The role of medical background knowledge on improving the translation quality among medical and translation students

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Abstract

The purpose of this research is to investigate systematically and dynamically the effect of medical background knowledge on enhancing the translation quality among medical and translation students. Participants in this study included 100 medical students and translation students in Islamic Azad University in Tehran, Iran. They had the mean age of 22 and there were 45 males and 55 females in the sample. In order to determine the level of proficiency of the participants in both groups, the same Nelson proficiency test was first administered to all of them. Students in both groups were asked to translate some medical texts from English into Persian. Outputs of the two groups were compared to assess the impact of medical background information. The quantity and quality of background information were also analyzed to examine their influence on the quality of translation. Results showed that those students having medical knowledge performed better in translating English texts related to medical science, in comparison to those learners who were not familiar well with medical knowledge. In other words, technical knowledge could play a significant role in enhancing the quality of medical translation from English into Persian.

Keywords: background knowledge, translation quality, translation, medical texts

Introduction

Gerding-Salas (2000) believes that students should be equipped with some features for the purpose of translating well including: sound linguistic training in the two languages, knowledge covering a wide cultural spectrum, high reading comprehension competence and permanent interest in reading, adequate use of translation procedures and strategies, and adequate management of documentation sources, (6) improvement capacity and While the ideal student will possess all of the desirable traits, the real world often displays a quite different picture.

Nowadays, teaching most languages is based on the communicative method which focuses on teaching English through English (Willis, 1981, as cited in Duff, 1989). However, the idea of ignoring the native tongue is too stressful to many learners, who need a sense of security in the experience of learning a foreign language.

In the past, after the expansion of grammar-translation method, students were unable to speak fluently after having studied the language for a long time. For this reason, translation has been defined as "uncommunicative, boring, pointless, difficult, and irrelevant" (Duff, 1989).

Recently there has been an increasing interest to translation thanks to the shift of its emphasis — to using a mother tongue as a resource for the promotion of language learning. Translation method develops three qualities essential to any language learning including accuracy, clarity, and flexibility (Duff, ibid). Therefore, translation can serve as a tool for improving language skills.

On the other hand, in the last three decades,

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there has been a shift in focus in the field of second language acquisition from teaching methods to learner characteristics. It has become clearer that much of the responsibility for success in language learning may rest with the efforts of individual learners. Some of this change can be attributed to learners' beliefs (Horwitz, 1987, as cited in Oxford, 1990) and particular sets of techniques and strategies (Oxford, 1990a) that individual learners use to learn a target language. With regard to translation, the translator's beliefs, techniques or strategies during translation whether from L1 to L2 or from L2 to L1 can also be taken into account.

On the other hand, a body of research from the perspective of schema theory has shown how readers' perspectives and prior knowledge are important in comprehending and remembering what they read. Anderson (1991), Bransford and Johnson (1972), and Rumelhart (1994), for example, have shown that readers' prior knowledge and the perspectives suggested for readers, as well as titles provided for ambiguous passages can have significant effects not only on the amount of information readers remember but also on what they comprehend.

The basic premise of schema theory is that readers' prior knowledge and their schemata will have significant effects on what they comprehend when they read and on what they will later remember. In other words, how well readers comprehend and remember what they read is contingent on how well readers 'prior knowledge is induced. The cultural schemata readers possess are one of the many factors that help evoke their prior knowledge. Culturally familiar text more easily activates readers' prior knowledge and thus it is more easily comprehended and remembered. Pritchard (1990), Reynolds, Taylor, Steffensen, Shirey, and Anderson (1982) and Steffensen, Joag-Dev, and Anderson (1979), for instance, have shown the importance of cultural schemata in comprehending and remembering discourse. Likewise, familiar context activates readers 'prior knowledge. Information appearing in more familiar contexts is better recalled because the familiar context makes it easier to arouse a reader's schemata and in turn, the schemata play an important role in remembering and comprehending the text contents (Freebody & Anderson, 1983).

