Medical Students' Internationalization by Using Machine Translation

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Abstract

General foreign language education in the medical faculties was based on the concept of learning a foreign language and then using it. Despite the fact that university language education focuses on only English, the results were not as promising as expected. In other words, there was a limit to bottom-up teaching. We have decided to change our perspective and develop lessons with a top-down approach with the goal of fostering global interest (cultivating international curiosity). The idea of language education using machine translation is to learn and use a foreign language at the same time. By using machine translation, it is possible to shift the traditional learning method of "learn and then use" to "learn after becoming able to use." The sense of "becoming able to use" will also be useful for fostering students' motivation. Depending on how it is used, machine translation can be useful for learning a foreign language. Normally, it takes a long time to learn English and then be able to read medical journals without difficulty. However, effective use of machine translation will enable students to read the latest articles and data from a variety of medical texts and reviews. These abilities will ultimately contribute to the development of medicine as well.

Keywords

machine translation, medical students, internationalization, multiple languages, globalism

▪ Preface : Confusion of non-native English teachers

Eiichiro Sumida, a fellow at the National Institute of Information and Communications Technology (NICT) and a leading researcher in machine translation in Japan, has announced that "simultaneous interpretation will be automated by 2025." (2022). This announcement will have a significant impact on English teachers, who may lose their jobs. Sumida also states that the evolution of machine translation was limited to people in the IT community and universities who were interested in the accuracy of translation when German company DeepL's instructional translation arrived in Japan in 2020. Only people in the translation industry were astonished by the improvements in Google's automated translation in 2016. Prior to 2015, automated translation was rarely of interest to the public.

·1 Introduction

Kanagawa Dental University and Dokkyo Medical University devised an effective speech learning method using machine translation. It is possible to shift from the conventional learning method of "learn and then use" to "learn after becoming able to use". These abilities will ultimately contribute to the development of medical care.

In this study, we will provide machine translation instruction to improve the communicative competence of foreign language learners at medical universities, to clarify what difficulties they face in doing so, and to help learners learn how to use machine translation effectively. Due to low autonomy, even learners who are highly motivated to contribute to society in the medical field in the future may not have enough time to study to develop the language skills required by global society beyond the study of medical subjects. Since both Kanagawa Dental University and Dokkyo Medical University are located in international regions, it is essential for medical students to build rapport with patients in English during hospital training. Therefore, both universities provide classes to enhance the communication skills necessary for rapport-building by incorporating information technology called machine translation into foreign language education. We would like to create an instruction manual in multiple languages for medical communication using machine translation by having students learn how to convert English into other languages (Chinese and Korean) using machine translation.

▪2 Objectives for research

▪2. 1 To internationalize community-based medicine

The significance of this study is that it will be useful for teaching communication in multiple languages at medical universities in Japan. With the development of information technology, foreign language education in Japan is facing a major turning point. Many foreign language educators are trying to create a manual to overcome this turning point, and Kanagawa Dental University and Dokkyo Medical University have plans to do so. Currently, an AI-based automatic translation technology called "Pocket Talk" is used in various industries. In the field of medicine, the use of AI and robots is further advancing the sophistication of medical care, and doctors are expected to play the role of a link between medicine and patients.

▪2. 2 Machine translation using English is effective for multiple languages

In medical universities in Japan, the heavy emphasis on specialized fields in relation to the total number of class hours makes it difficult to have the autonomy of foreign language learning. Until now, foreign language education has been based on the concept of using a foreign language after acquiring it. However, the language education using machine translation in this study is based on the idea of learning a foreign language and using a foreign language at the same time. By using machine translation, students learn English and are exposed to other languages (Chinese, Korean, etc.). By "exposure," we do not mean that the teacher will teach multiple languages in class, but rather that the students will understand how to learn and use multiple languages on their own through machine translation. Machine translation is currently evolving, and will continue to evolve. By mastering this machine, students will be able to communicate not only in English, but also in many other foreign languages. In a globalized society, it will be advantageous to be able to communicate with many people in the medical field.

▪2. 3 Machine translation is necessary for medical universities to become globalized.

There are already many curriculum studies on language learners. However, there are no studies that link language learning using machine translation to the internationalization of healthcare, specifically in the medical field. Therefore, in this study, using data from questionnaires and achievement tests on machine translation, Kanagawa Dental College and Dokkyo Medical University will collaborate to devise a lesson plan to improve learning for the globalization of medicine and to create a manual for teaching multiple languages. We would like to make the manual widely available for use in language education and in training at medical universities. Since most classes at medical universities are for national examinations for doctors and the number of classes does not allow students to study English, it will be essential to use machine translation for handling large amounts of information. The importance of this study is suggested in the above points.

