A Model for Cognitive Process of Neologisms Translation

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Abstract
Over the past three decades Process-oriented Descriptive Translation Studies has developed noticeably. Think-aloud protocols (TAPs), as a verbal report, are still the most applied empirical method to investigate the complex and conscious processes of translator’s mind during translating. This article deals with the cognitive process of professional translators’ problem-solving to translate a neologism from English source text into Persian by using TAPs. Likewise, the researcher has used the means of video recording to observe the other behaviors of participants during the problem solving. The results indicate that the professional translators do not use one single way of performing a translation task and the complexity of the process of problem-solving (neologisms translation) depends on the translation competence of translators. Finally, the researcher has also presented a cognitive model for the translation process of neologisms in ideal situations. As the translation universals are cognitive phenomena, the cognitive model presented here can be a pattern for trainee translators in education to visualize the natural process of neologism translation.

Keywords: Cognitive Process, Think-Aloud Protocols (TAPs), Problem-Solving, Neologisms Translation, Professional Translators

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1. Introduction

After intense arguments about the introspective data among psychologists during the early and middle twentieth century, think-aloud method was developed based on the techniques of protocol analysis by Ericsson and Simon (1980, 1984, 1993) to elicit the information from the verbalization of subjects’ thoughts as verbal reports while dealing with problem-solving. In this type of data source, subjects are asked to verbalize their thoughts, which are simultaneously recorded on audio or videotape and later transcribed. The written transcripts of the recordings are called think-aloud protocols (TAPs). The usefulness, and effectiveness, of TAP, in Process-oriented Descriptive Translation Studies, has been investigated on various topics such as problem-solving strategies (Klings, 1986; Gerloff, 1986; Lüerscher, 1991), criteria for decision making (Tirkkonen-Condit, 1990), creativity in translation (Kuβmaul, 1991), expertise in translation (Jääskeläinen, 1991, 1999, 2010; Englund Dimitrova, 2005), unit of translation (Gerloff, 1987; Jokobson, 2003), problem indicators (Klings, 1986), conscious processing in new situation (Jääskeläinen, 1999; Klings, 1988; Laukkanen 1993), motivation in translation process (Fraser, 1993; Kuβmaul, 1991; Laukkanen, 1997), uncertainty and uncertainty management in translation (Amirian & Baghian, 2013; Tirkkonen-Condit, 2000) and so on. Different studies in TAP reveal the complexity of translational phenomena and demonstrate that there is no single monolithic translation process (Jääskeläinen, 2009).

With this background, the aim of this research is to survey the cognitive process of five professional translators’ problem-solving in translation of English to Persian neologisms using TAPs method. As a part of the study, the paper first offers an overview of main aspects of the research at the beginning focusing on problem-solving, neologisms, professionalism and theory of verbalization. After explaining the methodology of the work and discussions of the results obtained, attempt has also been done to present a model for cognitive process of neologisms translation. The paper also explains the parts of the model and discusses the role of translation competence in cognitive process of the translators.

2. Translation Problems and Problem-Solving

The concept of translation problem has a pivotal role in cognitive translation studies. A translation problem is some part of transfer that may be anticipated at both the below sentence level (bottom-up analysis, micro-level) and text-scale narrative structure (macro-level). PACTE Group (2009, 2011) considered five categories of translation problems (Rich Points) as linguistic problems, textual problems, extralinguistic problems, problems of intentionality and problems related to the target-text reader. PACTE Group (2011) believes that a translation problem exists when “automatised” solutions (spontaneous and immediate solutions) are not found for source-text segments and translators use different strategies to solve the problem.

