The Dialogue in Translation Process Research

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Abstract: Understanding what is going on during the translation processes of successful professional translators is useful for both translator training and the recruitment of professionals at larger international organizations, companies and translation agencies. On one hand, in empirical Translation Research, we aim at ecological validity, i.e. the naturalness of the investigated process. On the other hand, we have to cope with the fact that translators' profiles, translation processes and communication situations are complex and cannot be replicated exactly. The question we asked in Hansen (1999, 2006a, 2006b) was: How can we in our experiments, analyses and descriptions of results take whole complex situations into consideration *without* renouncing the requirements of scientific research as to accuracy, validity, reliability and objectivity? How can we move from a subjective level to a level of subject-independent, consistent results which can be controlled systematically? Lately, we have got support from software and tools for logging, recording, tracking, imaging, and scanning which provide us with quantitative data about translation processes.

The question is now, what have we gained from these quantitative methods and what is still needed in order to increase our insight into translation processes? Here, dialogue proves to be an indispensable research tool.

Key words: Professional translation; quantitative and qualitative methods; triangulation; combination; description; individual processes.

1. INTRODUCTION

Empirical research is based on *data* systematically derived from the perception and observation of aspects of reality. In a research project, both data collection and analysis and interpretation of the data entail choices as to the different methods, techniques and procedures which might be the most promising. In TS, many different quantitative and qualitative methods are used. *Quantitative methods* are based on and proceed from the researcher's ideas and hypotheses about observed dimensions and calculable and measurable categories. *Qualitative methods* are based on interpretations of reports from e.g. the experiences, perceptions and/or actions of persons. Where in quantitative research focus is on relations between a few isolated variables in larger samples — in qualitative research, focus is on relations between many variables which are investigated in smaller samples. Both, quantitative and qualitative methods have advantages and limitations, but each mode of research makes its own contribution to the attempt to increase knowledge. If we, for example, investigate a human being, we can measure height, weight,

size of feet, blood pressure etc. — but as soon as we have to describe a person's complexion, hair colour, feelings or perception of pain, we have to rely on interpretations and reports, and these are based on experience.

The choice of qualitative and/or quantitative methods has to be taken in relation to the particular research issue(s) under study. However as qualitative data can be coded and counted, and as quantitative data and results always need to be interpreted, both aspects will *always* be present. In TS, quantitative and qualitative methods can be used in a variety of combinations and triangulations. There is no universal "best way" of combining methods.

2. QUALITATIVE METHODS

Qualitative research is in-depth investigation of phenomena taking as many variables into consideration as possible, and the assumption is that the person who experiences or perceives a phenomenon can also give the most precise description of it. In TS, the most popular qualitative methods are introspection methods like think-aloud (TA), retrospection and questionnaires. A few times (e.g. Hansen 1999, 2006a, 2006b), an interview — or better — a dialogue has been applied as a research method. With these methods, researchers hope to increase knowledge about for example translators' intentions, attitudes, behaviour, problems, strategies, decisions, and their ability to control processes and products. Investigating translation processes for example, the observer can register pauses — but what is interesting is *why* the translator needs a pause and *what he/she is reflecting upon during the pause.*

Empirical studies with TA are generally based on the ideas of Ericsson & Simon (1993: xxii), who say that: "Think-aloud and retrospective reports do not influence the sequence of thoughts". In nearly all studies with TA, during the experiments, researchers try to eliminate social interaction between subject and observer as far as possible, because if the two interact, the subject will try to adapt the verbal report to social norms and this could distort the actual mental data. As Ericsson & Simon (1993:xiv) say "social verbalizations may be quite different from the sequences of thoughts generated by subjects themselves while solving problems, performing actions and making evaluations and decisions." The observer should at best be present during the TA experiments, but he or she should remain invisible.

However, to enhance the production of TA, Ericsson & Simon (1993:83/256) propose the use of prompts or reminders to make the subject speak when he/she keeps silent. They propose that the observer uses expressions like "keep talking" or "what are you thinking about?" Their opinion is that "Reminders to verbalize of the " keep talking " variety should have a very small, if any, effect on the subject's processing." The question of whether TA and the reminders have an effect on the translation process is not resolved (see Hansen 2005), and what is investigated with TA is "the process + verbalization" (see Table 1).

Another introspection method, retrospection, was not used as often as TA because it was regarded as a less reliable, and error-prone method. *Retrospection takes place after* the process and subjects easily forget what they have done and tend to distort their observations (Krings 1986:68).

