

Uncertainty and Uncertainty Management in EFL Translators

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Abstract

This study tried to examine EFL translators' uncertainty and uncertainty management strategies through employing think aloud procedures. The participants of this study were some MA and BA translators selected from several universities in Iran. To this aim, a proficiency test was firstly administered among the volunteers. Then, think aloud protocol and retrospective interview were used to collect data. Meanwhile, Angelone coding system was used to categorize the data. To identify the significance of differences, chi-square nonparametric test was utilized. The findings indicated that MA translators had greater tendency to show uncertainty at larger chunks of language such as collocation and sentence, while BA ones were more inclined to show uncertainty in textual level. At the same time, behavioral and locus options were compared and contrasted between MA and BA translators. It was also found out that look-up and rereading strategies were frequently used to manage uncertainty. The findings of this study can be helpful for translators to improve their translation ability by being more aware of what is happening inside their minds. Awareness of a stockpile of strategies helps them have fewer difficulties while translating a text.

Keywords: Uncertainty, uncertainty management, think aloud, retrospective interview, Angelone coding system.

Introduction

Throughout history, translation has been one of the most complicated and oldest professions in the world whose quality is related to some factors such as translator's experience, translation knowledge, and available equipment (Hodgson & Soukup, 1997). According to Dimitrova (2005), translation has always been significant in written language and has played an important role in the development of many languages. Also, he believes that there are various kinds of text, written or spoken, which have been translated for specific goals with high or poor quality. Translation is one of the most vital stages of international trade and cooperation. According to Zhou and Lin (2012), there are various issues in translation studies which were considered in recent decades such as linguistics, cognitive science, information science, philosophy, etc.

The person who translates a text obviously plays an important role in the whole process of producing the translated text. "The mental activity of translation is a constancy of all human translation processes" (Shreve & Angelon, 2010, p.19). Investigating peoples' mind has always been one of the problematic issues. Human mind is so complicated that finding what is happening in different occasions is really difficult and since the translation process is a mental activity which happens in the translators' mind, its analyzing will be tough. Nowadays, metacognitive translation process is one of the main issues in translation studies (Shreve & Angelon, 2010). Furthermore, according to Yanyan (2010), many studies have been carried out to examine the function of metacognitive knowledge concerning English skills like reading, listening, and writing while translation as one of the most significant processes in language study did not receive much attention. According to Shreve and Angelone (2010), concentration in translation study on translators' mental activities is suitable in reducing a huge number of variations within translation activities and circumstances.

A fundamental tendency of the human mind is the creation of certainty. According to Standard Encyclopedia of Philosophy (2012), creation of certainty has different aspects such as translator's knowledge, experience, and individual differences. Each translator attempts to find a way for gaining certainty or on the other hand to manage the uncertainty.

Uncertainty is an observable interruption in the process of translation which leads to translator's hesitation (Anglone, 2010). Deletion, revision, dictionary look-ups, and also physiological indicators such as eye movement and changes in pupil size are some examples of the interruptions in the flow of translation.

Uncertainty and uncertainty management happen in the translators' mind, henceforth, observing and investigating them during the translation process is difficult. A lot of attempts have been made to investigate the translators' mind, like asking them to explain what is happening in their mind while they are accomplishing a translation task; this process is called verbal protocol (Bernardini, 2001). Verbal report consist of think-aloud, retrospection, and dialogue protocols. Meanwhile, questionnaires, interviews, and translation journals or diaries are suitable to elicit information from people (Gopferich&Jaaskelainen, 2009). Nowadays, metacognitive translation process is one of the main issues in translation studies (Shreve&Anglone, 2010). In1970s, the term metacognition was invented by Flavell to mean "cognition about cognitive phenomena" or in other words "thinking about thinking" (as cited in Lia, 2011, p. 2).

Flavell first proposed metacognition theory in the 1970s. He defined metacognition as "knowledge that focuses on or regulates any part of cognitive activity" and identified two general dimensions of metacognition: knowledge and experience (as cited in Yanyan, 2010, p. 26). According toShreve and Angelone (2010), metacognitive bundles involve problem recognition, solution proposal, and problem resolution whichare mapped in to three parameters: the textual level, the behavioral locus, and the translation locus each of which has its own sub-classes.

According to Kussmaul andTirkkonen-Condit (1995), several scholars have worked on cognition and metacognition during the last decades. However, most of these studies have comparedMA versusBA translators with regard to problem-solving and decision making issues.

Over the last decades, many observational studies have been conducted to understand what actually happens when people translate. One of the processes that all the translators face in the flow of translation is uncertainty. Uncertainty is an observable interruption in the process of translation which leads totranslator's hesitation (Anglone, 2010). Deletion, revision,and also

physiological indicators such as eye movement and changes in pupil size are some examples of the interruptions in the flow of translation.

