At the Crossroads of Translation and Cognition: Tracing Decision Making in Translation through Think-Aloud Protocol

Çeviribilim ve Bilişsel Çalışmaların Kavşağında: Sesli Düşünme Protokolü ile Çeviride Karar Verme Sürecinin İzini Sürmek

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ABSTRACT

Among many definitions, translation can be described as decision making, which involves the concepts of problem solving, strategies, and choices, situating translation as a process which is oriented to study what goes on in the mind of the translators. Then, decision making can be addressed in studies concerning the translator, rather than the product, and can be tackled within the field of translation process research. This is already the case for think-aloud protocols (TAP), studied by many scholars within the framework of decision making. In spite of the criticism it gets, it is obvious that TAP provide rich data on decision making in translation, enhancing a wider perspective on the process-oriented approaches. Based on this perspective, then, TAP can also be studied within the situated and distributed cognition approaches to translation as a valuable research method that has access to the "black box" that will also provide an awareness of the fact that translation decision making and problem solving are not only restricted to texts. In this review, how decision making and translators are studied in translation process research will be reviewed, making some suggestions for future studies.

Keywords: Think-aloud protocol, decision making, problem solving, translation process research, situated and distributed cognition

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ÖZ

Birçok tanım arasında çeviri, çeviriyi bir süreç olarak konumlandıran ve çevirmenin zihninde neler olup bittiğini incelemeye yönelik problem çözme, stratejiler ve seçimler kavramlarını içeren bir karar verme süreci olarak tanımlanabilir. O halde bir kavram olarak çeviride karar vermenin üründen çok çevirmen odaklı çalışmalarda araştırıldığı ve bu çerçevede, pek çok çeviribilim araştırmacısı tarafından incelenen sesli düşünme protokolleri için zaten geçerli olan çeviri süreci araştırmaları kapsamında ele alındığı söylenebilir. Aldığı eleştirilere rağmen, sesli düşünme protokollerinin çeviride karar verme süreci konusunda zengin veriler sağladığı ve sürece yönelik yaklaşımlara daha geniş bir bakış açısı kazandırdığı açıktır. Bu bakış açısına dayalı olarak, sesli düşünme protokolleri çeviri kararının ne olduğu konusunda bir farkındalık sağlayacak olan "kara kutu"ya erişim için değerli araştırma yöntemlerinden biri olarak çeviride konumlanmış ve dağıtık biliş yaklaşımları içinde de incelenebilir; bu, çeviride karar verme ve problem çözme

süreçlerinin sadece metinlerle sınırlı olmadığını, çevirmenin çalıştığı çeviri araçlarından çalışma ortamına kadar birçok faktörün bu sürece dâhil olduğunu gözler önüne serer niteliktedir. Bu derlemede, çeviri süreci araştırmalarında bir kavram olarak karar verme ve çevirmenlerin nasıl çalışıldığı gözden geçirilecek ve gelecek çalışmalar için de bazı önerilerde bulunulacaktır.

Anahtar kelimeler: Sesli düşünme protokolleri, karar verme, problem çözme, çeviri süreci araştırmaları, konumlanmış ve dağıtık biliş

1. Introduction

Decision making can be related to many procedures in the performance of a translation, from detecting possible problems and evaluating them regarding the aim of the translation, to coming up with appropriate solutions and employing strategies accordingly. From this perspective, decision making in translation is a rather complex process in which the cognitive effort is utmost. On this basis, in this review, the relation between decision making in translation and cognitive processes will be discussed based on the studies that employ the think-aloud protocol (TAP), which will answer the questions of how and why decision making and translators are being studied under cognition. Tackling decision making in translation emphasizes the orientation toward the translator, a recent trend, rather than the product, or dual comparisons within translation studies. Studying the translator and the translation process through cognitive approaches is expected to develop a meta-discourse on the "name" and "nature" of translation. On this basis, the theoretical literature and research on translation decision making studied within the paradigm of translation process research (TPR) under think-aloud protocols will be reviewed, as stated.

From a historical point of view, following Holmes' famous map (1972), which caused the establishment of translation studies under function-oriented descriptive studies, socio-cultural factors embedded in translation became more prominent, and rather than employing prescriptive and normative approaches, understanding and describing the reasons behind a translation process became more crucial. In parallel with the mentioned advancements, translators became more visible, and it has been acknowledged that they are embedded in socio-cultural contexts rather than being considered mere decoders and recoders. To illustrate, under functionalist and communicative theories that took place in the 1970s and 1980s, Holz-Manttari's (1984) translation action model posits the translator as the expert who decides what is functionally suitable in the target text and its system among the other players involved in the translation process; in Vermeer's (1984) Skopos theory, the translator has the major role in producing a functionally appropriate text, called translatum, in accordance with the aim of the translation. In these functionalist approaches, it is seen that the translator plays a key role as the communication expert who is validated to make translation decisions as being the one who has the competence and knowledge on both of the texts and their systems. Within the paradigm of descriptive translation studies, Toury's (1995) norms can be given as the concept to describe translation behaviors in order to make generalizations about the translation-making processes of the translator. Moreover, within the cultural turn in translation studies (Lefevere, 1992), the translator also started to be located in a more ideological position, which was followed by postcolonial translation and activist translation research involving debates on the visibility-invisibility of translators (Venuti, 2000). In addition to these, a more apparent approach to the translator can be found in the translator studies proposed by Chesterman (2009). These involve translation sociology, which posits translators in a wider web of agents regarding the

public discourse on translation and the self-image of translators. The recent collaboration of cognitive science with translation studies, a recent collaboration, indeed, when we consider the long past of cognitive science, aims to describe what goes on in the mind (the black box) of the translators in the translation process under some translation process-oriented research methodologies, such as think-aloud protocols, eye tracking, key logging, retrospection, etc. Among them, the think-aloud protocol is one of the methodologies most related with what goes on in the mind of the translator during the decision-making process. An overview of TAP and the translation decision-making process will be presented in the next two sections.