As translation processes consist of many simultaneous thought processes, after the task it can be difficult to recall distinct thought episodes, especially if the time interval between the completion of the translation and the initiation of the retrospection is longer than a few seconds. The risk of forgetting and distorting increases proportionally to the length of the interval between the task and the retrospective report (see Hansen, 2006b and section 6 of this article).

The questions in relation to the choice and application of introspection methods that have been raised repeatedly are: what is it we actually discover from using methods of introspection and how can we observe the translation process under *natural* conditions, i.e. how we can enhance the ecological validity of the experiments? The following Table 1 shows some qualitative methods used in TS and the phenomena observed, as well as the kind of the data obtained.

Table 1: Qualitative methods in process research

Qualitative methods	Kinds of data	Observed phenomena in
Questionnaire	QUAL + *quan*	profile, process, product
Think-Aloud	QUAL + *quan*	(*process* + *verbalization*) profile, product
Retrospection	QUAL + *quan*	profile, process, product
Dialogue	QUAL + *quan*	profile, process, product

3. QUANTITATIVE METHODS

3.1 Software

Since about 1996, introspection, and especially TA, has been combined with computer keystroke logging like, for example, *Translog* (Jakobsen, 1999) and Proxy (PACTE). The application of software has improved the study of translation processes considerably, because it has given us opportunities to monitor translation processes with much less impact on the "usual" behavior of the translator than the earlier TA, thus enhancing the *ecological validity*. The computer software provides us with quantitative data about the writing and revision process, i.e. all cursor movements, corrections and changes, as well as the number, position and length of phases and pauses during the writing process. Though these data still have to be interpreted, they are generally considered as being "objective" data.

As already mentioned, retrospection was used less frequently in earlier process research, but it is now used in combination with computer software by Hansen (e.g. 1999, 2006a, 2006b) because the possibility of combining it with software has improved the retrospection method considerably. With Translog's "replay function", which shows the writing process dynamically on the screen, it is possible to use the tool for retrospection, employing the method of *recognition* which is a well-known method from psychology. As soon as the subject sees his/her writing and revision process on the screen he/she automatically begins to talk. With retrospection and replay (R + Rp), the translation process is not affected. The Replay, i.e. seeing the writing process on the screen — played like a videofilm — functions as a retrieval cue, and

prompts like "keep talking" are not necessary.

However, apart from changes and revisions, computer logging primarily shows aspects of time, i.e. pauses and phases. There is no or very little information about what resources or aids translators refer to (especially if it is printed matter), or what translators are reflecting upon in the phases or during the pauses. An example: one of my subjects told me during the retrospection: "here I reflected upon ... did I really shut our windows at home". (It was a rainy day.) This shows that it is still not possible for the researcher to really know what is going on in the subjects' minds.

In order to overcome this problem of not knowing what is going on in the subject's mind during the pauses, TA has been used in combination with the computer software. Other methods were applied additionally like *video recording* (Lorenzo 1999), but video recording easily has an impact on the translation process, and some subjects feel uneasy or refuse to get filmed. Another method from psychology which was combined with the software and TA was *One-Way-Screen*. It was used by Livbjerg/Mees (1999) who observed their subjects from a different room, separated from the subject by a glass panel through which they could view the process without being in the line of sight of the student. Apart from being able to see the translators, the investigators were also able to hear them talk via an *audio link*. Thus they could register each time a reference work was employed by a translator, and it was also noted which dictionary and which page were being consulted.

More recently there is commercially available software, *Screen logging*, which records all changes taking place on the computer screen (screenshot recordings), e.g. the use of the Internet and of electronic dictionaries. There are, for example, *Camtasia and Clear View* which are invisible and thus non-intrusive tools. These can be used as a supplement to Translog.

3.2 Eye-Tracking

One of the newest attempts to observe the translation process is with the support of *eye-tracking*, which has been used in psychology, especially in research investigating children's reading competence and in brain research. In Translation Studies, Eye-tracking has until now primarily been combined with key-stroke logging and sometimes with screen-logging. Monitoring the fixations and movements of the eye, it is possible to infer what word, or part of a text or of the screen a person is attending to at any particular moment. Thus, activities during pauses and reading paths can be traced. What do researchers look at is for example:

- words or text segments with "longer-than-normal" fixation
- words or text segments that are not translated or translated slowly
- words or text segments looked up in the translation dictionary, and how frequently the aids are accessed
- words or text segments that get the first fixation
- the duration of the first fixation
- the number of refixations