In TAP studies, the most focus is on the cognitive aspects of translation problems and the strategies used to solve them. In this respect, Bell (1998) states that “All text processing is, to a large extent, a matter of problem-solving. Translators, just like other text-processors, encounter problems of comprehension, interpretation and expression and evolve strategies for coping with them” (p. 187). Translation Strategies to cope with the problem-solving, as defined by Lüerscher (2005), are “procedures which the subjects employ in order to solve translation problems”. These strategies are concerned with the realization of a problem by subject and the realization of its solution or insolubility. Problem-solving simply means “answering a question for which one does not directly have an answer available, because the answer cannot be directly retrieved from memory” (Van Someren et al., 1994, p.8). Then the subject has to construct the answer from information that is available in memory or the environment.
2.1 Neologisms: The big problem in translation

With the advancements in the science, technology, and socio-cultural evolutions, newly coined lexical units, or existing lexical units that acquire a new sense frequently, enter the languages in a response to particular needs. Neologisms (Newmark, 1988, p. 122) are new words or new expressions that “suddenly fill one of the innumerable gaps in a language’s resources for handling human thought and feeling at some level of formality”. As Newmark (Ibid, p.140) states “Neologisms are perhaps the non-literary and the professional translator’s biggest problem”. He and other scholars have talked about all kinds of Neologisms and the way of their translation, but they did not elaborate the natural processes of translation of a Neologism from the moment of recognition until problem-solving. Although Newmark (1993) preferred functional and cultural equivalence to translate neologisms, the question still remains: what is the process of neologisms translation? In this respect, the present paper is an attempt to find an answer to this question.

2.2 Professionals

Expertise is a key issue in translation pedagogy and its identification presents challenges to empirical research (Tirkkonen-Condit, 2000). With respect to translation competence of Professional translators (cf. PACTE, 2000; Englund Dimitrova, 2005), the main assumption of this research is that the professional translators can pass the process of problem-solving more naturally. Although for experts many aspects of problem-solving may be governed by automatic processes (Sternberg & Sternberg, 2012), in the present study, neologism is treated as a problem that is encountered in every new text and challenges the automatic process of professional translators. In this respect, research has also shown that the professionals can switch between automatic processes in routine tasks and conscious processing in new situations (Jääskeläinen, 1999, 2009).

3. Memory Working and Theory of Verbalization

Atkinson and Shiffrin (1968) proposed a model that conceptualized memory in terms of three memory stores (see figure 1 below):

a) A sensory store: capable of storing relatively limited amounts of information for very brief periods;

b) A short-term store: capable of storing information for somewhat longer periods but of relatively limited capacity as well; and

c) A long-term store: of very large capacity, capable of storing information for very long periods, perhaps even indefinitely (Sternberg & Sternberg, 2012, p. 193).

Figure 1: Atkinson and Shiffrin’s Memory Model.
Ericsson and Simon (1993, 1984) used this category for explanation of the theory of verbalization. Although there are scholars who do not believe this category of memory, as Ericsson and Simon stated, these differences of detail do not affect the model at the level of specificity required for the purposes. Ericsson and Simon (Ibid, p.11) see human cognition as information processing which is “a sequence of internal states successively transformed by a series of information processes”. They see also verbal behavior as one type of recordable behavior, which should be observed and analyzed like any other behavior. They stated that the information which is kept in sensory memory, short term memory (STM), and long term memory (LTM) have different capacities and accessing characteristics. Due to the limited capacity of STM, only the information present in STM (static and conscious cognitive processes) can be directly accessed and reported verbally. Information moves to STM from sensory stimuli via the recognition process (it may take only 10 to 100 msec) or from LTM via the association process.

Ericsson and Simon (1987) also distinguish between think-aloud data and talk-aloud data. Talk-aloud data is assumed to occur in parallel to the thought processes like- describing a situation as when the cognitive processes proceed silently; while in the think-aloud, the subject must convert the heeded information into a verbalizable form (encoding) to vocalize it. Therefore, it takes more time than talk-aloud to report mental process to the researcher (as demonstrated in figure 2).

