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SIMULTANEOUS INTERPRETING: WALKING A TIGHTROPE

Simultaneous interpretation (SI) research indicates clearly that cognitive constraints were recognised as one of the greatest impediments in the performance of interpreters and this intrinsic difficulty constitutes a tremendous challenge at each stage of speech processing. This idea was corroborated by the theories and research conducted by a number of scholars (e.g. Chernov 2004, Mizuno 2005 and many others). Several models based on information processing paradigm in SI have been proposed in order to account for this difficulty and facilitate the selection and development of strategies and tactics which in turn could enhance the performance of interpreters (e.g. Gerver 1975, Moser 1978). Their purpose was to account for mental operations occurring in this mode of interpreting.

Further interdisciplinary models were developed with reference to cognitive science (Mizuno 1994 and Setton 1999). Also, many models aimed at accounting for grave errors and omissions which could not be attributed to deficits in linguistic abilities, insufficient extralinguistic knowledge or poor delivery of the source speech. One of such models was developed by Gile (1995) and further broadened by the concept of the Tightrope Hypothesis based on the notion of processing capacity requirements of a task in SI. It has been observed by many scholars that simultaneous interpreting causes performance problems due to increased processing capacity requirements, not only when a given speech is fast, dense or highly technical, but also in clear and slow speech segments, and not only in novice interpreters, but also in experienced interpreters.

Authors used to focus on entire speeches and certain variables of their features (ad-libbed or read, characterised by informational density or the lack of it, or rapid delivery), as well as on specific problem triggers, such as numbers (Mazza 2001), proper names, perceptual foreign accents (McAllister 2000), enumerations, idioms, etc. However, recently we have witnessed a shift of attention from the overall features of speeches towards 'local' analysis focused on short segments and sequences of a few neighbouring segments (Gile 2008). Scholars emphasise a strong possibility that this approach will shed new light upon the issue of local cognitive load in simultaneous

interpreting as well as errors, omissions and failures occurring as a result of this cognitive load, having a significant impact on the quality of performance.

The following paper is a summary of an experiment conducted as an attempt to verify the assumptions derived from the Tightrope Hypothesis, tested in an empirical study with the participation of conference interpreting students at two levels of advancement (novices and semi-professionals). The objective of the experiment was to trace the occurrences of imported cognitive load in novice interpreters as compared to semi-professionals. The analysis was based on the recorded performance of interpreters. Priority was given to the occurrence of processing capacity deficits resulting in cognitive overload and causing errors and omissions as a result of cognitive load shifted from processing the previous speech segments, leading to the deterioration in quality.

The starting point for the discussion of the cognitive aspects in SI is the Tightrope Hypothesis developed by Gile (1999:153). The hypothesis posits that interpreters often work close to the saturation level and that

'the total capacity consumption is close to the interpreter's total available capacity, so that any increase in the processing capacity requirements and any instance of mismanagement of cognitive resources by the interpreter can bring about overload or local attentional deficit and consequent deterioration in the interpreter's output. (Gile 1999:159).

The aim of this hypothesis is to account for errors and omissions occurring frequently in interpreting even if there is no particular difficulty present in the speech. Gile (1999) claims that if interpreters worked well below the saturation level, errors and omissions should occur only in the case of the existence of an evident intrinsic interpreting difficulty in the source speech. Hence, errors and omissions may be explained in terms of processing capacity deficits implied by the Effort Models of SI, which will be elaborated upon further in the paper. This leads us to the assumption that the total processing capacity requirements are often close to the maximum available capacity in a single interpreting situation. Gile also points out that simultaneous interpreters tend to work close to saturation as regards each Effort, which means that

'at any time, for at least one of the three core Efforts, the processing capacity required for the task it is performing tends to be very close to the capacity made available for it' (Gile 2008:61).

