The Influence of Student Translators' Electronic Dictionary Use on English-Chinese Translation Processes

Influence of Electronic Dictionary Use on Translation Processes

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Abstract. Dictionary use is a key factor for language learning and an indispensable skill for translation, yet studies concerning the electronic dictionary use of student translators are scanty. This study used the think-aloud method to explore the translation processes of two groups (no-dictionary v.s. electronic dictionary) of student translators, who were required to finish an English-Chinese translation task and to report their thoughts. The results showed that, compared to the no-dictionary group, the electronic dictionary group read and analyzed the source text more frequently, allocated more resources in planning, but conducted less synthesis and target text reading. This study sheds light on a deeper understanding of the influence of dictionary use on translation and the pedagogy of dictionary use for student translators.

Keywords: dictionary use, translation, think-aloud protocol, Chinese, English

1   Introduction

Dictionary plays a vital role in language learning [1-3]. The relevant research mainly concerns behaviours and strategies of dictionary use [4-5] and the influence of dictionary use on language learning, including vocabulary acquisition [6-7], collocation acquisition [8], and writing ability [9-10]. It is also widely documented that dictionaries are a frequently consulted tool during the processes of translation [11-13]. Dictionary use is hence regarded as an indispensable skill for translators to foster, especially for student translators, who are less professional and are thus in greater need of external consultation [14-15]. However, the influence of electronic dictionary use on the translation processes of student translators is not yet fully clarified.

To address this issue, this study attempts to examine the influence of student translators' electronic dictionary use on their English-Chinese translation processes via the method of think-aloud protocols, hoping to contribute to the revelation of the influence of dictionary use on translation processes, as well as shed light on the pedagogy of dictionary use in translation.

2   Literature Review

2.1   Dictionary Use

Dictionaries are one of the most frequently-consulted instruments in language learning. Many studies have concerned the behaviours and strategies of dictionary use [4-5]. For example, [4] studied the resource selection processes and consultation strategies of L2 learners of five languages studying university courses in business and economics, and found a lack of awareness of existing specialized resources and alternative strategies for handling specialized texts. [5] investigated EFL learners' dictionary consultation behaviour during the revision of collocation error correction, and found that they relied heavily on checking examples in bilingual dictionaries using entry words in their L1 and attempted to fix errors based on logical reasoning or using synonyms in context. All in all, these studies emphasize the importance of dictionary use in language learning, while pointing out that language learners are not equipped with a strong awareness of consultation resources available and essential skills of in-depth dictionary use, and the potentials of dictionaries seem far from being maximally excavated.

Another concern is the effects of dictionary use on language learning, such as vocabulary acquisition [6-7], collocation acquisition [8] and writing ability [9-10]. For example, [6] examined the effects of dictionary use on vocabulary acquisition, and found that the speed of the electronic dictionaries was faster than the printed ones. [8] examined the effects of electronic version of COBUILD on collocation acquisition, and found that the electronic dictionary was useful in both receptive and productive tasks, as well as the retention of both meanings and collocations. [7] conducted a meta-analysis of the effects of dictionary use on L2 vocabulary acquisition, as well as the effects of a series of moderate variables. Their synthesis shows that dictionary use exerted a large effect on vocabulary acquisition.

Although there is a substantial body of research on the effects of dictionary use on various aspects of language learning, the influence on translation is scarcely explored. According to [16], instrumental competence, the 'predominantly procedural knowledge related to the use of documentation sources and information and communication technologies applied to translation', is one of the fundamental sub-competences of translation competence. Among the prevalent instruments, the dictionary is a frequently consulted one during the processes of translation. Therefore, it is necessary to explore the influence of dictionary use on the processes of translation.

2.2   Translation Processes

Translation involves a series of cognitive processes, dealing with the source text, the target text and an interaction of both [17]. To tap into the black-box of translation processes, several models have been proposed. [18] argued that the translation processes consist of four stages: analysis, conversion, reconstruction and detection. [19] pointed out that translation takes place at two levels: the sequential level, where the translator translates sentence by sentence; and the structural level, where the translator abstracts the mental conception of the original text. [20] proposed a model from the perspectives

of both linguistics and information processing theory. The translation processes were divided into five stages: reading source texts, analysis, planning, synthesis, and reading target texts. Bell's model is regarded as one of the most ideal ones in the research of translation processes, hence is adopted as the theoretical basis in the present study.