*Figure 2: The states of heeded information in a cognitive process and their relation to verbalizations under three conditions. Source: Ericsson and Simon (1987).*

Ericssom and Simon (1984,1993) observed that the only part of information processing is accessible to verbalization (not everything) which is at the focus of conscious attention. Then verbalizations only reflect what the subject is focusing on (Englund Dimitrova, 2005). With the background of such review of the related research, the present study aimed at the cognitive process of professional translators’ problem-solving to translate a neologism from English source text into Persian by using TAPs.

4. **Methodology**

4.1 **Methods and techniques of data collection**

In this qualitative research, Think-Aloud Protocols (TAPs) were applied to survey the cognitive strategies used in problem-solving process of professional translators during translation of neologism from English text into the Persian. Moreover, videotape recorder was also used to record the performance and behavior of the participants. The cornerstone of
cognitive-behavioral theories is that there is a correlation between outside behavior and cognitive processing (Bandura, 1986; Wolpe, 1990). Therefore, to employ multi-method approaches (triangulation), and gain the better picture of the process of problem solving, the behaviors of participants, during the translation, were recorded with a camera (video recording).

4.2 Participants

The participants of the study were five professional male translators with more than 20 years of experience. The four of whom were lecturers in linguistics, ELT and Translation Studies working in the universities of Iran. The fifth person was freelance translator. He has been working in an official institution of translation for the last twenty years. Although there were differences among the participants, in terms of the experience and knowledge (their language skills), they all belonged to the same category of professional translators (cf. Jääskeläinen, 2010). Also the selection of participants was not done randomly as because we needed the real professional translators to reduce haphazard ways in the problem-solving while translating. As rightly pointed out by Kiraly (1995), “An empirical description of translation processes implies the possibility of describing what a professional translator has to know and has to do (even if much of what he or she does is subconscious) to produce a high-quality translation.” (1995, p. 13).

4.3 The Source text

The source text used in this study was a short non-technical English text (included two short paragraphs, which were taken from internet blogs). These texts were marked with neologism which also persuade the reader to do something (see appendix 1). The sentences were uncomplicated to understand and syntactically simple to centralize the most attention of the participants indirectly into the translation of the new word while translating. The text was general (non-technical) as it was difficult to find technical translators and also the research was being limited to only one field. Moreover, as Newmark (1982, p. 15) stated “a technical translator has no right to create neologisms unless he is a member of an interlingual glossary”.

4.4 Instruments

The participants were given some pieces of paper including the meaning and definitions of the key words of the source text with enough information about the neologism (including complete definition of the neologism and its structure, why it was created and used etc.). However, the participants were free to use their own translation aids. The participants were asked to utter everything that went on in their minds while they were solving the problem. These utterances were audio taped and transcribed, so that we could go back and refer to what the participants said. Likewise the means of video recording was also used to observe other behaviors of participants during the problem-solving. The camera was positioned next to the participants (approximately the subjects’ head level) with left or right angle relative to their face for the sake of recording the main behaviors of participants. Their permissions were obtained prior to this.

4.5 Translation brief

Functionalist translation scholars have talked about the importance of the translation brief but due to professionals’ experience as Nord (1997, p.47) states, “translators very often do not feel any need for a detailed specification of the translation function”. The participants were more or less familiar with the thinking aloud theoretically. Even so, the method and the purpose of the study were orally explained to them briefly. To obtain certain kinds of information, it is suggested to explain the participants what aspects of task are important. However, subjects may also alter their normal ways of processing (Ericsson & Simon, 1984/1993, p.22). Therefore, nothing was mentioned about the neologism in the text as it
was believed that if they were made aware of a new word in the text, all their attention would be paid to the word and probably the process would not pass in natural ways.

4.6 Procedures

First, the participants were given the English source text to translate into Persian with a neologism that has just entered into the source language. There was no translation or meaning in the dictionaries of the target language for that new word. As the participants did not have internet access, and thinking aloud is a demanding task, enough written information about the key words and the neologism was given to the participants prior in order to save time. After the translation brief, the participants were asked to verbalize their thoughts and everything that passed through their minds during translating to solve the problems in the text. The method used for protocols was monologue in which the participant talked to himself while translating the text.