Speeches are characterised by a number of variables including the

'speed of delivery, information density, quality of the speaker's voice, prosody, accent, the number of technical terms, the number of names, the clarity of the underlying logic etc. (Gile 1995)

The Effort Model of simultaneous interpreting developed by Gile applies holistically to all speeches regardless of their features. However, recently scholars have indicated the necessity of further research based on different types of cognitive load imported or exported within particular small segments of a given speech in view of the Tightrope Hypothesis. Failures not *in* problem triggers, but *around* them, have been observed in empirical research, for instance by Cattaneo (2004, cf. Gile 2008) and Mazza (2005). The findings of these studies corroborate the assumption of *imported cognitive load* being shifted between particular segments of a speech. This notion is elaborated upon further in the paper. As Gile puts it, failures could be explained by suboptimal management of processing capacity and a resulting deficit in one of the Efforts without a deficit in the total available processing capacity. (Gile 1999).

The following conclusions were drawn from these assumptions:

'in the case of a whole speech or even a given segment interpreters are vulnerable to conditions where total processing capacity requirements are high. This may result in errors, omissions or a loss of linguistic and/or delivery quality in the target speech. Such conditions may occur when speeches are dense, fast, spoken with an accent or a type of logic with which the interpreter is not familiar, when they contain multi-word names or unfamiliar names, numbers, enumerations etc.' (Gile 2008:65).

There were also some empirical studies concerning various 'problem triggers' such as numbers, names and idiomatic expressions (e.g. McAllister 2000, Mazza 2001). Moreover, evidence has shown that interpreters are also vulnerable to errors in processing capacity management, which includes sub-optimal distribution of attention between the Listening Effort, the Memory Effort and the Production Effort. Due to the complexity of the task errors, omissions and failures during the SI performance can be explained by the detection of differences in the organisation of knowledge. Researchers go as far as to postulate that

better knowledge organisation closely correlates with reaction times and results in more rapid access to knowledge already at the level of word recognition (Riccardi 2005:754). Such errors are often the cause of loss of the interpreting quality.

The assumption behind creating the Effort Model of simultaneous interpreting was the existence of the mental energy requirement. However, due to the limitations of this energy being entirely exploited in the process of interpretation, occasional increased energy requirements are reported to ensue frequently, leading to the occurrence of errors, omissions, failures and overall deterioration of performance. Yet another comment with respect to this

phenomenon needs to be mentioned: interpreting includes the crucial role of attention, as well as automatic and non-automatic operations. Gile (1995: 161) states that

'some mental operations (nonautomatic operations) require attention or processing capacity and others (automatic operations) do not. Nonautomatic operations take processing capacity from a limited available supply. When the processing capacity available for a particular task is insufficient, the performance deteriorates.'

According to Gile (1995) the operations in SI that cannot be automated include

'detecting a brief stimulus, identifying a non-familiar stimulus or a familiar stimulus presented under poor conditions, storing information in memory for later use, preparing for non-automated response, controlling the accuracy of a movement, or manipulating symbols in the cognitive systems' (Gile 1995:161-162).

Thus, Gile based his model on the assumption that there is a clear connection between a certain cognitive over-load and deterioration of performance.

The Effort Model of simultaneous interpreting proposed by Gile is a cognitive framework conceptualising SI as a set of multiple cognitive operations grouped into three basic 'Efforts'. The first indicated Effort is the 'Listening Effort' or the 'Listening and Analysis Effort' (L) the 'Production Effort' (P), the 'Memory Effort' (M) (Gile 1995:97-98).

Also, a fourth Effort was added to this model, namely 'the Coordination Effort' (C), proposed by Eysenck & Keane (1990). This Effort is responsible for managing the allocation of attention and shifts between the three other efforts. Gile (1995:169) notices certain parallel features of this Effort to what Baddeley and Hitch called the 'Central Executive' in their model of Working Memory (Baddeley & Hitch 1974).

