

Information Processing by Interpreters: A Multidisciplinary Approach

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Abstract: *Interpreting studies (IS) have been largely inspired by models from other disciplines like psychology and linguistics. These studies have focused on errors in performance such as omission, substitution, addition and distortion of words, resulting from lagging and delayed ear-voice span (EVS).*

The theory of interpreting should not be based solely on descriptive or contrastive linguistics but also on the notion of "speech performance." Speech performance views interpreting as a cognitive activity, which goes beyond the mere understanding of the linguistic structure of the message to include the socio-cultural, psycholinguistic, and pragmatic dynamics of the communication. Such performance-based interpretation requires knowledge of the subject matter, the world and the broader context of the message.

There is ample evidence that the process of interpreting is governed by an interdependence of variables such as the linguistic divergence between the SL and the TL, the sender's performance, the technical equipment available and the interpreter's skill, experience and expertise. It is the interplay of these factors that determines the interpreter's success or failure in adopting the right strategies of text processing: segmentation, decoding of the SL segment, recoding, production, coping, dividing attention between the two tasks of listening and speaking, anticipation and output monitoring. The findings lend support to the thesis that for interpreters to conceptualize the process of interpreting and achieve optimum communication, they need to embrace an interdisciplinary frame of reference.

1. Introduction

Interpreting studies (IS) have focused mainly on errors in performance. Information processing by interpreters should be viewed within a larger framework than that of linguistic structure (Salevsky 1993; Gile 1994; Venuti 2000). It follows that the performance errors of interpreters rest on the notion of "speech performance" which views interpreting as a cognitive activity that entails an interrelated complex of variables including the psycholinguistic, socio-cultural, and pragmatic dynamics of the communicative process. According to Paradis (1994:322), "One should ... expect that fatigue, stress, and any other condition that tends to overload the system should result in information loss or interference errors, depending on whether it is the capacity of working memory or that of the language system that is being exceeded."

While acknowledging the importance of the linguistic variable of the dynamics of communication in translation studies (e.g., formal correspondence and equivalence between the SL and the TL) among other things, it should be emphasized that “interpreting studies have been inspired by paradigms from other disciplines like linguistics and psychology” (Pöchhacker & Shlesinger 2002:4). In other words, an interpreter’s performance is bound to be affected by other major variables such as sender’s performance, technical equipment available, and the interpreter’s personal attributes and professional skills (cf. Kirchoff 1976:113.).

The present study draws on theoretical and practical findings which provide ample evidence in support of the thesis that “the theory of interpretation is not concerned with descriptive or comparative linguistics but with speech performance” (Seleskovitch 1976:95; cf. Hillier 2004; Venuti 2000; Lederer 1978). For Paradis (1994:319), there are “Two strategies are available to the interpreter for going from one utterance to its translation, either the conceptually mediated route which relies on implicit linguistic competence or the structural route which relies on the metalinguistic knowledge.”

2. Analyzing Spoken Discourse

In discussing speech acts and speech events as components of speech, Hymes (1977:16-20) puts forward sixteen identifiable components of speech acts, among them: message form, message content, setting, participant relationships, purpose channel, genre, etc. On the other hand, Halliday and Hassan (1989) identify field, tenor, and mode as features of the context of situation (cf. Hillier 2004). The fact that language is used to express different functions of speech acts makes it necessary for language users to understand the context which underlies the pragmatic component of language.

Although there are typical associations between sentence form and speech acts, for example, interrogative sentences typically express questions, these associations do not always hold (Stewart and Vaillette 2000:22). Such inconsistencies in grasping the intended meaning of an utterance are made more complex when additional non-linguistic variables of psycho/sociolinguistic nature come into play. The task is made increasingly difficult for interpreters who are required to decode the SL text, first, and then to encode it in a TL format. Suffice it to say that in the process of interpreting the SL message, the interpreter is expected to go beyond the purely linguistic structure of the message, and consider knowledge of the subject matter, the world and the broader context of the message. More often than not interpreters are doomed to

falter and end up experiencing some difficulties which result in performance errors of different types.

3. Hypotheses

The paper sets out to establish that:

1. Interpreting is a complex interactive process of linguistic, psychological, socio-cultural, and pragmatic associations.
2. Interpreting is a speech act the processing of which goes beyond the pure linguistic knowledge and the structural analysis of the SL text.