The next section discusses and presents the studies concerning the concept of decision making in translation studies. The third section discusses and presents the studies conducted on the specific relation between translation decision making and cognition under TAP in translation process research. The fourth section is the conclusion, where suggestions are made for future studies.

2. Decision Making in Translation Studies

In this section, the definitions of decision making and from which perspectives it has been used within translation studies are discussed. Translation can be described as a decision-making process in which alternative solutions to various detected problems regarding both textual and extra textual elements are adapted. Therefore, decision making in translation can be studied together with problem solving, which is regarded as a wider concept that includes the decision-making process. Then, translation as decision making lies at the heart of solving translation problems, which is a process that does not have well-defined fixed patterns, fixed choices, fixed consequences or good or right decisions, but rather depended on the translator. Such a process makes translation problem solving and translation decision bound to each other on the basis of the concept of choice.

Decision making is apparent especially when a problem necessitates a choice to be made, and as Levy states in his article titled *Translation as a Decision Process* (1967/2000), it "is not random but context-bound. Every interpretation has the structure of problem solving: the interpreter has to choose from a class of possible meanings of the word or motif, from different conceptions of a character, of style, or of the author's philosophical views" (149). Such an approach of choice takes us to the contextuality of the translation and translator, where normative and prescriptive approaches are no longer favored. The dynamic concepts of decision making in nature, and therefore problem solving, make the approaches more process-oriented, as a step closer to the "black-box" of the translator, which will also take us to the cognitive approaches to translation that will be discussed in the next section. In this context, tracing decision making as a concept in translation studies will provide a wider view on the orientation towards the translation process and translator research.

Regarding the relationship between decision making and problem solving in translation, Levy associates problem solving and interpretation by comparing translation to a game, "a game in which every succeeding move is influenced by the knowledge of previous decisions and by the situation which resulted from them (e.g., chess, but not card-games)" (ibid: 149). Also, regarding translation from a pragmatic point of view, he discusses minimax strategy, in which the translation process is done for the sake of minimum effort and maximum effect. Considering this from a historical perspective, studying his minimax strategy under a mathematical method, which posits translation as a decoding and recoding process, no matter how strong a basis he establishes on decision making and problem solving in translation, Levy's emphasis on semantic, rhythmical, and stylistic elements causes him to explain the decisions made during translation on the level of lexical choices. Such an approach may be considered as lacking a wider perspective on translation both regarding the text, including its textual and extra-textual parameters, and the decisions made emerging from the situatedness (Risku, 2002; 2020) of the translator that is adopted in recent cognitive translation studies, which also forefronts the translator in the process.

Discussing translation of text types from a functional point of view in translation studies, Reiss (1981) suggests that translation decisions are made considering the text type and the communicative function of the text in the source language and target language by defining four main text types (informative, expressive, operative, and audio-medial), and focusing on the question "what mode of translating should be adopted to attain functional equivalence?" (131). Therefore, although text types are studied under process-oriented approaches, decisions are governed by the text and its type, with no mention of the role the translator plays in this process of detecting the text type of the source text and deciding the text type that will be attributed to the target text in translation of the source text.

Approaching decision making in translation from an information-processing approach, Wills (1994) defines decision making in translation as "… an information-processing concept that describes decision-making behavior in terms of an interaction between the translator's cognitive system; his linguistic, referential, sociocultural and situational knowledge bases; the task specification; and the text type specific problem space" (131). As it can be seen, he emphasizes cognitive operations of translation, stating that "translation is full of messy factors, such as memory limitations, knowledge and attentional gaps, vagueness, attitudinal factors, interference effects etc." (139). Although he defines it as an information-processing system, Wills' wider perspective on decision making and on the impact of the changing/ specific environments and contexts suggests that the experiential features of translators and also their behaviors center upon what goes on in the mind of translators. Such a perspective can be also traced through his statement that "investigation of translational decision-making must focus on environmental factors, such as task specifications, client needs, and the person of the translator and his/her decision-making capabilities" (142). Wills' approach represents

the importance of studying translation through the perspectives of cognition in order to shed light on the actual actuators of the process of the decision making in translation.

In parallel with the developments given in the historical overview above, it is seen that the later studies conducted on decision making place a greater emphasis on translators and define the decision-making process from a more translator-oriented perspective, through some concepts such competence, acquisition, and training.

The study conducted by PACTE (2009) deals with decision making from the point of translation competence and acquisition, mentioning five sub-competences under them, one of them being the strategic sub-competence. This sub-competence is defined as "procedural knowledge to guarantee the efficiency of the translation process and solve problems encountered. This is an essential sub-competence that controls the translation process" (209). The definition of the mentioned sub-competence also indicates that translation is a problem-solving process, which makes the mentioned sub-competence the most important during the translation process, according to the group. Studying translation competences, their acquisition as well as regarding problem solving, and hence decision making as sub-competences, suggests the actual visibility of the translators in translation studies. In another study that tackles decision making in translation based on the differences between expert and beginner/student translators, Gonzalez Davies and Scott-Tennent (2005) address problems the translations of cultural references bring along. By employing a problem-solving and translation student-centered approach, they suggest that expert translators are more oriented to adopt adequate translation strategies and produce more efficient translation solutions. Aiming to develop a translation competence to overcome the uncertainties that such references cause and to design a syllabus, they describe three skills--noticing, justifying, and deciding--the last one being defined as "inherent to all the process: to making macro-decisions, to brainstorming and choosing strategies and procedures, and to justifying the decisions" (2005:163). As can be seen, translation decision making is associated with the competence and individuality of the translator. Nunez and Bolanos Medina (2018) approach decision making in translation from a psychosocial point of view and analyze the relationship between competence, intrinsic motivation, and self-perceived problem-solving efficacy. On a pedagogical basis, their results show that a higher degree of competency and intrinsic motivation lead students to adapt to their environment and use problem-focused coping strategies more intensely. In a recent article, Enbaeva (2021) defines translation decision making as "a challenging area of research which is primarily associated with the essence of the translation problem and strategies to solve it" (811). The study addresses translation decision strategies and models for problematic text elements, which are called Rich Points by PACTE, aiming to develop a basis for proposing a set of translation decision models.