The empirical studies on translation processes are also bountiful [17, 21-22]. For example, [17] explored the differences in translation processes for expressive and informative texts by professional translators. They found that the drafting of informative text accounts for a larger proportion of time, while orientation and checking accounts for a smaller proportion compared with those of expressive texts. Besides, translators were found to fully understand the expressive text at the very beginning, but need syntactic analysis of and re-sequencing the semantic component of the informative text. They further emphasized the priority of familiarity with standardized grammar and expertise in specialized fields for translating informative text, and the importance of embedded reading and writing training for translating expressive text. [21] studied adequacy, fluency and cognitive processes in English-Arabic news translation. He found that translators would segment the full text into frequent short lexical segments. He also found a reliance on online revision over end revision, and temporal delay in the drafting stage. [22] tracked the cognitive processes of students as indicated by their pauses when translating two texts from Arabic into English and vice versa. They found that students paused longer at word boundaries than between sentences, and their within-words pauses were significantly shorter when translating English into Arabic, indicating that their main concerns are at the low-cognitive level such as lexis, grammar, and spelling errors.

Regarding the influence of dictionary use on translation processes, several studies have appeared [12-14, 15, 24] For example, [14] examined student translators' use of dictionaries in Chinese-English translation and found that most respondents had not been well trained in using Chinese-English dictionaries. The student translators as non-professionals may lose confidence if they do not have reliable reference books at hand. [23] found that the online dictionaries can help satisfy the needs of users during the translation of specialized texts. [14] investigated translators' use of consultation sources (dictionaries in particular) to inform their translation choices. Three groups of participants, i.e. novice, semi-professional and professional translators were recruited. It is found that the consultation aims tend to evolve from comprehension to expression as experience in translation increases. It is also found that consultation proficiency is a significant factor in determining the frequency of consultation and the efficiency of the translation processes. [12] examined translators' use of digital resources (e.g. dictionaries, reference works, websites) in translation processes. The findings confirm that the use of digital resources, mainly for the comprehension of source text and re-formulation, is a substantial part of the translation processes. [13] observed excellent secondary-school students' dictionary use while they were translating an Ancient Greek text and examined which dictionary behaviours lead to success. The findings show that successful dictionary behaviours depend on moving back and forth between text and dictionary, performing informed searches and using their fingers or the ribbon bookmark. Meta-cognitive strategies such as monitoring with a critical mind and linguistic reflection using appropriate metalanguage also seem crucial.

From the above review, it can be seen that these few pieces of research do not seem proportional to the importance of dictionary use in translation. The influence of dictionary use on translation processes is far from full clarification. Even less is known about how electronic dictionary use affects student translators' performance, which awaits further exploration. To address these issues, this study attempts to examine the influence of student translators' electronic dictionary use on English-Chinese translation processes via the method of think-aloud protocols. The research questions are then as follows:

(1) What are the similarities in student translators' English-Chinese translation processes between the condition of no-dictionary and electronic dictionary use?

(2) What are the differences in student translators' English-Chinese translation processes between the condition of no-dictionary and electronic dictionary use?

3　　Methods

3.1　　Source Text

The source text is a 64-word-long passage in English extracted from a translation task in the authentic test papers of Test for English Majors Band 8, a nation-wide criterion-referenced language test in China. The content of the text is an argumentation on the solvation of a planetary crisis. Since our participants are all English majors, this passage is fitful for them in terms of text genre, theme and translation difficulty.

3.2　　Participants

Thirty students voluntarily participated in the study. They were all English majors from a key university in China. They all held an A-level certificate of Test for English Majors Band 4, showing that their heterogeneity in English proficiency was maximally controlled.

3.3　　Experimental Procedures

The students were invited to complete a translation task in a bright and quiet room. They were informed of the goal of the study and that they could quit the experiment whenever they would like to. They were also informed that their voices would be audio-recorded, yet all the data collected during the experiment would be used for this study only and would not be leaked elsewhere.

The participants were randomly assigned to the no-dictionary or electronic dictionary group, yielding fifty participants in each group. In the no-dictionary group, the participants were not allowed to turn to any tool for help. In the electronic dictionary groups, participants were allowed to use *Oulu Dictionary*, which is a very popular smartphone app in China.

The experiment contained two parts. The first part was technical training, during which time the experimenters taught the participants how to think aloud while translating, asked them to practice thinking aloud, and were ready to answer their questions related to the experiment. The second part was the formal test, during which time the participants were asked to speak out loud the real-time thoughts that come to mind while translating, and to finish their translation within 20 minutes. The language of the think-aloud protocols could be in Chinese, English or a mixture of both. For the convenience of reading, all the protocols in Chinese reported in this paper have been translated into English, except for the protocols of Chinese translation equivalent.