4. Methodology

4.1 Sample

The sample targeted in this study consisted of twenty professional interpreters, the background of whom varied in terms of: (1) accreditation by an internationally recognized organization, (2) subject area specialization in interpreting, and (3) years of professional experience.

4.2 Corpus

The raw data for the present study were elicited through three techniques:

- 4.2.1 Reviewing and analyzing twenty samples of authentic materials obtained from live interpreting sessions conducted at international forums, press conferences, and interviews.
- 4.2.2 A questionnaire, which identifies four error types and correlates them with eight variables, viewed as potential causes.
- 4.2.3 Applying protocols of face-to-face interviews with ten of the twenty interpreters whose performance was reviewed as a source of data collection in this study. This technique served as an additional parameter for verifying and interpreting the data collected and analyzed in this study.

The corpus of data collected in this study consisted of materials which have been interpreted uni-directionally, that is, from English into Arabic. This limitation is consistent with the thesis that “professional translators usually work into their native language” (Hillier n.p.). The same argument holds for Paneth (1957:31) who believes that “interpreters should translate into their mother-tongue. They should work from a number of languages into one only, except in the few cases where it is impossible to tell which of the two is their mother tongue.”

4.3 Data analysis

The corpus of data elicited from the twenty samples of interpreted materials was analyzed in terms of four types of performance errors, namely: omission, addition, substitution, and distortions. The four types were checked against a set of variables which served as potential causes of these errors. The list consisted of eight variables: (1) linguistic, (2) memory, (3) rapid speaker, (4) psychological stress, (5) cognitive knowledge, (6) knowledge of subject matter, (7) equipment, and (8) experience. The responses were tallied according to error types, matched with the potential causes. The results were then tabulated and discussed.

5. Results

5.1 Questionnaire

5.1.1 Distribution of Respondents

The twenty respondents who furnished the data for the study have been characterized as follows:

	<u>Yes</u>	<u>No</u>
1. Professional	20	0
2. Accredited	2	18
3. Specialized (subject specific)	5	15
4. Experienced	7 (1-2 yrs.)	13 (3 or more yrs.)

5.1.2 Content Analysis [Note: Tables 1-4 are located in Appendix I]

Tables 1A and 1B below plot the error types/categories identified against the relevant causes of these errors. The results obtained from Tables 1A and 1B show that of the four error types listed "omissions" come in first place with 33.33%, followed by "substitutions" with 23.75%, "distortions" with 22.9%, and "additions" with 20%. All four types of errors have a considerable weight and each of them reflects significant results. With regard to the potential causes of errors the table lists "rapid speech" as the main source/cause, with 18.3%. "Cognitive knowledge of the world" comes second with 15.8%; next comes "knowledge of subject matter" with 15%; "memory" and "psychological stress" scored 12.9% each; "linguistic" errors followed with 12.1%; equipment with 7.5%, and finally comes "experience" with 5.4%. In sum, all eight categories revealed significant percentages in varying degrees.

The results obtained from Tables 2A and 2B [Appendix I] show that "accredited interpreters" faced fewer problems in all eight categories labeled as "causes of errors," with 3.8% made by the accredited and 96.2% by the non-accredited. Similarly, the percentage of errors made by the specialized (subject specific) group was much

lower than for that of the non-specialized, with 15.8% against 84.2%; and with a lower percentage reaching 40% for the more experienced group (3 or more years) against a remarkably higher percentage of 60% for the less experienced group (1-2 years).

The results of the correlation in Table 3 associate all “omission” errors (100%) with the non-accredited group of interpreters, whereas the non-specialized and less experienced made 97.5% and 58.8% of the same type of errors, respectively. On the other hand, “addition” errors were tabulated at 95.8%, 79.2%, and 62.5% for the non-accredited, the non-specialized and the less experienced, respectively. With regard to “substitution” errors, the results showed largely similar percentages to those of “omission” with 100%, 86%, and 59.6% for the non-accredited, non-specialized, and less experienced, respectively. Finally, “distortion” errors were within the same range showing 96.4%, 83.6%, and 60% respectively for the same interpreter groups identified in Table 3.

Table 4 gives a summary of the overall performance of the two groups of interpreters in each error type, namely omissions, additions, substitutions, and distortions. The grouping of the interpreters was based on three criteria applied to interpreters: accreditation, subject area specialization, and experience. The first group included those who were characterized as: accredited, specialized, and with over three years of experience, referred to in Table 4 as ASE positive. The second group included those interpreters who were characterized as: non-accredited, non-specialized, and with less than three years of experience, referred to as ASE negative.