Bayer-Hohenwarter (2009) had analyzed the experimental designs of time-pressure studies conducted so far. She argues that basically time-pressure studies can only attempt to obtain tentative correlations between time pressure and translation behavior. However, as the ‘stress’ response has a certain lag time, the translation tasks must not be too short. So the minimum deadline for translation tasks is recommended to be at least 30 minutes (Ibid: 200). Therefore, to avoid the stress of time pressure, that could be effective on the validity of the process, no time limit was given to the participants and attempt was done to create relaxed atmosphere. All performances of the participants were recorded with camera so that we could go back and analyze the data more precisely after the task was completed.

4.7 The method of data analysis

For data analysis, the TAPs have to be coded based on the purpose of the study. To enhance the validity of the analysis, we used the famous coding scheme of Krings (1986) and Gerloff (1986) for translation strategies in problem solving and problem indicators (Table 1 & Table 2). Moreover, we used the model of information processing to explain the verbalization of participants concerning the problem solving (e.g. Ericsson & Simon, 1984, 1993). Likewise, in order to complete data analysis, the PACTE Group research in translation competence was applied.

Table 1: The strategies of Krings (1986) and Gerloff (1986) for problem solving

<table>
<thead>
<tr>
<th>Strategies of problem solving</th>
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<tbody>
<tr>
<td>Krings (1986)</td>
</tr>
<tr>
<td>Comprehension,</td>
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<tr>
<td>Equivalent retrieval,</td>
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<tr>
<td>Equivalent monitoring,</td>
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<tr>
<td>Decision-making,</td>
</tr>
<tr>
<td>Reduction</td>
</tr>
<tr>
<td>Gerloff (1986)</td>
</tr>
<tr>
<td>Problem identification,</td>
</tr>
<tr>
<td>Linguistic analysis,</td>
</tr>
<tr>
<td>Storage and retrieval,</td>
</tr>
<tr>
<td>General search and selection,</td>
</tr>
<tr>
<td>Text inferencing and reasoning,</td>
</tr>
<tr>
<td>Text contextualization,</td>
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<tr>
<td>Task monitoring.</td>
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</tbody>
</table>

Table 2: Problem indicators

<table>
<thead>
<tr>
<th>Problem indicators</th>
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<tbody>
<tr>
<td>The subjects’ explicit statement of problems,</td>
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</table>
Whenever a method of analysis has been tested on a different body of data, modifications have been necessary (Jääskeläinen, 2000). Therefore, in order to determine the cognitive strategies used by the participants, we applied both introduced strategies by Krings and Gerloff (Table 1) with some modifications based on the purpose of this study (translation of a neologism).

5. Results and Findings

In this study, the five professional translators were asked to verbalize their mental processes (thinking aloud) while translating the text. As specified earlier, there was a neologism in the source text (the term was ‘staycation’). The main focus of the research was on the cognitive process of this neologism translation. The data collection from verbalizations of participants involved breaking the protocols (transcriptions) into individual statements representing single "thoughts" or ideas. Content cues and syntactic cues were used to effect this individuation. With regard to the proposed strategies of Krings (1986) and also Gerloff (1986) for problem-solving and verbalizations of the participants (see appendix 2), the main cognitive strategies used by participants to translate the neologism were:

1. Recognition (identification of the problem),
2. Linguistic Analysis (Phonology, Morphology, Semantic, Pragmatics, Syntax),
3. Inference (intended meaning before comprehension),
4. Comprehension (using translation aids),
5. Decision making (choosing between two or more options),
6. Revision (editing the solution),
7. Monitoring (comparing source text and target text).