This section discussed how decision making in translation studies has been studied and researched. As can be seen, decision making is associated with problem solving, which exposes the tailor-made nature of the translation process, by which it is meant that the problem-solving

process is framed by individual choices the translator makes, approaches the translator has towards the product, as well as the process and translator competence acquired by training. Therefore, decision making in translation is one of the concepts that forefronts the process and actuators, trying to search through the black box of the translators, where, for example, many different choices occur with a single text. In the next section, the studies conducted on decision making through the methodology of TAP will be discussed.

3. Decision Making at the Crossroads of Translation and Cognition

Translator-oriented research can commonly be found in the collaboration of translation studies and cognition, which both share the basis of process-oriented translation research that is given special attention in this study, since such research also reveals the process of decision making in translation. Conducting process-oriented research in translation studies means studying translation on the basis of real-life conditions, taking translation studies out of their sterilized, prescriptive environment, which results in going a step closer to display what goes on in the mind of the translator. According to O'Brien (2013) such process orientation "is due to the thirst for a greater understanding of translation as an expert task" and "the development and increased accessibility of tools and methods for measuring specific cognitive aspects of translation task (…)" (5), while for Ferreira, Schwieter, and Gile (2015), it is due to the "increasing involvement of translation practitioners and trainers of translators and interpreters in research" (5). O'Brien also states that "the process of translation largely focuses on human translators and influences on their cognitive processes, strategies and behaviors" (2013: 7).

No matter how special a case decision making is in translation studies, it is hard to describe, measure, and observe it, at which point the process-oriented research methods and the tools provided by cognitive science can be used for collaboration, as stated by Ferreira and Schwieter (2017):

> "Translation has been carried out for millennia, but understanding the particularities of the complicated process of transforming a piece of information from one language into another increasingly intrigues researchers around the world. Perhaps this is one of the many reasons why researchers have become so motivated to conduct studies explaining the processes of translation and interpreting" (3).

In this framework, a short literature review on Translation Process Research (TPR) will be provided before delving into the studies and research conducted on decision-making processes in the collaboration of translation studies and cognition.

Translation process research can be described as a research methodology which uses data elicitation tools as key stroke logging, eye tracking, think-aloud protocols as well as electroencephalogram (EEG) or functional magnetic resonance imaging (fMRI) in order to make inferences on how the mind of the translator works, taking the suggestion of mind–brain–behavior correlation as a starting point. Through empirical and also ethnographic research,

the latter being more employed for translation event research, data are provided regarding the cognitive effort, cognitive load, cognitive recognition, comprehension, memory, attention, and focus of the translator.

From a historical point of view, one of the first methods employed in process-oriented translation research is the think-aloud protocol (TAP) that was adopted in the 1980s. As stated by Ferreira and Schweiter (2017), "(t)he central idea was that by asking a person engaged in an activity to 'think aloud' while performing the activity, verbal data could be elicited that would allow researchers to gain access to the person's thought processes and would provide evidence of how the human mind worked" (2017: 25). Although employed by many researchers such as Krings (1986), Tirkkonen-Condit (1995; 1996), Jääskeläinen (2000; 2012), Königs (1986), etc., this method received some criticism on its completeness, reliability, and how it yields information about unconscious or automatized processes. In the 1990s, more technology-oriented research tools were added to TPR, one of them being key stroke logging, which may provide more objective data on the cognitive behaviors of translators. As Jakobsen defines it (2017):

> "The main function of a keylogging program is to record what key was struck exactly when. From a log of this information, the translation process (strictly the typing process) can be replayed any number of times at different speeds, if relevant, and can also be shown in a linear representation with all the keystrokes, including deletions, insertions, corrections, editorial changes, mouse movements, and so on, together with indications of the duration of all, or a selected number of, time intervals between keystrokes" (29).

As it is clear through keylogging, research is provided with data regarding the translation process itself rather than a mere product. Moreover, eye movements on the screen that display the source text and target text also give valuable data on where the translator fixates their eyes longer, their regressive saccades and re-fixations. "All such gaze activity builds a detailed picture of certainties, uncertainties, assured and less assured decisions, oversights, and the emergence of new solutions" (2017: 35), making eye tracking tools gain importance in TPR.

Furthermore, in recent studies in TPR, situated cognition is another approach that is often used in cognitive translation studies which brings out the active role of the translator, being in relation with his/her body, environment, situation, other agents and also social and cultural structures, crossing the border of mere mental representations. It foregrounds the situatedness and context dependency of translation, as described by Risku (2020):

> "Rather than explaining cognition as the recognition, reconstruction, and use of relatively stables schemas and patterns in the brain (…), situated, embodied cognition views cognition as agent-environment interaction in a psychosocial, ecological system. (…) Meaning cannot be localized on paper or in the brain, it results from our interaction with our current environment" (6).

