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# TAPs in the Research on Translation Process: An Overview

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## Abstract

The translation process is a cognitive activity, and it has been a long time that the study on translation processes makes little progress, which is due to the lack of proper investigation methods. In the 1980s, Ericsson and Simon introduced the data collecting method of verbal reports into translation studies, providing new research angel and research methods, which opens a new chapter in translation studies. This article reviews the application of think-aloud protocols in the research of translation process, pointing out its advantages and disadvantages.

**Keywords:** Think-aloud protocols; Empirical research; Translation process.

## 1. Introduction

Cognitive linguistics and/or cognitive psychology provide theoretical foundation for early studies of cognitive translation processes, interpreting the process with theoretical models. These theoretical models, engaging in indirect investigation of cognitive thinking models of translators during translation processes in terms of the translated texts, can neither be tested nor be applied to analyze translation processes. These models are less scientific, objective and effective, and hence the transition from theoretical research to empirical research is inevitable (Liu and Xu, 2015).

Former theories of translation have been product- and competence-oriented, and not until the late 1980s had it been realized to be a deficit. Researchers, thus, devoted themselves to finding a new research paradigm, where they turned to incorporate approaches from cognitive science into their studies, and by adopting cognitive research perspectives, Translation Studies has at the same time opened itself up to experimental activities (Wilss, 1996). One of the major approaches to conduct empirical studies in Translation Studies is think-aloud protocols which are aimed at probing the translation processes. This article will review previous research on TAPs in translation process.

## 2. An Introduction to Think-aloud Protocols and Its Applications

Think-aloud Protocol is a kind of verbal reports *per se*—an approach of collecting data, originally employed by the discipline of psychology to study various problem-solving and decision-making processes.

Since the introduction, Think-aloud Protocol has been widely used in language studies and in translation studies in particular. Though the think-aloud approach receives lots of criticism, but 'researchers increasingly tend towards believing that think-aloud and self-observational procedures are the only way to get access to what happens inside human beings when thinking or acting' (Börsch, 1986).

According to an extensive research review by Ericsson and Simon (1984/1993), subjects do, given the right conditions, have access to considerable data about their own mental processes. The conditions they found to be essential are the following: 1. The data must be accessible to the subjects. 2. The most reliable data will be those reported as close to the occurrence of the behavior as possible (i.e., true introspection will produce the most reliable reports and delayed introspection the least). 3. The researcher must interfere as little as possible in reporting the data. 4. Subjects must be trained in producing introspective data and must be given practice in it before the data are collected.

According to Riita Jääskeläinen, the first actual think-aloud protocol (TAP) studies into translation was Ursula Sandrock's *Diplomarbeit* in 1982, and more formal TAP studies on translation began in 1986, when Dechert and Sandrock, Gerloff, Krings and Lörscher published four articles reporting on TAP projects.

Dechert and Sandrock (1984/1986) conducted the research with introspective approach to investigate the translation process. Their data shows that the subjects tend to choose the sentence as basic translation unit, and if the subjects find a proper translation of a source text unit, they tend to keep their initial translation.

Gerloff (1986), pilot study employed concurrent think-aloud protocol to examine second language learner processes of text analysis during a translation task. Five intermediate-level students studying French as a second

language were chosen to participate in the study, and they were not allowed to use dictionaries during the translation. Gerloff devised two coding schemas: one for identifying the unit of analysis in translation and another for categorizing the text processing strategies of language learners. By employing such coding schemas, Gerloff was enabled to examine the amount and proportion of processing done in each language and at each linguistic level of analysis.

In 'Identifying the Unit of Analysis in Translation: Some Uses of Think-aloud Protocol Data', Gerloff (1987) explored the use of think-aloud protocol for identifying and analyzing translation processes with two specific purposes: 1) to identify what kind of questions and issues could be addressed through the data collected from think-aloud protocol; 2) and to develop a system of coding the data that could be used in a larger translation study. Six subjects were chosen for Gerloff's study, including five native English speaking college students with intermediate level of French and a bilingual speaker of French and English. By examining the units of text analysis of six subjects, it allowed Gerloff to identify various levels of planning and execution that people actually use when translating, thus further progressing to more specific questions. Gerloff's coding system identifies seven levels of analysis: 1) at the level of syllable or morpheme, at 2) word, 3) phrase, 4) clause, 5) sentence and 6) discourse level, and 7) a separate 'group unit'. The study shows that the subjects prefer to work at phrase and clause level, and may use several levels of analysis simultaneously. Gerloff compared the differences between good and poor translators in terms of preferred language of analysis, size of units dealt with and editing styles, as well, which could be applied to a larger translation study. The drawback of this study was that the subjects received no prior training as Gerloff thought that prior training might cause the subjects to translate alike, thus minimizing the differences of translation behaviors of the subjects. No prior training, however, may cause more problems than the benefits it produced, such as the untrained subjects may not know what information needs to be verbalized or they may not report the information when thinking.