Another effort proposed by the author of this paper is 'Suppression of Irrelevant Thoughts' which encompasses the thoughts of the interpreter during the performance of the interpreting task, which need to be eliminated in order to perform the task successfully and which represent a conscious effort. Such thoughts are usually connected with the settings in which the task takes place, the speaker(s), or they may relate to the interpreter's experience and these thoughts distract the interpreter from the actual task and cause increased processing capacity requirements. This idea is based on the experience of the author in SI and corroborated by a separate survey conducted by the author among conference interpreters.

The general assumption is that the available capacity must be larger than the requirement for the successful completion of a task. In order to meet this demand, the total available capacity must be at least equal to the capacity

requirements. Thus, difficulties and failures can be accounted for not by the lack of knowledge but rather by the cognitive overload which leads to situations in which the execution of a given task is delayed or not performed at all.

The fact that simultaneous interpreting involves a considerable cognitive load was recognised a long time ago (for instance by Gerver 1969). The focus of research was twofold. Firstly, whole speeches and their particular features were taken into account, and secondly, authors focused on specific problem triggers and their influence on the SI output. However, recently these factors have been discarded as not being sufficient interpreting difficulty predictors.

The new approach was proposed by Gile (2008:59-77) who advocates local analysis as a means of investigation of cognitive load limitations in SI. He assumes that

'[i]n such local analyses, cognitive load imported from the unfinished processing of the previous segment can be a determinant of the interpreting difficulty of the current segment – and explain language-specific interpreting difficulties which are not manifested in everyday conversation. Other factors include information-density distribution in the sentence and inter-sentence pauses.'

Therefore, particular sentences and clauses are regarded as a convenient unit of analysis.

Gile notices further that when processing a sentence, the interpreter is faced with cognitive load which stems from processing the sentence itself, but also from processing the previous sentence and the necessary retrieval from the STM, reformulation, production and monitoring at the time when a new sentence has already started. This notion is characterised as the 'imported cognitive load.' The implication of its existence is that

'the specific distribution of information density along single sentences can determine interpreting difficulty to a considerable extent: depending on where and how information is distributed in a sentence, it may export a smaller or larger load into the next sentence', which results in the fact that *'any such local decision may have significant implications on cognitive load and determine success or failure in the interpretation of specific sentences.'* (Gile 2008:60).

So far no research has been carried out with reference to the patterns of imported cognitive load in novice interpreters as opposed to more experienced ones. The study presented further in the paper is an attempt at analysing the local cognitive load distribution depending on the level of advancements in SI.

As has already been stated, increased processing capacity requirements frequently occur in the process of interpreting, which may lead to significant omissions of the ST elements in the TT. Several attempts have been made to explain the nature of omissions in SI. As Jones (1998:139) points out,

'there are cases when the interpreter is unfortunately not in a position to provide a totally complete and accurate interpretation' and therefore, *'the interpreter omits in order to preserve as much of the original message as possible.'*

Pym (2009:83-105) distinguishes two types of omissions, namely, low-risk omissions which occur *'in a constant background mode, without ST stimuli'* and are found in repeat performances of the same task with similar frequency but with different distribution in the text (judicious omissions as ethically enhancing coherence, e.g. in the case of redundant phrases, etc.), whereas omissions, which incur high level of risk tend to be repaired in a repeat performance. Therefore, in the case of high levels of contextualisation, interpreters aim at non-omission (see also Moser 1978, Kurz 1996, Pöchhacker 2007).

Pym, as opposed to Gile, emphasises the role of sociocultural context in the case of omissions rather than the sole role of cognitive modelling¹. He criticises Gile's approach to interpreting seen as a set of cognitive operations occurring regardless of the contextual setting of a given interpreting task. He claims that

'Gile's models might seem to deny the context-sensitive nature of interpreting, particularly simultaneous interpreting, and instead present this professional activity as a mode of expertise that would essentially be the same no matter what the social context.'

Another crucial issue for the performance of empirical research in SI is the issue of variables which affect the performance quality. Gile (1995, 1997, 2005, 2008) gives priority to empirical research as a viable tool in TS and IS. However, he emphasises the role of a careful choice of methods in order to obtain reliable and valuable results.