According to O'Brien (2013), the situated approach "allows researchers in cognitive translatology to examine not only what translators do during the translation process, but also how environmental and social factors influence their decision-making as experts in their

fields" (2013: 10). Moreover, the impact of emotion, the workplace, the tools translators work with, etc., have also started to be studied in translation studies by acknowledging the fact that individual, emotional, interactional, technological, and institutional factors should be considered more broadly in a translation process.

Reviewing TPR from the perspective of a decision-making process, TAP has been one of the most "prolific in the generation of hypotheses, especially regarding problem-solving strategies" (Schwieter and Ferreira, 2020: 60), establishing the reason why think-aloud protocol studies on decision making will be reviewed within TPR in this study. The first phase of TAP in TPR (Krings, 1986; Gerloff, 1988; Königs, 1986; Lörscher, 2002) was conducted on foreign language learners, away from a real-life translation situation and from a sampling of expert and student translators, which are the subjects of research conducted recently. Alves (2015) indicates that, "in the first generation TPR studies, there was a strong focus on studying problem solving and decision making in translation as well as an interest in describing the role of automatic and non-automatic processes," and also suggests that the first phase of TPR studies is inevitably related to cognitivist assumptions about information processing (2015: 21). Moreover, as Shih (2015) points out, in the early studies, it was suggested that the cognitive process of translation could potentially contain conscious plans to solve translation problems. Nevertheless, the cognitive process during a translation may not always be conscious, which takes us to automatic or routine translation tasks in which the translation decisions are internalized by the translator.

Krings (1986), in his experimental study that was conducted on eight native speakers of German learners of French, in which four of the learners translated the German text into French and four of the learners translated the French text into German, suggests "that the structure of the translation process would depend on type of translation problem" (264). He also writes that "in the thinking aloud protocols two basic features of the translation process were evident: the presence of translation problems and a variety of strategies for solving these problems" (266), choosing these two concepts to analyze the translation process. He uses the features of translation process to identify translation problems as externalized in the thinking aloud protocols (267), correlating translation problems, and translation strategies. He continues to argue that if there is no detected translation problem, then there is no translation strategy that takes us to the automatic process of translation, as he states that "strategies emerge as soon as the translation cannot be carried out automatically" (268). Such an approach can also be found in König's flowchart of a model that is the "representation of the problem-solving and decision-making processes in L2-L1 and L1-L2 translation, respectively" (2017: 25).

In a PhD study titled *From French to English: A look at the translation process in students, bilinguals, and professional translators* by Gerloff (1988), research on 12 subjects was "conducted using think-aloud protocols to investigate the translation processes of students, bilingual speakers and professional translators" (ix). The data collected was analyzed in terms of the differences between the problem-solving strategies and behaviors "to determine

differences between the processing among the groups, the range of individual variation within groups, and different "types" of processors that emerged" (ix). It was concluded that, even if the translator was more experienced, the translation process did not become easier or faster. Also, being experienced led the translator to detect more problems and spend more effort and time on these problems. Moreover, the experienced and bilingual translators provided more solutions than the students, making some implications on translation education.

On the other hand, although think-aloud protocols are adopted broadly for research on translation process, there have been some criticisms against it due to its ecological validity, interference with the process, and the suggestion that as cognitive processes are automatic ones, they cannot be verbalized. For example, Kussmaul and Tirkkonen-Condit (1995) argue the difference between TAP versus dialogue protocols; the subjects tend to quit verbalizing when their cognitive load is increased but they actually quit verbalizing when there is little cognitive load, which can be regarded as the automation of translation problem solving and decision making. Therefore, the extent of TAP for the access to the whole translation process may be challenged. Nevertheless, where and when verbalizing is stopped may be of importance to research the process. (see also Jääskeläinen, 2000). Researchers try to compensate for these criticisms through triangulation of keystroke logging and eye tracking tools for data elicitation into the translation process. Moreover, especially the first phase of TAP in TPR was criticized for studying subjects who were not translators, but mere language learners. On this basis, Tirkkonen Condit (1990) conducted an experiment on professional, semi-professional, and non-professional translators regarding their decision-making processes through TAP. The process was divided into three stages (the preparatory stage, writing stage, and editing stage) based on Krings' (1986) division. In accordance with the experiment, she concluded that the time spent making a decision by the professional translator is less compared with the other translators. Moreover, the planning of the translation is relatively automatized for the professional translator, which affect the adopted translation strategies that appear to be decided on in the preparatory and writing stages. The translation strategies also appear throughout the whole process of semi-professional and non-professional translators, which gives some implications on the economical use of time.

Through analyzing the evaluative statements of translators, Tirkkonen-Condit and Laukkanen (1996) conducted an experiment using the think-aloud protocol, which "revealed how the individual translators pictured the target text they were producing and why they ended up at a particular translational choice" (46), aiming to shed light on translational decisions. Accordingly, they colllected data on translators' attitudes and their self- images. It was found that the samplings provided different choices on the translation task, concluding that "it seems that there is no single profile of a successful process, but many" (57). In addition, some suggestions about the pedagogy of translation were provided, particularly individualized projects through a transition away from teacher-centered translation classes.

In another study conducted by Tirkkonen-Condit (2000), uncertainty in the translation process is discussed, which requires the translator's decision making to find the optimal one among many of the possible translation equivalents, aiming "to show how uncertainty manifests itself in translation process and to argue that translators might in fact have identifiable patterns of uncertainty management" (123). Her analysis covered 20 think-aloud protocols from four experiments by Tirkkonen-Condit, Jaaskelainen, Pöntinen, and Romanov in the late 1980s and early 1990s (124). She states that the shared pattern of uncertainty in translation is the production of tentative solutions. She makes a concluding remark by suggesting that "translating, like many other cognitive tasks which require human decision making, is riddled with potential ambiguity. Thus, tolerance of ambiguity is a personality feature which might deserve some attention in the education and recruitment of translators" (141), emphasizing how decision making is dependent on the translator, based on his/her personality that makes the decision making unique to the actuator. It should also be noted that she gives the subjects' profiles (backgrounds), a topic that leads to TAP being criticized among scholars in that making inferences on the data provided by TAP without the background knowledge on the participants decreases the reliability of the results.

