INTERACTIONS BETWEEN SPEAKER'S SPEECH RATE, ORALITY AND EMOTIONAL INVOLVEMENT, AND PERCEPTIONS OF INTERPRETING DIFFICULTY: A PRELIMINARY STUDY

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Abstract

High speech rate is regarded as a reliable indicator of input difficulty, and it is associated with read speeches. Input speech rate, measured in terms of words/syllables per minute, is used as a criterion measuring difficulty when selecting material for the assessment of interpreters. However, speech rate is a multifaceted perception phenomenon that hinges on concurrent prosodic features, which are concomitant to the various modes of speech presentation, their orality and speakers' emotional involvement. This observational, corpus-based study of English inputs at the European Parliament analyses whether fast inputs are related to perceptions of more difficulty, and slower speeches to perceptions of less difficulty. The holistic perceptions of 11 experts tentatively show that speech rate, per se, does not impinge on perceptions of difficulty. Rather, speech rate should be measured as a cluster of concurrent prosodic features. The data could contribute to the debate about the criteria used when selecting interpreting material for assessment and certification.

Keywords: Speech rate. Input. Difficulty. Mode of delivery. Emotional involvement.

1. Introduction

Difficulty in interpreting in general and simultaneous interpreting (SI) in particular has been closely associated with high input speech rate and other input-related language features (Gile 1995, 2009). Professional interpreters attribute interpreting difficulties to speeches delivered fast and written to be read (Cooper *et al*. 1982; AIIC 2002). The concept of input difficulty determines many training decisions, such as the selection of training and assessment material for future interpreters, and input speech rate is essential to this concept. The criteria informing the selection of training and assessment material are based on solely perceptive categories with subjective characterisations of input speech rate, "fast, slow, moderate" and "easy, difficult, moderate", which have not been thoroughly analysed. A potential contribution to studies on input difficulty may involve analysing speech rate not in isolation, but examining its synergies with other input features related to the non-verbal vocal dimension (Iglesias Fernández 2010). This would make it possible to confirm whether high input speech rate in interaction with other input features is a factor in perceptions of higher difficulty.

According to our first hypothesis, high input speech rate is not a reliable predictor of difficulty when exclusively measured in terms of words or syllables per minute. This leads us to propose a second hypothesis: if high speech rate is analysed as a cluster of prosodic and interpersonal input features, such as higher orality, more expressive delivery modes and higher speaker interpersonal involvement, high speech rate is likely to be offset, and source speeches would be perceived as slower and easier.

Although researchers have analysed the impact of speech rate on the interpreting process and/or product (Seleskovitch 1965; Lederer 1981; Gerver 2002; Liu & Chiu 2009), they have done so by isolating speech rate from other non-verbal features and ignoring its interaction with other input features like the ones mentioned above. Déjean Le Féal (1978) pioneered studies on the interplay between input features when she examined the perceptive impact of speech rate and read delivery modes. Her study found that read inputs were perceived as being faster and more difficult, even if their speech rate was not

higher than that of control inputs. Another constraint of studies on input speech rate is that, when this variable is analysed, poorly measured tempo characterisations are often employed and incorporated in the interpreting literature (Seleskovitch 1965, 1982; Lederer 1981; Gerver 2002). Perception-based studies (Seleskovitch 1965; Lederer 1981) and quantitative experiments (Gerver 2002) have found that a range of between 95 and 120 words per minute would set a comfort threshold for interpreting. Corpus-based studies, however, show that at the European Parliament (EP) the average input speech rate can go beyond 160 words per minute (de Manuel Jerez 2006; Bendazzoli & Sandrelli 2005). Thus, it would be suitable to reconsider this supposed comfort threshold, linked to speech rates measured only in terms of words or syllables per minute. Establishing the factors which determine how input speech rate and, therefore, input difficulty are perceived is complex; furthermore, the interpersonal dimension should also be taken into account. This further complicates analysis, as perceptions vary according to individual differences (Lamberger-Felber 2001; Iglesias Fernández 2010), such as greater exposure to fast source speeches and management of strategies to offset difficulty, thus leading to high intersubject variability in difficulty judgements (Iglesias Fernández 2010). Another of our objections to analyses of input speech rate in interpreting is the lack of a multidisciplinary approach, as phonetics has been ignored (Abercrombie 1967; Laver 1994) and, besides, no phonetical software, for instance PRAAT, has been employed to measure and quantify this feature (Boersma & Weenink 2001).

Nevertheless, rigorously studying input speech rate as a key factor in perception of interpreting difficulty is needed to ensure higher standards in training, assessment and professional certification of interpreters. It would also contribute to a better understanding of the nature of difficulties and the impact on interpreting quality assessment.

It should be noted that transcription and acoustic analysis of oral language, including interpreting, and its prosodic features is extremely complex and subject to many constraints. In fact, corpus-based SI observation, though quite established, lags behind translation corpora (Shlesinger 1989; Pöchhacker 1994a; Kalina 1998; Setton 1999; ECIS 2004; EPIC-Bendazzoli & Sandrelli 2005) because of the nuances of oral language and the difficulty in measuring segmental and suprasegmental prosodic features. Thus, it seems reasonable that before engaging in the complex task of electronically recording input speech rate in corpora, we first observe its behaviour in connection with other concomitant input features to obtain a more accurate representation of input speech rate and, consequently, of interpreting difficulty.

Creating corpora of inputs interpreted in real situations increases ecological validity and, in turn, reinforces the external validity or degree of certainty of generalisations derived from speech rate analysis in relation to perceived difficulty. Nevertheless, such generalisations could be jeopardised if the analysis does not incorporate the interaction between input features linked to source speech rate, like the prosodic dimension, orality and the interpersonal dimension, as well as the resulting by-products.

To that end, we undertook one of the previous steps needed to refine the notion of input difficulty derived from speech rate: observing the interaction between input speech rate and other concomitant prosodic and interpersonal features, and collecting perceptions of speech rate and difficulty from a group of experts.

2. A few considerations on high speech rate in SI and its relation to perceptions of input difficulty

High input speech rate has traditionally been regarded as an indicator of SI difficulty and an interpreting challenge (Seleskovitch 1965; Gerver 2002; Kade & Cartellieri 1971; Lederer 1981; Déjean Le Féal 1982; Alexieva 1999; Gile 1995, 2009; Ĉeňková 1998, Liu & Chiu 2009). It is widely assumed that high speech rate can involve higher information density (faster inputs comprise more utterances), which could lead to a decrease in faithfulness, as pointed out by many professional interpreters (AIIC 2002). Still, no direct relation between higher speech rates and higher density can be established. In fact, higher speech rates do not necessarily involve higher interpreting difficulty. Speakers may speak fast but say little (little new information). Such is the case in highly redundant and repetitive inputs, containing little information and few new concepts, with easily accessible context and inferences, etc. Conversely, a speaker may speak slowly but convey much information (high information content, high density in terms of utterances and new concepts, opaque inferences, little access to the context, etc.). Shlesinger (2003) already proved that there is no correspondence between speech rate and faithfulness in a study in which low speech rates did not correlate with lower difficulty or more effective communication.

3. Input features interacting with speech rate and influencing perceptions of input speech rate and difficulty

Another of the main reasons for input difficulty in interpreting, pointed out once and again by professionals, also stems from inputs with low orality, that

is, read source speeches delivered with awkward prosody (Cooper *et al*. 1982; Lee 1999; AIIC 2002). As found by Déjean Le Féal (1978, 1982), even if such speech rates are not necessarily higher, they are perceived as being faster. This is due to a cluster of concomitant factors, such as the tempo of read delivery modes, few and short pauses, and unclear pitch excursions. In this sense, it would be advisable to remember what Setton (1999, 2005) stated on the maximising role of prosodic features and their contribution to more effective interpreting. Thus, intonation plays a procedural role when it comes to retrieving and accessing relevant information (Setton 2005). Setton also points out that inputs encode information of two different kinds, conceptual information and procedural information, and how the latter provides instructions so that conceptual features are properly processed. A major marker of procedural information is the intonation pattern of an input. More, and more effective, pragmatic procedural markers involve less processing effort and less interpreting difficulty, as intonation directs interpreters to the most relevant contents in a message. Prosodic expressiveness is concurrent with speech rate and therefore reduces the negative impact of high speech rate, as proved by Déjean Le Féal (1978, 1980). These considerations reinforce the need for a new approach to speech rate analysis, which should necessarily be related to other features acting as markers of procedural effectiveness (Setton 2005).