Variables that exert strong influence on interpreting output are numerous. They include the source language, the target language, the spontaneous, semi-spontaneous, or prepared nature of the speech, delivery speed, the speaker's intonation, the speaker's accent, the logic of the speech, information density of the speech, syntactic structures in the speech, including the length of sentences and the number of embedded structures, the quality of the sound reaching the interpreter, the interpreter's knowledge of the subject matter, experience, training, mental and physical state, motivation, visibility of the

¹ *'(...) modelling of the resources used when interpreters make omissions suggests that cognitive management may actively respond to contextual factors such as the aims of the discourse, the strategies of the speakers and the variable risks of the text items. Analysis of the data for one of Gile's experiments indicates that the cognitive management of omissions is highly variable.'* (Pym 2009:98)

speaker from the booth, the number of delegates who listen to interpreting, the interpreter's relations with other colleagues in the team, etc. (cf. Gile 2006:9-23).

Cognitive psychologists have long been interested in the role of expertise in problem solving. The early research proved that the main difference between novices and experts was the organisation and use of their knowledge (Chase and Simon 1973, de Groot 1965). Further research focused on the actual time spent by both groups on problem solving (Chi 1982). Other differences between these two groups were analysed in verbal protocols (Lesgold 1988). Many scholars emphasise the superiority of experienced interpreters over novices in the profession, as the operation of the cognitive system is seen to change significantly over time. Danks points out that experienced interpreters are sensitive to a broader range of information cues in the input, which modulates the sensitivity of the filtering system and provides richer computational output.

He further lists essential differences between novices and professionals, known to cause substantial differences in their performance, such as: differential cue use, richer network of activation resulting from the alterations in filtering. Aware of the problems, professionals are able to use effortful processes (strategies and tactics) in the problem-solving task. Moreover, professionals develop a certain degree of automaticity in the processing of input, whereas selective inhibition is thought to allow interpreters to decrease the processing time, improve accuracy and eliminate the effect of interference on the performance.

Sternberg (1999:298) regards expertise in translation as a sub-category of translation competence and a prototype construct which encompasses factors such as:

'quantity of knowledge, organisation of knowledge, superior analytical ability, superior creative ability, superior automatised processing, and also a superior practical ability which allows experts to apply their more abstract, cognitive abilities within the constraints of the field where they work' (Sternberg 1999:298).

Additionally, the knowledge of experts in their domain has been restructured, and therefore, can access their LTM in a more efficient manner than novices. They conduct problem-solving in a more efficient way due to *proceduralisation* (conversion of the declarative knowledge into procedural knowledge), *tactical learning* and *strategic learning*. Experts are reported to have developed rich patterns of declarative knowledge. They spend more time on creating the representation of a problem than on finding and applying a strategy to solve it. Their representations of problems are based on the structural similarities between these problems. Moreover, experts start solving the problem concentrating on the given data towards the issues that are unknown. The patterns that they have developed

include a lot of procedural knowledge on the problem-solving strategies. They are able to solve problems efficiently, even facing time constraints and are able to solve problems faster than novices. Besides, experts display high effectiveness in finding proper solutions. They are able to monitor their own strategies and the process of problem solving. When faced with problems having untypical structure, they spend more time than novices on the representation of the problem, as well as on the retrieval of proper strategies. Finally, when they receive a new piece of information which is contradictory to the initial representation of the problem, they are able to adapt flexibly applying more suitable strategies (Gile 1995).

Novices, on the other hand, demonstrate little declarative knowledge from a given field, their knowledge is poorly organised and diffuse. The time used for the application of proper strategies is longer than the time spent on creating the representation of a problem. Moreover, novices create relatively poor and primitive representations of problems, which are based on superficial similarities between them. Novices concentrate on the gaps in their knowledge and on finding strategies which could be used in relation with the information they have. They often apply the method of intermediate goals when dealing with many problems. Their problem-solving strategies include few or no automatised sequences of steps. What is more, their efficiency is lower than in experts' performance and they do not have a properly developed system of monitoring of their own problem-solving strategies. Finally, novices demonstrate inferior ability to adjust to new information which is contradictory with the initial representation of the problem and the applied strategy.