- total fixation duration
- key-strokes during fixation
- fixation on special text segments

Eye-tracking registers brain processes which are *only expressed* by the eye movements. However, it is still crucial to establish the connection between the eye movements and the translation problems, strategies and decisions, and the quality of these decisions. The eye movements have to be interpreted. It is also problematic that sudden impulses from outside during the experiments can destroy the process. Additionally, associations of any kind that can have an impact on the process have to be avoided. As with some of the methods already mentioned, with eye-tracking there is still a factor of stress and nervousness that has to be dealt with. Eye-tracking creates a large amount of data which can only be visualized and analyzed by computer systems.

3.3 FMRI and Combinations with EEG and ERP

Over the past 10 to 15 years, methods like the FMRI (*functional Magnetic Resonance Imaging*) have been used to shed light on mental processes. With this method, research is done on living, functioning brains in order to investigate the neurophysiological processes that are taking place while different cognitive tasks are carried out. This method has been applied to simultaneous interpreting (SI) — in order to gain insight into interpreters' brains during processes of SI.

Some neurolinguists have tried to examine changes in brain activity during translation processes, for example, in the EU-funded project: **Eye-to-it**: http://cogs.nbu.bg/eye-to-it/? home which focuses on the potential of certain tools and technology (eye-tracking, keystroke logging and EEG/ERP feedback) to optimize the performance of professional translators. As the international **Eye-to-it-project group** say on their website:

"From the point of view of the development of technology, we aim at the integration of eye/tracking, keystroke logging and EEG/ERP registration into a unified set fit to monitor and provide feedback to an operator of IT-mediated translation". EEG (*Electroencephalography*) is the measurement of *electrical* activity produced by the *brain* as recorded from *electrodes* placed on the scalp. Actually, electrodes are placed on the scalp over multiple areas of the brain to detect and record patterns of electrical activity. ERP (*Enterprise Resource Planning*) systems attempt to integrate several data sources and processes of an organization into a *unified system*. A typical ERP system uses multiple components of computer software and hardware to achieve the integration. A key ingredient of most ERP systems is the use of a unified database to store data for the various system modules.

4. WHAT IS STILL LACKING?

For EEG, it is necessary to place electrodes on the scalp and for the combination of eye-tracking, keystroke logging and EEG, it is necessary to invite a nurse who can attach the electrodes. The question is how this may affect the ecological validity of the experiments and harmonize with the idea of naturalness of the processes.

So — though we have Camtasia (screen-logging) and eye-tracking, showing what the subjects are looking at during the translation process, perhaps the One-way-screen method of Livbjerg/Mees (1999) — or even just sitting in the same room — out of sight of the subjects and observing them — may be the methods which guarantee most ecological validity because what is observed is the actual actions during the process with all aspects involved. Furthermore, although we now have these useful tools and methods for logging, recording, tracking, imaging, scanning, and also the pauses, phases, cursor-movements, revisions, eye-movements, fixations, as well as the neurophysiological processes and even the electrical activity of the brain, all these data still have to be *interpreted* and *evaluated*. They are vulnerable to bias because of, for example, the researcher's interests.

In this connection, I would like to mention that it would improve translation process research if observations from translation processes were combined with an evaluation of the quality of the *translation products* resulting from the processes (Hansen, 2007). If we want to know which of the observations during the translation processes display promising behavior in terms of a good translation product, and which observations already during the process indicate that the product may be poor, the products, i.e. the target texts, and even the revisions on *micro-level*, i.e. the revisions during the process, have to be evaluated (Hansen, 2006a).

In research involving human beings and their mental processes, experiences and actions, it is necessary to go beyond the exercise of registering measurable data, especially if the goal is to find explanations and to answer questions about causal relations, for example:

- How do translators act in natural situations?
- Why are they not able to control their actions better?
- What problems do they have?
- What problems do they solve consciously and what problems do they solve automatically?
- What is the reason for discrepancies between expressed intentions and actions during the process?
- What intentions, attitudes, behaviour or strategies lead to good translations?
- What intentions, attitudes, behaviour or strategies hinder success in translation?

