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Investigating Dentistry Students' Perceived Applicability of Equivalents of Dentistry Terms Proposed by the Academy of Persian Language and Literature: A Progressing Field of Interdisciplinary Research

Farzaneh Bahadori
MA Student of Translation Studies
Department of English, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

Samad Mirza Suzani*
Assistant Professor of TEFL
Department of English, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

Abstract: *Finding Persian equivalents for scientific terms is one of the aims of Academy of Persian Language and Literature (APLL). This research aimed to probe the most frequently used Persian equivalents of dentistry terms at APLL. It also aimed to investigate the perceived adequacy, awareness and use of the registered Persian equivalents by the students of dentistry. In this vein, a questionnaire including 60 item equivalents was delivered among 69 participants including the fourth and eighth semester students of School of Dentistry, Shiraz University of Medical Sciences. Then their acceptance level was evaluated by a revised model of Hesami Tackallou and Ghanbari's four-odd taxonomies model of Cooper for the Study of Language Spread. The results indicated that the perceived adequacy, awareness and use of the registered Persian equivalents by the eighth semester students of dentistry was higher than the fourth semester students of dentistry. The findings of the study can widen the perspectives toward meeting the needs to strengthen Persian language as a scientific language.*

Key Words: *medical sciences, dentistry, language spread, equivalent, Academy of Persian Language and Literature*

Introduction

It seems safe to claim that the twentieth century could be called the age of scientific achievements and developments since great opportunities and improvements have been evolved from it. In this stream of knowledge, English language, besides all the political and social issues, has attempted to place an overruling role in scientific contributions across the sphere. Perhaps if we consider English language as "the language of modern science", it would not be that much of an exaggeration. Lots of developing countries have led to choose English as their scientific language and use it widely in their upper-graduate levels of academicians studying as a result of this overriding role. In consideration of modern science as having foreign roots, scholars and students should either use these foreign terms in their oral and written conversations, or develop new terms.

Due to verbal communication in our globalized sphere, linguistic borrowing arises. Once a foreign word is borrowed, there is a requirement to find an equivalent. More often than not, words and phrases are made or selected and thereafter presented into a speech community by individuals in society or authorized specialists in a Language Academy. In any respect, these items may be either accepted and used widely or rejected and overlooked by a speech community.

For the time being, under an equal condition, Persian language is recognized as the secondary language in the arena of scientific language, i.e. scientific contributions and its terminology is widely imported from western countries and their languages (e.g. English) into Persian. Likewise, although it seems to be more simple and straightforward to use the foreign (English) words as the equivalent for itself, in the course of time, it will have unfavorable impacts on the whole construction of the target language (Persian). Considering the foreign origin of this new science, Academy of Persian Language and Literature (henceforth, APLL) in the recent decades has attempted to present equivalences for scientific words by creating new terms. In this vein, in order to preserve our language and stay up-to-date by progression of everyday knowledge of the world, APLL has undertaken the responsibility of standardization of scientific language. Accordingly, in the present research study, it is attempted to investigate whether there is any significant difference between the perceived adequacy of Persian equivalents of dentistry terms and the respondents' educational level or not.

The objectives of the current research study are manifold: First, it is good to remember that by having a thorough relative knowledge of similarities and differences of the two languages experts in different fields may attain a better understanding of the distinct language used by other practitioners in the same field in two different languages. Thus, in this study, it is aimed to boost the level of understanding of dentistry terminology in both English and Persian. Also, it is aimed that by using methods and procedures via employing Hesami Tackallou and Ghanbari's revision of Cooper's model in comparing and contrasting the Persian equivalents of dentistry terms, having been registered in APLL, we will investigate the usage of terminology. Subsequently, it is pursued to figure out and recommend the most frequent method which can be more applicable and acceptable by the practitioners in the relevant field of study.

Based on the objectives, this study seeks to answer three questions: 1. Is there any significant difference between the fourth and eighth semester dentistry students' perceived adequacy of Persian equivalents of dentistry terms offered by APLL? 2. Is there any significant difference between the fourth and eighth semester dentistry students' awareness of Persian equivalents of dentistry terms offered by APLL? 3. Is there any significant difference between the fourth and eighth semester dentistry students' use of Persian equivalents of dentistry terms offered by APLL?