The study was devised as an attempt at verification of hypotheses derived from the assumptions of the Tightrope Hypothesis, as well as from the interdisciplinary insight into the cognitive processes in simultaneous interpreting. The assumptions presented above, as well as the research reviewed previously indicate the need to compare the performance of novice interpreters and semi-professionals. Therefore, a study needs to be designed in order to analyse the frequency of cognitive overload and strategies applied to overcome this difficulty, taking into consideration subjective views of each participant.

It is postulated that novice interpreters are more prone to fail as a result of the increased demands in processing capacity. Processing-capacity related problems are understood as any processing capacity requirements for the two simultaneous Efforts which exceed the total available capacity needed for performing SI. Such a situation causes saturation. However, saturation alone is not the exclusive source of errors and omissions. For instance, when students focus too much on finding an elaborate and correct translation equivalent of a given SL segment, there is an insufficient amount of processing capacity left for the Production Effort. In this

case an interpreter needs to cope with individual processing capacity deficit which hinders the TL production. Such errors and omissions are described as arising from *'improper management of processing capacity'* (Gile 1995:171). If the hypotheses are corroborated, it may lead to a claim congruent with the Tightrope Hypothesis by Gile (1999:153-160). Accordingly, poorer performance of novice interpreters due to improper management of cognitive resources cannot be excluded.

On the basis of the research reviewed above, the following hypotheses were proposed:

1. capacity deficits and saturation levels are expected to be more extensive in Novices, therefore, they are prone to failures more often than Semi-professionals, and therefore, the management of cognitive resources should be better in Semi-professionals. Semi professionals are expected to be able to manage local cognitive load (on the level of particular sentences/clauses) in a better way than Novices. It should be manifested by:

- 1a. the differences in the number of grave errors in their performance,
- 1b. the differences in the number of significant omissions of the text
2. reporting the overload, as well as commenting upon the experimental settings should be more extensive in the case of Novices, as many scholars believe that less experienced interpreters are able to better verbalise their decisions and indicate errors.

The study focused on the performance of 12 MA students who participated in a 2-year conference interpreting programme at Adam Mickiewicz University in Poznan. All of the students participated in extensive training including various modes of interpreting with 3 working languages: Polish, English and German. All subjects had Polish as their L1. For the purposes of the study the subjects were divided into 2 groups according to the level of advancement:

- Novices – first-year students who completed 6 months of training at the time of the experiment
- Semi-professionals – second-year students who completed 15 months of training at the time of the experiment.

In the experiment bi-directional simultaneous interpreting has been used to detect occurrences of local cognitive load (especially cognitive load imported from processing the previous segments of the speech) influencing the performance of interpreters, which should be manifested by processing capacity deficits resulting in errors and omissions of sizeable segments of the ST. The aim was to focus on local cognitive load (Gile 2008) and overload in one or more Efforts, excluding the characteristics of speeches which are already known from the literature (e.g. numbers, idioms, etc) for causing increased processing capacity demands.

It is generally suggested in the SI research that there is a necessity to select representative stimuli in studies, in which the level of expertise of interpreters is compared. The argument supporting this idea is that authentic materials and tasks

allow more experienced interpreters to 'capitalise on their experiential advantage.' Therefore, authentic textual materials have been used in the present study.

The selection of text for the experiment was governed by the following criteria:

- topic familiarity
- high degree of orality
- acceptable delivery rate
- no excessive amounts of specialised vocabulary
- no alterations
- appropriate style and register.

The English source text was the victory speech delivered by Barack Obama on 4 November 2008. The transcript comes from the website of *The New York Times* (2,051 words). The Polish source text was the official translation of the speech by Barack Obama (1,638 words), published in *Gazeta Wyborcza*. Neither of these texts has been changed or altered in any way.