Krings (1986b) 'Was in den Köpfen von Übersetzern vorgeht: Eine empirische Untersuchung zur Struktur des Übersetzungsprozesses an fortgeschrittenen Französischlernern' was the first major publication employing empirical approach to investigate translation processes. In his earlier paper, Krings identified some translation problems which he tried to address and avoid in his own study. In later studies, Krings (1987) investigated the structure of translation processes in advanced German learners of French as a foreign language, which laid the groundwork for a psycholinguistic theory of translation. In the same study, Krings first put forward three major arguments in an attempt to support the application of think-aloud protocol in the study of translation processes, and remarked briefly on the debate over the 'completeness' of verbalisation; then through the data analysis with regard to a total of 117 features, Krings developed a tentative psycholinguistic process model of translation in advanced learners.

Lörscher (1986), investigated (psycho-) linguistic aspects of translation process with the aim to identify if there exist specific translation strategies in oral translation and whether these specific translation strategies are employed because of the oral translation. The reason why Lörscher conducted the research on oral translation is that Lörscher considers oral translation can reveal more information of language production and translation processes than written translation. Later, Lörscher (1991) conducted further studies with think-aloud protocol on oral translation processes, discussing methodological issues and introducing a sophisticated method for analyzing translation strategies. Lörscher (1993), compared the translation strategies employed by advanced French learners and professional translators, finding out that the sense-oriented approach and larger translation units are preferred by professional translators.

Riita Jääskeläinen conducted a vast of research on translation processes via think-aloud protocol. In her M.A. thesis, Jääskeläinen (1987) investigates the translation performance of four students learning translation analyzing the external and internal processing of the subjects in terms of time spent, dictionaries used and problem-solving process. In 'The Role of Reference Material in Professional vs. Non-professional Translation: A Think-aloud Protocol Study' and 'Teaching How to Use Reference Material in Translator Training: A Think-aloud Protocol Study', Jääskeläinen explores the usage of dictionaries and reference works by student translators. Later, Jääskeläinen (1989;1990a) conducted research to investigate the influences of the translation assignment on professional and student translators. In her licentiate thesis, Jääskeläinen (1990b) investigates the process features that the successful translation should have, comparing the amount of time and effort the translators invested in the task and the types of knowledge they used. Jääskeläinen (1996a), compared her investigation (1996b) on the translation quality of professional translators with Gerloff's study, finding out that even professionals cannot guarantee the quality of their translations unless they invest more time and effort. Jääskeläinen (1998/2009) made an overview on TAP research into translation studies, summarizing the problems encountered in previous research and envisioning further research with the aid of research software. In sum, Jääskeläinen's research not only consolidates the application of think-aloud protocol in the study of translation processes, but also provides illuminating insights into translation studies.

Early research on translation processes mainly focused on translator's comprehension (Dancette, 1994;1997), translation strategies (Fraser, 1993; Jääskeläinen, 1993; Krings, 1986a), translation brief (Fraser, 1994; Jääskeläinen, 1989), translation units (Gerloff, 1987), differences between professional and student translators (Alves, 1996; Englund, 2005; Gerloff, 1988; Jääskeläinen, 1987;1990b;1999; Jonasson, 1998; Kovačič, 2000; Lörscher, 1993); as more information on translation is revealed and think-aloud protocol gains ground in the field of translation studies, more areas and more detailed problems of translation processes are being explored through think-aloud protocol.

Englund (2005), investigated the features of expertise and the explicitation in translation processes. Dimitrova argues that the time which a professional spent on a specific translation task is an important feature of expertise, as the professional needs more time to tackle more specific problems in the source text in order to achieve

acceptability. The allocation of time to the three phases of translation processes, *i.e.* the planning of the task, text production and revision, is another feature of expertise. During the planning phase, professionals analyze the source text and identify the purpose of translation to set criteria to achieve acceptability. In the process of text generation, professionals prefer to choose fewer segments, *i.e.* larger translation units; in addition, fewer revisions were expected from professionals, as they had revised their translations when the first version of target text was produced, which made the text production and revision merge into one single phase. Explicitation in the target language is integrated into the text production phase –professionals explicate the information of the source text into the target text automatically during their translation.

