

2014

BioTechnology

An Indian Journal

FULL PAPER

BTAIJ, 10(19), 2014 [11227-11231]

Comparative study of traditional medical English translation and computer aided medical English translation

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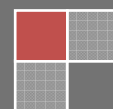
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ABSTRACT

There are a number of defects in the traditional medical English translation method, which mainly lies in the greater complexity of the system software itself, thus generating corresponding impact on the operability in medical English translation process. Nevertheless, building computer-aided medical English translation system can be effectively avoided by adjusting the disadvantage, so as to effectively collect and organize information translated by users. It can eventually make effective analysis, which enables the maximum satisfaction for demand direction, and also accomplishes the ultimate goal of simplified operating process. This cannot be achieved by traditional medical English translation process, and at the same time the advancement and innovation of computer-aided medical English translation system can be manifested. In the process of study and discussion, this study has made corresponding discussion primarily on the characteristics and disadvantages of existing translation software, thereby conducting specific analysis of concrete embodiment of its defects; combined with computer-aided translation system software design guided by study in medical work, specific exploration is carried out to make effective analysis of its tool and its specific levels of design, thus making construction process of computer-aided translation system more satisfactory. The main goal of the research thought is to provide a strong theoretical support to the efficient optimization of software system for computer aided medical English translation, which also can improve the rationality of the medical English translation and actively promote professional produce.

KEYWORDS

Traditional medical english translation; Computer-aided; System software; Comparative study.



INTRODUCTION

At present, in the process of social development, the field and scope related to the medical English have been expanded unceasingly, whereas traditional medical English translation means cannot better adapt the developmental trend of the times any longer. For computer-aided medical English translation, the accuracy and the effectiveness of the translation process can be enhanced constantly through effectively meeting the operating process and immediate needs of users. This study makes comparative study of traditional and modern computer-aided medical English translation mainly based on the characteristics and disadvantages of existing translation software, as well as software design of computer-aided translation system guided by study in medical work, in which the advantages and disadvantages can be fully embodied, with a hope to provide a solid foundation of theory and practice for efficacious launch of continuous study in the future.

FEATURES AND DEFECTS OF EXISTING TRANSLATION SOFTWARE

In today's computer-aided translation system, it can be manifested by dividing into two main categories; the first kind is Trados translation software, computer-aided translation system, translation software and display control software; while the second is Google English translation software which has extensive usage and wider population. In the process of study and exposition, the study has conducted effective explanations through computer-aided translation system, in which it has been integrated with Google translation as a whole.

The main function of computer-aided translation system features translation memory, and both translation memory bank and corpus for terminology collection are equipped within it^[1]. From viewpoint of medical translation, it has a great many terminologies, with striking capability, the terminology corpus of computer-aided translation system in itself is powerful. However, for medical English translation process, when the memory capacity of computer aided translation system reaches to a certain extent, it would become increasingly powerful in its characteristics and functions of automatic translation, which makes the function of machine translation gradually implemented. Despite of this, there exist some shortcomings and insufficiencies in the software of this system. Namely, in the initial use process, the number of terminology collected in the internal memory of medical terminology in memory is zero. It makes effective addition of related terminology necessary in application process. Nevertheless, as to translation process of individuals, it is hard to form mass memory effectively, thus the pertinence of computer aided translation system software application is correspondingly limited. Furthermore, as for computer software translation systems represented by Trados translation software, in the process of translation, its translation for notes and semasiography is relatively accurate. So it is, it is also unable to translate them into Chinese, which makes translation software has certain one-sidedness also with insignificant application fields.

In recent few years, Google statistics translation has become the main tool of medical English translation, which has immense effect on the development of translation, its translation results achieving stringent specifications, with more significant fruits. But the work method and working principle of Google statistics translator mainly lies in two aspects:^[2]. Statistical model can firstly be effectively built, and thereby translation rules and algorithm can be established, which enables corpus of medical English translation more close to the rationalization, and forms the mutual unification with human translation, thus effectively improving the efficiency of medical English translation. In this process, however, Google statistical translation system is a translation tool based on semasiography, and from the angle of practical application, the tool is more suitable for the translation process of semasiography, while due to its algorithm, the quality of the medical English translation is not capable of achieving the highest requirements.