Therefore, the problem is the difficulty in examining the translators' mind during the process of translation. On the other hand, all the translators, during the flow of translation, face some uncertainties with regard to various aspects of translation such as comprehensions, production, transfer, etc., and all try to manage these uncertainties in some way. In addition, lack of attention and examination of the translation process in the flow of translation cannot be ignored. Most of the previous studies are about the product itself and few researchers have dealt with the translation process. Thus, there are a lot of questions unanswered concerning the translation process and this study was an attempt to examine uncertainty and uncertainty management by EFL learners in their English to Persian translations. The researchers employed think aloud and retrospective protocols to gather verbal report data on metacognitive translation strategies applied by EFL translation students. Accordingly, with regard to the purposes of this study, the following research questions were proposed:

1. In which level of translation process does uncertainty happen for BA and MA translation students?
2. Is there any significant difference between MA and BA students with regard to the process at which uncertainty happened?
3. In which textual level does uncertainty happen for BA and MA students?
4. In which behavioral level does management happen more for BA and MA students?
5. What strategies are more frequently used by the translation students to manage uncertainty?

In the whole process of translation, one thing is clear: translators fight against uncertainty by looking for slight understanding and even more finely nuanced fits of phrase to help themselves as well as the readers of the texts. In the area of practical translation, vagueness, ambiguity, polysemy, and blurred purposes are the enemies (Tirkkonen-Condit, 2000). According to Balliu, Froeliger, and Hewson (2014):

We see that uncertainty is both an enemy to be combated and an ally to be defended. Somewhere in between these communicational and sociological forms of uncertainty lies, perhaps, the optimal scenario, guaranteeing both the quality of delivered translations and the well-being of the agents who provide them. How are these questions addressed concretely in varying contexts? What sorts of intentions and interactions are revealed? What are the positive and negative effects? The question behind all these uncertainties about uncertainty (or *vice versa*) then becomes: what holds multilingual texts and societies – via translators – together: certainty or its opposite? (p.2)

Certainly, a good specialized translation stands out over the ways its writer accomplishes to neutralize these foes, normally over analysis, documentary research, terminology, and rhetoric. Translators all have views on the varied collection of tactics and strategies for decreasing uncertainty, as well as in what way to include them into our instruction, research, and specialized activities. Of course, there are exclusions to this overall rule: certain texts – and not just in literary translation – take benefit of these regions of uncertainty (Tirkkonen-Condit, 2000).

Uncertainty principle is influenced by a humanistic outcome called observer effect; each translator understands, elucidates, validates and interprets the text under translation process in a different way and from their points of view. That is why steady comprehension can never be satisfied. Uncertainty analysis is linked to translation procedure activity. The examination of translation procedure needs a great deal of complexity which is noticeable incidentally through some approaches in empirical-experimental research on translation processes (Albir&Alves, 2008).

Uncertainty is generally described by Shreve (2011) as a cognitive form of indecisiveness, specified by a specific class of actions which is happening potentially through the process of translation. Uncertainty performances are obvious and can normally be related to some feature of problem-solving in the core procedure of translation activity. The actions are noticeable by interruptions in the procedure of translation, connected to the incapability to make specific decision making. Uncertainty can be considered potentially natural in all translation activity (Shreve&Angelone, 2010). The researchers have conducted this study based on this explanation.

According to Angelone (2010), noticeable displays of uncertainty performances are the disruptions happening in the procedure of translation. These breaks are given by some kinds of diagnostic behavioral pointers; however, they may be examined empirically. Uncertainty pointers, for example, comprise extended gaps in a source text encoding or a target text decoding, deletion and/or revision, cursor repositioning, and some information retrieval behavior like dictionary looks-up, internet searching, etc. They may also be some physical behavior indicators, such as eye movements, change in pupil size, and increase in certain types of brain activity or even changing in physiological factors of skin response (Angelone, 2010). Studies by Dimitrova (2005) and Jakobsen (2002) indicate that there are association between revision and uncertainty in beginner translator actions; and also as indicated by Process of Acquisition of Translation Competence and Evaluation (PACTE, 2003), the usage of internal and external helps by expert and beginner translators implicates a connection between uncertainty and information searching behavior.

In the natural condition of translation procedure, most displays of uncertainty will be nonverbal behavior or psychological features like eye movements or skin rousing. As Tirkkonen-Condit (2000) argued, it is possible to provoke the verbal pointers of uncertainty in the form of direct or indirect speech. Direct articulation comprises direct speeches like 'I don't know this collocation in English' or 'I don't know how to put this collocation in Persian, target language', indirect addresses like 'is it a correct sentence in English?' or it can be some questions about the value and amount like 'this expression sounds much awkward and it doesn't fit in this context'. This information can be classified as indecision behaviors and can be allocated to a precise translation process "(comprehension, transfer, production) or textual level, such as lexis, collocation, phrases, syntax, sentence, or macro level, the latest of which may contain questions of cohesion, coherence, genre and so on" (Angelone, 2010, p.18). In these studies, researchers paid attention to the uncertainty and the physical and psychological factors that happen for the translators while translating a text.