As Table 4 shows, the overall percentage of errors accumulated by the non-accredited, non-specialized, and less experienced interpreters in each error type was shown at 82.1% for “omissions”; 79.25% for “additions”; 81.9% for “substitutions”; and 80% for “distortions.” From a different angle, the results show that the ASE positive group scored 137 out of 720 errors, accounting for 19% of all error types and categories, against 583 out of 720, making 81%, for the ASE negative group.

5.2 Protocol Interviews

The results of this method of data collection furnished another source of information to verify the questionnaire-obtained results. The feedback of the 10 interpreters with whom interviews were conducted was as follows:

Accredited		Specialized		Experienced	
Yes	No	Yes	No	Yes	No
1	9	2	8	4	6

All six groups reported that they do all four types of errors in varying degrees, but “omissions” come in first place. And when asked about the reason(s) behind it, their responses were consistent with the results of the questionnaire revealing that “rapid speech,” “cognitive knowledge,” and “knowledge of the subject matter” are crucial factors in the interpreting process.

On the other hand, they stressed the importance of “linguistic knowledge,” which, according to three of them ranks very high on the scale of importance together with “memory” and “experience.” On the question of “psychological stress,” they pointed out that both experience is stressful and that psychological stress has a positive correlation with “experience,” “knowledge of subject matter,” and “cognitive knowledge.” For some of them, the formality of the situation or lack of it plays a role in either maximizing stress or alleviating it.

On the question of “equipment,” the responses were largely consistent by stressing that modern technology has improved the booth conditions and the equipment, for example, headset, microphones, etc.

As for the characteristics of interpreters, the protocols indicated that “specialization in subject matter” is very important and that “knowledge of the subject matter” is one of the key factors for effective interpreting (standing at 15% in the questionnaire results). However, interpreting opportunities will be slim if the interpreter is to interpret in one area (i.e., subject specific). Consequently, interpreters often accept jobs and tasks which are not necessarily in their immediate area of specialization. With regard to “experience,” they confirmed that it has an important role, since 60% of the causes of errors were correlated with lack of proper experience. With regard to “accreditation,” the protocol results did not give it much weight since only one of the ten interpreters interviewed was accredited and only two of the total number of twenty were accredited. The interpreters explained that in coping with rapid speakers, cognitive and linguistic knowledge, together with good memory and relevant experience, boost the interpreter’s performance and that accreditation is simply a formality which is not necessarily a reliable criterion for the classification of interpreters.

On the importance of interpreting strategies and the techniques used by individual interpreters, the responses emphasized that the most successful interpreters are those who adopt strategies by virtue of which they can cope with the eight causes of errors outlined in the present study (cf. questionnaire). They pointed out that the causes of errors are interrelated, as the presence or absence of one may adversely or positively affect the others. For example, “rapid speech” results in “psychological stress,” leading to lack of concentration and adversely affecting “memory,” which will eventually lead to errors in all four

types described earlier. However, rapid speech may be overcome if the interpreter demonstrates a very good knowledge of the subject matter, solid linguistic knowledge, and a reasonable cognitive knowledge of the world derived from adequate socio-cultural background and experience. Such characteristics enable interpreters to employ the most appropriate strategies when experiencing problematic situations. More often than not, a good interpreter will avoid lagging by simply controlling the ear-voice span (EVS) required to avoid delay between the original SL message (decoding it), and encoding it in the TL; utilizing input pauses; and maximizing his input rate, among other things. The reverse is true if the interpreter lacks the key elements to successful interpreting strategies.

6. Discussion of Results

The results obtained from the two sources of data collected, namely the questionnaire and the protocol interviews, lend support to the thesis that information processing in interpreting is an intricate process. Similarly, the percentages furnished in Tables 1 (A & B), 2 (A & B), 3, and 4 are consistent with the research hypotheses outlined in section 3 above and which explicate that:

1. Interpreting is a complex interactive process of linguistic, psychological, socio-cultural, and pragmatic associations.
2. Interpreting is a speech act the processing of which goes beyond the pure linguistic knowledge and structural analysis of the SL text.

The above findings coincide with those of Lederer (1978:329) that "Only cognitive complements can explain the nature of interpreting and ... interpreters' assertions that understanding speech goes further than understanding meaning." The same line of argument was adopted by Seleskovitch (1976:95) stressing that "the theory of interpretation is not concerned with descriptive or comparative linguistics but with speech performance; it studies and compares the original message with that conveyed by the interpreter."