From the above discussion, description about advantages of the two kinds of computer-aided medical English translation software are made respectively; but for people like Shuttleworth, they maintain that translation memory and machine translation can be effectively combined, which has become the future development trend of medical English translation; in the eyes of Melby, the developmental trend of medical English translation lies in mutually integrated development of translation memory and machine translation, further effectively establishing a professional translation system, thus enabling bilingual corpus to be available for the translation process.

COMPUTER-AIDED TRANSLATION SYSTEM SOFTWARE DESIGN GUIDED BY STUDY IN MEDICAL WORK

Two basic tools of study in medical work

Study method at work refers to carry out scientific analysis and measurement of working method, operation process and operation time, thereby to develop a scientific and reasonable operation standard and time quota, thus standardizing all operations, thus improving labor productivity and economic benefits. Work study is the most important basic technologies in IE theoretical system.

Computer-aided translation system software design guided by study in medical work

From the elements of user experience, Jesse James Garret puts forward 5 levels of information system design, as shown in TABLE 1. When developing computer-aided translation system software, we have applied the 5 levels of the design method.

TABLE 1 : System design level and content

Presentation layer	Visual design	
Framework layer	Interface design	Navigation design
Structure layer	Information design	Information structure
Scope layer	interactive design	Content demand
Strategy layer	Functional specification	
	Users demand	
	System target	

Strategy layer

In the process of system design, effective analysis can be conducted in its strategic level mainly based on the purpose of users and system building targets, in which positive impact on medical English translation can be generated, thus eventually being able to reach the real needs of users. From this aspect, it is easy to see the main difference existed in computer-aided translation system and traditional translation process. Translation memory as well as terminology bank can be effectively established combining with system building process, thereof constantly elevating the professionalism of the translation system, thus eventually accurate information analysis will be formed in medical English translation process, and terminology memory can be carried through according to demand direction of users^[3]. Such medical English translation process can achieve a more comprehensive goal, so that computer-aided translation system for medical English can be constantly updated, and specific analysis conclusions are as follows:

Why: For users' purpose of the system, it should be analyzed effectively. However, from the psychology angle, there is usually an appropriate motivation as a driver in anything which people have to do, thus after understanding users specific motivation, it is useful to build system on an effective basis, which makes the system more widely applauded. In the system designing process, the initial phase is to effectively explore the translation process of medical literature, and as the rapid development of times, as well as the gradual increase of medical literature, communication of scientific academic achievements in medical science is increasingly widespread, in which higher requirements have been put forward concerned with medical literature translation. From this perspective, it is extremely urgent to strengthen the construction of computer-aided translation system, which further makes the system get better penetration in the field of medical studies.

What: In the application process of the system, what users are desired to get on earth should be further acquired, and the primary goal of the system and design is to translate the Chinese into professional English with relatively high quality, which is also the ultimate goal for users to achieve in this very application process.

Who: Target users should be determined in computer-aided translation system. In the process of system research and development, target users should be effectively located, so that the design process of system is correspondingly pertinent, while the target users of computer-aided translation system are mainly identified as medical workers and relevant scholars.

Where: Users knowledge about the application background of this system ought to be effectively obtained. In the process of analyzing users' information, effective application of computer-aided translation system can be carried out through the Internet^[4].

When: It represents the time when the system is necessary for users. However, in the process of medical translation, information system of translation in most cases is employed when in emergency, thus in terms of system, users' barriers existed can be effectively conveyed, which enables auxiliary users to offer effective decisions in medical translation.

How: Users' operating habits can be accurately defined. In the process of medical English translation, corresponding application to the system can be conducted based on knowledge and experience in most cases, in which effective prediction of users habits can merely be made by the system, so as to make a more successful process of translation system application, and meanwhile to effectively provide positive reinforcement of professional translation material for medical researchers.