There are several studies which examined the subject of uncertainty (Asadi&Seguinot, 2005; Fraser, 2000; Hansen, 2003; Tirkkonen-condit,

2005). The findings showed that MAs are more lenient about accepting and resolving uncertainty, and they are more probable to use observing ability to deliver feedback concerning what to do or not to do for resolving a certain problem (Hansen, 2003; Shreve, 2006; Siren & Hakkarainen, 2002).

The research also has established a monitoring capability in the translation action of experts; qualified translators deal with vagueness over intentional generation, audition (e.g., trying out, testing), and evaluation of tentative answer in the target text situation (Trikkonon -Condit, 2000).

According to Angelone (2010), watching can be more accurately defined as “the metacognitive ability of translators to self-reflect on the nature and course of a problem solving sequence, provide themselves with feedback on progress toward a solution, and evaluate and solution regards” (p.19). Monitoring is a constituent of metacognition which can be described as the sensible, volitional strategic control over multifaceted cognitive tasks (Hansen, 2003). According to Siren and Hakkarainen (2002), Shreve (2006), and Hansen (2003), observing abilities are a major characteristic of a professional translator. Facing uncertainty, translators try to resolve it; this is called uncertainty management (UCM). Monitoring and uncertainty management are closely related (Fraser, 2000). Also, in the present study the researcher attempted to find the mechanisms of uncertainty management.

There is plenty of research emphasizing the significance of observing uncertainty management (Asadi & Seguinot, 2005; Fraser 2000; Hansen, 2003; Tirkkonoen-Condit, 2005). Hansen's study (2003) designates the great capability of expert translators in monitoring skill.

According to Shreve and Angelone (2010), possessing this skill is due to their self-awareness of their capability in problem resolving process over self-regulation and self-reflection.

Angelone (2010) classified uncertainty management in three triads of sequential bundles. They happen when the translator feels uncertain in the processes of comprehension, transfer, or production, or when they face a “problem nexus”. Problem nexus refers to a challengeable issue which cause the translators make a decision for solving it. “A nexus is the confluence of a given textual property and level (lexis, term collocation, phrase, syntax, sentence, macro-level feature) and some sort of deficit in cognitive

resources: a lack in the declarative or procedural knowledge the translator possesses” (Shreve, 2011, p. 109).

Method

Participants

The sample of this study included five MA and five BA translation students of Imam Reza International University. Before conducting the research, the purpose of the study was explained for the students and they voluntarily accepted to take part in the study. To select the participants, the researchers first administered an IELTS proficiency test to 20 translation students at both MA and BA levels and only 10 students scored between 5-7.5, regarded as independent learners (Cambridge IELTS test manual, 2007), were randomly chosen for this investigation. All the selected students were female and their age range was between 20-30.

Instrumentation

To fulfill the purpose of the study, an IELTS proficiency test, a translation test, and a retrospective interview or stimulated recall were used to collect the required data.

IELTS test

In order to homogenize the participants, Cambridge IELTS test (version 6, 2007) was administered to 20 translation students. The IELTS proficiency test contains four parts: listening, reading, writing, and speaking. The participants had approximately 30 minutes for listening, 60 minutes for reading, 60 minutes for writing, and 15 minutes for speaking. The total test time was approximately 2 hours and 44 minutes.

All the volunteers performed all the three tasks: listening, reading, and writing at the same time. In order to hold the speaking test, they were invited one by one to a classroom to be interviewed separately.

Translation Test

In order to measure the translation ability of the participants, a translation test was administered to them. The translation text consisted of 250 words selected from *Verbal protocol analysis in language testing research*, a hand book. The text dealt with a general subject; therefore, no participant could have an advantage over others regarding the specialized

topic area. Meanwhile, this text was also used by Green (1998) in her study to investigate the use of Think-Aloud Protocols (TAP) in language testing. The participants had 100 minutes to translate the text from English into Persian.

Observation

In order to have a complete record of the students' performance during the translation test, an audio record device was employed to record the words either uttered in English or Persian. Furthermore, a camera was used to record the flow of translation to facilitate a more detailed analysis during the processing activities. At the same time, the researcher was present to take note of anything the students were doing during the translation task as well as to answer their probable questions.

Retrospective interview or stimulated recall

The last instrument used in this study was a retrospective interview or stimulated recall. For this purpose, the researchers played the video of each student and asked her some questions concerning her activities, problems, and the applied solutions. The retrospective interview with playback was designed to extract information that the participant was not able to vocalize during the translation process. This part produced more clear data for the researchers to figure out the participants' problems and solution proposal. This interview was performed within ten minutes immediately after the translation task in order to prevent any kind of forgetting.