Read inputs are usually characterised by a rather ineffective pausing pattern, a lack of logical segmentation and rather flat pitch contours, with little or no oscillation (see Figures 3 and 4). This characterisation does not help signal semantic salience and emphasis. More oral inputs, however, may be faster, but also display higher impact in terms of communication and a prosodic characterisation able to reduce and offset perceptions of speech rate and difficulty. The interaction between the non-verbal dimension and orality is clear, since, as stated by Enkvist (1982: 16): "paraverbal and non verbal actions affect the text".

These paralinguistic effects are a by-product of the choice made by speakers along the orality continuum. Still, we added an interpersonal feature derived from speakers' involvement with the message and listeners (Alexieva 1999). This variable determines more expressive, more oral delivery modes as a result of higher interpersonal involvement and vice versa. In Alexieva's view (1999: 156), the degree of speaker interpersonal involvement – "non-involvement/ involvement" – must be regarded as a criterion enhancing orality and interpreting difficulty. This factor can turn any delivery mode into a more accessible, more communicative input or, conversely, into a less involved, less communicative input. Thus, inputs displaying higher interpersonal involvement and

higher prosodic expressiveness and orality show a clearer, more logical seg-mentation pattern, based on pauses marking boundaries between grammatical units (beginning and end of utterances), more dynamic pitch excursions, and a more variable intensity span – all of which makes it possible to highlight passages of greater semantic salience and emphasis (Iglesias Fernández 2010). In turn, these features influence text content and increase orality.

4. Perception of difficulty and expert judgements

With a view to the operationalisation of the perception of input difficulty derived from high speech rate, input speech rate was analysed as a factor within a myriad of prosodic features related to orality and speakers' interpersonal involvement, concomitant to the delivery mode. To avoid the bias that could be introduced in this study by the researcher, who selected the material and was repeatedly exposed to it, the opinion of expert participants who gave their perceptions of the difficulty of the sample inputs was collected.

Experts or semi-experts are consistently employed in interpreting studies (Dam 2001) and difficulty studies (Liu & Chiu 2009). Expert judgements have been used as holistic measurements to compare more quantifiable meas-urements. Therefore, we enlisted the help of experienced SI professionals and of interpreting teachers who were well familiar with input selection for summative assessment purposes. Each group of subjects has a considerably homogeneous profile in terms of training and professional activity.

5. Towards more objective measurements of input speech rate. A proposal for the operationalisation of speech rate

It is widely thought, also in studies on interpreting difficulty, that input speech rate can be easily controlled, and that the thresholds proposed in the literature (Seleskovitch 1965; Gerver 2002) are a benchmark to measure this factor and set difficulty thresholds. Nevertheless, analyses of the non-verbal dimension in SI in which complex interactions between features are observed (Collados Aís 1998; Pradas Macías 2003; Collados Aís *et al.* 2007; Iglesias Fernández 2007), and, more specifically, studies on the impact of speech rate on SI (Iglesias Fernández 2010) show that those thresholds and supposed certainties should be re-examined.

Given the considerations on the subjective perception of speech rate and its high dependence on delivery modes (Déjean Le Féal 1978, 1982), we measured input speech rate in SI in relation to a variety of delivery formats. Therefore, the input classification in interpreting proposed by Pöchhacker (1994b: 237)

(see Table 1) was employed, a classification comprising delivery modes and degrees of pre-planning. It is a comprehensive classification, as it includes the delivery mode, which can be: a) written, semi-impromptu or impromptu; and the extent to which text content relies on writing b): written to be read or print manuscript; written for oral presentation or scripted manuscript; a plan or notes; and a mental plan. Another variant, which is difficult to prove but can nevertheless be present in inputs, was included by the author, c) pre-planning: read; presented; preconceived and impromptu.

Text delivery profile Pre-planning	
Delivery mode	Delivery style
+	+
Read Presented Preconceived Extemporaneous	MS (print) MS (speech) Notes Mental plan
-	-

Table 1. Delivery mode classification (Pöchhacker 1994b: 237)

We added another key factor to this typology, as it influences characterisations of source speech delivery: speakers' involvement with the message and listeners (Alexieva 1999: 156). Higher interpersonal involvement entails more accessible, more communicative inputs or, in our terminology, more listener-oriented inputs. Otherwise, inputs display less interpersonal, less communicative involvement with listeners (message-oriented inputs) (Iglesias Fernández 2015). Although this factor is applied by Alexieva to dialogic interpreting contexts, we thought that it was ideally suited to monologic and semi-dialogic contexts as well. It could be argued that inputs delivered in plenary sessions at the EP are monologic, but many of the inputs analysed in the ECIS corpus (2004) are indeed oral replies to previous speeches and remarks (Iglesias Fernández 2010) and, to a certain extent, could be regarded as dialogic.

Besides the categories employed by Pöchhacker (1994b), speakers' interpersonal involvement (Alexieva 1999) was added. The final classification is shown below.

Speech delivery profiles			
+	+	+	+
PRE-PLANNING	DELIVERY MODE AND EXPRESSIVENESS	EXPRESSIVENESS AND INTERPERSONAL INVOLVEMENT	DELIVERY STYLE
Pre-planned and rehearsed Pre-planned Not pre-planned Impromptu	Read Presented Extemporaneous	High involvement Medium involvement Low involvement No involvement	Print manuscript Scripted manuscript Plan or notes Mental plan
-	-		-

Table 2. Analysis criteria for classifying delivery mode, delivery style, expressiveness and speakers' interpersonal involvement

6. Methodology

6.1. *The material*

The ECIS corpus (2004) comprises 28 inputs and their SI delivered in a plenary session at the EP in 2003, mainly dealing with the EU's involvement in the Iraq war, although other topics addressed included structural funds, funding and other procedural matters. ECIS is a four-language (English, French, German and Spanish) interpreting corpus, comprising broadcasts of 28 speakers and 15 interpreters from EbS (Europe by Satellite), the European channel. These inputs were recorded on four TV and video receivers with satellite decoders. The ECIS corpus (2004) is part of a larger research project studying the impact of verbal and non-verbal quality features on SI users' quality perceptions and assessments (Collados Aís *et al*. 2007, 2011).

The English input sub-corpus, for its part, is made up of 12 inputs delivered by British and Irish MEPs, 11 men and one woman. Out of these 12, six were selected and classified into two groups according to their acoustic congruency: similar in terms of prosodic expressiveness, speech rate, delivery mode, inter-personal involvement and degree of specialisation. For specialisation, however, it was very difficult to keep a certain consistency.