Immediate retrospective accounts (developed by Kalina 1994, 1998, 2005), were used as an auxiliary method to elicit knowledge concerning the occurrences of cognitive overload and substantiate the researcher's assumptions as to the reasons of overload. The subjects were supposed to record their comments while listening to their own performance, paying special attention to failures and omissions of the source text occurring as a result of cognitive overload. In the accounts the subjects used their native language, which enabled them to express their thoughts more freely.

Immediate retrospective accounts were used in order to verify tentative assumptions of the experimenter as to the causes of overload.²

The following variables have been indicated:

- reported and assumed occurrences of omissions and errors [O&Es] due to local cognitive load (especially the imported cognitive load)
- subjective assessment of the experimental setting.

Prior to the commencement of the task, the participants were instructed as regards the overall procedures of the experiment and the speeches that they were to interpret in both directions (from Polish into English, and subsequently from English into Polish). The actual interpreting task was preceded by a warm-up exercise of about 7 minutes, prior to which the interpreters received vocabulary lists with potentially unknown items. The students' performance in the warm-up exercise was not recorded.

² Cohen (1984) claims that a central issue for the methodology of retrospective studies is the 'recency effect', which implies that the time interval between the completion of the task and the initiation of retrospection influences the validity of the data, especially the information on processing problems in SI.

The subsequent stage in the experiment was the interpretation of the speech from Polish into English, which lasted for about 16 minutes. This stage was followed by the interpretation of the speech into Polish, prior to which the subjects were allowed to have a break. After the break further instructions were provided and the subjects could proceed to interpreting, which lasted for about 19 minutes. No vocabulary lists were provided for this part of the experiment. Both interpretation tasks were recorded for further analysis.

The next part of the experiment comprised retrospective accounts which were recorded while students were listening to their own interpretations. They were allowed to stop the recording whenever necessary and comment upon the relevant aspects of their performance. Before this task could begin, the students were given a short briefing concerning the actual procedure of the recording. The students were supposed to indicate the following aspects of their performance:

- segments of the text where, according to the subjects, cognitive overload took place, giving the reason for overload (whenever possible) and specifying in which effort (Listening and Analysis, Memory, Production or Coordination Effort) the processing capacity requirements were intensified;

- unknown words (which they failed to render) resulting in cognitive overload and subsequent failures in the performance and omissions of particular speech segments. Due to the space constraints, the results obtained from the retrospective accounts are not discussed in this paper in detail.

Hypothesis 1a stated that capacity deficits and saturation level should be more extensive in novices, and as a result, they should be prone to commit more errors than semi-professionals. This would suggest better management of cognitive resources in semi-professionals. What is more, semi professionals were expected to manage local cognitive load in a better way than novices.

It was preliminarily stated that irrespective of the direction, several cases of errors have been evidenced in the case of all subjects. Errors were reported to have occurred mostly due to processing the information from the previous segments. The shift of cognitive load onto the adjacent segments was also caused by hesitations and self-corrections which gave rise to delays in the production of the TT. As expected, overload of working memory took place. Additionally, several examples from the performance of the subjects indicate that frequently prolonged retrieval of words and phrases from the LTM caused the increase of the processing capacity requirements. Surprisingly, this led to errors even in segments which were delivered quite slowly and which seemingly contained no intrinsic difficulty. Numerous examples have also proved uneven distribution of attentional resources between the comprehension of the ST and the formulation on the TT. Another identified source generating shifts in cognitive load were proper

names and quotations which often caused further cognitive mismanagement. Remarkably, in both groups there seems to be predominance for inept formulations, calques, incorrect collocations and copying the ST word order as a result of the imported cognitive load. Even more surprisingly, many errors occurred despite the fact that there was enough time for the subjects to formulate correct and meaningful sentences. What is more, hesitations and self-corrections have been indicated as the most frequent factors to cause further overload in the text.