Based on Ericson and Simon (as cited in Bernardini, 2001), there are two types of memory: long-term memory (LTM) and short-term memory (STM). STM has a limited storage capacity with easy achieving. LTM has a larger storage capacity with more difficult achieving. When an individual does a task, some parts of information may transfer to LTM and if the interview is not conducted immediately, the verbalization can be difficult and incomplete.

Procedure

The purpose of this study was to examine certainty and certainty management of EFLtranslation students. To this aim, 10 MA and BA translation students of Imam Reza International University were selected based on their score on an IELTS proficiency test. After selecting

the participants, the researcher explained and clarified the purpose and the details of the study for them. Meanwhile, the process of translation based on TAP was explained and they practiced TAP several times to understand their exact responsibility during the task. Then, the translation test was administered for each participant separately. For this purpose, a room was equipped by voice and video recording equipments to provide visual documentation of the translation process. Furthermore, Longman Advanced Dictionary, Hezare Dictionary, and Office software were provided for the participants.

At the beginning of the session, there was a warm up in order to make the volunteer feel more comfortable. Then, the investigator explained about the task and the 'use of concurrent report' (Green, 1998) and the video and voice recorder were turned on to record the process. In situations that the participant paused for a while, she was asked to think aloud based on 'Non-mediated verbalization'. This refers to Green's classification (1998) of verbal reports based on procedural variation, that is, whether students are interrupted intrusively (mediated verbalization) or non-intrusively (non-mediated verbalization) in the way information is probed. After accomplishing the task, the participant was requested to verbalize her mental processes and answer the related questions (retrospective report). This process was performed immediately 10 minutes after the task because long term memory is not able to keep all the information completely.

This process was followed for other participants and all the data were collected within 3 weeks. Then, the researchers transcribed the video tapes while making notes of paralinguistic features and extra linguistic features such as: laughter, gestures, pauses, etc. Afterward, the transcriptions were pre-coded, memos and ideas were written down and highlighted, and labels were retrieved and identified. It is worth mentioning that a MA translator with more than 10 years' experience who had previously worked in the field of thinking aloud protocol helped the researchers analyze the data.

Design

This study was a mixed method study which tried to explore and describe the occurrence of different mental processes during translation as well as to examine uncertainty and uncertainty management by EFL translation students. It was regarded a mixed method study because it included the content analyses of the protocols too. In order to figure out the research questions, the researchers used thinking aloud protocol and retrospective interview.

Theoretical Framework

In this study, the researcher used the Angelone's model (2010) for investigating uncertainty and uncertainty management strategies. According to Angelone (2010), problem recognition, solution proposal, and solution evaluation are the management strategies that may be marked by behavioral indicators during an empirical study. Angelone also asserted that problem recognitions are those behaviors that reveal some form of direct or indirect knowledge assessment. By using thinking aloud protocols, these behaviors can be identified by direct articulations (e.g., I do not know the meaning of this word) or indirect articulations (e.g., hm) and also non-articulation behaviors (e.g., dictionary look-ups, pauses, keyboarding). Solution proposal is a behavior which contains possible solutions for those problems that happen in the flow of translation, for example finding any language equipment for a problematic term (Angelone, 2010). In the last stage, solution evaluation, the translator evaluates the optional equivalents available in solution proposal stage.

Angelone(2010) mentioned that there are three general translation-oriented processes of comprehension, transfer, and production during which uncertainty can happen. Comprehension of uncertainty which occurs in source language can be articulated directly or indirectly, for example, when the student says 'I do not understand this sentence' or when the translator repeats a given source text unit by extended pauses. The comprehension of uncertainty may be non-articulated which may involve dictionary look-up. The next process is the transfer of uncertainty during which the translator cannot match language structures in source text with a suitable equivalent in the target text. The last process, production of uncertainty, happens in target

language. Additions, deletions, and revisions are some examples of editing activities that are related to the production of uncertainty.

Results

This section reports on both articulated and nonarticulated behaviours underlying metacognitive processes which took place in the mind of the EFL female translation students. At first, the levels of translation are presented and then the way and the stage during which the participants have dealt with the translation challenges are elaborated using Angelone coding scheme.

Analysis of Uncertainty with regard to the Translation Level

The initial step to figure out uncertainty levels was to classify the data as being articulated or nonarticulated. Although Angelone (2010) mentioned that “non-articulated indicators such as pauses and eye-fixations give no real clue as to how and where to allocate the uncertainty” (p. 17), they were dealt with as a matter of comparison between MA and BA students and for appropriate investigation of the degree the data were assigned to articulatory and nonarticulatory segments. Moreover, to have a detailed investigation, another class was assigned as ‘unclassified’ for those bundles which were hard to be included in a single category. Table 1 represents a summary of this analysis.