It is interesting to note that, after inputs were listened to once and then viewed, participants identified sub-categories within the *read* delivery mode (different ways of reading speeches aloud). Some speakers, experienced in speech delivery, were so expressive that, if their recorded speech was not viewed, it was not perceived as having been read aloud at all. The utterances and textual features of the speech were indeed more typical of inputs *read*

aloud from a print manuscript – their natural delivery and acoustic charac-
terisation , however, were more characteristic of *presented* inputs. These were
called *semi-presented* or *semi-read* inputs from a print or scripted manuscript,
according to interpersonal involvement and orality. In some cases, speakers
also kept eye contact. Therefore, pitch contour and intensity span in these
inputs showed more oscillations and were more dynamic. Besides, more and
longer pauses were identified, marking boundaries between grammatical units,
separation of ideas or semantic salience. We established that the *read* delivery
mode appeared to be much less monolithic and more complex, and these
sub-categories were added to the classification table (Table 3). As we could
not access speakers' judgements on the degree of pre-planning, we decided to
remove this category. The resulting table would be as follows:

+	+	+
DELIVERY MODE AND EXPRESSIVENESS	EXPRESSIVENESS AND INTERPERSONAL INVOLVEMENT	DELIVERY STYLE
Read Semi-read Semi-presented Presented Extemporaneous	Very high involvement High involvement Low involvement Very low involvement No involvement	Print manuscript Scripted manuscript Plan or notes Mental plan

Table 3. Analysis criteria for classifying delivery mode, delivery style, expressiveness and
speakers' interpersonal involvement

The first English-language input cluster comprises three fast speeches, con-
sidering the existing comfort threshold (Seleskovitch 1965; Gerver 2002)
and the average speech rate observed for EP inputs (de Manuel Jerez 2006;
Bendazolli & Sandrelli 2005). The speech rates of these fast inputs were the
following: Speech 1 (187.89 wpm); Speech 2 (177.60 wpm) and Speech 3
(170 wpm). Speech 1 was *impromptu* from a *mental plan*, Speeches 2 and 3
were *read aloud*, since these texts had features more typical of inputs written
to be read or print manuscripts than of oral texts. However, major differences
were observed between these two inputs in terms of orality and expressive-
ness. Thus, Speech 2 was considered *semi-presented*, and Speech 3, *semi-read*.
Both Speech 2 and Speech 3 displayed hybrid features of read delivery and
orality. Speaker 1 frequently delivered apparently memorised passages looking
at the camera. Differences between Speeches 2 and 3, although subtle, were
confirmed after PRAAT-based prosodic analysis. These three inputs can be

considered *semi-specialised* because they all deal with specific issues, such as nomenclatures of weapons and other proper names in connection either with the Iraq war or with SME funding, but in any case, familiar to the audience.

The second input cluster is made up of three slow inputs if compared to the previous speeches, and also considering the average speech rate throughout that session at the EP, which was approximately 160 wpm. All slow inputs were delivered in the *read* mode with the following speech rates: Speech 4 (141.00 wpm), Speech 5 (147.56 wpm) and Speech 6 (163.20 wpm). Speech 6 would be a borderline slow input. The three inputs were *read aloud* from print manuscripts and can be considered semi-specialised for the above reasons.

The average input length in both clusters did not exceed 2.4 minutes, a standard length in the context of plenary sessions at the EP.

6.2. Subjects

The study was designed to obtain judgements on speech rate, orality and prosodic expressiveness, inherent to the delivery mode, and on speakers' interpersonal involvement, with two input clusters differentiated in terms of speech rate, and relate them to experts' perceptions of difficulty. The population sample is small: 11 experts, all women. The first study was undertaken at the Universidad de Granada's Department of Translation and Interpreting in 2008. A survey (see Annex 1) was administered to six teachers; many of them had a long-standing professional experience, and some are still active. The second study was carried out at Zaragoza's International Centre for Higher Agronomical Studies (CIHEAM- IAMZ) in 2013. Five in-house interpreters, having worked for the centre for over 25 years, took part.

All subjects interpreted from English into Spanish, their mother tongue, except for one of the teachers. She is a foreigner but has been living in Spain for more than 20 years.

6.3. The method

One of the challenges when studying the impact of speech rates on perceptions of interpreting difficulty lies in the interaction between prosodic features associated with the various speech delivery modes. Thus, the experts' holistic perceptions of difficulty were obtained to relate them to the objective acoustic measurements of input features mentioned above, measured using PRAAT phonetic software.

The first methodological step was intended to remove the intersubject variability which could arise from potential conceptual differences between analysis features. To that end, all participants were provided with a list of definitions of the input features being analysed to establish a conceptual consensus, based on which it would be possible to assess the inputs and their features.

The subjects were exposed to the fast and slow inputs in random order. At an initial stage, they only listened to the inputs and, once the delivery modes were assessed, they viewed all the recorded inputs and speakers for reassessment. The sub-categories of the *read* mode shown in Table 3 derived from this activity. Also at this first stage, participants completed a survey after listening to each input (see Annex 1). They were asked to rate their perception of input speech rate and difficulty on a five-point Likert assessment scale (from 1 = none to 5 = high). Judgements of perceived difficulty covered the following: (a) overall difficulty (due to speech rate, delivery mode, expressiveness, orality and interpersonal involvement); and (b) non-verbal features concomitant to speech delivery modes such as: quality of non-verbal criteria (*fluency, accent, clear diction, pleasant voice* and *dynamic intonation*); and (c) quality of verbal criteria (*logical cohesion, proper style, accurate terminology* and *correct grammar*).

7. Results

This study was designed to confirm the hypothesis that the relationship between high input speech rate, measured in words/syllables per minute or second, and perceptions of higher difficulty was not valid. It was predicted that, according to previous studies (Déjean Le Féal 1978, 1982; Iglesias Fernández 2010), if high input speech rate was concurrent with inputs delivered with more oral, more expressive prosodic characterisations and higher speaker interpersonal involvement, it should not lead to perceptions of higher difficulty. It was equally predicted that perceptions of higher difficulty would result, rather, from the interaction between various prosodic features concomitant to the *read* delivery mode, lower orality and lower speaker interpersonal involvement. This first hypothesis made us predict that participants would consider very fast but more expressive, more oral, more engaged inputs to be easier than slow but less involved, less expressive inputs. The latter would be regarded as being more difficult, despite being much slower. Furthermore, the analysis was also intended to test whether the *read* delivery mode was always associated with perceptions of higher difficulty, unlike others, such as the *semi-presented*, *semi-read* and *impromptu* delivery modes.

One of the most telling findings resulted from the identification of several sub-categories within the *read* delivery modes, for inputs read aloud both from print manuscripts and from more oral scripted manuscripts. Although in the many EP corpus-based studies it is systematically stated that *read* speeches are the most common inputs in that context (Ardito 1999; Vuorikoski 2004), and therefore difficult to interpret (Ĉeňková 1998; AIIC 2002: 116), the subjects of our study detected various degrees of expressiveness and orality within the *read* input category, which, consequently, would not be that monolithic; instead, the category would range within a continuum. Participants identified different levels of prosodic expressiveness and orality in these written inputs, which nevertheless displayed hybrid characteristics along a continuum ranging from written to oral delivery features. These sub-categories along the delivery mode continuum seemed to be related to factors such as the following: a) greater pre-planning; b) higher interpersonal involvement with the message and listeners; and c) communication skills able to incorporate features of higher prosodic expressiveness, characteristic of oral presentations, in written texts.

7.1. Teachers' perceptions of speech rate and difficulty for the cluster of fast, prosodically expressive, oral, involved inputs (listener-oriented inputs)

The teachers' perceptions for the fast input cluster show that, when listened to for the first time, without access to the speaker's image, they did not think that any of the three inputs had been *read aloud*, but neither did they when the inputs were listened to for a second time, being able to see the speaker's image (see Table 4). For all of them it was obvious that Speech 1 (187.89 wpm) was *impromptu*, based on a *mental plan* and delivered with high interpersonal involvement. In spite of its extremely high speech rate, it was considered *not too fast*. Speech 2 (177.60 wpm), in their view, was a pre-planned text, with features typical of *print manuscripts*; still, they did not consider that it was a read input, but a *semi-presented*, more oral, more expressive, more engaged input. Speech 3 (170.00 wpm) was also thought to be *pre-planned*, but, instead of read aloud, *semi-read* from a print manuscript, i.e. less expressive, less oral, less involved than the previous input. The teachers perceived these fast inputs as being *relatively difficult*. The inputs were described as expressive and involved, as it was evident that speakers wished to reach their audience, although to varying degrees of orality and involvement. These speakers intended to get across their view on the stories they were telling, connect with MEPs and, particularly, with those their inputs were addressed to. To that end they, to various extents, kept

eye contact and made gestures. This behaviour was observed particularly in Speeches 1 and 2. These inputs have been defined as listener-oriented (Iglesias Fernández 2015).