As far as translation is concerned, although little research has been done on the role of background knowledge, it is a general supposition that activating or having background and technical knowl-edge can also play a role in enhancing the quality of translation. Previous exposure and knowledge to new concepts may help to improve performance on recognition tasks (Rinehart, Barksdale-Ladd, & Welker, 1991).

Translation quality assessment (TQA) is not a new field of inquiry. Moreover, it has the distinction of being one that interests a broad range of practitioners, researchers and organizations, whether their focus is literacy or instrumental (pragmatic) translation. Cicuit (1994, as cited in Halverson, 1998) believes that there are some reasons why various groups need to assess translation quality: first, it is necessary for users because they want to know whether they can trust the translators and rely on the quality of their products. Second, Professional translators need it because there are so many amateur translators who work for very little money that professional translators will only be able to sell their products if there is some proof of the superior quality of their work. Third, translatological research needs it because if it does not want to become academic and marginal in the eyes of practicing translators it must establish criteria for quality control and assessment. Finally, it can be at the service of trainee translators because otherwise they will not know how to systematically improve the quality of their work (p.15).

By considering all of the above-mentioned issues, the purpose of this research is to investigate systematically and dynamically the effect of medical background knowledge on enhancing the translation quality among Medical and Translation students.

Statement of the problem and significance of the study

As the business world has become more global, the demand for technical translators has increased dramatically. As Paula (1994, as cited in Halverson, 1998) believes, this increased demand has not been met by a corresponding increase in training programs for these translators. He added that this lack of training is even more apparent for Asian languages, such as Persian and only the Monterey Institute of International Studies in California offers programs in written translation in those languages at the present time. According to Venuti (1995, p.5-8), most translators learn their craft through work and experience, often without the benefit of any feedback. As the majority of translators are freelance, they may work for one or more agencies. Transla-

tion agencies normally take in raw translation, but rarely provide feedback on the final edited version; the translator receives payment and assumes the raw translation was acceptable as submitted. These problems, the lack of training available, and the lack of feedback have been regarded as the main issues.

However, it seems that some factors such as having background or technical knowledge about different fields of study play a role in translating different texts from English into the translators' mother tongue.

On the other hand, in the world of knowledge, translation has been turned to the most powerful tool for transformation of science and technology. Obviously, a high quality and well-shaped translation can be successful in expansion of knowledge and construction of a new world based on updated information and logical matters.

The result of this study is to identify the effect of medical background knowledge on translation quality in medical texts and documents. This research aims to have its own share in translation studies especially in the field of ESP (English for specific purpose) and technical translation.

Research questions

This research is intended to find appropriate answers to the following question:

Is there any significant difference between the translation quality of Medical students and Translation students?

The translation process

Cognitive processes of translation

Translation is a linguistic activity available only to people with two or more languages. Untrained bilinguals or second language learners are found to invoke natural translation at least with low proficiency populations when experiencing two languages at the same time (Harris, 1977; Harris & Sherwood, 1978). The process of translation includes complicated sub-processes, such as language comprehension, language production, memory, attention, and visual/auditory perception. However, the translation process itself has gained little attention from researchers in psycholinguistics.

De Groot (1997) suggested that the complicated factors involved in translation may be one of the reasons for the scarce attention. Conversely, she emphasized that translation is an important skill that bilinguals or second language learners experi-

ence in their minds due to the fact that they are bilinguals. Investigation of language processing using a translation paradigm can provide us with a better understanding bilinguals' comprehension process.

Although translation on its own has not been extensively explored compared to other topics, two distinctive theories of translation processes were developed in the 1970s (Seleskovitch, 1976; Gerver, 1976), and several experimental studies have tested these theories in recent years. There have also been a considerable number of studies that investigate the representation of two languages in the bilingual mind using a word translation paradigm (French, & Jacquet, 2004).