Table 3 represents the cognitive strategies used by the participants for problem solving of the neologism translation. After identification of a new word, it was observed that the strategies used for problem solving were different in plurality and order.

Table 3: Cognitive strategies used by the participants for problem solving of a neologism translation

<table>
<thead>
<tr>
<th>Participants</th>
<th>Cognitive strategies used respectively</th>
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A Model for Cognitive Process of Neologisms Translation

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahmad</td>
<td>recognition, linguistic analysis, comprehension, linguistic analysis, preliminary solutions, monitoring, decision-making, revision, solutions, monitoring, decision-making, comprehension, solutions, monitoring, decision-making, linguistic analysis, solution, monitoring, decision-making revision, solutions, monitoring, decision-making, end</td>
</tr>
<tr>
<td>Hussein</td>
<td>recognition, comprehension, linguistic analysis, solution, monitoring, decision-making, end</td>
</tr>
<tr>
<td>Reza</td>
<td>recognition, linguistic analysis, inference, comprehension, solution, monitoring, decision-making, end</td>
</tr>
<tr>
<td>Mehdi</td>
<td>recognition, comprehension, solution, monitoring, decision-making, comprehension, solution, monitoring, decision-making, end</td>
</tr>
<tr>
<td>Yadollah</td>
<td>recognition, comprehension, solutions, monitoring, decision-making, comprehension, linguistic analysis, solutions, monitoring, decision-making revision, solution, monitoring, decision-making, linguistic analysis, solution, monitoring, decision-making, revision, linguistic analysis, solution, monitoring, decision-making, end</td>
</tr>
</tbody>
</table>

Moreover, in the current study, all changes made in the presented solution (translation of the neologism) were classified as six kinds of revision. This classification was built on a linguistic comparison between what was first verbalized and what it was then changed into. The six categories of the revision are as follows:

1. **Syntactically:** The structure of the presented solution changes. It also involves changing of constituent order or part of the solution (word).
2. **Semantically:** It involves omissions and additions of the presented solution content and exchanging one word for a synonym with or without the same function.
3. **Morphologically:** It involves the changing of the form of the presented solution (word), e.g. changing the noun to adjective.
4. **Phonologically:** It involves the changing the presented solution based on the systematic organization of sounds in Target Languages.
5. **Orthographically:** It involves the changing the presented solution based on the standard system of writing in Target language. It includes rules of spelling, word breaks, emphasis etc.
6. **Pragmatically:** It involves the changing in Syntactic, Semantic, Morphological, Orthographic, or phonological aspects of the presented solution dealing with the relevant cultural or functional setting of Target Language.

No doubt, both syntactically and semantically revisions entail some changes in content; but the main focus of the translator was on one aspect of the revision at that moment (based on their verbalization). A neologism can be translated by a (compound) word (cultural, functional equivalent, transference, near equivalent, componential analysis, etc.) or a descriptive term (culturally and functionally) (Newmark, 1988). Three out of five participants ultimately preferred to create a new word (compounding-derivation) and two others preferred to use a descriptive term for the translation of the neologism (see appendix 3).

After decoding the data, which were derived from the verbalization of the subjects, the proposed cognitive pre-flowchart (see figure: 3) in problem solving of a neologism translation was drawn. The pre-flowchart depicts main phases of cognitive processes of...
translation of a neologism in addition to the logical possibilities for the arrow directions in the process.

**Figure 3: Cognitive process Pre-Flowchart in Neologisms Translation by the participants plus all possibilities.**

6. A Proposed Cognitive Model of Neologism Translation

The model presented below (Figure 4) is a cognitive flowchart of the translation process of a neologism from English to Persian in ideal situations. After identification of new word (recognition) in the source text, the translator may use translation aids immediately (comprehension) or he prefers to analyze the linguistic aspects of the neologism briefly. Before comprehension, the translator may draw an inference of the neologism meaning (it may happen only one time in the whole process). After comprehension, the translator may find a solution(s) or it can be done after linguistic analysis process.