The interdependence of variables ranging from the SL linguistic structures, sender's input rate, technical equipment, experience, cognitive knowledge, memory span, etc. are consistent with Kirchhoff's (1976:111) findings: the interpreter's performance depends largely on his skill in maintaining the TL meaning through intelligent segmentation of the input information. This requires from the interpreter special skills in monitoring, storing, retrieving, and decoding the input message.

The results made it clear that performance errors of omission, addition, substitution, and distortion are mainly triggered by poor judgments at the onset of actual interpreting. The protocol interviews conducted with the ten interpreters confirmed that the segmentation of the input message posed a problem to most inexperienced interpreters. As they put it, their timing vis-à-vis the ear-voice-span (EVS) is awry. The reasons behind it are both linguistic and extra-linguistic. Some of them start interpreting too soon without waiting to get to the predicate especially in the case of interpolated elements between the two. For this group of interpreters, the EVS is less than two seconds, a strategy which works in the interpreting of words but not in interpreting sentences. For some others, the EVS was much longer than required (6-7 seconds). In the two cases, the interpreter's apprehension, insecurity, and fear of missing the intended meaning made him use the wrong strategy. And as the face-to-face protocol interviews revealed, those interpreters do have adequate linguistic knowledge in the two languages, English and Arabic; however, they are not quite familiar with the subject matter of the conference. They also do not have enough experience, and therefore face difficulties leading to omissions and distortions. In this case, the interpreter's output reflects a lack of faithful interpretation, leading to improper encoding in the TL (cf. Goldman-Eisler 1972:75). Obviously, lagging which relates to the EVS deprives the interpreter of the subsequent steps including production and output monitoring.

In line with the above, the performance of some interpreters was marked as inadequate. In such situations, the interpreter's ability to utilize the vital interpreting strategy of "anticipation" is impaired due to his lack of prior adequate knowledge of the subject matter and cognitive knowledge of the world. More often than not, interpreters who experience such difficulties normally suffer from lack of training and excessive speed of delivery (i.e., fast speaker). When this happens, interpreters are advised to modify their plans through utilizing the input pauses and increasing their output rate (cf. Oleron and Napon 1965:47). With regard to additions, substitutions, and distortions as error types, the face-to-face protocol interviews showed that interpreters tend to add unnecessary words for two reasons:

- 1) To fill hesitation gaps resulting from lagging caused by extended EVS, and;
- 2) To explain an unfamiliar SL concept due to the interpreter's lack of adequate knowledge in the subject matter.

The above practices are viewed as manifestations of poor interpreting strategies. Resorting to such ill-advised strategies provides ample evidence that the interpreting process requires additional vital elements, for example, cognitive knowledge, familiarity with subject matter, and

experience, which enable the interpreter to adopt different interpreting strategies to cope with rapid speech, psychological stress, etc. The reverse leads to inaccurate padding manifested in the form of additions or substitutions which result in changing and distorting the intent of the input message. The figures obtained from Tables 1A and B showing the percentages of addition errors at 20%, substitution errors at 23%, and distortions at 22% reflect the magnitude of these problems in the interpreting process.

In view of the above, there is enough evidence to suggest that the decoding and encoding of messages by some interpreters is inaccurate, deficient, and unacceptable. In this case, the interpreters fail to adopt adequate interpreting strategies such as ability to anticipate proper segmentation, coping, and so on. Consequently, interpreters fail to achieve the desired communicative effect. Interestingly enough, some of the strategies, for example, addition and substitution of words, have been used deliberately and consciously by some interpreters in an attempt to maintain continuity when failing to readily render the TL meaning due to unfamiliarity with the right and automatic word association (i.e., collocations).

7. Conclusion

The present study has most succinctly shown that information processing by interpreters is a multi-directional process which can be best studied within an interdisciplinary frame of reference. The four most discrete error types and their corollaries of eight potential causes of errors matched with the three interpreter characteristics pose serious problems in the realm of interpreting. With this background in mind and in an effort to minimize the emerging discrepancies in the interpreting process, the following recommendations are herewith given:

1. Interpreters should demonstrate good mastery of the subject matter being relayed (e.g., vocabulary, terminology, and style);
2. Minimum of five years of professional booth interpreting experience;
3. Sound linguistic knowledge to allow for proper segmentation of the input message and rendering TL meaning (extensive vocabulary, syntax, and semantics);
4. Excellent paraphrasing skills;
5. Knowledge of the cultures of the two languages SL and TL, with a broad cognitive knowledge of the world;
6. Good timing (EVS) and decisiveness, for example, processing speed, delaying operations, reduction, anticipation, utilizing input pauses, increasing output rate, etc.;

7. Readiness to change the interpreting strategies as the situation warrants it (i.e., subject, speaker, etc.), and;
8. Fluency and ability to receive, share, and deliver information.