The relationship between textual aspects and text difficulty

In the field of translation, Reiss (1982) suggests five textual aspects that can multiply text difficulty including the subject matter, the register, the type of language used, the pragmatics of the reader and the historical-cultural context. Further, regarding this issue, Nord (1997) classifies translation problems into four categories: 1) text-specific translation problems (e.g. a play on words), 2) pragmatic translation problems (e.g., the recipient orientation of a text), 3) cultural translation problems (e.g., text-type conventions), and 4) linguistic translation problems (e.g., the translation of the English gerund into German).

Unfortunately, there is little research to take into account translation difficulty by doing an experiment. However, Campbell and Hale (1999) recognized several areas of difficulty in lexis and grammar such as complex noun phrases, and passive verbs. Further, they mentioned that, apparently, all these difficulties can be summarized into three major aspects including lexical and syntactic complexity, content and subject matter, and text type.

In addition, Kenny (2000, as cited in Hatim and Mason, 1990) contends that "Equivalence", which can be regarded as a key concept in translation theory can make a distinction between aspects of text difficulty and aspects of translation-specific difficulty. Pymed (2010, as cited in Hatim and Mason, ibid) added that it can considered as "a relation of 'equal value' between a source-text segment and a target-text segment," and "can be established on any linguistic level, from form to function" (p. 7). Baker (2011) discusses equivalence at a series of levels: lexical (word level and above-word level), grammatical (e.g., number, gender, person, tense and aspect, and

voice), textual (e.g., cohesion), and pragmatic (e.g., coherence). Among them, the lexical level may create the most noticeable difficulties for translators.

Translation quality

According to American Translators Association (ATA), translation quality can be divided into two major categories for assessment purposes: accuracy and clarity. The American Translators Association (ATA) applies a strict definition of accuracy in their accreditation tests. In the ATA's definition, the translator must not interpret but translate each word and grammatical function as defined in dictionaries and grammar texts. In the accreditation test, all words must be included and English editing is discouraged. The ATA's purpose is to reduce translation accuracy to the easiest level for mass testing, removing all possible arguments that may, and often do, arise because of interpretation. In my analyses, I applied a marginally more liberal view to translation accuracy; redundant words and phrases could be dropped if the meaning was not affected, and verbs that required interpretation to determine the tense were not counted as an accuracy error. However, if the interpretation of a verb tense affected the clarity of the English, it was counted as an English error.

Translation accuracy errors may create a document that is impossible to edit without reference to the original text. Therefore, priority was placed on translation accuracy; and errors in accuracy were not recounted as errors in English clarity. The criteria for both accuracy and English flowed from the process model and were divided into the following categories: word, syntax, logic, and subject knowledge.

The role of background knowledge in literacy and translation

According to Hirsch (2006), reading a text for comprehension or translation depends on a base of background knowledge and vocabulary. It is much more difficult for students to develop into strong readers without having background knowledge. Dochy, Segers and Buehl (1999) contend that it is difficult to ignore the contribution of individuals' prior knowledge. They state that prior knowledge is an essential variable in learning, and a springboard for future learning. Prior knowledge is the knowledge that students bring to the learning process. Dochy (1994) believe that prior knowledge can be considered as "the whole of a person's actual knowledge having three features: first, it is available be-

fore a certain learning task. Second, it is structured in schemata. Third, it is declarative and procedural. Fourth, it is partly explicit and partly tacit" (p.4699).

According to Vacca *et al.* (2003), when a teacher draws on a learner's prior experiences and helps him to connect those to new vocabulary and story concepts, it provides a basis for discovering meaning. It is essential for the learners to see the relevance of a story to their own lives. Classrooms with culturally relevant materials easily accomplish this task. They also stated that when learners see books and materials with characters that look and sound like themselves, their lives are validated (Vacca *et al.*, ibid).