▪3 Academic background of this research
—academic questions that form the core of the research topic—

There is a time limit to what can be taught in the classroom. In medical universities, in particular, students must focus on specialized subjects in preparation for the national examinations, which means that they cannot devote much time to language learning. However, as medicine has become increasingly globalized in recent years, it is necessary to quickly absorb academic knowledge from abroad, make it the national standard, and develop it.

To solve these problems, autonomy in language learning is necessary. According to Holec (1979), who was the first to relate learner autonomy to language learning, language learners' autonomy is defined as the ability to take responsibility for their own language learning. According to Komorowska (2014), autonomy does not exist at birth and must be systematically cultivated. The stage of full autonomous competence is, according to Noonan (1997), the stage of taking responsibility for one's own learning beyond the formal curriculum content of schools and other institutions. According to Komorowska, learning autonomy is a process that inevitably occurs when the learner incorporates new knowledge into already existing knowledge; language learning autonomy encourages language learning outside the classroom to supplement what is lacking in language learning in the classroom, and autonomy promotes a learning style that suits each individual learner.

In order to foster learners' autonomy, it will be necessary to change the form of the classroom, and this will require a shift from the traditional learner-controlled model to a learner-supported model. Cohen (1998) suggests that for learner support, diagnosing the learner and coordinating the learning of each learner is paramount. As Noonan points out above, there will be an urgent need to increase the autonomy of language learners so that they can improve their English language skills outside of the school curriculum in order to respond to globalization.

Currently, due to the emphasis on science-related subjects required for admission to medical universities, some students have the perception that languages are only for university entrance exams. In addition, inadequate guidance to enhance the autonomy of English language learners in secondary schools has resulted in low learner autonomy. As a result, many university students do not develop their English language skills beyond the university entrance examinations. In addition, a small number of students, even those who like learning English, study English in order to score points on the exam, because they need TOEIC when they find a job.

The reality is that they do not gain English proficiency beyond what they had at the time of entrance examination. In other words, these phenomena explain the current situation in which many Japanese who can use English are not being trained to do so, even if their English proficiency on entrance exams is high. Therefore, this research on the use of automatic translation to enhance learner autonomy may contribute to the development of internationalized medicine in the future.

▪4 Related domestic and international research and the position of this study

Conventional foreign language education was based on the concept of learning a foreign language and then using it. Despite the abolition of the second language requirement at universities and the focus on English, the results were not as promising as expected. In other words, we thought that there was a limit to bottom-up teaching. We decided to change our perspective and develop lessons with a top-down motivation from the goal of fostering global interest (cultivating international curiosity), given the current situation in which not only English but also various other languages, such as Chinese, are used worldwide. The idea of language education using machine translation is to learn a foreign language and use a foreign language at the same time. By using machine translation, it is possible to shift the traditional learning method of "learn and then use" to "learn after becoming able to use". The feeling of "being able to use" will also help to elicit a sense of competence in students. Various studies have shown that using machine translation to translate Japanese into English is not useful for learning English if you write a long sentence in Japanese and have the machine translate the whole sentence, but if we use machine translation while thinking about Japanese sentences one by one, it can be useful enough to improve our English ability.

▪5 Approach

To analyze the results of a survey on machine translation conducted with a total of 328 university students at four universities:

   Kanagawa Dental University,
   Waseda University,
  Chiba University of commerce,
  Tokyo Seitoku University.

▪6 Methods

We surveyed 328 first-year students at four Universities about the translation sites they frequently use. (Multiple responses were available.)