In her paper *Consciousness And The Strategic Use Of Aids In Translation,* House (2000) states that in "using the term 'process of translation', we must however keep in mind that we are dealing here not with an isolable process, but rather with a set of processes, a complex series of problem-solving and decision-making processes conditioned by semantic, pragmatic, situation-specific, and culture-specific constraints operating on two 'levels'- that of the source and that of the target language" (150). She focuses on the partially or potentially conscious or unconscious processes (of problem solving) based on the cognitive control the translator has over the use of a strategy to investigate language learners' use of translational aids by using thinking-aloud techniques. In the research, two sets of experiments were conducted, in which subjects were asked to translate with and without the translation aids. One of the results was that 6 out of 10 students were able to cope with the problems they encountered without the use of translational aids and reference works. Making suggestions on translational competence and translation training, she concludes that "if the use of reference works is treated not as a substitute but as an enriching supplement for learners' own autonomous search strategies, and if systematic consultations of reference works do not precede but follow one's own creative translational strategies, then learners' translational competence may be developed more solidly and efficiently" (160). Moreover, it should also be noted that House (2000), Tirkkonen-Condit, and Laukkanen (1996), whose studies are mentioned above, emphasize the confidence of translators in their own capabilities, especially when translators are exploited for routinized vs. non-routinized translation tasks. Such emphasis surely forefronts the translators, and some implications are to be made regarding the professional self-images of the translators. In the same vein, Fraser, in the paper titled *What Do Real Translators Do? Developing the Use of*

TAPs from Professional Translators (2000), ranks five points in accordance with research done with professionals through the use of the think-aloud procedure regarding the confidence of the professional translators to use dictionaries and their coping with ambiguity or uncertainty in the source text, their ability to verbalize their translation processes, their follow up of the translation briefs, and their adjusting of their translation strategies to be efficient and effective (111-112).

Another scholar dealing with translation problems and strategies and proposing a model for the analysis of translation process is Lörscher (2002), who describes translation strategies as the procedures that solve translation problems. His model consists of two hierarchical levels: elements of translation strategies that are minimal problem-solving steps, and translation strategies that involve translation versions. On this basis, he proposes a flow-chart based on the generative principle, in which he suggests, "although translation strategies can be highly complex and thus difficult to document and describe in their manifold forms, they can be reduced to a fairly small number of simpler structures" (103-104). The flow chart also shows "the interplay of the elements of translation strategies and thus the decision paths available to the subjects when they are engaged in solving translational problems" (100). Therefore, it can be said that, although being recursive and dynamic in nature, his flowchart is closer to classical cognitive approaches.

Studying the impact of the think-aloud protocol and/or verbalizing the translation process on translation and the decisions made, Hansen (2005) suggests that "during the act of translation and verbalizing, images, emotions and earlier experiences are unconsciously and uncontrollably activated, and these, in turn, have an impact on the actual decisions" (516). Such an approach to the think-aloud protocol involves not only text-related aspects, but also the translator himself, with the suggestion of the involvement of his experiences, emotions, conditions in the situation, etc. Therefore, the think-aloud protocol can be said to have an impact on how a translator thinks, how a translator translates, and how these influence the output, which will surely impact and direct the translation decision making. (For similar research see also: Alves & Jakobsen, 2003; Sun, Li and Zhou, 2020.)

In the explorative study titled *The role of intuition in the translation process: A Case Study* (2013), Hubscher-Davidson studies the influence of intuitive judgements on the decision-making process in translation through TAP. Discussing intuition as a personality trait, she concludes that intuition should be followed by analysis in order to improve the translation performance, as uncontrolled intuition may result in non-active reasoning process. Addressing the relation between intuition and expertise, she suggests that while the experienced translator will probably make more inferences based on intuition, the novice translator is likely to rely on his/her biased judgements.

In a study conducted by Shih (2015), the problem-solving and decision-making behaviors of professional translators during the revision process were researched through the use of think-

aloud protocols. The experiment was conducted by paying attention to ecological validity. The study revealed that translators infrequently verbalized their reasons for making their translation revision choices. It showed that translators may have some form of internalized decision-making criteria in their minds. Therefore, such a suggestion indicates that translators have a certain degree of strategies awareness; based on this, a pedagogical suggestion was made for translation competence.

Studying the strategies that translators resort to when dealing with motion expressions, under the category of typological studies, Cifuentes Ferez and Rojo (2015) question "whether translators' decisions are exclusively guided by such typological differences or whether there are other experience- or task-related factors that may explain their behavior" (273). They found that the accorded translation decisions are influenced by typological differences apparent between two languages as well as the expertise of translators and task related constraints.

As a last remark, the implications made by Kussmaul and Tirkkonen (1995) in their article on the features of the process that lead to success in translation performance, which gives insights on decision making that are reached through TAP, should also be noted:

> "Successful translators seem to work more strategically, which shows in decision-making in that local decisions are subordinate to global ones. (…) By virtue of their strategic touch they focus their attention, their conscious decision making and their use of translation aids so that their investment in effort results in sufficient communicational gains. (…) Less successful professional processes, especially those of novices and lay subjects, tend to be governed by local decision-making; they are thus linear by nature and proceed problem by problem, word by word or sentence by sentence. This often means a wasteful use of resources, since decision-making effort is not prioritized and strategically invested" (190).