Table 1

A Synopsis of the Metacognitive Phenomena Observed Among the Participants

Participants	Total metacognitive phenomena	Artic.	No artic.	% Artic.	% No artic.
MA students	97	97	0	100.00%	0.00%
BA students	87	85	2	98.00%	2.00%

As the Table indicates, MA students were less inclined to use nonverbal symbols to show uncertainty. On the other hand, two percent of BA students’ uncertainty strategies was assigned to nonarticulatory symbols like facial expressions.

The first level of uncertainty happens at locus level in which there are three options including comprehension, transfer, and production. Thus, in order to answer the first research question, that is, to determine the level of

translation process at which uncertainty has happened for MA and BA translation students, three general translation oriented processes of comprehension, transfer, and production were regarded. Comprehension option is source language-based; therefore, the indicators can be suggested as being direct (e.g, I don't understand this sentence) or indirect (e.g., the translator says or repeats a given source text unit, often accompanied by an extended pause in text generation). According to Angelone (2010), transfer option is mediation-based and happens when a translator is unable to match textual structures of the source text to an appropriate item in the target language. Therefore, every behaviour which includes generation of the target language options was categorized as transfer uncertainty. Finally, the third part is production which is regarded as target language-based. Editing activities such as additions, deletions and revisions were classified as production behaviours (Angelone, 2010). Table 2 shows the locus options (comprehension, transfer, and production) at which metacognitive activity was employed.

Table 2

Locus Options at which Metacognitive Activity was Employed

Participants	Comprehension	Transfer	Production	Unclassified	Total
MA students	27	6	64	0	97
BA students	42	25	17	0	84
Total	69	31	81	0	181

Example 1: comprehension level:

-While for men the comparison was usually positive: strong as a bull, cock of the walk.

Student's explanation:

- یکبار متن را کامل بخوانم. این هم مثل قبلی میخواد منظور را با کنایه برساند ولی من نمیدانم معنی اش چه است. توی دیکشنری دوزبانه دقیقا این اصطلاح وجود داره: یکه بزنی محله، پهلوان سر گذر، علمدار دسته. علمدار که اصلا به این متن نمی خوره پس این حذف می شه. بین این دو گزینه چون جنبه مثبت را باید در نظر گرفت پهلوان سر گذر خوب است. پس این طور می نویسم که در حالی که معمولا توصیفات برای مردان جنبه بسیار مثبتی دارد همچون: قوی مانند گاو نر و پهلوان سر گذر.

Here, the student faced uncertainty in translation process because it was difficult for her to understand the meaning of this phrase, and she used dictionary to manage her uncertainty. Thus, she faced uncertainty at the

comprehension level when she was trying to choose the best meaning for the underlined phrase.

Example 2: production level:

- ...it was unfavorably: catty, cow, henpecked.

Student's explanation:

- متوجه معنی جمله می شوم ولی نمی دانم چه طور منظورم را برسانم. (خواندن دوباره متن درسکوت) ترجیح می دم به جای اینکه همه را صفت ترجمه کنم در غالب جمله بیاورم. بسیار ناخوشایند و غیر عادلانه است: مثلا گریه و گاو خودتحت سلطه جنس ماده هستند.

At this part, the student got the meaning but she did not know how to produce the translation in target text. Thus, uncertainty happened at the production level. The student paused and read the sentence again to manage uncertainty.

As the data indicates, there is a sharp contrast between the way MA and BA students targeted metacognitive processes at the locus level. For MA students, the most dominant process was production (example 2, n= 64). In other words, MA students were more inclined to deal with activities such as edition, deletion, and revision. However, BA students dealt more with comprehension process (example 1, n= 42), and the think aloud protocols showed that most of BA students' uncertainties happened at this level.

In order to find out whether there is a significant difference between MA and BA students with regard to the process at which uncertainty happened (the second research question), a Chi-square analysis was conducted. The following Table shows the results:

Table 3

Chi-square concerning the Process at which Uncertainty Happened

Option	MA students	BA students	χ^2	Sig. $p < .05$
Comprehension	27	42	3.261	.071
Transfer	6	25	11.645	.001
Production	64	17	27.272	.000

As the table shows, the significance differences is observable in transfer (sig.= .001) and

production (sig.= .000) at the level of locus. However, no significant difference was found between MA and BA students with regard to comprehension process (sig.= .071).

Analysis of Uncertainty with regard to the Textual Level

The third research question is related to the textual level. According to Angel one (2010), uncertainty can happen in different levels of linguistic; lexis, terms, collocations, phrases, syntax, sentential and macro level. By considering the transcriptions, the researcher could categorize the textual levels. As the data of the study reveal, in the textual level, most uncertainties (n= 34) happened at *collocation* level with regard to the all participants of this study. However, with regard to experience, it was MA students who significantly outperformed BA ones regarding the number of cases that uncertainty happened. The least frequent level was *macro level* (n= 11). Table 4 shows the frequency of textual levels at which uncertainty happened:

Table 4

Textual level at which Metacognitive Activity was Employed

Participants	Lexis	Term	Collocation	Phrasal	Syntax	Sentential	Macro Level	Unclassified
MA students	5	13	24	15	11	7	4	2
BA students	25	19	10	11	6	8	7	1
Total	30	32	34	26	17	15	11	3

Some examples concerning textual level are presented below:

Term

-He didn't want his son made into sisses.