From the analysis of above information, relevant discussion on building of mental model in computer-aided translation system for medical English, and on its basis, the application of the model and the effective design of the system can be correspondingly coincided.(details as shown in TABLE 2).

Scope layer

Scope layer focuses on corresponding study mainly based on contents and system function that ought to be offered to users in the process of system building. With the rapid development of science and technology, users' requirements of medical English translation system have been constantly improved, and in turn system information collection, processing and analysis process can also be constantly upgraded in the process. However, in upgrading process of the system information, thinking mode employed often is addition thinking, which continuously extend system function, while its constantly increased complexity leads to certain difficulties in the process of medical English translation, and thus effect or impact generated by such design and upgrade of the system is at cross purposes. Instead, in the information system upgrading process of computer-aided translation system, should follow subtraction thinking, in which the outdated system and systems of smaller user demands are effectively decreased, so as to satisfy the new needs of wider medical workers and relevant scholars.

TABLE 2 : Comparison among corptrans system and trados and google

	CorpTrans	Trados	Google
Predominant translation direction	From Chinese to English English-Chinese in medicine at initial stage bilingual parallel corpus(sentence pairs bank and terminology bank included)	From English to Chinese	Inter-translation between note and script
Database foundation	Individual or group translation of great professionalism	Built by users themselves(sentence pairs bank is equal to memory bank and terminology bank)	generic bilingual corpus
Appropriate targets	Individual or group translation of great professionalism	group	Individual or group translation of great professionalism
Translation content		translation of great professionalism	

In the process of medical research, its English translation process should fully embody the new method, in order to effectively innovate the traditional translation method; the main procedure is firstly to cancel the corresponding translation files, then to combine and make comprehensive analysis of literature, thereafter to rearrange its translation literature, finally to effectively simplify the translation process. The four technological processes are usually referred to as ECRS technology^[5]. However, through corresponding investigation and analysis of users, to cancel parts of relatively backward function is carried out in an effective manner, and relevant merging and cleaning should be achieved, eventually to rearrange control sequence and to regroup the literature materials, thus reaching the ultimate goal of simplified and scientific operation process.

As to existed functions of computer-aided translation at present, a variety of function conditions for users' choice are available, for instance, in Google translation process, effectively statistical translation can be carried out to corpus of the translation, and so forth; nevertheless, these translation function is unable to play a impetus role in medical English translation, which still has certain discrepancy with the practical needs of social development. For ECRS technology, however, the cancellation indicates that the outdated translation direction of English-Chinese has not been drawn too much attention, while in terms of it, the primary goal is to effectively solve the specific problems and deficiencies in translation of Chinese into English ; its merging and rearrangement are effective building for bilingual parallel corpus, which makes its way to innovate the translation methods ; and simplification is to simplify its operating process, thereby to achieve the ultimate goal of elevating degree of professionalism of medical English translation, which forms striking contrast to traditional Trados translation..

Structure layer

The so-called structure layer consists of the interactive design of system and the architecture of basic information. And among it, interactive design mainly analyzes behaviors which may be produced by users on an effective basis, defining cooperative process of the system and the response method as the main behavior of users. As to this, the effective analysis of unreasonable operation can be conducted through corresponding analysis diagram, with proper deletion, thus enabling users' application process to maintain a high level of success.

Also, computer-aided translation system has made effective analysis of traditional translation method, conducting effective study on the necessity of its existence, thereby making results of the medical English translation by translation system keep a relatively high degree of professionalism, thus achieving the ultimate purpose of effective simplification^[6]. On this basis, in the building process of the system, medical English translation chunks are appropriately matched based on computer-aided translation strategies of low sentence level, which makes chunk level correspond with each other when there is a mismatch, and this offers selection condition of medical English translation, as shown in Figure 1.

Framework layer

The framework layer includes interface design, navigation design, and information design. Interface design mainly determines the location of button, input box and other interface controls; navigation design mainly provide clear direction; information design mainly aims to provide users with efficient and clear information.