Nevertheless, no differences between the two groups in terms of the number and source of errors have been identified. Therefore, the assumption that novices are prone to commit more errors when facing excessive cognitive load imported from the previous segments has not been corroborated. At this point, in view of the evidence presented above, it seems reasonable to reject Hypothesis 1a stating that there should be significant differences between the two groups, concerning errors which result from suboptimal management of cognitive resources.

As regards omissions, it was stated previously that according to the Tightrope Hypothesis (Gile 1999) omissions occur as a result of the fact that interpreters frequently work close to the level of saturation. Therefore, the total capacity consumption is close to the interpreter's total available capacity, so that any increase in the processing capacity requirements and any instance of mismanagement of cognitive resources by the interpreter can result in overload or local attentional deficit. As a consequence, the quality of the interpreter's output deteriorates (Gile 1999:159). Gile (1999) claims that if interpreters worked well below the saturation level errors and omissions should occur only in the case of the existence of an evident intrinsic interpreting difficulty in the source speech. Hence, errors and omissions may be explained in terms of processing capacity deficits implied by the Effort Models of SI. This leads to the assumption that the total processing capacity requirements often close to the maximum available capacity in a single interpreting situation. However, it has also been stated that the management of cognitive resources is dependent on the experience (Sternberg 1999). Therefore, novice interpreters were expected to omit more meaningful segments and even whole sentences of the ST due to the cognitive load being imported from processing the previous segments of the speech.

Indeed, these assumptions have been corroborated by the data gathered in the study. Novices tended to omit larger segments usually due to the overload of memory which occurred as a result of cognitive load being shifted from the previous segments of the speech. In the case of Semi-professionals the reported omissions were usually tactical omissions applied to decrease the processing capacity requirements posed by the local cognitive load. Whereas Novices usually omitted several segments of the text due to cognitive

overload. These outcomes provide strong evidence to support Hypothesis 1b.

Hypothesis 2 states that reporting the overload, as well as commenting upon the experimental setting should be more in the case of novices, as it is believed that less experienced interpreters are able to verbalise their decisions and indicate errors additionally providing explanations concerning the reasons of their occurrence.

However, as proved by the recordings from the immediate retrospective accounts, the differences in the number of comments were too enormous to draw a conclusion that they might have had connections with the level of expertise of the subjects. As it occurred, many subjects refrained from commenting upon particular types of errors and omissions. Nevertheless, it was most probably due to different personalities of the subjects, and not due to the level of expertise. Therefore, Hypothesis 2 should be rejected.

Apart from the evidence provided above, several regularities in the performance of the subjects have been noticed. First of all, errors and omissions have been noted to occur more frequently in interpreting into Polish. This regularity applies to the performance of both groups. It may be partially accounted for by the fact that in this case more capacity was required for comprehension of the ST, which impeded significantly the ability to monitor the output. What is more, it has been shown in the tables in Appendix 1 and 2 that the subjects who omitted more segments of the ST displayed relatively few cases of serious errors in their performance. It applied especially to the group of Novices. It may be accounted for by the fact that due to omissions it was possible for them to lower the processing capacity requirements. Therefore, more capacity could be devoted to monitor the production.

Conclusions

Several phenomena associated with the differences in the performance of novice interpreters and semi-professionals have been discussed in the paper. Particular emphasis was placed on the occurrence of imported cognitive load which strongly influenced the performance of the subjects also in places where no intrinsic difficulty had been detected.

Nevertheless, too little evidence was provided to establish a more detailed pattern of imported cognitive load, which was due to the limited number of participants in the study. It would be possible to obtain more detailed data and comments from the participants by means of interviews conducted individually with the participants. It would allow asking detailed questions to the participants, which might be a more reliable method than the immediate retrospective accounts.

Moreover, in the present study such variables as gender differences, age differences and the possible influence of other foreign languages were not taken into account. Perhaps these variables might shed some light on the issue of the management of cognitive resources. Also, the corpus gathered for the present study may be used for the investigation of other aspects of the SI performance.