Eftekhary and Aminizadeh (2012) investigated the strategies that senior translation students employed when they translate literary texts, identifying fourteen strategies, among which the most frequent used is Look-up, and the second and the third are Using imagery and Paraphrasing respectively.

Alos (2015), employs think-aloud protocol to investigate how text-analysis training will affect the development of the pragmatic competence of English–Arabic trainee translators in terms of their inferential ability to interpret implied discourse relations in an English source text. Alos points out that this aspect of translation competence is problematic in nature and classroom instruction is of great importance for developing the pragmatic abilities of trainee translators.

Cifuentes-Férez and Rojo (2015), conducted a survey on the translation of manner-of-motion verbs, trying to identify the impact of different types of texts and the translators' level of expertise on the decisions that translators make during their translation processes of manner-of-motion verbs. The results shows that the degree of prominence of manner information in the source text determines the translators' decisions—the higher focus of the source text on manner verbs, the less reluctant the translators would omit the manner information, and *vice versa*; the expertise, however, hardly affect the translators' decision on translating the manner-of-motion verbs.

As stated above, empirical studies on translation processes via think-aloud protocol started since 1980s, and since then foreign scholars have conducted a wide range of researches; the empirical studies in the academia in China, however, began much later. To my knowledge, the first article that introduced think-aloud protocol in translation studies was 'On the Studies of Translation Processes' written by Jiang (1998). Jiang gives an introduction to the studies conducted by Lörscher, pointing out the problems in descriptive translation studies and offering methodological considerations over the application of think-aloud protocol to the studies on translation processes. Jiang's article was of great importance as it introduced a new method to investigate the translation processes. Another influential article was 'Utilizing TAPs in the Study of Translation Process since the 1980s: A Retrospection', in which Li (2005) presented a comprehensive overview on TAPs-based research conducted by foreign scholars in such areas as translation strategies, translation units, and translation brief, and discussed the implications of TAPs-based research to translation pedagogy.

Thereafter, think-aloud protocol has gradually become a new paradigm in translation studies in China. The research is conducted mainly focusing on the application of think-aloud protocol in the study of translation processes, translation units, translation strategies and translation pedagogy.

The empirical study is still in its initial phase with think-aloud protocol as the main research method, and therefore, methodological and theoretical considerations over the application of think-aloud protocol to translation studies draw the attention of many researchers. Cai H. S. (2000) discussed the procedures for conducting an investigation via think-aloud protocol, and issues that need to be paid attention to. Liu (2014) discussed the application of think-aloud protocol to translation studies in terms of the aim of research, selection of participants, translation brief, the texts to be translated, translation models and translation competence, and so forth.

The translation unit is an issue of controversy, as some researchers argue that there exist no such unit in the process of translation. The empirical approach, however, sheds light on the study of translation units, providing concrete evidence of the existence of translation units during translation processes. Cai J. D. (2007), investigated the text factors that would influence translators' choices of translation units. Cai classified the affective factors into five categories—*translator, text, culture, function and environment* (18), focusing on the text factors in terms of readability, style and content. The result shows that when translating texts with less familiar style or content, or translating more readable texts, translators tend to choose smaller units. Yang (2009) conducted an investigation on the features of subjective and objective translation units that translators employed during the E-C translation of scientific and literary texts, showing that no participants chose 'single word' as translation units when translating scientific and literary texts, and a few participants chose 'a sentence' as translation units when translating literary texts.

The translation strategy is another important issue in translation studies, which is mainly analyzed through translated texts in previous studies. The empirical studies provide an opportunity for researchers to probe into the translation processes in which translators make decisions about the strategies they employed. Wen and Yin (2010) conducted an investigation on translation strategies used by senior college students during C-E and E-C translation, finding out that monitoring the accuracy of target texts and self-checking are the two most frequently used strategies during E-C translation and accepting inner solutions, finding problems, using dictionaries, instinct judgment and explaining source texts are the five most frequently used strategies during C-E translation. Zeng *et al.* (2013) identified four frequently used translation strategies—problems finding, problems solving, paraphrase of the source text and repeated checking (106). Zeng *et al.* (2013), found out that experienced translators actively used translation strategies to comprehend the source texts, while less experienced translators did not.

The aim of empirical studies on translation processes is to reveal the underlying rules of translation that may contribute to translation pedagogy. Li (2008) introduced the application of think-aloud protocol to translation

teaching, summarizing two advantages— its directivity and values for cultivating the divergent thinking of students, and three issues that need to be paid attention to—the teacher should have considerable experience on translation practice, the texts chosen as examples should be concise, and the teacher should use think-aloud protocol flexibly. Zhang (2010), pointed out that the introduction of think-aloud protocol into translation pedagogy could enrich the existing teaching methods, and deepen their understanding of translation theories and skills and enhance their translation ability.