As far as schema theory is concerned, Johnson (1982) believes that activating or building readers' existing knowledge prior to reading would improve or alter reading comprehension and recall. Pearson, Hansen, and Gorden (1979) suggest that schemata can play two important functions during reading comprehension. First, they will create a framework in order to classify concepts which have been presented in a text. Thus, when there is a stronger framework, the more likely concepts are to be classified and available for subsequent retrieval from long term memory. According to the second function readers will be allowed to fill in gaps not completely specified in the text. That is, readers understand a passage by analyzing the text according to their schema, or their past personal experiences.

Braunger and Lewis (2006) contend that background knowledge is critical for the effective acquisition of literacy. They proposed that teachers must be able to provide instruction appropriate to the wide range of students' experiences and needs.

According to the researcher, background knowledge can be regarded as the "bread and butter" of the translation practice. In order to better understand the art and science of translation, it is necessary for a translator to know not only the languages involved but the subject area(s) as well. In other words, translation experience and academic background can be considered as two key factors for success in today's job market.

When used in the right proportion, technical background knowledge helps us look good in the eyes of our peers, thus boosting our credibility before them as well as in the eyes of our clients. Most people may not judge a book by its cover, but some will pay close attention to the fine print. And that's where the difference lies between the good translators and those who are aspiring to get there.

In conclusion, it is our responsibility as translators to ensure that we don't bite off more than we can chew. If we can't take a certain job for a lack of qualification, that is a reminder that we may need to acquire more knowledge in the field. We need to constantly remind ourselves that there is no limit as to how much knowledge we need in our profession. Obviously, the more we know and the more deeply we know it, the better it is for us professionally in an ever-increasing competitive job market.

Previous research on background knowledge

Levine, Haus, Sims, and Ramos (1987) claim that a reader's background knowledge is a major factor in comprehension, just as it is in first language skills. Steffensen *et al.* (1979) also did another study in which 20 college-level students from the United States and 20 from India read and recall a passage describing a traditional wedding in each culture were included in their study. The results indicated that readers recalled more ideas from the passage about their own cultures, and they read the passage about the wedding in their own culture more rapidly.

Levine *et al.* (1987) investigated the effects of relevant background knowledge on the reading comprehension of 428 ELL high school students. The students read an authentic report of a soccer game and responded to reading comprehension questions. The results indicated that background knowledge put an influence on the reading comprehension of high school students.

Pearson-Casanave (1984) sees the reader as an active processor of information, one who selects only the most productive cues from the printed page. Readers bring to a text a store of background knowledge, which is used in conjunction with linguistic information to help them make and confirm predictions about content. She also finds that a text provides clues which enable readers to construct meaning from existing knowledge—the text activates and builds on existing schemata.

It is evident that schema plays an important role in text comprehension, both in first-, and second-language contexts. In addition, the studies previously discussed demonstrate that cultural background knowledge not only affects the reading comprehension of students with foreign cultural schemata but also students with subcultural background, such as African American culture, and American Indian culture. Therefore, whether reading in a first- or second-language, one can assume that both native and non-native readers will understand more of a text when they are familiar with content, formal, and linguistic schemata. An ELL reader, however, who does not possess content schemata, can experience schema interference, or a lack of comprehension.

However, by considering the results of activating background knowledge on different language skills, no study has been reported regarding the effect of background knowledge about different kinds of texts on the quality of translation, which was considered as the main reason behind the current study.

Methodology

Participants

Participants in this study included 100 Medical students and Translation students in Islamic Azad University in Tehran, Iran. They had the mean age of 22 and there were 45 males and 55 females in the sample. In order to determine the level of proficiency of the participants in both groups, the same Nelson proficiency test was first administered to all of them. In order to select homogeneous participants, based on the normal probability curve, those whose score were between -1 and +1 SD, were regarded as the main participants. Finally, 40 Medical students and 47 translation students were selected as the main participants for further research.

Instruments
English proficiency test

The English Nelson test, was used to assess the subjects' level of proficiency in English. This test comprised 30 multiple-choice vocabularies, grammar, and reading comprehension items. The researcher did a pilot test with 23 students with the same level and similar characteristics to those of the subjects of this study. An item analysis was done to calculate the level of difficulty of all items. Then, based on the results of this analysis, some items were modified, deleted, or replaced by some new ones. Furthermore, it should be pointed out that the reliability of this version of Nelson test estimated by KR-21 (Kudar Richardson) formula appeared to be .72.