Moreover, it is thought to be useful to refer to the latest works regarding TAP in TPR. It was seen that the recent studies conducted via TAP, out of the topic of decision making, mostly concern translator training (Hu, Zheng, Wang, 2021; Reshadi-Gajan, Assadi, Davatgari Asl, 2020; Chi, 2019; Minchenkov, 2019; Sycz-Opon, 2019; Naydan, Ivanytska, Perminova, 2019; Akbari, Bazarbash, Alinejadi, 2021; Chernovaty, Kovalchuk, 2021; Sycz-Opon, 2021) and cognitive effort (Vieira, 2017; Sun, Li, Zhou, 2020; Moorkens, 2018).

In accordance with the above review, TAP may well be described as the desire to search the thought process of the translator, which has gone under many changes from its participants to concepts. Although the first focus in TAP was not on the individual, it can be seen that in parallel with the advancements in translation studies, topics such as translation strategies, ambiguity and uncertainty, routine vs. non routine tasks, automation process, translators' personal traits, individual differences, expertise, and self-image have started to be associated with translation decisions in the translation process. Furthermore, it is obvious that especially the transition from language learners to translators and discrimination between professional and non-professional (student) translators provide rich data on translator behaviors, such as decision making in translation. As can be inferred from the above discussions, one of the

crucial elements of TAP is the verbalization process. Verbalization, which comes along through TAP, also provides the recognition that the process is not only restricted to the translation performance, but involves a wider context through the explanations the translators bring along for their selected translation strategies, decision making, and problem solving. Therefore, TAP also reveals what translators consider a translation problem, which is related with the automatized and/or internalized processes that can be traced through TAP. By the research and studies that are presented in the review, it has been acknowledged that during an automatized translation process, some problems may not be considered as translation problems for which internalized solutions are applied; however, when encountered with a distinct textual or extra textual element, it is likely that the decision-making and problem-solving processes accelerate, and verbalization increases. This is a good starting point for detecting, to some extent, what elements, what decisions and solutions are internalized by the translators. Moreover, this is also a good starting point to reveal how translators react on an individual basis when they are faced with unfamiliar and/or un-automatized texts that are outside of their routines.

TAP also reveals data about expertise in translation and how professional translators perceive their self-image. In this framework, it also brings to light differences between what goes on in the black box of the experts vs. novices and where these minds are separated in the process. That is to say, detecting the tendencies of the professional translators provides further implications for what can be developed and/or improved for translator training.

Despite the criticisms, at such a point where translator-oriented studies are beginning to be favored, it is clear that TAP will remain a valuable data providing tool which brings light to the individual differences that are displayed in different translation choices, and decision-making and problem-solving processes, with its focus on personal traits, intuitions, confidence, etc. In this context, it can be said that TAP is a method that forefronts translators rather than products, which is also evident in its relation to the research on the decision-making process.

4. Concluding Remarks

In this study, decision making is related to the individuals/actuators in translation. For this purpose, the main questions are how and why decision making and translators are being studied under cognition, as stated above. The first concept studied under these questions is the process (the process-oriented research in translation studies). The second one has been studied regarding what goes on in the translator's mind, the black box, which took the study to cognitive processes. In order to trace the given questions, the concept of decision making in translation (combining the process, cognition, and the translator) has been selected due to its situatedness, sociality, particularity, context dependency, dynamism and non-stable, non-universal, and non-fixed nature. Therefore, decision making can be considered a concept that reveals the pre-, during, and post-processes of a translation and is highly related with the translator on the basis of individual choices made for the detected translation problems. Then, the verbalization of this specific process is expected to display varying factors of translation

and the process, from the personality of the translator and the usage of translation aids to expertise that can be realized through TAP.

Therefore, it can surely be stated that a reciprocal relationship between TAP and decision making in translation can be established, especially in putting emphasize on the translator. What should be stressed is that many varying target texts can be produced from a single source text, showing the differences between the decisions made and detected translation problems. Problem solving and decision making in translation are inevitably creative processes that combine the similarities and differences of the source and target systems, the expectations of the source text and target text receivers, the expertise and background knowledge of the translator, as well as the cognitive load, cognitive effort, automation, and emotions put into the performance, all of which acknowledge that translation is a situated activity. Moreover, it should also be noted that problem solving in translation is not only restricted to text; the working environment, the tools that are worked with, personal traits, adjusting translation performance in accordance with the provided feedback, which also involves the regulation of emotion, etc., will always be present. Therefore, it is obvious that decision making may well be studied within the situatedness of the translator since, as indicated above, translation is a decision-making process, which requires a translator to make choices based on the social-contextual framework, pushing through their cognitive process.

From these perspectives, although it is criticized, TAP is a valuable method that provides access to the black box of the translator. Due to its openness to exploratory studies, the usage of TAP in studies of embodied, situated, and distribution cognition should be supported in future studies, especially on decision-making processes that highlight translators.

REFERENCES/KAYNAKÇA

Akbari, A., Gholamzadeh Bazarbash, M., & Alinejadi, R. (2021). Evaluating pragmatic competence. *International Review of Pragmatics*, 13(1), 29-60. doi: https://doi.org/10.1163/18773109-01202006

Alves, F. & Jakobsen, A.L. (2003). Effects of think aloud on translation speed, revision and segmentation. In Alves, F. (Ed). *Triangulating Translation: Perspectives in process oriented research*. 69-95.

Alves, F. (2015). Translation process research at the interface: Paradigmatic, theoretical, and methodological issues in dialogue with cognitive science, expertise studies, and psycholinguistics. In Ferreira, A. & Schwieter, J.W. (Eds*). Psycholinguistic and Cognitive Inquiries into Translation and Interpreting.* 17-40. John Benjamins Publishing Company.

