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Differences in Translation by Translation Specialized and Non-Specialized Students in Terms of Accuracy of Pragmatic Equivalence and Lexico-Syntactic Properties

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ABSTRACT

The present study is an investigation into translation accuracy in terms of pragmatic and lexico-syntactic features of translators who know English and have specialized in translation studies as their major and those who studied chemistry but know English well. Based on an Oxford Placement Test (OPT), thirty homogenized participants were selected with regard to their language proficiency. Both groups of participants i.e., translation specialized and chemistry students, were asked to translate a chemistry text. Afterwards, their productions were assessed with respect to the accuracy of the translations in terms of lexical and pragmatic features. Results showed that there were significant differences between the translation accuracy of lexical and pragmatic features in the two groups and chemistry students outperformed translation students. However, translation students were shown to be better translators in terms of syntactic features.

Keywords: Translation Accuracy, Grammatical/Syntactic Equivalence, Lexical Properties (register), Text-Pragmatic (Dynamic) equivalence

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1. Introduction

Today, people connect with each other around the world. Translation makes possible connection of people with various languages which is done in different fields. Many students, professors and researchers present scientific works in various journals and conferences which is not possible without translation. Translation is not a simple process and knowing only meaning of the words or using dictionaries is not enough for translation. To have the knowledge of translation principles is necessary for good translation. As information about a certain field is necessary for good translation, most of the translators only translate texts of one or some limited fields because having information about all fields is not possible.

According to Williams and Chesterman (2002), technical translation includes different types of specialized writings like science and technology or even economics and medicine. On the contrary, Aixela (2004) believes that the translation of scientific texts cannot be done so perfectly and easily. Aixela stated that scientific and technical translation necessitates high levels of knowledge and it has an autonomous arena of research for itself. Translation is a tool to communicate and get information about all subjects around the world. As learning all languages is not possible, translation is used in this regard. Nowadays, most people use translation to get information about a special subject besides communication. Most educated people use some books and articles related to their field, some of these are in English which is not understandable for everyone, so they have to rely on translators and have to trust them.

In translation of specialized texts, only knowing translation principles and using dictionary are not enough. Translator should understand the text well, but it is impossible

without knowledge about that field. If the translator does not understand the text, the text will be translated incorrectly. In this case, the translator presents a text with very technical words which may not be understandable.

2. Background

Translation is used to transfer meaning from one language to another. A written or spoken SL (source language) text will be exchanged by its equivalent written or spoken TL (target language) text. In most cases, however, we as translators cannot find the proper equivalent of some of the SL items. According to Culler (1976), languages contain concepts which differ radically from those of another, since each language organizes the world differently. When we compare languages we find that different cultures have identified similar social observations and according to their knowledge and experience coin their own phrases. So, we can conclude that the disparity among languages are problematic for translators and the more different the concepts of languages are, the more difficult it is to transfer messages from one language to the other. Among the troublesome factors involved in the process of translation is the transference of form, meaning, style, proverbs, idioms, etc. The term translation assessment has been interpreted in many different ways depending on the trends and theories espoused by translation scholars working on evaluation methods. There is nothing unusual about this: every judgment has a subjective component, as the human sciences have amply shown, and translation is no exception. Moreover, any attempts to achieve absolute objectivity could revive old demons and raise the specter of one right translation of every text. Nonetheless, it would be extremely useful to provide a sound

basis for assessing translations in order to minimize subjectivity insofar as possible (Brunrte, 2000).

House (1981), in his pragmatic-textual approach, stated that translation operates not with sentences but with utterances. Equivalence, therefore, is sought at the pragmatic level even if it overrides semantic meaning. In other words, the primary interest of translation is units of discourse characterized by their use-value in communication.

Al-Qinai (2000) has stated the following parameters, among some former points mentioned by other scholars in the field (e.g., Hatim & Mason, 1990; House, 1981, 1997; Steiner, 1994; Newmark, 1988):

1. Textual Typology (province) and Tenor: i.e. the linguistic and narrative structure of ST and TT, textual function (e.g. didactic, informative, instructional, persuasive, evocative... etc.).

2. Formal Correspondence: Overall textual volume and arrangement, paragraph division, punctuation, reproduction of headings, quotation, motos, logos... etc.