As expected, the six teachers perceived that these fast, more expressive inputs were *less difficult* than the slower, less expressive inputs. Although the speech rate of Speech 3 was lower than that of Speech 2, they thought that Speech 3 was *faster* (3 out of 5 for Speech 3; 2 out of 5 for Speech 2). This perception of speech rate for Speech 3 was determined by less visual contact, fewer pauses and less dynamic pitch contour (3) as opposed to Speech 2 (4). Both inputs were *semi-specialised*, but the teachers considered that Speech 2 was more *specialised* (4) than Speech 3 (*low specialisation*) (2). Perceptions for Speech 1 were markedly different, as was the perception of its delivery. The scores awarded by the teachers were very high for its *delivery mode*, *expressiveness* and *interpersonal involvement* (5), and despite being the fastest input within this cluster (187.98 wpm), *speech rate* was perceived as being *very low* (2); the input itself was considered of *average difficulty* (3) and *very low specialisation* (1). The personal and emotional subject matter and high expressiveness of Speech 1 may have been a factor in its perception as an input of *very low difficulty* (1).

If the average ratings received by these three fast inputs for the quality of their prosodic and language features are observed, it can be concluded that, according to the teachers, these inputs were *hearer-friendly* (Setton 2005). This is the case for the average scores of the three speeches for *excellent logical cohesion* (5), followed by *considerably proper style* (4), and *considerably correct grammar* (4). Speech 1, however, did not receive these outstanding average ratings for language quality, as it got very low average scores for *correct grammar* (2), which was highly unstable. As predicted, the scores awarded by the teachers for prosodic characterisation were particularly high for these inputs, especially Speeches 2 and 3. Factors such as *fluency* and *accent* obtained *very high* average scores (5), which were *considerably high* in the case of *dynamic intonation* (5 and 4), *clear diction* (5 and 3) and *pleasant voice* (5 and 3). For Speech 1, however, the average score for *clear diction* was considerably lower (3), which could be explained by its vehement and impromptu delivery (see Table 4).

INPUT	In wpm	SPEECH DELIVERY MODE	Expressiveness and interpersonal involv.	Specialisation	Perceived difficulty	QUALITY OF PROSODIC AND VERBAL FEATURES									
						Logical cohesion	Proper style	Accurate termin.	Correct grammar	Fluency	Non-native accent	Clear diction	Pleasant voice	Input speech rate	Dynamic intonat.
1	187.89	impromptu + mental plan	5	1	3	5	4	4	2	5	5	3	4	2	5
2	177.60	semi-presented + print manuscript	4	4	4	5	4	3	4	5	5	5	5	2	5
3	170.00	semi-read + scripted manuscript	3	2	4	5	4	3	4	4	3	3	4	3	4

Table 4. Teachers' average perceptions for fast, prosodically expressive, involved inputs
(listener-oriented inputs) (1 = none and 5 = high)

These holistic perceptions of the fast, highly oral, highly expressive, highly involved inputs were compared with the objective acoustic measurements using PRAAT software (see Figures 1 and 2). It is observed that very fast speakers achieved to convey higher orality and interpersonal involvement by means of various strategies. They kept more eye contact with listeners, their pitch span modulation was more dynamic and, consequently, their pitch span was wider. The pausing pattern was also effective, with more, longer pauses, marking boundaries between grammatical units. This helped them more clearly signal semantic salience and emphasis. In the following figures, the acoustic measurement recorded for one of the prototypical inputs of this group (Speech 2) is shown:
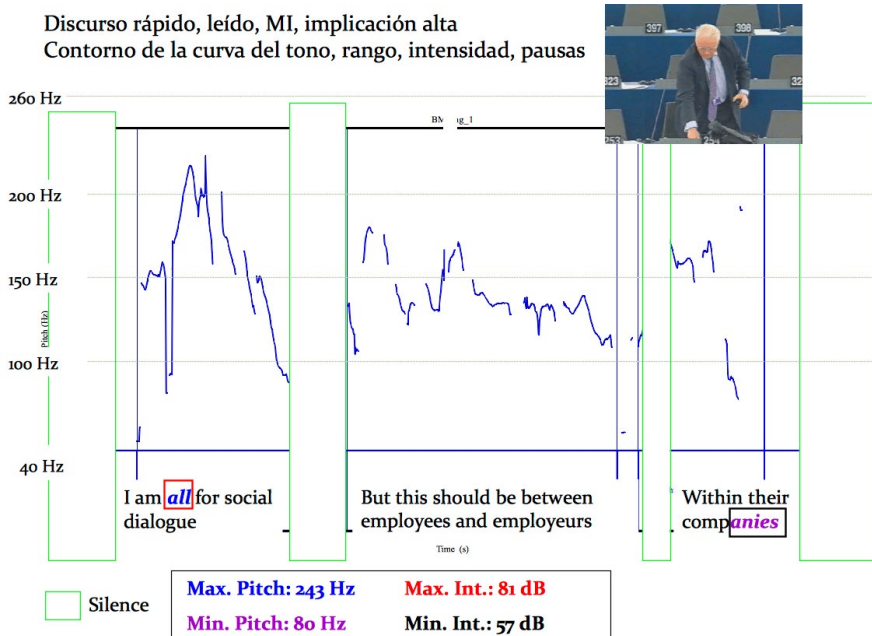
Figure 1. Speech 2, fast, semi-presented (print manuscript), high prosodic
expressiveness, high orality, high interpersonal involvement

Figure 2. Speech 2, fast, semi-presented (print manuscript), high prosodic
expressiveness, high orality, high interpersonal involvement

The columns of the figure show that pauses are long and distribute information into consistent groups. The degree of interpersonal involvement of certain lexical elements has been highlighted in italics so that they can be linked to more pitch excursions within the contour. Pitch span is very wide, oscillating between 80 Hz and 243 Hz, when the speaker wants to emphasise the semantic importance of the message. Intensity also oscillates and is modulated between 57 dB and 81 dB. The columns showing periods of silence indicate very long and numerous silent pauses, located at the beginning and end of utterances.

7.2. Interpreters' versus teachers' perceptions of input and difficulty for the cluster of fast, prosodically expressive, oral, involved inputs (listener-oriented inputs)

The interpreters' perception of *difficulty* is slightly different from the teachers' perception for these fast inputs (see Table 5). While the teachers considered that Speeches 2 (177.60 wpm) and 3 (170.00 wpm) were *quite difficult* (4 out of 5), they were of *average difficulty* (3) according to the interpreters. The perceptions of both groups did coincide for Speech 1 (187.89 wpm), considered of *average difficulty* (3). As for perceptions of *speech rate*, both groups showed similarities, particularly for Speech 1, perceived as *rather slow* (2). This fact surprised us, as it is the input with the highest speech rate and has very few pauses. The subjects did not disagree on the speech rate of Speech 3, considered *moderate* (3). Speech 2, the second fastest input (177.60 wpm), recorded the most differences between participants. The teachers thought that it was *quite slow* (2), whereas for the interpreters its speech rate was *moderate* (3). Perceptions of *delivery mode*, *expressiveness* and *interpersonal involvement* were also similar in both groups, but more so for Speech 1 than for Speeches 2 and 3. All participants considered Speech 1 to be *impromptu*. The interpreters' perceptions were not homogeneous for Speech 2, perceived as *semi-impromptu* and, sometimes, *semi-read* (4 out of 6 interpreters) and *impromptu* (1 out of 6 interpreters). No consensus was reached among the subjects for the *delivery mode, expressiveness* and *interpersonal involvement* of Speech 3. The teachers thought that this was a *semi-read* input (scripted manuscript); conversely, the interpreters' views on this input were diverse: three professionals perceived it as a *semi-presented* input (print manuscript) and two interpreters thought that they had listened to a *read* speech based on a print manuscript.