Beeby, A., Fernández, M., Fox, O., Albir, A., Kozlova, I., Kuznik, A., & Wimmer, S. (2009). Results of the validation of the PACTE translation competence model: Acceptability and decision making. *Across Languages and Cultures*, 10(2), 207-230.

Bernardini, S. (2001). Think-aloud protocols in translation research: Achievements, limits, future prospects. *Target-international Journal of Translation Studies*, 13, 241-263.

Chernovaty, L. & Kovalchuk, N. (2021). Post-Editing as the Means to Activate Students' Thinking and Analytical Process: Psycholinguistic Aspects. *Psycholinguistics. 30*(2). 221-239.

Chesterman, A. (2009). The Name and Nature of Translator Studies. *HERMES - Journal of Language and Communication in Studies*, 42, 13-22.

Chesterman, A. (2012). Models in Translation Studies. In Gambier, Y. & Doorslaer, L. V. (Eds). *Handbook of Translation Studies Volume 3*. 108-115. John Benjamins Publishing Company: Amsterdam/Philadelphia.

Chi, Z. (2019). The Revelation of the TAPs on Translation and Interpretation Teaching. *Advances in Social Science, Education and Humanities Research (ASSEHR), 341.* 730-733.

Cifuentes-Ferez, P. & Rojo, A. (2015). Thinking for translating: A think-aloud protocol on the translation of manner-of-motion verbs. *Target. 27*(2). 273-300.

Enbaeva, L. (2021). Decision Making in Translation: Translator's Strategies and Decision Models for Rich Points in Titles. *Litera: Journal of Language, Literature and Culture Studies , 31* (2) , 811-833 . DOI: 10.26650/LITERA2021-833571

Ferreira, A., Schwieter J.W., Gile, D. (2015). The position of psycholinguistic and cognitive science in translation and interpreting: An introduction. In Ferreira, A., Schwieter J.W. (Eds). *Psycholinguistic and Cognitive Inquiries into Translation and Interpreting.* 3-16. John Benjamins Publishing Company.

Ferreira, A. and Schwieter, J.W. (2017). Translation and Cognition. In. Schwieter, J.W. & Ferreira, A. (Eds). *The Handbook of Translation and Cognition*. 1-17. John Wiley & Sons, Inc. https://doi.org/10.1002/9781119241485.ch1

Ferreira, A. and Schwieter, J.W. (2017). *The Handbook of Translation and Cognition*. John Wiley & Sons, Inc.

Fraser, J. (2000). What Do Real Translators Do? Developing the use of TAPs from professional translators. In Tirkkonen-Condit, S. & Jääskeläinen, R. (Eds). *Tapping and Mapping the Processes of Translation and Interpreting: Outlooks on empirical research.* 111-120. John Benjamins Publishing Company.

Gerloff, P. A. (1988). *From french to english: A look at the translation process in students, bilinguals, and professional translators* (Ord er No. 8823316). Available from ProQuest Dissertations & Theses Global. (303679401).

Gonzalez Davies, M. & Scott-Tennent, C. (2005). A Problem-Solving and Student-Centered Approach to Translation of Cultural References. *Meta, 50*(1), 160-179.

Hansen, G. (2005). Experience and Emotion in Empirical Translation Research with Think-Aloud and Retrospection. *Meta, 50*(2), 511-512.

Holmes, J. (1972): The Name and Nature of Translation Studies, unpublished manuscript, Amsterdam, Translation Studies section, Department of General Studies, reprinted in Toury, G. (ed.) (1987): *Translation Across Cultures*. New Delhi, Bahri Publications.

Holz-Mänttäri J., & Academia Scientiarum Fennica. (1984). *Translatorisches Handeln: Theorie und Methode*. Helsinki: Suomalainen Tiedeakatemia.

House, J., & Blum-Kulka, S. (Eds.). (1986). *Interlingual and intercultural communication: discourse and cognition in translation and second language acquisition studies*. Gunter Narr Verlag.

House, J. (2000). Consciousness and the Strategic Use of Aids in Translation. In Tirkkonen-Condit, S. & Jääskeläinen, R. (Eds). *Tapping and Mapping the Processes of Translation and Interpreting: Outlooks on empirical research.* 149-161. John Benjamins Publishing Company.

Hu, Z., Zheng, B., Wang, X. (2021) The impact of a metacognitive self-regulation inventory in translator self-training: a pre-post study with English-Chinese translation students, *The Interpreter and Translator Trainer, 15*(4), 430-449, DOI: 10.1080/1750399X.2020.1844436

Hubscher-Davidson, S. (2013). The role of intuition in the translation process: A case study. *Translation and Interpreting Studies*, 8(2), 211-232.

Jääskeläinen, R. (2000). Focus on Methodology in Think-aloud Studies on Translating. In Tirkkonen-Condit, S. & Jääskeläinen, R. (Eds). *Tapping and Mapping the Processes of Translation and Interpreting: Outlooks on empirical research. 71-95.* John Benjamins Publishing Company.

Jääskeläinen, R. (2010). Think-aloud protocol. In Gambier, Y. & Doorslaer, L. V. (Eds). *Handbook of Translation Studies Volume 1.* 371-373. John Benjamins Publishing Company: Amsterdam/Philadelphia.

Jääskeläinen, R. (2012). Translation psychology. In Gambier, Y. & Doorslaer, L. V. (Eds). *Handbook of Translation Studies Volume 3.* 108-115. John Benjamins Publishing Company: Amsterdam/Philadelphia.

Kussmaul, P. & Tirkkonen-Condit, S. (1995). Think- Aloud Protocol Analysis in Translation Studies. *TTR*, *8*(1), 177-199.