3. Coherence of Thematic Structure: Degree of referential compatibility and thematic symmetry.

4. Cohesion: Reference (co-reference, preforms, anaphora, cataphora), substitution, ellipsis, deixis and conjunctions.

5. Text-Pragmatic (Dynamic) equivalence: degree of proximity of TT to the intended effect of ST (i.e. fulfillment or violation of reader expectations) and the illocutionary function of ST and TT.

6. Lexical Properties (register): jargon, idioms, loanwords, catch phrases, collocations, paraphrases, connotations and emotive aspects of lexical meaning.

7. Grammatical/ Syntactic Equivalence: word order, sentence structure, cleaving, number, gender and person (agreement), modality, tense and aspect." (Al-Qinai, 2000, p. 499)

Translation of specialized texts is a difficult task, because the texts include professional words and phrases whose understanding is not possible only using

dictionaries and the translator should have knowledge about that to translate accurately.

With regard to the parameters that are of significance in translating text in general and technical texts in particular, this study is an attempt to shed more empirical light on the required expertise that translators should possess in order to come up with accurate translations. This study is twofold; the first aim of the study is to investigate differences between the accuracy of translation by students specialized in translation and those who are not specialized in translation in terms of pragmatic equivalence. The second one is the investigation into differences between the accuracy of translation by the students of translation and those who are not specialized in translation as far as lexico-syntactic properties are concerned. The study is guided by the following research questions:

1. Is there any significant difference in the accuracy of translation done by the students of translation and that by non-translation students as far as pragmatic equivalence is concerned?

2. Is there any significant difference in the accuracy of translation done by the students of translation and that by non-translation students as far as lexico-syntactic properties are concerned?

Two hypotheses have been stated in this study:

1. There is no any significant difference in the accuracy of translation done by the students of translation and that by non-translation students as far as pragmatic equivalence is concerned.

2. There is no any significant difference in the accuracy of translation done by the students of translation and that by non-translation students as far as lexico-syntactic properties are concerned.

[3. Method](#)

[3.1 Material](#)

This study was done on translations of



technical texts. To do so, ten paragraphs were chosen from an article in chemistry entitled “Accelerating effect of montmorillonite on oxidative degradation of polyethylene nanocomposites” by Kumanayaka, Parthasarathy and Jollands (2009). The field of Chemistry was chosen because the aim of this study is the translation of specialized texts, and chemistry has been chosen due to its specialized, technical vocabulary, idiomatic expressions and processes.

3.2 Instrument

The placement test (i.e. oxford placement test) was used in this study to select a homogenized sample in terms of English general proficiency. The test was divided into two parts, namely, *Use of English* and *Listening*. *Use of English* was divided into two parts: part one and part two of grammar. Each part included fifty questions. Part one included questions 1-50 and second part included questions 50-100.

3.3 Participants

Participants were translation specialized students from Sheikh Bahai University, Isfahan, Iran and chemistry students of Isfahan University and Islamic Azad University, Shahreza branch, Iran. All of the participants were randomly selected from first and second year of their study from the three aforementioned universities. Participants were both male and female with the age range of 18-30. All of the students were Iranian and their first language was Persian. Based on an Oxford Placement Test (OPT), thirty homogenized participants were selected with regard to their language proficiency. Afterwards, they were randomly assigned to two chemistry and translation groups.

3.4 Procedure

The following steps were taken in order to collect the data:

1. At first, the OPT was administered to translation specialization students and students of chemistry who did not have any formal translation education.
2. 30 translators were selected from the participants who had same level of English language proficiency. 15 participants were randomly assigned to each group.
3. They were asked to translate technical (chemistry) text.
4. In order to analyze the data, pragmatic equivalence in translation of both groups were examined and criteria were set to rate them. The pragmatic equivalence was assessed based on Al-Qinai's (2000) seven parameters mentioned in the previous section.
5. An assistant professor of chemistry was asked to check if the chemistry concepts in the translated texts were correct or not.
6. Mean, standard deviation and inferential statistics (t-test) were run to identify the differences between the two groups under investigation.
7. Finally, based on all the results, the translation of the two groups were evaluated to answer to the research questions.