With regard to the underlined word, one student asserted:

این کلمه برام اشناست. حالا دیکشنری دو زبانه را چک کنم ببینم چه معنایی میده.

Collocation

- Later, when Polly's half-brother came along....

With regard to the underlined phrase, one student asserted:

جمله قبل و بعدشو یکبار بخونم شاید بفهمم. احساس میکنم باید دیکشنری تک زبانه را نگاه کنم اهان پس منظورش برادر ناتنی است.

Here uncertainty happened at the term level, so she tried to check it's meaning in dictionary.

Phrasal

-She looked out Polly the way an older sister or a baby-sitter might have done.

With regard to the underlined phrase, one student asserted:

به نظرم اینجا می خواد بگه او هشدار داد که معنی نداره. دیکشنری را چک کنم. مراقب،
-محافظ ولی اینجا چون فعل هست
حتما به معنای مراقبت کردن است.

Syntax

-She didn't like being given permission not to see people she didn't want to see.

With regard to the underlined phrase, one student asserted:

متوجه منظورش میشم اما نمیدونم کدوم را کجا بیارم که جمله بهتر فهمیده شه. مثلا بگیم
دوست نداشتن به خاطر افرادی که دوست نداشتن بینشون بهشون اجازه بدن یا بگیم دوست نداشتن
بهشون اجازه بدن که کسانی را که دوست ندارن ببینن. گیج شدم.

This student could not match different parts of this sentence because it was confusing for her. So her uncertainty happened at the syntax level.

Macro level

-Polly scowled, catching herself in a lapse of language.

With regard to the underlined phrase, one student asserted:

اصلا متوجه معنی جمله نمیشم. فکر کنم آگه کلا حذفش کنم تغییر مهمی در جمله بوجود نیاید.

The student could not understand the meaning of this sentence so uncertainty happened at the macro level, and she tried to manage this uncertainty by omission.

Among the data, some cases were placed in the category of unclassified. By unclassified, it meant that it was not clear to which level (comprehension, transfer, or production) the metacognitive activities could be assigned. MA students had more unclassified metacognitive activities. While their unclassified options were observed two times, for BA students it was only once. Furthermore, most uncertainties happened at the collocation level (n= 24) for MA students while the most frequent level was lexis (n= 25) for BA ones. Finally, most uncertainties happened at the largest linguistic

elements for MA students while the smaller linguistic elements caused the most uncertainties for BA ones.

Analysis of Uncertainty Management

The forth research question dealt with the behavioral level and the strategies that MA and BA students used to manage the various kinds of uncertainties they encountered. Table 5 summarizes the findings concerning the participants' verbalization of strategies utilized during their think-aloud activities.

Table 5

Behavioral Level at which Metacognitive Activity was Employed

Participants	Problem recognition	Solution proposal	Solution evaluation	Unclassified
MA students	48	18	31	0
BA students	26	22	35	1
Total	74	40	66	1

As the Table shows, among the three layers, the most dominant one is problem recognition (n= 74). For MA students, most management happened at problem recognition (n= 48); however, for BA ones, it was the solution evaluation (n= 35) which outweighed other options. To make this analysis more clear, some examples are presented below:

Problem recognition

- Polly scowled, catching herself in a lapse of language.

Student's explanation:

Lapse نمی دانم چه معنی داره ولی چون ناراحته شاید منظورش اینه که زبانش قاصر شده.
of language -

Solution proposal

-... it was always unfavorably: catty, cow, henpecked.

Student's explanation:

-یک جورایی متوجه معنی اش می شوم ولی نمی دانم چه طور بیان کنم منظورم را.
دیکشنری دو زبانه را چک کنم. گربه صفت، بدطینت، آب زیرکاه و مودیانه. از بین اینها نمی دانم کدام بهتر می شود. (سکوت در حال بررسی متن)، گربه صفت بهتر است چون می خواهد بی چشم رو بودن را نشان دهد.

Solution evaluation

- Polly scowled, catching herself in a lapse of language.

Student's explanation:

خب قبلا اینو توی یک داستان خوندم و میدانم براش چه معادلی بیاورم ولی نمی دونم چه طوری توی این جمله بیاورمش. اصلا یک جوری ترجمه اش می کنم که معنی را برسونه ولی عین خودش نمیگم. پس اینجوری می گم که پولی اخم کرد و از اینکه در گفتارش کلمات زشتی بکار برده بود ناراحت شد.