In relation to the issue of feasibility of empirical research in SI, it needs to be stated that it is extremely difficult to find a representative group of interpreters, especially among professionals. They come from different backgrounds, usually pursue various educational paths, have diversified experience. Some interpreters perform simultaneous interpretation very frequently, others only from time to time. Therefore, groups for studies involving professionals need to be selected very carefully.

References

- Baddeley, A.D., & Hitch, G.** (1974). *Working memory*. New York: Academic Press.
- Chernov, Ghelly V.** 2004. *Interference and Anticipation in Simultaneous Interpreting. Speed, memory and simultaneity: Speech processing under unusual constraints*. Amsterdam/Philadelphia: John Benjamins Publishing.
- Danks, Joseph.** 1997. *Cognitive Processes in Translation and Interpreting*. Thousand Oaks/London/New Delhi: SAGE Publications.
- Gile, Daniel.** 1991. *The Processing Capacity Issue in Conference Interpretation, Babel*, 37:15-27.
- Gile, Daniel.** 1995. *Basic Concepts and Models for Interpreter and Translator Training*. Amsterdam/Philadelphia: John Benjamins.
- Gile, Daniel.** 1997. *Conference interpreting as a cognitive management problem*. In *Cognitive Processes in Translation and Interpretation*. J.H. Danks – G.M. Shreve – S.B. Fountain – M.K. McBeath (eds).
- Gile, Daniel.** 1999 *Testing the Effort Models' tightrope hypothesis in simultaneous interpreting - A contribution, Hermes* 23, 1999:153-172.
- Gile, Daniel.** 2006. *Conference Interpreting, Encyclopedia of Language and Linguistics*, 3: 9-23, 2nd Ed. Brown, Keith (ed). Oxford: Elsevier.
- Gile, Daniel.** 2008. *Local cognitive load in simultaneous interpreting and its implications for empirical research, Forum* 6 :2, 59-77.
- Jones, Roderick.** 1998. *Conference Interpreting Explained*. Manchester: St. Jerome Publishing.
- Kalina, Sylvia.** 1998. *Strategische Prozesse beim Dolmetschen: Theoretische Grundlagen, empirische Fallstudien, didaktische Konsequenzen*. Tübingen: Gunter Narr.
- Kalina, Silvia.** 2005. *Quality Assurance for Interpreting Processes, Meta* 50, 2.
- Kurz, Ingrid.** 1996. *Simultandolmetschen als Gegenstand der interdisziplinären Forschung* [Simultaneous interpreting as a subject of interdisciplinary research]. Vienna: WUV - Universitätsverlag.
- Mazza, Christina.** 2001. *Numbers in Simultaneous Interpretation, The Interpreters' Newsletter* 11:87-104.
- McAllister R.** 2000. *Perceptual foreign accent and its relevance for simultaneous interpreting in: Language Processing and Simultaneous Interpreting*. K. Hyltenstam – B. Englund-Dim-

- itrova (eds.). Amsterdam: John Benjamins Publishing.
- Mizuno, Akira.** 2005. *Process Model for Simultaneous Interpreting and Working Memory Meta* 50, 2:739-752.
- Moser, Barbara.** 1978. *Simultaneous interpretation: A hypothetical model and its practical application* in: *Language Communication and Interpretation*. D. Gerver – H.W. Sinaiko (eds). New York/London: Plenum Press. 353-368.
- Pym, Anthony.** 2009. *On omission in simultaneous interpreting: Risk analysis of a hidden effort* in: Gyde Hansen – Andrew Chesterman – Heidrun Gerzymisch-Arbogast (eds.).
- Setton, Robin** (ed). 1999. *Simultaneous Interpreting: a cognitive-pragmatic analysis*. Amsterdam/Philadelphia: John Benjamins Publishing.
- Sternberg, Robert.** 1999. *Psychologia poznawcza*. [Cognitive psychology]. Warszawa: Wydawnictwa Szkolne i Pedagogiczne.