## 3. Advantages and limitations of Think-aloud Protocol

Texts, original or translated, are self-contained entities, entailing 'signatures' of their writers or translators. Thus, translated texts can be used to infer translators' cognitive processes. However, the information revealed by the product is limited; in order to better understand translators' thinking processes, researchers adopted verbal reports, think-aloud protocol in particular, to investigate the translation processes, as verbal reports data can provide insights into the production of translated texts. So, this section is intended to introduce the advantages and disadvantages of think-aloud protocol in studies on translation processes.

### 3.1. Advantages of the Think-Aloud Protocol

Think-aloud protocol is a type of concurrent probing, which allows researchers to gain insights into the translation process. Though the processes and verbalization cannot be perfectly simultaneously, the concurrent verbalization can still provide the relevant information that is available from short-term memory. In addition, translation is a linguistic activity *per se*, while verbalization is capable of externalizing linguistically-structured information.

As is stated by Krings (1987), 'the think-aloud technique seems especially suited for the investigation of the cognitive processes involved in translating' (p. 173). In addition, think-aloud data are especially suited to uncover individual differences in the translation procedure of the subjects, thereby avoiding the wash-out effect of large samples.

Think-aloud data of translations reveal processes of language comprehension as well as processes of language production. They therefore permit valuable insights into:

1. the cognitive organization of the learner's linguistic knowledge of the mother tongue;
2. the cognitive organization of the learner's linguistic knowledge of the foreign language;
3. differences between 1 and 2;
4. differences in cognitive organization of the linguistic knowledge of different foreign languages.

Therefore, it is undeniable that the data from think-aloud protocols can provide valuable information on the translation processes, and it seems that for now, this is the most suitable approach to investigate the mental processes of translators.

### 3.2. Limitations of Think-aloud Protocol

Though think-aloud protocol has proved its usefulness in empirical studies of cognitive translation process, there exists a wide range of criticism on the use of think-aloud protocol in translation studies for the limitations and disadvantages that the think-aloud protocol inherited by its very nature.

Incompleteness, among others, in one major limitation of think-aloud protocol. According to Lörscher (1991), the thinking process is a combination of self-reports, self-observation and self-revelation, which makes it difficult to differ whether the participants are producing direct verbalization or observing their translation behavior introspectively or retrospectively. Some researchers point out that the findings of introspective data cannot reflect the whole thinking activity of a translator during a translation task, because 'not all of the mental processes associated with a cognitive task will be verbalized'(Kiraly, 1995). Hönig (1988), notes, in his report on small studies using translator trainees as subjects, that a great deal of what goes on in the translator's mind appears to be, and in fact must be, subconscious and therefore not available for verbal reporting. Another cause for the incompleteness is the automation, *i.e.* the thinking processes of translators become almost 'automatic' which makes it difficult for them to verbalize their thinking processes as the processes are so fast which are unavailable to short-term memory (cf. (Barbosa and Neiva, 2003; Jääskeläinen and Tirkkonen-Condit, 1991; Séguinot, 1997).

Nisbett and Wilson (1977), argue that the data collected from introspective approach are representation of the products of metal processes and cannot reflect the actual thinking processes. Similarly, Wilss (1996) argues that when people do introspect, they observe the products rather than the procedure at work. Furthermore, the unstructured data produced by think-aloud protocols are another perceived disadvantage, as the participants speak aloud whatever comes into their minds, the data are not well-organized, which will need a great deal of efforts to transcribe and analyze the data.

## 4. Conclusion

Translation process can not be measured directly, and hence, in order to understand what translators are thinking about, empirical methods are introduced into relevant research. Think-aloud protocol has become a useful approach to investigate translation processes, since Ericsson and Simon (1984/1993) introduced verbal reports into translation studies. In early studies, because of the lack in techniques to collect data, 'both concurrent and retrospective verbal reports are now generally recognized as major sources of data on subjects' cognitive processes in specific tasks' (Ericsson and Simon, 1984/1993). This article reviews previous research on translation process via think-aloud

protocols, pointing out its advantages and disadvantages. Thought achievements have been made, some researchers, however, argued that the data collected from think-aloud protocols are subjective, and that verbalization would affect the cognitive processes of translators, therefore, think-aloud protocol is not applicable to translation studies. However, verbalization will only slow down the process, but not affect the cognitive processes. Although as it is effective, research with more valid approaches is still needed for future research.

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