The interpreters' favourable perceptions of *expressiveness* and *interpersonal involvement* for the fast inputs were consistent with their average scores for their language quality. Speech 2 obtained excellent average scores for *logical cohesion*, *proper style* and *correct grammar* (5 out of 5). The scores received by Speech 3 were *excellent* for *correct grammar* (5) and *very good* for *logical cohesion* and *proper style* (4). The teachers' average scores for the language quality of these inputs were lower: averages for *logical cohesion, proper style* and *correct grammar* were *quite good* (4) at most, in contrast to the interpreters' *excellent* average (5), except for the *logical cohesion* of Speech 3, which got a higher score from the teachers (5: teachers; 4: interpreters). The exception was Speech 1, with *highly favourable* ratings from the teachers for *logical cohesion* and *accurate terminology* (5 and 4), while the scores from the interpreters were *lower* (3 and 1).

As for perceptions of quality and expressiveness of *prosodic features*, all subjects gave very high average scores for *dynamic intonation*, *fluency* and *pleasant voice*. A slight difference, however, was observed among the interpreters, whose perceptions were not so generous. Specifically, they perceived the delivery of Speech 2 as being *quite fluent* (4), whereas the teachers considered that it was *very fluent* (5). A similar pattern is observed for *dynamic intonation* (4: interpreters; 5: teachers) and *pleasant voice* (4: interpreters; 5: teachers). Speech 3 achieved lower scores than Speech 2, and the average ratings it received from the teachers were also higher. Thus, in the teachers' view, its *dynamic intonation* and *pleasant voice* were *quite good* (4); according to the interpreters, these features were *average* (3). In terms of *fluency*, all thought that Speech 2 was *quite fluent* (4). Something similar happened with the perceptions of *clear diction* and *accent* for Speech 3, with higher scores from the teachers (3) than from the interpreters (2). Speech 3 also received lower average scores from the interpreters for *dynamic intonation* (3: interpreters; 4: teachers) and *pleasant voice* (3: interpreters; 4: teachers). This pattern was also observed in Speech 1, whose *fluency* (3) was considered *average* (3) by the interpreters and *excellent* (5) by the teachers.

INPUT	In wpm	SPEECH DELIVERY MODE	Expressiveness and interpersonal involv.	Specialisation	Perceived difficulty	QUALITY OF PROSODIC AND VERBAL FEATURES									
						Logical cohesion	Proper style	Accurate termin.	Correct grammar	Fluency	Non-native accent	Clear diction	Pleasant voice	Speech rate	Dynamic intonat.
1	187.89	impromptu + mental plan	5	1	3	3	4	1	2	3	5	5	5	2	5
2	177.60	semi-impromptu to semi-read + print manuscript (4 interpr.) impromptu (1 int.)	4 5	3	3	5	5	4	5	4	5	5	4	3	4
3	170.00	semi-presented + print manuscript (3 interpr.) read + scripted manuscript (2 int.)	4 3	2	3	4	4	4	5	4	2	2	3	3	3

Table 5. Interpreters' average perception for fast, prosodically expressive, involved inputs (listener-oriented inputs) (1 = none to 5 = high)

7.3. Teachers' perception of speech rate and difficulty for slow, less prosodically expressive, less oral, less involved inputs (message-oriented inputs)

All teachers agreed that the slow inputs were *very difficult*, particularly Speech 4 (141.10 wpm) (5 out of 5) and Speech 5 (147.52 wpm) (5) and, to a lesser extent, Speech 6 (163.20 wpm) (3). There is a remarkable lack of correspondence between the perceptions of *high difficulty* for Speeches 4 and 5 (5) and their scores indicating *very low speech rate* (2). The relationship between the *lower difficulty* of Speech 6 (3) and the *average speech rate* (3) perceived for this input is more consistent. The teachers' perceptions of input difficulty for these speeches are remarkably consistent with their unfavourable perceptions for the *delivery mode, lower orality, expressiveness* and *interpersonal involvement* of these speakers (see Table 6). Thus, the perceptions that Speech 4 had a *read*

delivery mode (print manuscript) led to an *extremely low* average for these features (1). This pattern was also observed in Speech 5, which was equally considered a *read* input (print manuscript), with a delivery mode perceived as being of *very low expressiveness* and *orality* (1). Although these speeches were slow in terms of words per minute, the scores for the *difficulty* of Speeches 4 and 5 were very high. As for Speech 6, it was considered a *read* input, but *more oral* and *expressive* than the previous ones, as it was thought to be a scripted manuscript, which explains why, in the teachers' view, it was only of *moderate difficulty* (3). The fact that Speech 6 obtained a slightly higher average score for *delivery mode, expressiveness* and *interpersonal involvement* was not surprising (2: Speech 6; 1: Speeches 4 and 5). High logical cohesion and higher syntactic and grammatical stability are typical of written texts (Enkvist 1982), which is reflected in the scores for this cluster of inputs *written to be read* (print manuscript)*,* as their language features were rated higher than those of the *semi-read*, *semi-presented* or *impromptu* source speeches of the fast input cluster. Consequently, the teachers' perceptions were *excellent* for the *logical cohesion* and *terminology* of Speeches 4 and 5 (5 and 5), and *quite high* for Speech 6 (4 and 3). *High grammatical stability* was perceived in all three inputs (5).

Given that the teachers considered that Speeches 4 and 5 had a *read* and presented (print manuscript) delivery mode, they seemed to detect features which were more characteristic of written language. Therefore, their perceptions were lower in terms of non-verbal expressiveness, orality and interpersonal involvement, which led to low average scores for their prosodic features. *Voice intonation* and *pleasantness* were penalised with very low averages, as reading aloud inputs written to be read and printed reduces expressiveness and leads to an awkward intonation pattern. Particularly harsh were their perceptions of *intonation: very monotonous* (2: Speeches 4 and 5) and *somewhat monotonous* (3: Speech 6), and *pleasant voice: not too pleasant* (2: Speech 4) and *moderately pleasant* (3: Speech 5). The same happened with their perceptions of *clear diction* and *accent* for Speech 4, the least involved speech in this cluster, and also the one in which the read delivery mode was most obvious, with *very poor diction* and *very thick non-native accent* (2). Scores for the prosodic expressiveness of Speech 6 were expected to be somewhat higher and, in fact, it received higher averages from the teachers for *dynamic intonation* (3; 2: Speeches 4 and 5) and *fluency* (4; 4 and 3: Speeches 4 and 5 respectively). This could be ascribed to more prominent oral features and natural prosody in Speech 6, as it was considered a *read* input, although based on a scripted manuscript. The speaker did not keep eye contact and her pauses were few, short and arbitrary, but the input was perceived as having been rehearsed out loud and made oral.

The high average scores for the *fluency* of these three speeches (4, 3 and 4) were indeed striking. Due to the lack of delivery disfluencies (or false starts, hesitation or filled pauses), the subjects apparently conceptualised *fluency* as a lack of disfluency rather than as continuous, smooth speech delivery, which was not the case for these inputs.

INPUT	In wpm	SPEECH DELIVERY MODE	Expressiveness and interpersonal involvement	Specialisation	Perceived difficulty	QUALITY OF PROSODIC AND VERBAL FEATURES									
						Logical cohesion	Proper style	Accurate terminol.	Correct grammar	Fluency	Non-native accent	Clear diction	Pleasant voice	Speech rate	Dynamic intonation intonation
4	141.10	read + not pre-planned + print manuscript	1	5	5	5	2	5	5	4	2	2	2	2	2
5	147.52	read + not pre-planned + print manuscript	1	5	5	5	3	5	5	3	5	4	3	2	2
6	163.20	read + scripted manuscript	2	2	3	4	3	3	5	4	4	4	3	3	3

Table 6. Teachers' average perceptions for slow, less expressive, less oral, less involved inputs (message-oriented inputs) (1 = none and 5 = high)

As observed in the figures below, taken from the PRAAT-based analysis for an excerpt from Speech 4, prototypical of the slow input cluster, *read aloud* from a print manuscript, with low interpersonal involvement and expressiveness (see Figures 3 and 4), there were fewer pitch excursions, with a narrower pitch span than that of the input analysed above (see Figures 1 and 2); from 98 to 173 Hz. The intensity span recorded is also narrower: from 62 to 80 dB. The intonation pattern is flatter and faster, with many fewer, much shorter pauses. This can be compared by looking at the columns, indicating silences. Speakers who deployed this kind of prosodic features due to their low interpersonal involvement and the poor prosodic expressiveness derived from the read delivery mode were classified as message-oriented (Iglesias Fernández 2015).