To conclude, while acknowledging that interpreting is a key factor in facilitating communication, we should emphasize that it is a speech act which needs further improvement. Theoreticians and practitioners alike are called upon to pool their efforts to help improve the quality of interpreting rendered. Their judgments should be inspired by the notion that interpreting is a speech act which lends itself to a multidisciplinary frame of reference.

References

- Gile, D. (1994).** 'Opening up interpretation studies'. In M. Snell-Hornby, F. Pöchhacker & K. Kaindl (eds.), *Translation Studies: An Inter-discipline*, 149-58. Amsterdam: John Benjamins.
- Goldman-Eisler, Frieda (1972).** 'Segmentation of input simultaneous translation'. In F. Pöchhacker & M. Shlesinger, (eds.), *The Interpreting Studies Reader*, 68-76. London: Routledge.
- Halliday, M. A. K. and R. Hasan.** (1989). *Language Context and Text: Aspects of Language in a Social-Semiotic Perspective*. Oxford: Oxford UP.
- Hillier, H.** (2004). *Analyzing Real Texts: Research Studies in Modern English Language*. New York: Palgrave Macmillan.
<http://www.barrinas.com/faq's_main.html>
- Hymes, D.** (1977). 'Toward ethnographies of communication'. Edited from Chapters 1 & 2 of D. Hymes (1977) and reproduced in M. Stierer & J. Maybin (eds.) (1994), *Language, Literacy, and Learning in Educational Practice: A Reader*, 11-22. Philadelphia: Multilingual Matters.
- Kirchhoff, H.** (1976). 'Simultaneous interpreting: Interdependence of variables in the interpreting process, interpreting models and interpreting strategies'. In F. Pöchhacker & M. Shlesinger (eds.), *The Interpreting Studies Reader*, 110-119. London: Routledge.
- Lederer, M.** (1978). 'Simultaneous interpretation- units of meaning and other features'. In D. Gerver & H. W. Sinaiko (eds.), *Language Interpretation and Communication*, 323-32. New York: Plenum Press.
- Oleron, P. and H. Napon.** (1965). 'Research into simultaneous translation'. Translated by R. Morris, in F. Pöchhacker and M. Shlesinger (eds.), *The Interpreting Studies Reader*, 42-50. London: Routledge.
- Paneth, E. (1957).** 'An investigation into conference interpreting'. In F. Pöchhacker & M. Shlesinger (eds.), *The Interpreting Studies Reader* 30-40. London: Routledge.

- Paradis, M. (1994).** 'Toward a neurolinguistic theory of simultaneous translation: The Framework'. *International Journal of Psycholinguistics*, 10/2/29:319-335.
- Pöschhacker, F. and M. Shlesinger (eds.). (2002).** *The Interpreting Studies Reader*. London: Routledge.
- Salevsky, H. (1993).** 'What is meant by interpreting studies and what is their purpose?'. In J. Kralova & Z. Jettmarova (eds.), *Translation Strategies and Effects in Cross-Cultural Value Transfer and Shifts*, 115-25. The 8th International Conference on Translation and Interpreting Prague: Charles University.
- Seleskovitch, D. (1976).** 'Interpretation: A psychological approach to translating'. In R. W. Brisling (ed.), *Translation: Applications and Research*, 92-116. New York: Gardner Press.
- Stewart, T. W. and N. Vaillette (eds.). (2001).** *Language Files: Materials for an Introduction to Language and Linguistics*. Columbus: The Ohio State UP.
- Venuti, Lawrence (ed.). (2000).** *The Translation Studies Reader*. London: Routledge.