After presenting the solution or preliminary solution(s), the translator monitors the progress of the problem-solving and evaluates the solution. If the solution is satisfactory, the problem-solving process comes to end. If the solution is unsatisfactory, the translator may feel the need of revision, or he backs to the linguistic analysis or comprehension phase to present another solution. The translator passes the process again and may find a new solution(s). After monitoring, the process may come to a satisfactory or unsatisfactory solution once more. In the discussion below, the major steps of the process depicted in the model are discussed in details.

**Figure 4: A Proposed Cognitive Model of Neologisms Translation**
6.1 Explaining the mode

6.1.1 Recognition

Krings (1986) stated that the translator starts the problem-solving process by identifying an element of the source text as a translation problem. Then he (Ibid, p. 267) introduced certain problem indicators in the TAPs studies (Table 2). The problem recognition is not done with automatic processes, because problems need conscious attention to be solved. In this study, since the neologism was a new problem for a translator who did not have enough information about that in LTM and also “association processes are much slower than direct recognition processes” (requiring at least several hundred msec) (Ericsson & Simon, 1984, 1993, p.13), the recognition of the problem will be verbalized (or reacted) from sensory memory to STM via the recognition process. Regarding a slight slowing-down effect of verbalization, because of the time required for recoding information into a verbal code, the participants verbalized the recognition of the problem in less than 3 seconds. They displayed the behaviors that were intimately linked to the problem indicators such as making a mark on the problem, use of a dictionary immediately and simultaneously saying ‘I don’t know the word’. They also showed some facial expressions like lips tightened and eyebrows pulled down (lowering the eyebrows).

6.1.2 Comprehension

To understand the meaning of the word (neologism), the translator uses translation aids (e.g. CAT tools, dictionaries). The translator may find a solution for the problem or move into linguistic analysis phase to present a more equivalent solution.

6.1.3 Linguistic analysis and Inference

After recognition, the continuation of the process depends on the special storing information in LTM (e.g. translation competence). Accordingly, this is the knowledge in memory which can help constructing a justification of the solution for the problem. As the model shows, after identification of the problem, the translator may prefer to analyze one or more of linguistic aspects of the neologism:
**Phonology:** the translator may deal with the way sounds function within the source language or across languages to encode meaning regarding the neologism, to present a more appropriate solution based on the phonological system of Target Language.

**Morphology:** the translators may deal with the internal structure of the neologism in Source Language and its translation in Target Language.

**Semantic:** the translator may deal with the relationship between the neologism and its meaning.

**Pragmatics:** the translator may deal with the socio-cultural aspects of the neologism in different registers.

**Syntax:** the translator may deal with the syntactic construction in which the neologism is used.

Here, the main point is that the translator analyzes these aspects briefly to go to the phase of comprehension. If the linguistic analysis phase happens after comprehension, the analysis will be more precise. Then, the translator may infer the meaning of neologism (intended meaning) from linguistic analysis before comprehension. The inference may vary from translator to translator. The translator derives “the meaning of a word through decomposition into semantic features [especially word combinations] and by drawing inferences from the word’s feature representation” (Hatzidaki, 2007, p. 15). If the first try to find a solution (from recognition of the problem to the first version of solution) is unsatisfactory, the inference phase will not happen again in the next tries as the inference after comprehension is nonsense. Therefore, the inference phase may happen only once in the whole process.

**6.1.4 Solution, Monitoring, Decision making and Revision**

After presenting the solution or preliminary solution(s), the translator monitors the progress of solving the problem or evaluates how successfully the problem has been solved. Three criteria were supposed to identify solutions (PACTE, 2011):

1. **Acceptable solution (A):** The solution activates all the relevant connotations of the ST in the context of the translation related to the meaning of the ST, function of the translation and language use.

2. **Semi-acceptable solution (SA):** The solution activates some of the relevant connotations of the ST.