5. INTERMETHODOLOGY: COMBINATION AND TRIANGUALTION OF METHODS AND DATA

In empirical studies, the choice of a special procedure of data collection and analysis has an impact on the elicited data and the results. A device to minimize this impact and to increase precision of the description of a phenomenon under investigation is the *combination* and *triangulation* of methods and data. These methods from social sciences and psychology are procedures to *control*, *confirm*, *corroborate or complete* a complex study. In TS, data from first-person's observations (TA) can, for example, be combined with data from third-person's observations (the observer) in order to reach inter-subjectivity. Qualitative approaches are corroborated or

complemented by quantitative approaches. This latter combination is often looked upon as especially useful, because quantitative data derived from measuring and counting are regarded as more objective and reliable than qualitative data which are a result of persons' perceptions and more subjective interpretations of a phenomenon.

In its original meaning, the term 'triangulation' refers to a geometrical procedure which goes back to navigation and surveying. A point is located by calculating the length of one side of a triangle, given measurements of angles and sides of the triangle formed by that point and two other given reference points. This means that reference points, i.e. prior knowledge, are used in order to gain further results or further insight.

This is how combination and triangulation were applied in my experiments with students and professionals (Hansen, 1999; 2003; 2006a; 2006b), in order to accommodate qualitative research to "scientific norms" and to overcome some of the above-mentioned research problems. It was a complex study. The aim was to achieve a comprehensive description of translation processes in which the nature of the phenomenon as a connected whole was taken into consideration. In this context, it proved useful to keep the original metaphor, i.e. the meaning of a 'triangle' in mind, and to keep the procedures of combination and triangulation apart. *Combination* was used for all kinds of information gathering by mixing multiple methods, investigators, tools, observations and data. *Triangulation*, in accordance with the original meaning of the term, was used to obtain new results or new knowledge from already given results. This procedure guarantees clarity and coherence during processes of investigation and description of complex phenomena. In complex research projects, where many aspects have to be taken into consideration, the differentiation between combination and triangulation provides a means to keep the variety of different observations under control, and to make it easier to discuss, repeat and reevaluate the study.

Table 2: Combinations of methods and data

Combinations of methods	Kinds of data	Observed phenomena in
Questionnaire/ Software + TA + eye-tracking Evaluation	alternately: QUAL + *quan*	Profile (*Process* + *verbalization* + *eye-tracking*) Product
Questionnaire/ Software + TA + eye-tracking Evaluation	QUAN + *qual*	Profile (*Process* + *verbalization* + *eye-tracking*) Product
Questionnnaire/ Software + retrospection with replay + dialogue Evaluation	QUAN + *quan*	Profile Process Product

Data from interviews or questionnaires about the personal background of subjects can be combined with product data (the evaluation of the target texts), or the same data can be combined with process data from introspection. Triangulated, the results of both combinations can supplement each other or reveal gaps or discrepancies and, thus, can provide new knowledge about causal relationships between personal profiles, processes and products. A complex study gains flexibility and scope when new results can be located via always new constructions of triangles from already known reference points (= results). This is illustrated in the following tables; Table 2 demonstrates combinations of methods and data from the translator's *profile* (questionnaires), *process* (e.g. software, TA, eye-tracking, retrospection with replay and dialogue), and *product* (evaluation of revisions and of the target text); Table 3 shows a model of combinations and triangulations.

Table 3: Combinations and Triangulations

Combinations	**Profile**	**Product**	**Profile**	**Process Log file**				
Triang. 1	RESULT 1				Profile	Process Retrosp.		
Triang. 2	RESULT 2						Profile	Process Dialogue
New Goal	FINAL RESULT							

6. DESCRIPTION

In empirical research, description of an observed phenomenon is a kind of communication process with a sender, an object of description and the activity of describing it for a receiver. What is needed in order to get closer to objectivity is an unambiguous exchange of observations and experiences. Other researchers need the possibility to judge the validity of the described observations and to decide if they want to replicate the experiment. This is why descriptions in scientific research should be reflective, precise, careful, consistent and honest.

The process of describing constitutes a sequence of impressive and expressive sub-processes: observation, perception, identification and classification, as well as verbalization and reception (Moustgaard, 1990). An important goal of description in research is cognitive clarification, which means finding the most precise expressions in order to facilitate optimal perception of the phenomenon under study. In this connection it is of crucial importance that the sender's impressions are expressed in such a way that the receiver of the message understands exactly what is meant. This means that description processes are constantly influenced by the pragmatic conditions.