Figure 3. Speech 4, slow, read (print manuscript), low prosodic expressiveness, low orality, very low interpersonal involvement.
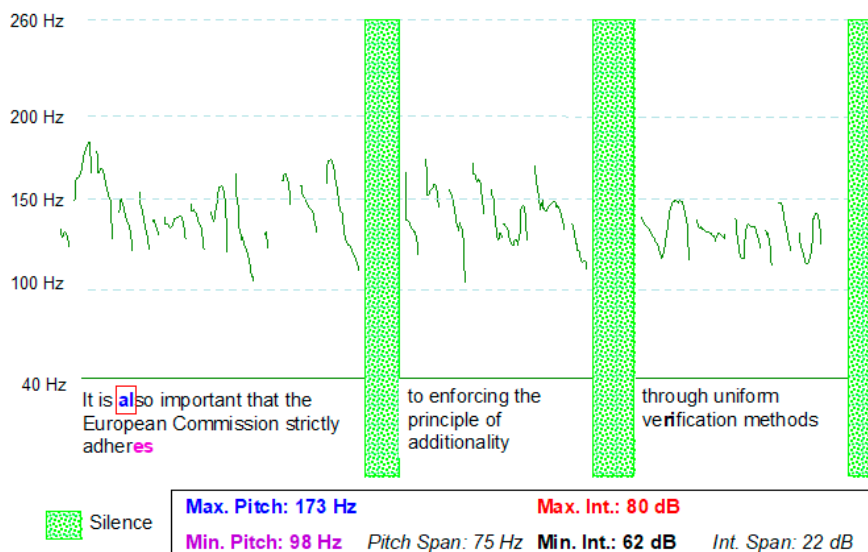

Figure 4. Speech 4, slow, read (print manuscript), low prosodic expressiveness, low orality, very low interpersonal involvement.

7.4. Interpreters' vs teachers' perceptions of speech rate and difficulty for the cluster of slow, less prosodically expressive, less oral, less involved inputs (message-oriented inputs)

The interpreters consistently perceived the slow, read inputs with low expressiveness and from low to very low interpersonal involvement as being *faster* and *more difficult* than the inputs in the previous cluster. These perceptions were also shared by the teachers, although to varying degrees. It is again observed that difficulty perceptions for these speeches are not consistent with the way their speech rates were perceived. Although the interpreters considered that these three inputs were *slower* than those in the previous cluster (*moderate speech rate*, 3 out of 5), the interpreters thought that they were *quite difficult* (4: Speeches 4 and 6) and *moderately difficult* (3: Speech 5). This stands in contrast to the teachers' more favourable perceptions of Speeches 4 and 5 (*quite slow*, 2 points), and Speech 6 (*moderate speech rate*, 3 points), who surprisingly described them as *very difficult* (5: Speeches 4 and 5) and *moderately difficult* (3: Speech 6). Both groups converged on the perception that two of the read, apparently more oral inputs, namely Speeches 5 and 6, were *less difficult*. While, according to the interpreters, Speech 5 was the *least difficult* input and had *moderate speech rate* (3) and *moderate difficulty* (3), the teachers considered that Speech 6 was the *least difficult* input (3) and had *moderate speech rate* (3).

Overall, the professional interpreters had a more favourable perception of most features for these inputs, especially for delivery mode, expressiveness, orality and interpersonal involvement. Even though most subjects considered that Speech 4 was a *read* input (print manuscript) (all teachers and three interpreters), two interpreters thought that it was hybrid: a *semi-impromptu* speech (print manuscript). This was also the case for Speech 6, considered a *read* input by all subjects except one; an interpreter, though, perceived higher orality and expressiveness (*semi-impromptu*, scripted manuscript). Another substantial difference between both groups was observed in their judgments on Speech 5, perceived as a *read* input (print manuscript) by all teachers but as a *semi-presented* input (print manuscript) by all interpreters.

Another remarkable finding was the gap observed in perceptions of *delivery mode*: all interpreters thought that these were *read* inputs, displaying *low expressiveness, low orality* and *low interpersonal involvement,* but their average scores for their language features were favourable. A high average for their *logical cohesion* and *correct grammar* was expected, as inputs written to be read tend to have a more logical structure and higher syntactic and grammatical stability (Enkvist 1982). These expectations were confirmed (see Table 7):

high logical cohesion (4 and 5: Speeches 4 and 5) and *moderate logical cohesion* (3: Speech 6), and *excellent grammar* (5 and 5: Speeches 4 and 5) and *rather correct grammar* (3: Speech 6). Consistently, the teachers' perceptions of these language features were higher than the interpreters' perceptions: *excellent logical cohesion* (5: Speeches 4 and 5), *excellent grammar* (5: Speeches 4, 5 and 6); *excellent terminology* (5: Speeches 4 and 5) and *rather accurate terminology* (3: Speech 6). Likewise, for Speech 4, the interpreters' scores for language quality were lower than those given by the teachers, with a *rather improper style* (2 interpreters) and *rather accurate terminology* (3 interpreters). The interpreters and the teachers did agree that the *very improper style* of the three inputs should be rated lower (2, 3 and 3: teachers; 2, 3 and 3: interpreters). As for Speech 5, considered to be a *semi-presented*, more expressive input, it received high scores from the interpreters and the teachers for its *excellent logical cohesion* (5) and *excellent grammar* (5), but it got a lower score for its *rather proper style* (3). Nevertheless, both groups disagreed over its *terminology,* considered *not too accurate* (2) by the interpreters and *excellent* (5) by the teachers.

In general, according to the teachers, the slow, read inputs were *slower* and *much more difficult* than in the interpreters' view. In fact, the teachers penalised the poor prosodic expressiveness of these inputs. Their perceptions of *fluency* for Speeches 4, 5, 6 were lower than the interpreters' (4, 3, 4: teachers; 5, 5, 4: interpreters). This pattern is repeated, *mutatis mutandis*, for *clear diction* (2, 4, 4: teachers; 2, 5, 5: interpreters), *dynamic intonation* (1, 4, 3: teachers; 2, 2, 3: interpreters) and, to a lesser extent, for *pleasant voice* (2, 3, 3: teachers; 2, 5, 4: interpreters). The interpreters' perceptions of *dynamic intonation* for these inputs were remarkably inconsistent, as there was high disparity between the scores they gave – *dynamic intonation* (1, 4, 3: Speeches 4, 5, 6) –. From a thorough analysis of the average scores awarded by all subjects of both groups to the low prosodic expressiveness and low interpersonal involvement of these *slow*, *read* (print manuscripts) inputs, it can be inferred that they are perceived as being *hearer-unfriendly* (Setton 2005), or *message-oriented* according to our terminology. The exception is again found in *fluency,* highly rated by both groups. This perception, so distant from other prosodic features, could be due to conceptual differences for this feature, as stated above.