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Considering the above research questions, three hypotheses are considered: 1. There is a significant difference between the fourth and eighth semester dentistry students' perceived adequacy of Persian equivalents of dentistry terms. 2. There is a significant difference between the fourth and eighth semester dentistry students' awareness of Persian equivalents of dentistry terms. 3. There is a significant difference between the fourth and eighth semester dentistry students' use of Persian equivalents of dentistry terms.

It seems axiomatic that each language is subject to borrowing and lending terms from and to other languages. Persian and English are no exceptions either. Particularly in the area of scientific and technical terms there is widespread exchange of terminology between two languages. Thus, it is of great significance and value to pay attention to the investigation of technical terminology (here, equivalents used for dentistry terminology) and probe into the current state and use of terminology as a novel progressing field of interdisciplinary research.

Review of Literature

Based on Antoniou (2011), scientific achievements and ongoing medical progress are interconnected with the value of medical terminology, which lies in its close relationship with the history of medicine.

Nowadays, most of all persuasive medical journals are written in English, and English has turned into the chosen language at international seminars. We have crossed the threshold to the era of medical English, which bear a resemblance to the era of medical Latin in that, once more, medical doctors have selected a particular language for international communication (Wulff, 2004).

Modern medical terminology comprises words of great antiquity and others of very recent coinage. There is and can be no termination of the coining of new terms. Sometimes the inventor of the term goes for his origins to Homer or Virgil rather than to Hippocrates or Galen (Pepper, 1949).

Dofka (2013) in his recent observation and study of dental terminology expressed his attitude about it in that dental terminology includes the study of words and terms connected explicitly to the dental sciences.

We find one of the most remote references to written translations in the cities of Ancient Mesopotamia, where medical, chemical, mathematical, and astrological knowledge was assembled, structured and stored in cuneiform symbols written on clay tablets, some of which included information in different languages such as Ugaritic, Akkadian, Sumerian, Hittite, and Hurrian. Based on Montalt (2007), "in consideration of these archaeological findings, it is evident that an intense translation activity existed long before paper and the alphabet were invented" (p. 15). According to Fischbach (1998), "whilst medical dictionaries have to select

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what to remove from previous editions as no longer beneficial and what to add from the whirlpool of current research language, the translator has to choose what is worth understanding and memorizing out of the large mass of materials" (p. 14).

There is a mutual discussion between translators regarding the person who should translate medical texts. "It is professional translators who specialize in medical texts whom I would consider as 'medical translators' " (in Hauswald, 2000). O'Neill (1998, p. 80) proceeds: "Good medical translation can be done by both medical professionals and medically knowledgeable linguists."

The spread of the languages of the European colonial powers into all the continents and "the spread of nationwide languages at the cost of minority languages are perhaps principal among the linguistic progressions of our age" (Hill, 1984, p. 81). Language spread, as Alatis and Tucker define (1979, p. 24), has been described as "an escalation, beyond time, in the ratio of a communications system that accepts a specified language diversity for a specified communicative purpose." There are many such models, the most well-known, perhaps being the spread of Greek, Latin, and Arabic in the territories connected with those languages (Brosnahan, Spencer, 1963). However, there are many examples taking place later, as, for instance, Russian in the Soviet Union (Lewis, 1972), Swahili in eastern Africa (Whiteley, 1969; Mazrui, Zirimu, Spolsky, Cooper 1978), Amharic in Ethiopia (Cooper, 1978), Neomelanesian in Papua New Guinea (Wurm, 1971), Malay in southeast Asia (Alisjahbana 1971), and English globally (Fishman, Cooper, Conrad, 1977). Fishman (1972) has explained language shift as an alteration in the language usage patterns of the people that use above one language diversity. Once one language develops at the cost of another, researches of language spread concentrate on the polishing language (Fishman, 1977). Swahili's spread as a lingua franca for trade all over the eastern Africa seems not to have substituted existing lingua franca. Definitely, nothing serves to stop the spread of a lingua franca more certainly than the presence of a competing lingua franca (Greenberg, 1965). Hymes (1961) proposed that general development theory might be applied to the study of language spread.