6.1 Modes of Description

Successful description processes consist of two complementary modes of description; an

analytical mode and a *synthetic mode*. The analytical mode is a series of discriminating procedures and choices with the aim of isolating the object of the description systematically and of identifying and categorizing the phenomenon, so that there is no doubt as to the issue being addressed. This process of dividing and categorizing has its price, however, because the result of the description of an isolated object may not be in agreement with the object as it is experienced in its usual surroundings. As soon as we isolate, we risk losing the object because it is taken out of its real mental context. That is why the analytical mode has to be complemented by the synthetic mode of description. The synthetic description regards the phenomenon as a part of larger units and other parts or processes from its surroundings.

Through a series of analytical and synthetic processes, the description becomes more and more clear and closer to a satisfactory coverage of the phenomenon. It is important to remember that the process of description is a *dynamic* process and that both modes of description have to be used as complements to each other — in an attempt to reach ever increasing clarification — through different kinds of classification and new categorizations into new patterns. As soon as one mode of description proves to be insufficient to characterize a phenomenon, the other has to take over in order to promote mutual understanding and the precision of the final description itself. In relation to empirical Translation Research, considering the complexity of translation processes, the two complementary description modes are extremely important as they are the preconditions for precise results from the dialogue.

7. THE DIALOGUE

The dialogue is a process of negotiation with the purpose of reaching subjective and intersubjective identification and clarification of a phenomenon of interest. The dialogue creates clarity about where the phenomenon under discussion belongs in the conceptual structures of the subject. During the dialogue, the subject is going through a process of identification, clarification and verbalization, and, as a result of this, develops and increases his/her understanding of the phenomenon in question. On the one hand, the dialogue is oriented towards the subject him/herself who is providing the description and who, simultaneously, is going through this process that develops and increases his/her own understanding of the phenomenon. On the other hand, the dialogue is also oriented towards the investigator who tries to understand the message and to promote the act of identification and clarification, and who gives feedback. As illustrated in Figure 1 and Figure 2, in the course of the dialogue, the investigator (participant 1) and the subject (participant 2) get closer to a mutual understanding.

The participants in the dialogue have different roles. It is the investigator's role to initiate shifts between the two modes of description mentioned above by asking questions or initiating further explanations. As mentioned in Hansen (2003:35), a necessary condition for such a dialogue in an experiment with translation processes is that the subject is able to verbalize his/her thoughts about phenomena, problems, actions and decisions. This presupposes that he/she already has reached some degree of clarity and has the expressive means/terms/signs availa-

ble. The results of experiments with introspection methods like retrospection and the dialogue (as well as TA) depend to a high degree on previous language and translator training.