3. **Not acceptable solution (NA):** The solution activates none of the relevant connotations of the ST (p. 324).

If the solution is satisfactory (acceptable), the problem solving process comes to an end. If the solution is unsatisfactory (not acceptable), the translator decides to continue the process and goes back to comprehension or linguistic analysis phase (decision making). To make a decision, the alternative solutions must be evaluated against all the objectives of the task. Likewise, if the solution needs some changes (Semi-acceptable), the translator may feel the necessity of revision (Syntactically, Semantically, Morphologically, Orthographically, Phonologically, and pragmatically). Revisions are done because the goal has not been met, or a new goal has been set. However, the goals of revisions differ according to each participant’s experience in translation (Englund Dimitrova, 2005).

**7. Uncertainty in the Final Solution**

Ambiguity is also an inherent feature of translation process, and it seems reasonable to show itself in translation processes as uncertainty (Tirkonen-Condit, 2000). Tirkonen-Condit (Ibid, p. 141) suggested that translators "show a capacity for keeping final solutions in suspense". A translator might have a vision of an optimal target text but might not have all the necessary means such as- time and information, to attain the optimum. When one is unable to solve a problem or the solutions are unsatisfactory, he/she can put the problem aside for a while with subconsciously thinking about it (incubation). Some psychologist
investigators believe that when people have more time to prepare for the solving of a problem, especially complex affairs, incubation periods are usually fruitful as the process below consciousness continues (Sternberg & Sternberg, 2012). Some participants of the present study stated that if they had more time e.g. one or two days, they would suggest a better translation for the neologism. It means that translation is non-linear task and the mind keeps looking for alternatives even after a translation problem has been solved (Jääskeläinen, 1999).

8. Translation Competence

Discussion about translation competence can help to define the constructs of what makes a competent and professionally qualified translator (Angelelli, 2009). For PACTE (2000), translation competence is the underlying system of knowledge and skills required to translate. PACTE (Ibid, p. 101-102) presented six subcomponents of translation competence:

1. **Communicative Competence** (Bilingual sub-competence) in two languages, including linguistic, discourse and sociolinguistic competence.

2. **Extra-Linguistic Competence** composed of general world knowledge and specialist knowledge.

3. **Instrumental-Professional Competence** composed of knowledge and skills related to the tools of the trade and the profession.

4. **Psycho-Physiological Competence**, the ability to use all kinds of psychomotor, cognitive and attitudinal resources including psychomotor skills for reading and writing; cognitive skills (e.g. memory, attention span, creativity and logical reasoning); psychological attitudes (e.g. intellectual curiosity, perseverance, a critical spirit, and self-confidence).

5. **Transfer Competence** (Knowledge about translation), the ability to complete the transfer process from the Source Text to the Target Text. It comprises knowledge about how translation functions and knowledge about professional translation practice.

6. **Strategic Competence** includes all the individual procedures, conscious and unconscious, verbal and non-verbal, used to solve the problems found during the translation process.

As PACTE (2011) described, translation competence is applicable to problem-solving like all expert knowledge. However they believe that strategic competence is more important than other sub-competence since it serves to make decisions and to solve problems during the translation process.

In this research, the outstanding example of communicative competence was pragmatic analysis (contextualization). It may be significant for translator to deal with the relevant cultural or functional setting of the problem in the Target Language or to interpret the environment within which the text is executed. The translator also makes a picture in his mind of the same situation to present the best equivalent translation (contextualization). After this, the solution will be a contextualization solution. The Extra-Linguistic Competence in this study can also help the translator to understand the meaning of the neologism before using comprehension tools. This ability comes back to the world knowledge or experiences of the translator. Likewise, instrumental sub-competence enables the translator to use documentation resources and information and communication technologies applied to translation in appropriate ways. Psycho-physiological competence shows itself through translator’s positive and negative attitudes, motivation, realism, personal involvement, commitment and so on during translating. Tirkkonen-Condit and Laukkanen (1996, p. 45) states that “the right affective frame of mind goes with creativity and success in translation”. As it was observed, three participants coined a new word for the neologism as a single
element of thought; while two others described the neologism functionally and culturally. If we consider descriptive translation of a neologism to be a kind of pragmatic explicitation as a universal translation, maximum effect with minimum effort on this translation will be illustrated (Minimax Strategy; Levy, 1967/2000) as the time allotted for the process of problem solving by two translators was the least in the research. Presumably the other participants felt more authority, eagerness, commitment and self-confidence to create a new word in Persian language.