Regarding to the task of Academy of Persian Language and Literature, Sadeghi (2001) elucidates "The main task of the department of word-selection in APLL is to find Persian equivalents for foreign words used both in common language and scientific writings." Zomorrodian (2003) asserts that if people have a conceptual image of an assumed word, the word would be simpler to accept. For example, observe the Persian words xodnevis 'fountain pen', xodkaaar 'biro'. Shokouhi and Hossein-Nia (1993) indicate that for words to be selected, they should be euphonious, compatible with grammar. Correspondingly, Shari'at (1993) declares about euphony "a pleasing or harmonious sequence of sounds".

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Methodology

The participants of this study were 69 male and female students of dentistry studying at School of Dentistry Shiraz University of Medical Sciences. For selection of the participants, we used convenience sampling. Thirty five of the participants were male and thirty two were female. The participants aged from 19 to 34. 33 students were studying in the fourth semester of dentistry and 36 students were studying in the eighth semester of dentistry.

In order to carry out the research, a questionnaire was adopted and administered which had already been developed to examine the terminology of genetics and biotechnology in 2012. The questionnaire had been developed based on Hesami Tackallou and Ghanbari's revision of four-odd taxonomies of Cooper's model for the study of language spread. In fact, it consisted of 60 randomly selected items from among 360 approved equivalents of dentistry terms in the APLL. The questionnaire consisted of two tables: the first table required the needful information about gender, age and the degree of participants; the second table included the questions and each question had 3 subcategories: (a) foreign term, (b) Persian equivalent and (c) definition. The format of the test was multiple-choice. In order to ensure the validity of the questionnaire items, the confirmation of two experts was sought: one in the field (of dentistry) and another in the field of language terminology and linguistic equivalence. Based on the feedbacks received, certain items were revised and others deleted, to enhance the content validity of the questionnaire. The reliability of this questionnaire was calculated through Cronbach's alpha. The index calculated for all of the items was above 0.7 which indicated that the reliability of questionnaire items was acceptable.

In this study, Hesami Tackallou and Ghanbari's (2012) revision of a model by Cooper (1989) on the study of new terms was applied to investigate the usage of some dentistry approved terms of APLL based on a random sample of the School of Dentistry, Shiraz University of Medical Sciences. The design of this study was quantitative. Cooper's model (1989) was designed for appraising and study of new terms in the second language. He proposed four types of adoption with respect to communicative innovations: awareness, evaluation, knowledge, and usage. (Cooper, 1989). The mentioned four taxonomies' model of Cooper (1989); was revised by Hesami Tackallou and Ghanbari (2012); in which the choices were constructed as: 1. Doesn't know: When the asked person doesn't know the selected equivalent and even doesn't heard of that; this is the lowermost rank of acceptance. 2. Knows but doesn't agree: Though the asked person knows the selected equivalent and is aware of its selecting, he does not agree with it. 3. Agrees, but doesn't use: Whereas the asked person knows the selected equivalent and is aware of its selecting and agrees with it, due to some reasons he is not practicing it in his works. 4. Uses but doesn't recommend: The asked person does not recommend the selected equivalent to his apprentices, though he knows it, agrees with it and even use it in scientific applications. 5. Recommends: When the asked person knows the selected equivalent, agrees with it, uses it in

scientific applications and also recommends it to his colleagues; this is the uppermost rank of acceptance (Hesami Tackallou, Ghanbari 2012, p. 39).

In order to control the performance of the participants, we considered the standard time for the questionnaire around 25 minutes. About 80 questionnaires were given to students of fourth and eighth semester of dentistry (based on the accessibility) on the spring semester of 1395 (June, 2016) and they were collected during 2 weeks. Some of the questionnaires were discarded for different reasons such as too many similar answers or unanswered items. In order to analyze the data, the 24th version of Statistical Package for the Social Sciences (SPSS) software was used.