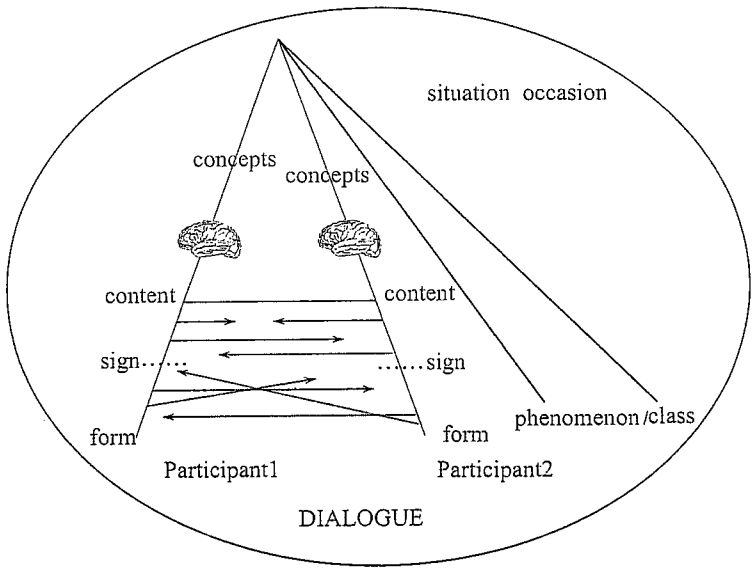

Figure 1: Dialogue

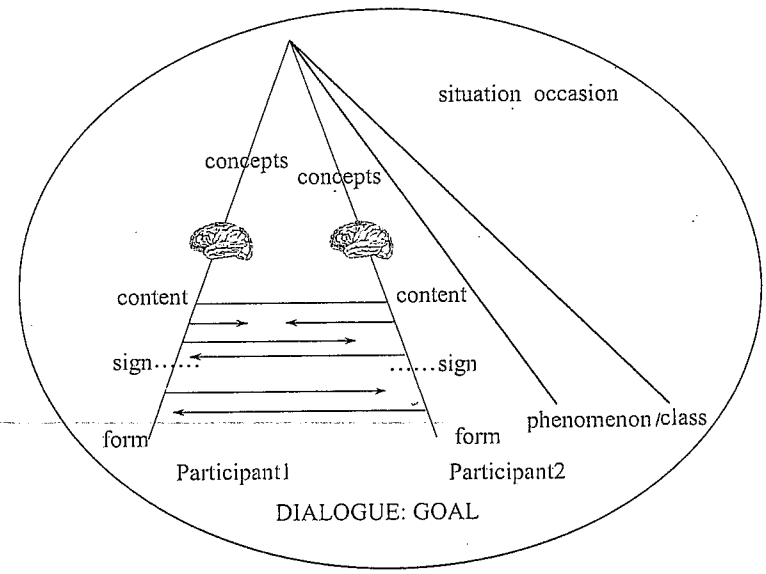

Figure 2: Dialogue: Goal

7.1 Immediate Dialogue (ID) or Delayed Dialogue (DD)

In my experiments, I have tried two kinds of dialogue; the immediate dialogue (ID) and the delayed dialogue(DD). I prefer to combine key-stroke logging with Translog and retrospection and replay with an *immediate dialogue* (R+Rp+ID) (Hansen, 2006a; 2006b). During the retrospection, the subject comments on his/her process, i.e. phases, pauses, revisions,

problems, strategies, attitudes and intentions, and all comments are recorded.

In this combination of methods, the investigator is *present* during the replay and listens to the retrospection. Immediately the subject stops the retrospection, the investigator initiates the dialogue with the subject about such phenomena as, for example, the subject's behaviour during the process, individual problems, decisions, errors, aspects of the source text and/or the translation brief, and any other issues that might seem to be relevant.

With the *immediate dialogue*, as I have used it, the investigator follows the translation process on the screen — from the subject's first look at the translation brief until the final product is completed — and listens simultaneously to the retrospection. Combined with previous knowledge from a questionnaire providing data about the personal profile and the subject's linguistic and translational background, the investigator can gather a large amount of relevant data and signals. The combination of data from the profile, process and product then makes it possible, in the dialogue, to peel off one layer of a problem after the other until investigator and subject are able to encapsulate the fundamental reason for a problem, or until the subject discovers and can explain the causes of a problem him/herself.

A precondition for this kind of "here and now research" is that the investigator, while the process is underway, analyses, combines and triangulates data and results from the personal profile, the subject's comments — in interaction with cursor movements, revisions and the final product — with a view to planning the *immediate dialogue*. This means that the immediate retrospective dialogue requires a great deal of effort from the investigator. My experience is that it is particularly effective if the investigator is able to evaluate process and product, cursor movements and eventual problems, errors and misunderstandings already during the replay. The immediate dialogue is an important part of empirical Translation Research, especially if the objective is to create awareness and to improve translation processes.

In a Copenhagen Retrospection Project (Hansen, 2006b), I compared the combination of retrospection and replay (R + Rp) where I was not present during the replay, with two kinds of dialogue, a *delayed dialogue* (DD) and an immediate dialogue (ID). I gathered all the available data about the personal profiles and combined them with the reported number and kinds of problems, decisions and comments as to the use of dictionaries, internet and other sources of information, and with the errors and types of errors in the products — and, additionally, with any further comments the subjects had made during the retrospection. Although it was well prepared, the *delayed dialogue* proved to be laborious. The problem was that some time after having carried out the experiments, the subjects did not remember their translation processes, products, or comments on problems and decisions. I had to work hard to help them remember.

8. THE IMPORTANCE OF THE DIALOGUE

The qualitative and quantitative methods, described briefly in this article, are all useful, and when combined and triangulated, they provide us with knowledge about what is going on during translation processes. However, the results from process research are based on either the

investigator's interpretation of quantitative data or on the subjects' reports of their perceptions of the translation process — and these have to be analyzed, categorized and interpreted by the investigator. These interpretations are interesting, but they are still subjective and often incomplete. Little, for example, is known about why translators act and think as they do. Often there are discrepancies between what the subjects do and what they say in their reports. Explanations are needed and causal relationships have to be established in order to better understand individual translation processes. If our goal in Translation Research is to achieve valid, reliable and (perhaps even) replicable results, clarification as to different interpretations of data and results is required. It is here that the *dialogue* has proved to be an excellent method.

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