Königs, F. G. (1986). Der Vorgang des Übersetzens: Theoretische Modelle und praktischer). Vollzug. Zum Verhältnis von Theorie und Praxis in der Übersetzungswissenschaft. Lebende Sprachen, 1(1), 5–12.

Krings, H.P. (1986) Translation Problems and Translation Strategies of Advanced German Learners of French (L2). In House, J., & Blum-Kulka, S. (Eds.) *Interlingual and intercultural communication: discourse and cognition in translation and second language acquisition studies.* 263-277. Gunter Narr Verlag.

Lefevere, A. (1992). *Translation, Rewriting, and the Manipulation of Literary Fame.* London and New York: Routledge.

Levý, J. (2000). TRANSLATION AS A DECISION PROCESS. In Venuti, L. (Ed.), *Translation Studies Reader*. 148-159. Berlin, Boston: De Gruyter Mouton. https://doi.org/10.1515/9783111349121-031

Lörscher, W. (2012). A Model for the Analysis of Translation Processes within a Framework of Systemic Linguistics*. Cadernos de Tradução, 10*. 97-112.

Lykke Jakobsen, A. (2003). Effects of think aloud on translation speed, revision and segmentation. In F. Alves (Ed.), *Triangulating Translation: Perspectives in process oriented research*. 69-95. John Benjamins Publishing Company: Benjamins Translation Library.

Lykke Jakobsen, A. (2017). Translation Process Research. In Schwieter, W. & Ferreira, A. (Eds). *The Handbook of Translation and Cognition*. 21-49. John Wiley & Sons, Inc.

Minchenkov, A.G. (2019). TRANSLATING A SCIENTIFIC TEXT INTO ENGLISH: COGNITIVE PERSPECTIVE. *Journal of Teaching English for Specific and Academic Purposes*. *7*(1). 71-84.

Moorkens, J. (2018). Eye tracking as a measure of cognitive effort for post-editing of machine translation. In Walker, C. & Federici, F.M. (Eds) *Eye Tracking and Multidisciplinary Studies on Translation.* 55-70. John Benjamins Publishing.

Naydan, M.M., Ivanytska, M. & Perminova, A. (2019). APPROACHES TO THE DEVELOPMENT OF A LITERARY TRANSLATOR'S LINGUISTIC IDENTITY. *Advanced Education. 12.* 28-34.

Nunez, J.L. & Bolanos-Medina, A. (2018). Predictors of problem-solving in translation: implications for translator training, *The Interpreter and Translator Trainer, 12*(3), 282-298.

O'Brien, S. (2013). The borrowers: Researching the cognitive aspects of translation. *Target*. *25*(1). 5-17.

Reiss, K. (1981). Type, Kind and Individuality of Text: Decision Making in Translation. *Poetics Today, 2*(4), 121–131. https://doi.org/10.2307/1772491

Reiss, K. and Vermeer, H.J. (1984) *Grubdlegung einer allgemeinen Translationstheorie. [Groundwork for a General Theory of Translation.]* Niemeyer, Tubingen.

Reshadi-Gajan, E., Assadi, N., & Davatgari Asl, H. (2020). Reading-Metacognitive Strategy Awareness and Use in Reciprocal Teaching Settings: Implementing a Computerized RMSA System. *Journal of Educational Computing Research, 58*(7), 1342–1371. https://doi.org/10.1177/0735633120937437

Risku, H. (2002). Situatedness in translation studies. *Cognitive Systems Research. 3*(3). 523-533.

Risku, H. (2020). Cognitive Approaches to Translation. In Chapelle, C.A. (Ed.). *The Encyclopedia of Applied Linguistics*. 1-11. John Wiley & Sons Ltd.

Shih, C. Y. (2015). Problem-solving and Decision-making in Translation Revision: Two Case Studies. *Across Languages and Cultures, 16* (1), 69–92.

Sun, SJ., Li T., Zhou, XY (2020). Effects of thinking aloud on cognitive effort in translation. *Linguistica Antverpiensia New Series-Themes in Translation Studies.* 19: 132-151.

Sycz-Opon, J. (2021). Trainee translators' research styles: A taxonomy based on an observation study at the University of Silesia, Poland*. The International Journal for Translation & Interpreting Research. 13*(2). 136-163.

Sycz-Opon, J. (2019). Information-seeking behaviour of translation students at the University of Silesia during legal translation – an empirical investigation. *The Interpreter and translator trainer 13*(1). 1-25.

Tirkkonen-Condit, S. (1990). Professional vs. Non professional Translation: A Think-aloud Protocol Study. In Halliday, M.A.K., Gibbons, J. & Nicholas, H. (Eds). *Learning, Keeping and Using Language*. 123-142. John Benjamins Publishing Company.

Tirkkonen-Condit, S. & Laukkanen, J. (1996). Evaluations- a Key Towards Understanding the Affective Dimension on Translational Decisions. *Meta, 41*(1), 45-59.

Tirkkonen-Condit, S. (2000). Uncertainty in Translation Process. In Tirkkonen-Condit, S. & Jääskeläinen, R. (Eds). *Tapping and Mapping the Processes of Translation and Interpreting: Outlooks on empirical research.* 123-142. John Benjamins Publishing Company.

Toury, G. (1995). *Descriptive Translation Studies - and beyond*. Amsterdam/Philadelphia: John Benjamins Pub. Co.

Venuti, L. (2000), *The Translation Studies Reader*, London-New York: Routledge.

Vieira, L.N. (2017). Cognitive effort and different task foci in post-editing of machine translation: A think-aloud study. *Across Languages and Cultures. 18(*1). 79-105.

Wills, W. (1989). Towards a Multi-facet Concept of Translation Behavior. *Target. 1*(2). 129-149.

Wills, W. (1994). A Framework for Decision-Making in Translation. *Target. (6)*2. 131-150.