3.4   Data Processing and Analysis

First, the validity and reliability of the think-aloud protocols were evaluated according to the criteria proposed by [24]. Second, the think-aloud protocols were transcribed as plain texts. Third, the textual data were coded into one of the six categories, i.e., reading the source text, analysis, planning, synthesis, reading the target text, and dictionary use, according to the operational framework of translation processes. Examples of codes are given in Table 1.

Table 1. Examples of codes of translation processes

Code	Example
Reading the source text	The next sentence: but there is hopeful news as well.
Analysis	It's about the content of the disaster. So, how to translate it? As it is an attribute, we should transform it as an SVO word order.
Planning	Now I'll read it sentence by sentence.
Synthesis	This part could be divided into several clauses to translate.
Reading the target text	wǒmen rénlèi zhèngzài miànlín yígè quánqiúxìng de wēijī, yígè yǒu zhe bùxiáng de hé huǐmièxìng de qiánnéng de guānyú rénlèi wénmíng de cúnwáng de wēijī. OK, done.
Dictionary use	This word… I'll look it up. I don't know the word.

Two researchers coded the data independently, and the inter-coder reliability is 0.92. Regarding the inconsistencies, the researchers had discussions until a final agreement was reached.

4   Findings and Discussion

The mean frequencies of translation processes of the two groups are shown in Table 2. This section first reports and discusses the similarities of the two groups and then the differences.

Table 2. Mean frequencies of translation processes of the two groups

	Reading the source text	Analysis	Planning	Synthesis	Reading the target text
No-dictionary	10.00	4.50	2.38	23.88	10.63
Electronic dictionary	14.38	5.88	4.02	20.25	8.00

4.1 Similarities between the condition of No-Dictionary and Electronic Dictionary Use

In overall, the processes of the two groups resemble each other. First, synthesis, reading the source text and target text were frequently elicited. This finding is in consistent with a line of previous studies [12, 15]. For example, [15] found that novice translators emphasized more on understanding, and [12] found that translators would use digital resources to help them understand the source text. In this study, it is also found that student translators read the source text and target text as pre-requisite for understanding. Reading the source text refers to the process by which translators read, identify the source texts and transform the visual inputs into linguistic orthographic symbols, but have not yet started further linguistics analysis of syntactic structure, semantics and pragmatic information [20]. A full comprehension of the source text is undoubtedly the pre-requisite of the follow-up translations. Reading the target text refers to the process by which translators read the translated text but with the syntactic, semantic, pragmatic and stylistic information not yet considered [20]. For translators, reading out the translated text is both an effective way to check the quality of synthesis, and monitor the translation while writing [13]. Synthesis refers to the process by which translators consider the syntax, semantic, pragmatics, stylistics and other features of the translated text [20]. It is a vital process before the translated text is melted in the form of language from the translator's mind, and is directly related to the output of translation. It can be seen that the student translators put more emphasis on the directly-related part of translation, i.e. synthesis and reading the target text, although they also gave credit to a basic reading of the source text.

The second finding is that analysis and planning were infrequently elicited, which is in accordance with some studies that the cognitive processes of students were mainly focused on low-levels, such as lexis and spelling [22]. Analysis refers to the process by which translators analyze the sentence structure, semantic and pragmatic features of the original text, including the conceptual and symbolic meaning of the vocabulary, language style, rhetorics, and purpose, and planning refers to the process that translators allocate, monitor and regulate their cognitive resources during translation [20]. The former focuses on high-level cognitive processes and the latter on the meta-cognitive level. It can be seen that, despite a basic reading of the source text, the student translators somehow neglect the importance of analyzing and hence a deep understanding of the source text. They put even less emphasis on the meta-cognitive process of planning, behaving poorly in the awareness of macro planning. The infrequent use of analysis and planning thus fails the translators to fully digest the source text and to effectively monitor and adjust their processes in translation.

4.2   Differences between the Condition of No-Dictionary and Electronic Dictionary Use

Despite the similarities, there are also differences between the two conditions. In the process of reading the source text, translators in the electronic dictionary group read the source text more frequently than the no-dictionary group. That is to say, using dictionaries would put an emphasis on the reading of source text. This may be attributed to the fact that dictionaries can provide information about the source text, which the translators would like to look up if they had a chance [14]. During reading the source text, there may be some difficulties in understanding. While translators have to rely on themselves to solve the problems if they have no external help, it is no harm to turn to a dictionary if they are allowed to. Obtaining information from the dictionary is not a once-and-for-all task. It is often featured in back-and-forth and multiple interactions between the text and the dictionary [13]. Therefore, in order to obtain information from the dictionary, the translators have to stay on the source text now and then, giving rise to a frequent elicitation of the reading of the source text.