Appendix I: Tables 1-4

Table 1A: Correlation between error types and relevant causes

No	Error Types	Relevant Causes							
		Linguistic		Memory		Rapid Speaker		Psych. Stress	
		No.	%	No.	%	No.	%	No.	%
1	I tend to make omissions because of	6	7.50%	16	20%	15	18.8	12	15
2	I sometimes add words due to	9	18.80%	2	4.20%	6	12.5	5	10.4
3	I substitute words due to	5	8.80%	7	12.30%	14	24.6	6	10.5
4	Some words/ expressions are distorted due to	9	16.40%	6	11%	9	16.4	8	14.5
Total		29	12.10%	31	12.90%	44	18.3	31	12.9

Table 1B: Correlation between error types and relevant causes

No	Error Types	Relevant Causes									
		Cognitive Knowledge		Subject Matter		Equipment		Experience		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	I tend to make omissions because of	6	7.50%	1 2	15%	9	11.30%	4	5	80	33.33
2	I sometimes add words due to	1 2	25%	9	18.80%	2	4.20%	3	6.3	48	20
3	I substitute words due to	9	15.80%	9	15.80%	3	5.30%	4	7.1	57	23.75
4	Some words / expressions are distorted due to	1 1	20%	6	11%	4	7.30%	2	3.6	55	22.9
Total		38	15.80%	36	15%	18	7.50%	13	5.4		

Table 2A: Correlation between interpreter characteristics and causes of errors

N			Relevant Causes							
			Linguistic		Memory		Rapid Speaker		Psych. Stress	
			No.	%	No.	%	No.	%	No.	%
1	Accreditation	Acc. (2)	2	6.9	-	0	1	2.3	2	6.5
		Non - (18)	27	93.1	31	100	43	97.7	29	93.5
2	Subject	Sp. (5)	3	10.3	6	19.4	10	22.7	7	22.6
		Non - (15)	26	89.7	25	80.6	34	77.3	24	77.4
3	Experience	1-2 yrs (7)	16	55.2	20	64.5	25	56.8	17	54.8
		3 (or more) 13	13	44.8	11	35.5	19	43.2	14	45.2

Table 2B: Correlation between interpreter characteristics and causes of errors

No		Relevant Causes										
		Cognitive Knowledge Subject		Matter		Equipment		Experience		Total		
		No.	%	No.	%	No.	%	No.	%	No.	%	
1	Accreditation	Acc. (2)	2	5.3%	-	0%	2	11.2%	-	0%	9/240	3.8
		Non - (18)	36	94.7%	36	100%	16	88.8%	13	100%	231/240	96.2
2	Subject	Sp. (5)	9	23.7%	-	0%	3	16.6%	-	0%	38/240	15.8
		Non - (15)	29	76.3%	36	100%	15	83.4%	13	100%	202	84.2
3	Experience	1-2 yrs (7)	23	60.5%	20	55.5%	11	61.2%	12	92.3%	144/240	60
		3 (or more) 13	15	39.5%	16	44.5%	7	38.8%	1	7.7%	96/240	40

Table 3: Correlation between Error Type and Interpreter Characteristics

No.		Accreditation		Subject		Experience	
		Acc.	Non	Spec.	Non	1-2 Yrs.	3 (or more)
1	Omissions (80)	-	80	10	70	47	33
		0%	100%	12.50%	87.50%	58.80%	41.20%
2	Additions (48)	2	46	10	38	30	18
		4.20%	95.80%	20.80%	79.20%	62.50%	37.50%
3	Substitutions (57)	-	57	8	49	34	23
		0%	100%	14%	86%	59.60%	40.40%
4	Distortions (55)	2	53	9	46	33	22
		3.60%	96.40%	16.40%	83.60%	60%	40%

Table 4: Total Errors: ASE/Positive Vs. ASE/Negative

No.	Error Type	Total Wrong Responses/ ASE Positive		Total Wrong Responses/ ASE Negative	
		No.	%	No.	%
1	Omissions	43/240	17.90%	197/240	82.10%
2	Additions	30/144	20.80%	114/144	79.20%
3	Substitutions	31/171	18.10%	140/171	81.90%
4	Distortions	33/165	20%	132/165	80%
Total Errors		137/720	19%	583/720	81%

Appendix II: Questionnaire

1. Are you a professional interpreter? Yes No
2. Are you an accredited interpreter? Yes No
3. Are you a specialized /subject interpreter or a generalist? Specialized Generalist
4. Years of experience 1-2 3 or more

	Relevant Causes							
	Linguistics	Memory	Rapid Speaker	Stress	Cognitive Knowledge	Subject matter	Equipment	Experience
1. I tend to make omissions because of								
2. I sometimes add words due to								
3. I substitute words due to								
4. Some words /expressions are distorted due to								