INPUT	In wpm	SPEECH DELIVERY MODE	Expressiveness and interpersonal involvem.	Specialisation	Perceived difficulty	QUALITY OF PROSODIC AND VERBAL FEATURES									
						Logical cohesion	Proper style	Accurate termin.	Correct grammar	Fluency	Non-native accent	Clear diction	Pleasant voice	Speech rate	Dynamic intonat.
4	141.10	read + print manuscript (3 int.) semi-impromptu + print manuscript (2 int.)	2-3	2-3	4	4	2-3	2-3	5	5	3	2	2	3	1
5	147.52	semi-presented + print manuscript	4	1-2	3	5	3	2	5	5	5	5	5	3	4
6	163.20	read + print manuscript (4 int.) semi-impromptu + scripted manuscript (1 int.)	3-4	3	4	3	3	4	3	4	5	5	4	3	3

Table 7. Interpreters' average perceptions for slow, less expressive, less oral, less involved inputs (hearer-unfriendly inputs) (1 = none to 5 = high)

8. Discussion

In this study we intended to obtain the perceptions of difficulty derived from input speech rate from a sample of six interpreting teachers and five professional interpreters. Six EP source speeches (three very fast, three very slow) were viewed. We tried to determine that perceptions of higher difficulty would not necessarily be related to higher speech rates, and that perceptions of lower difficulty would not always correspond to slower inputs. These two hypotheses were confirmed, as high speech rates did not correlate with perceptions of higher difficulty when this feature was concurrent with expressive, oral

delivery modes due to higher speaker interpersonal involvement. These inputs were described as listener-oriented, and the other inputs, as message-oriented.

It was established that judgements on difficulty associated with speech rate were based on the interaction between speech rate and a myriad of prosodic features derived from speakers' interpersonal involvement. Holistic perceptions were confirmed by acoustic measurements: fast inputs, perceived as being less difficult, corresponded to favourable average scores for expressive prosody and orality. Slow, read inputs, considered to be more difficult, displayed less dynamic, less oral prosody. It is true that these slow, less expressive inputs received higher scores for language quality than the previous cluster, as they were written inputs displaying higher cohesion and higher syntactic and grammatical stability. Conversely, the average scores for their prosodic features were very low, especially for intonation and voice, as the intonation pattern is awkward in read inputs. Scores were slightly higher for Speech 6, the least monotonous, most involved source speech within the slow, read input cluster. The fact that these inputs were perceived as *fluent* was striking and ascribed to conceptualisation differences.

Although all subjects converged on perceptions of higher difficulty for less expressive, less involved inputs, and of lower difficulty for more expressive, more involved inputs, interpreters' and teachers' judgements differ. The former considered that very fast, very expressive inputs were *faster* but of *average difficulty*; according to the teachers, however, these were *slower* but *quite difficult*. As for the slow, less expressive inputs, their *speech rate* and *difficulty* were higher for the interpreters than they were for the teachers. The fact that the interpreters were daily exposed to this kind of inputs and deployed strategies to offset their effects could have been a factor in their more realistic judgements.

The study also questions the widespread notion that read inputs based on written texts are difficult, as a continuum ranging from higher to lower expressiveness was identified within the *read* input (print manuscript) category. Two sub-categories – *semi-presented* and *semi-read* – were identified and several degrees of difficulty assigned. The delivery of these read inputs was so natural that they would have been regarded as presented source speeches if no image had been available. The results also point out that *impromptu* inputs in this context can be very difficult, contrary to the common belief that these inputs are not difficult, which makes them suitable for teaching.

9. Conclusion

As the population sample of this study is too small to generalise, the results are presented as provisional. These results would point out that speech rate measured in terms of words/syllables per minute/second does not appear to be a reliable indicator of interpreting difficulty, as there was a consistent lack of correspondence between perceptions of higher difficulty and higher input speech rates. In other words, very fast, expressive, oral, involved inputs were perceived as being less difficult than slower, less expressive, less involved inputs. Perceptions of higher difficulty would depend rather on the presence of a cluster of speech rate and not too expressive prosodic features due to speakers' low interpersonal involvement. With due caution, we propose that it is necessary to question the validity of words/minute or syllables/second counts to measure speech rate, and that it should be measured also considering the prosodic features concomitant to speakers' attitudes, present in delivery modes. To that end, it would be advisable to employ phonetic IT tools to better assess the interaction between speech rate and other prosodic features which offset or maximise it. This would solve the problematic use of subjective, descriptive and not too rigorous labels such as "high, average, low" speech rate and "high, average, low" difficulty.

These data would also reveal that read delivery modes are not monolithic or always hard to interpret, as they comprise a continuum of sub-categories with various degrees of expressiveness, orality, pre-planning and involvement. In this sense, impromptu inputs, if delivered with rather ineffective procedural prosody, could be more difficult than initially expected.

The results also show intersubject perceptive differences, as the interpreters' average scores were much more realistic than those awarded by the teachers. This is possibly due to their usual contact with fast, expressive inputs and slow, less expressive inputs. This would suggest that it is necessary to select assessment material once it has been interpreted, not based on subjective perceptions after listening to it; otherwise a common difficulty level would not be guaranteed for all candidates. More corpus-based studies of EP inputs are needed to reach more robust conclusions. Such studies should therefore replicate our analysis using larger samples and complete it with studies of difficulty judgements obtained once inputs have been interpreted. Furthermore, it is essential that studies analysing input speech rate and its prosodic interaction are completed with analyses of input density in terms of vocabulary, utterances and information, as well as of the role of the pragmatic features of the context. This would help establish a more rigorous notion of interpreting difficulty and its operationalisation.

References

Abercrombie, David. (1967) *Elements of General Phonetics*. Edinburgh: Edinburgh University Press.

Alexieva, Bistra. (1999) "Understanding the Source Language Text in Simultaneous Interpreting." *The Interpreters' Newsletter* 9, pp. 45-59.

Ardito, Giuliana. (1999) "The Systematic Use of Impromptu Speech in Training Interpreting Students." *The Interpreters' Newsletter* 9, pp. 177-189.

Bendazzoli, Claudio & Annalisa Sandrelli. (2005) "An Approach to Corpus-Based Interpreting Studies: Developing EPIC (European Parliament Interpreting Corpus)." In: Gerzymisch-Arbogast, Heidrun & Sandra Nauert (eds.) 2005. *Proceedings of the Marie Curie Euroconferences MuTra: Challenges of Multidimensional Translation*, Saarbrücken 2-6 May. Electronic version: <http://www.euroconferences.info/proceedings/2005_Proceedings/2005_Bendazzoli_Sandrelli.pdf>

Boersma, Paul & David Weenink. (2001) "PRAAT, A System for Doing Phonetics by Computer." *Glot International* 5 (9:10), pp. 341-345.

Čeňková, Ivana. (1998) "Quality of Interpreting: A Binding or a Liberating Factor." In: Beylard-Ozeroff, Ann; Jana Králová & Barbara Moser-Mercer (eds.) 1998. *Translators' Strategies and Creativity*. Amsterdam: John Benjamins, pp. 163-170.

Collados Aís, Ángela. (1998) *La evaluación de la calidad en interpretación simultánea. La importancia de la comunicación no verbal*. Granada: Comares.

Collados Aís, Ángela; Macarena Pradas Macías; Elisabeth Stévaux, & Olalla García Becerra (eds.) (2007) *La evaluación de la calidad en interpretación simultánea: parámetros de incidencia*. Granada: Comares.

Collados Aís, Ángela; Emilia Iglesias Fernández; Macarena Pradas Macías & Elisabeth Stévaux (eds.) (2011) *Qualitätsparameter beim Simultandolmetschin: interdisziplinäre Perspektiven*. Tübingen: Gunter Narr.

Cooper, Cary L.; Rachel Davies & Rosalie L. Tung, (1982) "Interpreting Stress: Sources of Job Stress among Conference Interpreters." *Multilingua* 1:2, pp. 97-107.

Dam, Helle V. (2001) "On the Option between Form-Based and Meaning-Based Interpreting." *The Interpreters' Newsletter* 11, pp. 28-55.

De Manuel Jerez, Jesús. (2006) *La incorporación de la realidad profesional a la formación de intérpretes de conferencias mediante las nuevas tecnologías y la investigación-acción*. Granada: Universidad de Granada. Unpublished PhD thesis.

Déjean Le Féal, Karla. (1978). *Lectures et improvisations: incidences de la forme de l'ennonciacion sur la traduction simultanée*. Paris: Université de Paris III. Unpublished PhD thesis.