In the process of analysis, although both groups were infrequent, the electronic dictionary group was slightly more frequent than the no dictionary group. This finding is possibly due to the convenience of dictionaries. As electronic dictionaries can provide adequate information, they would substantially facilitate translators, leading to a relatively frequent use of analysis.

In the process of planning, i.e. the distribution, monitoring and adjustment of the cognitive resources and processes, the electronic dictionary group was slightly more frequent. Electronic dictionaries provide more resources and functions, which the translators need to allocate and use. To maximize the usefulness of electronic dictionaries, translators must make appropriate planning. Comparatively, the no-dictionary group have no extra resources to use, resulting in the least frequent planning. Also, it should be noted that the students may lack skills or willingness in dictionary use, especially high-level usage, as widely documented in previous studies [4-5, 15]. There is still room for maximizing the use of the resources available in dictionaries.

In the process of synthesis, the electronic dictionary group is slightly less frequent than the no-dictionary one. As there are no extra tools to use in the no-dictionary condition, translators have to rely on themselves to check and verify their translations. They may use a variety of strategies, such as dividing the text into segments, as is reported in some previous studies [21]. In the electronic dictionary conditions, since translators have already had a basic understanding of the source text with the aid of dictionaries, their processes of synthesis may not be as frequent as those in the no-dictionary condition.

Regarding the target text, the no-dictionary group devotes slightly more to reading the target text than the electronic dictionary one. In the no-dictionary group, translators have no tools at hand and have to attach equal importance to both source and target so as to compensate for their lack of comprehension of the source text. On the contrary, translators with a dictionary could pay more attention to the source text to pick up the words and phrases that need looking up, getting a better understanding of the source text with the assistance of a dictionary. Since an appropriate translation equivalent

could be confirmed in the dictionary, there seems no need to pay special attention to the target text.

5   Conclusion

This study explored the influence of student translators' dictionary use on English-Chinese translation processes via a think-aloud approach. Two groups of participants, i.e. no-dictionary and electronic dictionary groups, were required to translate a passage of English into Chinese while reporting their real-time thoughts. Their think-aloud protocols revealed both similarities and differences between groups. In overall, the translation processes started from reading the source text to synthesizing and then to reading the translation. Synthesis, reading the source text and target text were frequently elicited, and analysis and planning were infrequently elicited. Regarding differences, the electronic dictionary groups read and analyzed the source text more frequently, and allocated more resources in planning, but conducted less synthesis and reading of the target text, compared to the no-dictionary group.

This study has several implications. Theoretically, the processes of translation have long been regarded as a black-box. Using think-aloud protocols, this study revealed both similarities and differences in translation processes between the condition of no-dictionary and electronic dictionary use, contributing to the understanding of the essence of dictionary use in translation. Empirically, this study enriched the documentation of the dictionary use in English-Chinese translation of L2 learners of English in China. Nowadays the attention drawn to their translation behaviours is obviously not proportional, let alone the influence of electronic dictionary use on translation. This study then appeals more devotion to this field. Pedagogically. This study echoes the findings of some previous studies that L2 learners/student translators may be extremely poor at using dictionaries to help their L2 learning/translation. Their dictionary usage is primarily concerning low-level activities such as spelling checking and meaning retrieving. Dictionaries as a powerful tool are far from being maximally excavated. There is undoubtedly an urgent need to foster the skill of dictionary use for them.

Despite its significance, this study has several limitations. First, although this study attempted to control variables by randomly assigning participants to their groups, there may be other unaccounted factors (such as personal translation habits, dictionary use preferences, etc.) that may have an impact on the experimental results. Future studies could be further refined by a more strict control of these potential confounding variables. Second, this study made preliminary analysis and inter-group comparisons of the think-aloud protocols of the whole translation processes but did not focus on the dictionary use behaviours alone. Future studies could conduct in-depth explorations of the relationship between specific dictionary use and the translation processes, as well as the dynamic changes of the influence of dictionary use. Third, this study only investigated the influence of dictionary use on translation processes but not on the quality of translation products. Future studies could evaluate the quality of translation products in terms of lexical complexity, syntactical complexity, etc., thus obtaining a more comprehensive understanding of the influence of dictionary use during translation.

Acknowledgments

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