4. Results

The data were collected from translations of the translators who passed language proficiency test and all of whom were at the same level of language proficiency. Some examples of participants' translations in each group are shown in the tables below. Rating on translation accuracy were based on translation accuracy criteria. Table 1 below shows some examples of translation which was done by the translation students. Pragmatic, lexical and syntactic features were studied in these translations.

Table 1. Translations by the students specialized in Translation Studies

Sentence	Translation	Accuracy Feature	Accurate/Inaccurate
1 "The analytical lines obtained for elements were registered by means of a scintillation detector."	خطوط تجزیه ای برای عناصری که از طریق کشف جرقه ثبت می شوند به دست می آیند.	Lexical (Jargon)	Accurate
2 "As a result of this reaction, tertiary amine, olefin and acidic sites are formed on the clay layers."	در نتیجه ی این واکنش، آمین های سوم، مکان های اسیدی و الفین در لایه های رسی شکل می گیرند.	Lexical (Paraphrase), Pragmatic	Inaccurate
3 "However, the rate of increase in CI values for nanocomposites is substantially greater than that for PE."	با این حال، میزان افزایش در مقادیر شاخص کلر نانو کامپوزیت ها بسیار بیشتر از این میزان در PE است.	Lexical (Jargon), Pragmatic	Inaccurate

Table 2 presents some examples of non-translation students' performance. This group studied chemistry but they knew English. As shown in the table, pragmatic, lexical and syntactic features were studied in these translations.

Table 2. Translations by the Non-Translation (chemistry) Students

Sentence	Translation	Accuracy Feature	Accurate/Inaccurate
1 "The analytical lines obtained for elements were registered by means of a scintillation detector."	خطوط تجزیه ای بدست آمده برای عناصر ، توسط آشکارسازهای جرقه ای ثبت شد.	Lexical (Paraphrase), Pragmatic	Inaccurate
2 "As a result of this reaction, tertiary amine, olefin and acidic sites are formed on the clay layers."	در نتیجه این واکنش آمین نوع سوم، الفین و سایت های اسیدی بر روی لایه های سفالی تشکیل می شود.	Lexical (Jargon)	Accurate
3 "However, the rate of increase in CI values for nanocomposites is substantially greater than that for PE."	هر چند سرعت افزایش مقادیر شاخص کلر برای نانو کامپوزیت ها اساساً بیشتر از پلی اتیلن است.	Lexical (Jargon)	Accurate

4.1 Analysis of the research question 1

The first research question addressed the difference in the accuracy of translation by the students of translation and that by non-translation students as far as pragmatic equivalence is concerned. In order to investigate the first research hypothesis, an independent sample t-test was carried out on the dependent variable. The minimum alpha

for confirmation of the research hypotheses was .05. At first, the descriptive data of pragmatic features with respect to the two groups are demonstrated in Table 3 and the results of the t-test are reported in Table 4.

Table 3. Descriptive Statistics of Pragmatic Features

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pragmatic	Chemistry	15	.9333	.88372	.22817
	Translation	15	16.5333	2.61498	.67518

Table 4 Independent Samples T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means		95% Confidence Interval of the Difference				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pragmatic Equal variances assumed		10.837	.003	-21.889	28	.000	-15.60000	.71270	-17.05989	-14.14011
Equal variances not assumed				-21.889	17.157	.000	-15.60000	.71270	-17.10261	-14.09739

Table 3 shows that the mean of inaccuracy scores of the Translation group is higher than the mean score of the Chemistry group. But the significance of these differences needed to be checked; hence, as presented in Table 4, T-test was carried out to examine if there was a significant difference between the groups. T-test results revealed that the differences between the two groups were statistically significant, $P = .000$. Deductions can be made that chemistry students outperformed the translation students as far as the pragmatic features were concerned. Therefore, the first null hypothesis is rejected.

4.2 Analysis of the research question 2

The second research question tried to investigate if there was any significant difference between the lexico-syntactic properties of the translations across the two



groups. Subsequently, the second null hypothesis was made in reply to this question. In order to investigate the second hypothesis, two independent samples t-test was utilized. The descriptive data of students' scores in the two groups are displayed in Table 5. Afterwards, the results of the t-tests are presented in Table 6.