Findings

To verify the first three hypothesis, Chi-Square Test was used. It should be noted that the participants were divided into three groups based on their perceived adequacy of Persian equivalents of dentistry items: (a) low perceived adequacy, (b) moderate perceived adequacy and (c) high perceived adequacy. In order to classify the participants and assign numbers to each group, with regard to 60 equivalent items of the questionnaire, the scores between 0 to 13 were considered as having low perceived adequacy, the scores between 14 to 27 were considered as having moderate perceived adequacy and, the scores between 28 to 60 were considered as having high perceived adequacy. The results are presented in the following tables.

Table :1

Perceived Adequacy and Educational Level Cross Tab

		Low Perceived Adequacy	Moderate Perceived Adequacy	High Perceived Adequacy	Total
Educational Level	Fourth Semester	6	17	10	33
	Eighth Semester	4	11	21	36
Total		10	28	31	69

Table :2

Chi-Square Tests

	Frequency of Observed N	Expected N	Residual
1.00	10	15.5	-5.5
2.00	21	15.5	5.5
Total	31		
Chi-Square		3.903	
Df		1	

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Asymp. Sig.	.048

Based on the criterion, Chi-Square Test for goodness of fit was applied in which only the frequency of high perceived adequacy groups were taken into account. Based on the findings of the study, Chi-Square statistics showed that there is a significant difference between the fourth and eighth semester dentistry students' perceived adequacy of Persian equivalents of dentistry terms (Chi-Square=3.903, Asymp. Sig= .048) consequently, the study hypothesis has been approved.

The method which was applied to analyze the data of the second question was the same as R.Q.1. The results are shown in Table: 3 and Table: 4.

Table :3

Awareness and Educational Level Cross Tab

		Low Awareness	Moderate Awareness	High Awareness	Total
Educational Level	Fourth Semester	6	20	6	32
	Eighth Semester	4	17	16	36
Total		10	37	22	69

Table :4

Chi-Square Tests

	Frequency of Observed N	Expected N	Residual
Four semester	6	11.0	-5.0
Eight semester	16	11.0	5.0
Total	22		
Chi-Square		4.545[a]	
Df		1	
Asymp. Sig.		.033	

Based on the findings of the study, Chi-Square statistics showed that there is a significant difference between the fourth and eighth semester dentistry students' awareness of Persian equivalents of dentistry terms (Chi-Square=5.545, Asymp. Sig= .033); therefore, the study hypothesis has been approved.

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The method which was applied to analyze the data of the third question was the same as R.Q.1 and R.Q.2. The results are presented in the following tables.

Table :5

Use and Educational Level Cross Tab

		Low Use	Moderate Use	High Use	Total
Educational Level	Fourth Semester	11	17	5	33
	Eighth Semester	5	17	14	36
Total		16	34	19	69

Table :6

Chi-Square Tests

	Frequency of Observed N	Expected N	Residual
Four semester	5	9.5	-4.5
Eight semester	14	9.5	4.5
Total	19		
Chi-Square		4.263[a]	
Df		1	
Asymp. Sig.		.039	

The results of Chi-Square statistics in this case showed that there is a significant difference between the fourth and eighth semester dentistry students' use of Persian equivalents of dentistry terms (Chi-Square=4.263, Asymp. Sig= .039); thus, the study hypothesis has been approved.

Conclusion

We came up with the conclusion that the higher the educational level of dentistry students, the more their perceived adequacy, awareness, and use of the registered Persian equivalent will be. Accordingly, in the present study the results showed that the perceived adequacy, awareness, and use of the registered Persian equivalent in the eighth semester students of dentistry was higher than the fourth semester students of dentistry.

Suggestions and Recommendations

The findings of this study can make the researchers, translators, and experts aware of the most frequently used Persian equivalents of dentistry terms in APLL; and help them in application or selection of the best equivalent. Being exposed to a variety of related communities, the percentage of usage of Persian equivalents will probably increase.

In further researches, a larger number of equivalents could be placed in the questionnaire out of the large corpus; in order to generalize the study, a greater number of participants could be used from the same place or different Schools of Dentistry in the same province as well as some other provinces at the same time; and, participants could be selected from higher specialists' levels.

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