2016), I would argue that in most actual interpreting assignments, the speaker(s) are not aware of their speed of speaking. Thus, the speaker(s) often speak at the rate that they perceive as a normal rate, while what may be heard by the interpreter(s) is actually a fast speech. Although an interview is not a part of our data collection process, our participants were asked whether they often interpret a speech where the speed is similar to the fast-rate speech in the experiment. All participants answered that typically, the fast-rate speech is the most common speed of SS on many occasions of interpreting assignments.

Segment Omission is identified as the most impacted category of error in our study, confirming the findings of Dose's (2020) and Pio's (2003) studies. The findings of this study have also proven that capacity overload at a very high input rate makes interpreters produce more errors, particularly omission (Dose, 2020). One interesting finding identified in this study is the fact that *addition* has become the only error category that went into a decline in the interpretation of fast source speech.

The slow source speech might allow interpreters to make elaborations while in the interpretation of fast source speech, interpreters would have less time to elaborate or even to correct their renditions. Errors of addition that happened in slow source speech have the same characteristics as the additions found in Altman's (1994) study. In one of the reported additions, he explained that his research participant has taken too much liberty and allowed himself to exaggerate which has caused him to over-emphasize the message (Altman, 1994). The same case also happened in the additions of slow SS in this study.

All categories of paralinguistic errors are also significantly affected by the SS delivery rate. The numbers of filled pauses, long pauses, and unfinished sentences have increased more than two times in the fast-rate speech interpretation compared to the numbers in the normal-rate speech. A significant rise in filled pauses confirms the finding reported by Plevoets and Defrancq (2016) who reveal that a high source text delivery rate and a high target lexical density are the determinants triggering significantly the occurrence of filled pauses in interpretations.

The errors made at the word and phrase level, i.e., word/phrase-level omission and deviation of meaning, are also significantly impacted by the fast-rate speech. However, compared to the segment omission, our participants made fewer word/phrase level omissions and deviations of meaning in both normal-rate and fast-rate speech interpretations. By taking a closer look at these two categories, it is revealed that proper names become the most challenging lexical item to render, particularly when they are mentioned in the fast-rate speech. Our participants either omitted proper names or incorrectly pronounced them. The same finding was also revealed by (Rakhmawati, 2016) who identified mispronunciations of proper names in interpretations even though the gist of information was properly preserved and despite the use of visual information. However, this study also reveals that in normal and fast speech interpretations, our participants always successfully rendered proper names when they are considered publicly known names. Based on this finding, it appears that well-known proper names may be easier to be rendered by interpreters. In terms of the rendition of technical terms, the renditions are most successful when the technical terms were mentioned more than one time in the SS. This finding is in line with the theory coined by Gile (1999) who claims that proper names, numbers, and technical terms are the "problem triggers" in SI due to low redundancy throughout the speech, and thus require different "coping tactics" (Gile, 1999).

CONCLUSION

In an intermediated communication where an interpreter or interpreters play the role of the messenger, the quality of interpretation is unfairly believed to be the responsibility of the interpreter(s) and interpreter(s) alone. Oftentimes, the competence of interpreters is accused to be the root cause of the failure of information rendition into TL. Less attention is paid to other determining factors of SI quality, especially the speed of the source speech. This study has revealed that a fast delivery rate of source speech has significantly increased the number of errors in six categories. This finding concurs with the result of the previous studies which examine the effect of source speech delivery rate on simultaneous interpretations.

Among all categories, segment omission and deviation of meaning are the most affected categories by SS speed as these two categories have a significant increase in the interpretation of fast-rate speech. On the other hand, addition becomes the only category that went into decline in fast-rate speech interpretation. This study also provides supporting evidence to confirm our presumption that the overall interpretation quality depends not only on the linguistic capability of the interpreter but also on the quality of the source speech, particularly the delivery rate. In a nutshell, a high-quality interpretation relies upon good cooperation between the speaker and the interpreter. In addition, by revealing the impacts of fast-speech rate in information rendition, this study also provides a suggestion for the interpreters' training institutions to invest more time and resources in the coping tactics learning and acquisition.

Nevertheless, I am fully aware of the limitations of this study. Due to time and space constraints, only three professional interpreters were involved which results in a small sample size. The use of RSI in the data collection also caused some technical issues during the SI performance. Therefore, more replications are still required to verify the findings of this study. Even more important, fundamental research on interpreters' perception of the speed of presentation rate and segments organization should be conducted to provide a solid basis to improve the research methodology in the effect of source-speech speed on simultaneous interpretations.

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