Since computer-aided translation system follows the very principle of framework layer, adopting the simplicity strategy when the interace layout is considered, users can more easily operate the system. Navigation design order follows the reading habits after the first and then, from left to right, so that users can consciously use button for translation operation. While information design follows navigation design, with necessary information automatically jumped out^[7].

Presentation layer

The presentation layer includes visual design, mainly to present a consistent, clear and beautiful interface for users. For instance, the design of color has to ensure the harmony of different interfaces while attracting the attention of users. At the same time, it is avoided to abuse the color, lest unnecessary visual interference come about. Text design should be as concise as possible on the condition that system information is clearly conveyed.

The above analysis is the contrastive study process based on traditional medicine English translation and computer-aided medical English translation, in which deficiencies existed in traditional medicine English translation are effectively cited, and advantages and innovative ideas in building computer-aided medical English translation system are analyzed, with a hope to be able to pose a positive impact on development of medical English translation of the era.

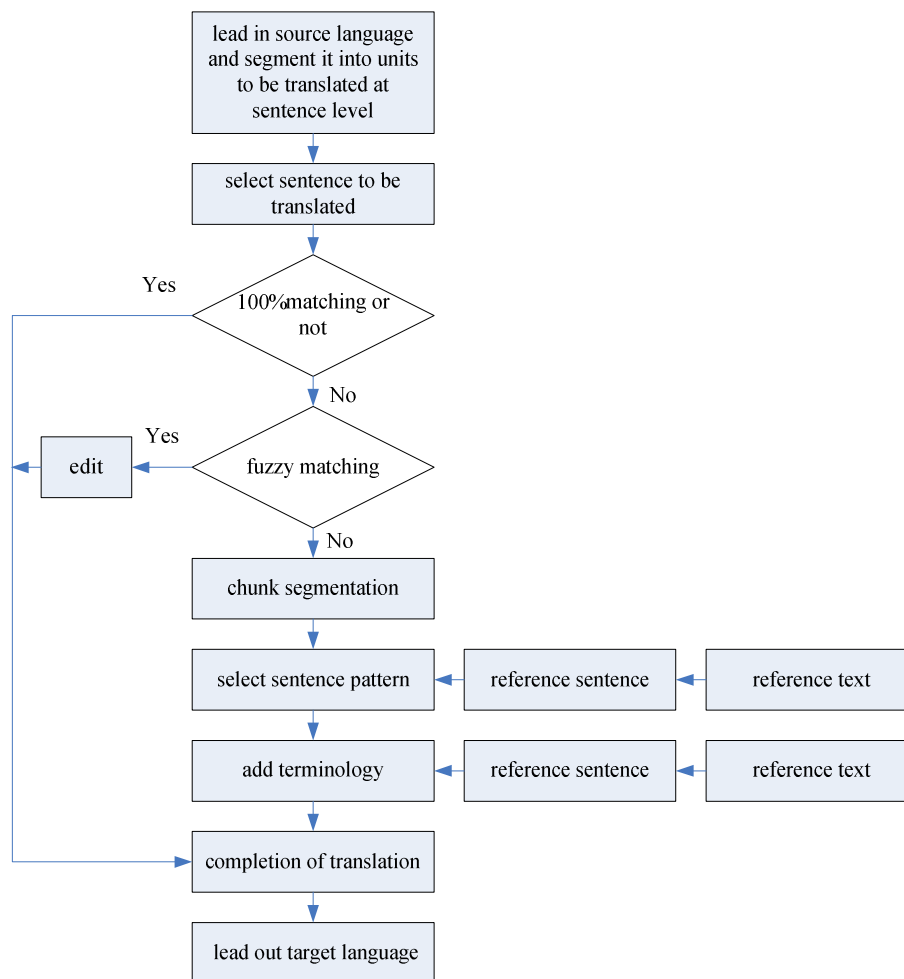


Figure 1 : Corp trans system design process

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