Regarding the last research question concerning the more frequent strategies applied by translation students to manage uncertainties, the results are presented in the following Table:

Table 6

Frequent Strategies Applied to Manage Uncertainty

Strategies applied	MA students	BA students	Total
Looking-up	23	35	58
Rereading	20	9	29
Pausing in silence	13	10	23
Using background knowledge	7	12	19
Checking for certainty	20	15	35
Evaluating	11	14	25
Underlining	15	10	25
Guessing	15	5	20
Other compensation strategies e.g. Association	5	3	8
Total	129	113	242

As the Table indicates, the participants used a variety of cognitive, metacognitive, and compensation strategies during their think aloud protocols, and MA students used more strategies in comparison with BA students. The most dominant strategy used by both groups was looking-up (n=58) and the least one was using background knowledge (n=19). Some examples of the occurrence of uncertainty and the participants' explanations during uncertainty management are presented below:

Looking up dictionary:

-He didn't want his son 'made into sissies'.

Student's explanation:

- باید از دیکشنری استفاده کنم. توی دیکشنری یک زبانه این کلمه وجود ندارد شاید توی دیکشنری دوزبانه باشد. سوسول، بچه ننه، نازک نارنجی و اوخواهر. خب پس اینجور باید گفت که: چرا که اصلا نمی خواست پسرش نازک نارنجی (لوس) تربیت شود.

Rereading:

- They talked in a kind of catty way, even in a bitchy way.

Student's explanation:

اینجا They به چه کسی برمی گردد؟ باید یکبار دیگر از اول متن را بخوانم.

Pausing in silence:

She didn't like being given permission not to see people she didn't want to see.

Student's explanation:

- وای چه جمله پیچیده ای. (سکوت در حال نگاه کردن به متن). اصلا نمی فهمم کی به کی اجازه داده یا اینکه چه کسی را نمی خواهد ببیند.

Using background knowledge

-Of course, when she really was a child, Polly never had an overprotective mother.

Student's explanation:

چه جالب Overprotective را ترم پیش در درس ترجمه شفاهی داستان داشتیم.

Resourcing (checking for certainty):

- Polly scowled, catching herself in a lapse of language.

Student's explanation:

متوجه معنی اش توی دیکشنری تک زبانه شدم ولی برای اطمینان بیشتر دیکشنری دو زبانه را هم چک می کنم.

Evaluating:

- She turned on the tape recorder again and typed another page, then stopped, thinking of Jeanne again.

Student's explanation:

پولی دوباره دستگاه ضبط را روشن کرد و صفحه ی دیگری را تایپ کرد، ناگهان به فکر جین افتاد. خب حالا دوباره بخوانم ببینم چه طور شد. باید یک سری تغییرات بدم که بهتر بشه. دستگاه را حذف کنم، پولی دوباره ضبط را روشن کرد و صفحه دیگری را تایپ کرد. جمله آخرش خوب نیست بهتره بگم ناگهان جین را به خاطر آورد.

Underlining:

- She didn't like being given permission not to see people she didn't want to see.

Student's explanation:

او نمی خواست به خودش این اجازه را بدهد که افرادی را که دوست ندارد ببیند، ببیند. یک جوری شد این ترجمه اش اصلا روان نیست. زیر این جمله را خط می کشم تا دوباره بعدا در موردش فکر کنم.

Guessing:

- It was, yes, as if she were a child, with a managing, overprotective mother.

Student's explanation:

از اجزای تشکیل دهنده اش همیشه حدس زد که مادرش کسی بوده که خیلی حامی و حمایت کننده بوده ولی حس میکنم که بار معنایی منفی داره پس همیشه گفت خیلی کنترل گر بوده.

Discussion

After an extensive review of the literature on metacognition and translation, it is clear that uncertainty and its management are two significant factors in the flow of translation that happen in a translator's mind and this study sought to find out the levels of uncertainty and the strategies used by participants to manage these uncertainties during the translation process.

The first level of uncertainty happened at locus level in which there are three options including transfer, comprehension, and production. Most uncertainties for MA students happened at the production level while for BA ones most uncertainties happened at the comprehension level. O'Brion (2011) mentioned that MA students may have fewer problems with the process of translating and they are pickier with the details to have a more close and vivid translation. With regard to locus, Amirian and Baghiat's (2013) research on levels of uncertainty is in line with the findings of the current study. They mentioned that "professional translators are uncertain at production level because they are more aware of discourse and contextual aspect of translation. Students were uncertain at comprehension level because of their lack of knowledge and experience" (p. 15). The justification for this result is that MA students are more dedicated to translation and since their grasp of the target and source language structure is high, this allows them to devote themselves more to production activities.

However, BA students' lack of experience and their low cognitive abilities led them to be more uncertain in comprehension.