9. Conclusion
The results obtained in the research show that professional translators do not use one single way of performing a translation task and the complexity of the process of problem-solving (neologisms translation) depends on the translation competence of translators. One of the characteristics of translation competence is to know “how to identify and solve translation problems by applying the relevant knowledge and strategies” (PACTE, 2011, p. 339). Therefore, for analysis of a translation task, it is important to understand how professional translators with different levels of translation competence deal with the translation problems.

In the current study, we focused on a cognitive process of neologism translation as a specific problem in the source text. It was found that it is possible to identify all the material in the TAPs which relates to this particular item and its translation. Moreover, studies on the translation process of specific items confine the research problem very nicely. As Jääskeläinen mentions (2012, p. 8), “This is necessary to learn how translation experts excel in their own fields of expertise and how the quality of their performance is rated in their own work, instead of using ‘academic’ quality criteria only”. Therefore, the empirical research of translation process of the professionals, in every linguistic level, can open a new perspective for a better understanding of the translation nature and final product. As the translation universals are cognitive phenomena, the cognitive model presented here, and the strategies used for problem-solving, can be a pattern for trainee translators in education to visualize the natural process of neologisms translation.

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Works Cited:


Krings, H. P. (1986). “Translation Problems and Translation Strategies of Advanced German Learners of French (L2)”. In J. House and S. Blum-Kulka (eds) Interlingual and


**Appendix 1**

**The source text**

In this crazy busy world, every couple needs some time away from the kids, pets, mortgage, and boss to get reacquainted and focus on their relationship. We may see our spouse every day and spend time with them amongst the rigors of daily life, but that just isn’t enough. When you desperately need a vacation and you are facing a cash crunch situation, try a staycation as they are popularly known. Staycations are a nice way to relax and rekindle the romance in your married life. With these ideas, you can create memoirs of a lifetime. What are you waiting for? It’s time to get going!

**Resources:**


**Appendix 2**

Some of the verbalizations of the participants regarding the neologism translation

<table>
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<tr>
<th>Participants</th>
<th>The Verbalization of Problem Recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahmad</td>
<td>What’s that? It’s a strange word for me.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participants</th>
<th>Procedures</th>
<th>Translation of the Neologism (Staycation)</th>
</tr>
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<tr>
<td>Hussein</td>
<td>From Brief Descriptive item to Functional Equivalent word</td>
<td>تعطیلات در خانه - تعطیلات خانگی - سفر خانگی - شهرگردی - اطراف و گردی</td>
</tr>
<tr>
<td>Reza</td>
<td>Brief Descriptive item</td>
<td>کنترل‌نده اوقات در خانه</td>
</tr>
<tr>
<td>Mehdi</td>
<td>Descriptive item</td>
<td>مسافرت های درون شهری و کنترل‌نده اوقات فراغت با خانواده - سفرهای کوتاه و کم هزینه</td>
</tr>
<tr>
<td>Yadollah</td>
<td>From Descriptive item to Functional- Cultural Equivalent word</td>
<td>فرصتی از داد و پذیرایی وقت گذارانی با خانواده - وقت گذارانی در خانه - وقت گذارانی با خانواده در خانه خود - خانه گذارانی - خانه مالی</td>
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