Déjean Le Féal, Karla. (1982) "Why Impromptu Speech is Easy to Understand." In: Enkvist Nils Erik (ed.) 1982. *Impromptu Speech. A Symposium*. Åbo: Åbo Akademi, pp. 221-239.

ECIS. (2004) "Presentación de proyecto de investigación sobre evaluación de la calidad en interpretación simultánea (BFF2002-00579)." In: Various authors. 2004. *IX Seminario Hispano-Ruso de Traducción e Interpretación*. Granada: Atrio, pp. 3-16.

Enkvist, Nils Erik. (1982) "Impromptu Speech, Structure and Process." In: Enkvist, Nils Erik (ed.) *Impromptu Speech: A Symposium*. Åbo: Åbo Akademi, pp. 11-31.

Gerver, David. (1969) "The Effects of Source Language Presentation Rate on the Performance of Simultaneous Conference Interpreters." In: Pöchhacker, Franz & Miriam Shlesinger (eds.) 2002. *The Interpreting Studies Reader*. London: Routledge, pp. 52-66.

Gile, Daniel. (1995) *Basic Concepts and Models for Interpreter and Translator Training*. Amsterdam: John Benjamins.

Gile, Daniel. (2009). *Basic Concepts and Models for Interpreter and Translator Training (revised edition)*. Amsterdam: John Benjamins.

Iglesias Fernández, Emilia. (2007) "La incidencia del parámetro agradabilidad de la voz", In: Collados Aís, Ángela; Esperanza M. Pradas Macías; Elizabeth Stévaux & Olalla García Becerra (eds.) 2007. *La evaluación de la calidad en interpretación simultánea*. Granada: Comares, pp. 37-51.

Iglesias Fernández, Emilia. (2010) "Speaker Fast Tempo and Its Effect on Interpreting Performance." *International Journal of Translation* 22:1, pp. 205-228.

Iglesias Fernández, Emilia. (2015) "Making Sense of Interpreting Difficulty through Corpus-Based Observation. Correlations between Speaker's Speech Rate, Mode of Presentation, Delivery Profile and Experts' Judgments of Difficulty." In: Zwischenberger, Cornelia & Martina Behr (eds.) 2015. *Interpreting Quality: A Look Around and Ahead*. Berlin: Frank & Timme, pp. 35-65.

Kade, Otto & Claus Cartellieri. (1971) "Some Methodological Aspects of Simultaneous Interpreting." *Babel* 17:2, pp. 12-16.

Kalina, Sylvia. (1998) *Strategische Prozesse beim Dolmetschen*. Tübingen: Gunter Narr.

Lamberger-Felber, Heike. (2001) "Text-Oriented Research into Interpreting: Examples from a Case-Study." *Hermes* 26, pp. 39-64.

Laver, John. (1994). *Principles of Phonetics*. Cambridge: Cambridge University Press.

Lederer, Marianne. (1981). *La Traduction Simultanée*. Paris: Minard Lettres Modernes.

LEE, Tae-Hyung. (1999) "Speech Proportion and Accuracy in Simultaneous Interpretation from English into Korean." *Meta* 44:2, pp. 260-267.

LIU, Minhua & Yu-Hsien Chiu. (2009) "Assessing Source Material Difficulty for Consecutive Interpreting: Quantifiable Measures and Holistic Judgments." *Interpreting* 11:2, pp. 244-266.

PÖCHHACKER, Franz. (1994a) *Simultandolmetschen als komplexes Handeln*. Tübingen: Gunter Narr.

PÖCHHACKER, Franz. (1994b) "Quality Assurance in Simultaneous Interpreting." In: Dollerup, Cay & Annette Lindegaard (eds.) 1994. *Teaching Translation and Interpreting 2: Aims, Insights, Vision*. Amsterdam: John Benjamins, pp. 233-242.

PRADAS MACIAS, Esperanza M. (2003). *Repercusión del intraparámetro pausas silenciosas en la fluidez: influencia en las expectativas y en la evaluación de la calidad en interpretación simultánea*. PhD. Universidad de Granada

SELESKOVITCH, Danica. (1965) "Colloque sur l'enseignement de l'interprétation." Paris: Association Internationale des Interprètes de Conférence.

SELESKOVITCH, Danica. (1982) "Impromptu Speech and Oral Translation." In: Enkvist, Nils Erik (ed.) 1982. *Impromptu Speech: A Symposium*. Åbo: Åbo Akademi, pp. 241- 253.

SETTON, Robin. (1999). *A Cognitive-Pragmatic Analysis of Simultaneous Interpretation*. Amsterdam: John Benjamins.

SETTON, Robin. (2005) "Pointing to Contexts: A Relevance-Theoretic Approach to Assessing Quality and Difficulty in Interpreting." In: Dam, Helle V.; Jan Engberg & Heidrun Gerzymisch-Arbogast (eds.) 2005. *Knowledge Systems and Translation*. Berlin & New York: Mouton de Gruyter, pp. 275-312.

SHLESINGER, Miriam. (1989) *Simultaneous Interpretation as a Factor in Effecting Shifts in the Position of Texts on the Oral-Literate Continuum*. Tel Aviv: Tel Aviv University. Unpublished Master's thesis.

SHLESINGER, Miriam. (2003) "Effects of Presentation Rate on Working Memory in Simultaneous Interpreting." *The Interpreters' Newsletter* 12, pp. 37–49.

VARIOUS AUTHORS (AIIC). (2002) *Workload Study*. Electronic version: <http://www.aiic.net.ViewPage.cfm/article467>

VUORIKOSKI, Anna-Riitta. (2004) *A Voice of its Citizens or a Modern Tower of Babel? The Quality of Interpreting as a Function of Political Rhetoric in the European Parliament*. Tampere: Tampere University Press.

ANNEX 1. Survey: perceptions of input speech rate and difficulty

PERCEPTIONS OF SPEECH RATE AND DIFFICULTY		
PERCEPTION OF DIFFICULTY *(1: Extremely difficult to 5: Very easy)*		
Extremely difficult	1	Comments:
Very difficult	2	
Slightly difficult	3	
Easy	4	
Very easy	5	
DELIVERY MODE		
Read	1	Comments:
Semi-read	2	
Semi-presented	3	
Presented	4	
Impromptu	5	
DEGREE OF EXPRESSIVENESS AND INTERPERSONAL INVOLVEMENT		
Very low involvement and expressiveness	1	Comments:
Low involvement and expressiveness	2	
Moderate involvement and expressiveness	3	
High involvement and expressiveness	4	
Very high involvement and expressiveness	5	
DEGREE OF SPECIALISATION		
Very high specialisation	1	Comments:
High specialisation	2	
Moderate specialisation	3	
Low specialisation	4	
No specialisation	5	
PLEASE RATE THE FOLLOWING QUALITY CRITERIA		
PROPER STYLE (1: Improper to 5: Proper) 1: Verbose, complex to 5: Direct, simple	1 2 3 4 5	Comments:
LOGICAL COHESION (1: Low cohesion to 5: High cohesion) 1: Poorly connected ideas to 5: Perfectly connected ideas, consistent with what was said before	1 2 3 4 5	Comments:

FLUENCY (1: Low fluency to 5; High fluency) 1: Hesitation, filled or silent pauses to 5: Continuous delivery	1 2 3 4 5	Comments:
NON-NATIVE ACCENT AND CLEAR DICTION (1: Unintelligible to 5: Intelligible, native or almost native)	1 2 3 4 5	Comments:
PLEASANT VOICE and DYNAMIC INTONATION (1: Grating, monotonous to 5: Pleasant voice, dynamic intonation)	1 2 3 4 5	Comments:
SPEECH RATE (1: Too fast or too slow to 5: Proper speech rate)	1 2 3 4 5	Comments:
ACCURATE TERMINOLOGY (1: Too complex, specialised to 5: Not too specialised)	1 2 3 4 5	Comments:
CORRECT GRAMMAR (1: Unstable, non-native grammar to 5: Stable grammar, correct structures)	1 2 3 4 5	Comments:
OTHER		Comments:

BIONOTE

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