Table 5. Descriptive Statistics of Lexical and Syntactic Features

	Group	N	Mean	Std. Deviation	Std. Error Mean
lexical	Chemistry	15	1.7333	1.43759	.37118
	translation	15	20.7343	2.40436	.62080
syntactic	Chemistry	15	1.6343	1.03280	.26667
	Translation	15	.8000	1.01419	.26186

As reported in Table 5, the mean of lexical inaccuracy score of the chemistry group was less than the other group. On the contrary, the mean of the syntactic features was higher for the Chemistry group. Since these are inaccuracy scores, it can be concluded that Translations students were better as far as the syntactic features were concerned. But the significance of these differences needed to be checked using the results of the t-tests presented in Table 6.

Table 6. Independent Samples T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means		95% Confidence Interval of the Difference				
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
lexical	Equal variances assumed	1.327	.259	-.26268	28	.000	-19.00000	.72331	-20.48163	-17.51837
	Equal variances not assumed			-.26268	22.876	.000	-19.00000	.72331	-20.49673	-17.50327
Syntactic	Equal variances assumed	.000	1.000	2.497	28	.019	.93333	.37374	.16776	1.69891
	Equal variances not assumed			2.497	27.991	.019	.93333	.37374	.16775	1.69892

The results of the t-tests, illustrated in Table 6, showed that there were statistically significant differences between the groups regarding both syntactic and lexical features ($P = .000$). Results showed that there were significant differences between the translation accuracy of lexical features in the two groups and chemistry students outperformed translation students. However, translation students were shown to be better translators as far as syntactic features were concerned. Therefore, the second hypothesis was rejected.

5. Discussion and Conclusion

The first research question addressed the difference in the accuracy in translation by the students of translation studies and that by non-translation (chemistry) students as far as pragmatic equivalence is concerned. Results revealed that chemistry students outperformed the translation students as far as the pragmatic features were concerned. Based on the significant level of independent T-test for pragmatic features which was 0.000, there was a significant difference between translations of two groups in the translation of pragmatic feature (as it is clear in table of group statistic, mean of pragmatic feature in group one was more than group two), so first hypothesis was rejected.

One explanation might be that, the translators who studied translation studies have many problems in translation of chemistry text. Most important problem in translations of group was the translation of technical words. They could not translate the technical words for chemistry appropriately which led to problems in pragmatic feature. However, with respect to syntactic features, it is clear that they did their task well because mean of inaccurate translation of syntactic was 0.80.

The second research question tried to

investigate if there was any significant difference in the lexico-syntactic properties of the translations across the two groups. Results showed that there were significant differences between the translation accuracy of lexical features in the two groups and chemistry students outperformed translation students. However, translation students were shown to be better translators as far as syntactic features were concerned. Based on the T-test tables for lexical and syntactic features, it is seen that significant level of independent T-test was 0.000 for lexical items and 0.019 for syntactic features. So it is concluded that there were significant differences in translations of two groups in terms of translation of lexico-syntactic features.

Based on the mentioned example in Table 2, it is clear that the chemistry group translated the texts better than translation group. They translated most of the words accurately, so they did not have many problems in pragmatic features such as translation students. Problems in syntactic features were more than lexical and pragmatic features but it was not too much. Therefore, chemistry students translated lexical and pragmatic features better than translation students; while, syntactic features were translated more accurately by the translation group. One reason might be that translation students had more exposure to English language and therefore had better command of English grammar. However, chemistry students had less knowledge of English syntactic features.

All in all, it is clear that only 31% of translations by the translation specialization group were accurate, but 89% of the translations done by chemistry students were accurate. On the whole, deductions can be made that chemistry students outperformed the translation students in translating the chemistry texts. The findings of this research

can serve translation instructors in order to come up with a more objective assessment of students' translation works. Moreover, they should bear in mind that good knowledge of English language and translation strategies are not enough for translating a technical text. Students majoring in translation can also benefit from the findings of this study too. They should certainly try to improve their knowledge of technical vocabularies of the text they are going to work on. However, we suggest further research examining other specialized text such as: mathematics, engineering, history, etc.

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