As for the second layer of the study, textual level, it was found out that MA students' uncertainty mostly happened at the collocation level. That is to say, more complications would happen at the larger chunks of linguistic elements. In comparison to novice translators, MA students were less confused with the lexis and smaller linguistic elements. On the other hand, BA students had more uncertainty at the lexis level. In other words, they had a more bottom-up approach to translation than MA ones who had a more top-down approach to translation. These findings are in line with Amirian and Baghiat's (2013) study. They mentioned that professional translators focus more on "discourse and contextual parameters like collocations, syntax, sentential and macro level, etc. whereas non professional students are prone to textual parameters like word, phrase, etc." (p. 15). As it is also advocated by Angelone (2009), experience plays a significant role in the variation seen among MA and BA translators. MA students tried to utilize textual features to translate more complicated levels of language but BA translators were pickier about textual features. In other words, experienced translators were more inclined towards macro structures while novice ones had greater tendency toward micro structures. Another justification is that most BA students might not be able to guess the meaning of a particular lexis based on the context, thus they resort to dictionaries or other sources. However, MA students are more skilled at the strategies and techniques to guess the meaning of unclear words from the surrounding textual chunks.

At the last level of analysis, that is behavioral level, MA students had a tendency toward problem recognition while for the BA students it was solution evaluation. The high level of problem recognition on the part of the MA students reveals that they have greater capability and tendency to recognize the indicators in the text that show potential translation difficulties. On the other hand, BA ones used less problem recognition because they might have less confidence with their problem solving capacities for the sake of their lack of experience. Therefore, this finding corroborates Lorsch's (2005) in that experience has a close relationship to metacognitive processes. Lorsch believes that the more experienced a translator is, the more he or she would be able to manage lower level

linguistic elements, and that translator will use that knowledge to process higher level features in a text. However, Mengelkamp (2008) argued that there are other factors besides experience that can have important effect on metacognitive processes. He mentioned that other factors such as the L2 similarity or differences with the L1 structure, nature of the text, and translator's background knowledge and schemata may play a role in the picture.

As for the proposed translation strategies that both MA and BA students resort to when metacognitive processing breaks down, It was indicated that MA students used more strategies in comparison with BA students and the most dominant strategy used by both groups was looking-up (n=58) and the least one was using back ground knowledge (n=19, see page 22 for examples). Krings(1986) mentioned that these strategies can be categorized as comprehension (inferencing and using of reference works), equivalent retrieval (especially interlingual and intralingual associations), equivalent monitoring (such as comparing Source Text (ST) and Target Text (TT)), decision-making (choosing between two equivalent solutions) and reduction (of marked or metaphorical text portions). Although some of the strategies have different terminology but the nature and the function of them are the same. For instance, comprehension, inferencing, and inductive and deductive reasoning strategies referred in this study, retrieval, monitoring, paraphrasing, self-recourse, and evaluation are suggested based on Oxford's (1990) categorization of cognitive and metacognitive strategies as translation process is assumed to involve such mental routes.

According to Eftekhari and Aminizadeh (2012), it should be mentioned that using strategies is different with regard to factors such as the type of the text, translators' background knowledge, and similarities and differences between L1 and L2. For instance, in texts that the translator has enough background knowledge, he or she may guess some parts even though he or she may not know the meaning of particular lexis. When there is no shared background knowledge, the translator may resort to other ways of translation among which using a dictionary is the most reasonable one. It was interesting that among the participants of this study, it was BA students who used background knowledge more despite the fact that it was expected

that MA students should have used more background knowledge. One possibility for the greater tendency of novice translators to use background knowledge maybe the text chosen for the translation which might be more familiar regarding the knowledge of these non-professionals (Shreve, 2002).

To conclude, the purpose of this study was related to three aspects. The first question raised investigated the level of translation process at which uncertainty happened for BA and MA students. It was concluded that most uncertainties happened at the production level for MA students while for BA ones it was comprehension level at which the uncertainty outweighed the other options.

The next research question dealt with the textual level in translation. The most frequent item for MA students was collocation and for BA students was lexis. That is to say, more complications happened at larger chunks of linguistic elements for MA students and they were less confused with the lexis and smaller linguistic elements. On the other hand, BA students had more uncertainty at the lexis level and used a bottom-up approach to translation.

With regard to the stages that uncertainty management happened, it was indicated that MA students had more tendency in recognizing problems while BA ones had less confidence in solving problems. Meanwhile, problem recognition and solution evaluation were respectively the most frequent strategies used to manage uncertainties by MA and BA students.

The results of this study can be helpful for translators to improve their translation ability by being more aware of what is happening inside their minds when translating. By knowing a stockpile of strategies, translators may have fewer difficulties while translating a text and can monitor themselves better. The findings of this study and similar studies can give a clearer image to learners and teachers to have a more vivid picture of the translation process which can help them avoid the use and application of incorrect strategies in their translation process.

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