Medical texts

For the purpose of this study, some medical texts were selected by the researcher. All of them were related to the general topics about medicine or medical sciences. In order to select five technical texts for translation, the researcher selected

10 paragraphs and asked two faculty members of Medical colleges to evaluate the texts and select five paragraphs among them.

Main procedure

In order to do the recent research, the following steps were taken:

The first step was to determine the level of proficiency of the participants by Nelson proficiency test in order to find the homogeneous participants among medical and translation students. Then, they were asked to translate the five medical paragraphs from English into Persian. After collecting the translated texts, they were evaluated and scored by two raters. In order to evaluate the texts, the rubric proposed by Waddington (2001) was taken into consideration for evaluating translation quality in this study. The total score devoted to this rubric is 100. Finally, the average score for each by the two raters was given to SPSS for data analysis.

After collecting data, the performance of both groups was compared to see whether there is any significant difference between Medical and Translation students in translation assessment.

Data analysis

In order to analyze the data used in this study, Kolmogorov-Smirnov test, which was used to see whether the samples have been normally distributed or not, and Independent sample t-test, used to compare the means of two independent samples.

Results and discussion

In order to see whether there is any significant difference between the translation quality of Medical and Translation students, the data were analyzed as follows:

In order to see whether we are able to use independent t-test as a parametric test, first we should check whether the data have been normally distributed or not. If the level of significance is more than 0.05, it indicates the normality of data distribution.

Therefore, we can use parametric test for further data analysis.

By looking at Table 1, we can come to this result that the data have been distributed normally because p value (.474) is more than 0.05 as the significance level. Therefore, we can use parametric test such as independent sample t-test for comparing the results of quality assessment among medical and translation students.

Table 1. One-Sample Kolmogorov-Smirnov test for total quality assessment among medical and translation students.

		Total
N		87
Normal Parameters	Mean	46.28
	Std. Deviation	15.303
Most Extreme Differences	Absolute	.091
	Positive	.091
	Negative	-.062
Kolmogorov-Smirnov Z		.844
Asymp. Sig. (2-tailed)		.474

Now, in order to see whether there is any significant difference between Medical and Translation group with data were analyzed as they are shown in Table 2 and 3 below.

Table 2. Mean sample test quality assessment among medical and translation students.

Group	N	Mean	Std. Deviation	Std. Error Mean
Medical	47	53.15	15.623	2.279
Translation	40	38.20	10.231	1.618

Table 3. Independent samples test for quality assessment among medical and translation students.

Group	N	Mean	SD	Std. Error Mean	t	Sig (2-tailed)
Medical	47	53.15	15.623	2.279	5.178	.000
Translation	40	38.20	10.231	1.618		

As it is evident from table 1, the mean of medical group was 53.15 while it was 38.20 for translation group. Furthermore, we can draw this conclusion that there is a significant difference between Medical and Translation group, where 't' value was 5.178 and P value was .000.

Conclusions

Data analysis revealed that those students having technical knowledge, in this study, medical knowledge, performed better in translating some texts related to medical science, in comparison to those learners who are not familiar well with medical knowledge. In other words, technical knowledge could play a significant role in enhancing the quality of medical translation from English into Persian.

It was supposed that translation students would perform better due to their familiarity with translation techniques and methods and more experience in translation. However, the results of this study were against this assumption and proved that medical knowledge plays more significant role.

In conclusion, the present study adds to the previous research regarding the importance of technical knowledge in translation. Lastly, this study sheds some light on the importance of teaching translation students how to increase their technical or background knowledge in order to implement them during translation. They should keep this idea in their minds that just getting formal schemata about an issue is not important. They should also pay attention to be more acquainted with content schemata about any topic or subject they are going to translate if they want to perform better in translation.

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