Kanagawa Dental University=KDU   *N*= 96   (Instructor: SAKAI Shien, IDENO Yukiko)
Chiba University of Commerce=CYC   *N*=70   (Instructor: SAKAI Shien)
Tokyo Seitoku University=TSU   *N*=125 (Instructor: TSUCHIYA Kagari)
Waseda University=WASEDA   *N*=37   (Instructor: SAKAI Shien)
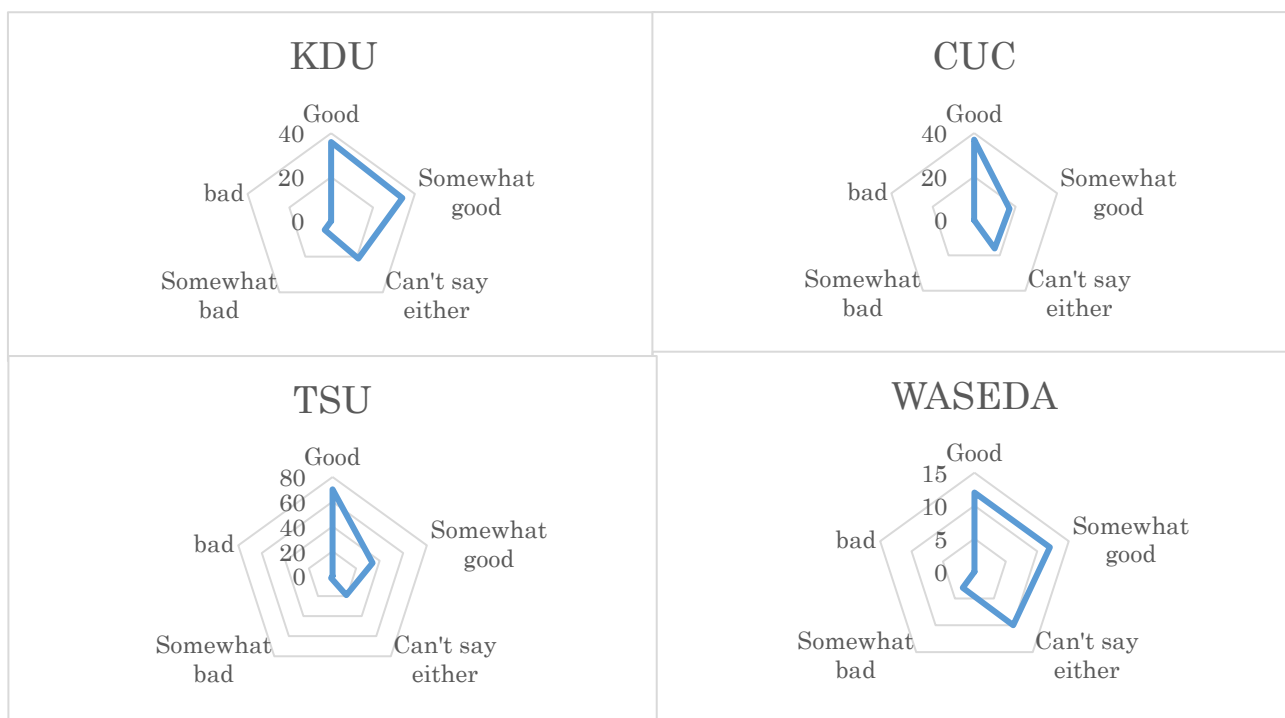
▪7 Results

There were no significant differences among the four universities in what they thought of machine translation. It seems that they use automatic translation in the same way as they use a computer or smartphone, and they accept it smoothly. However, the overall distribution is skewed to the right because this data is from a survey conducted at a university where faculty members recognize the advantages of automatic translation and actively encourage students to use the specifications. Considering the fact that the students in Table 1 use automatic translation in some form or another, it is possible that the key to English education will be to recognize the effective use of automatic translation and to use it efficiently in the classroom in the future.

Traditionally, the idea that using English only after an individual has achieved a certain level of proficiency in English and has a certain level of operational ability is more popular. While this may have been a good method in the days of traditional English communication, we are now entering a new era in Japan in which we are expected to interact not only with people from English-speaking countries, but also with people from various cultures. In such an era, it will not be possible to keep up with the demand if we think that we can only

use English after we have improved our individual proficiency in English and have a certain level of operational ability. Therefore, this study will use machine translation to enable students to handle English materials and data in real time. This capability will contribute to the internationalization of medicine.

▪8 Future prospect
Using machine translation to enable multilingualism from English

We would like medical students to use not only English but also other languages by using a translation function, which is very different from the foreign language education they received when they were in a junior high school and a high school. Conventionally, teachers thought teaching method should promote an individual's proficiency in English and students could use English only after he or she has acquired a certain level of language skill. While this opinion may have been right in traditional English communication, we are now entering an era in Japan where we are expected to interact not only with people from English-speaking countries, but also with people from various cultures, especially Asian countries. In such an era, it is impossible to think that we can only use English after we have improved our individual proficiency in English and have a certain level of operational ability. Therefore, this study aims that students can learn simple conversation in foreign languages other than English by using machine translation. We would also like to create the first manual for teaching multiple languages for medical universities throughout Japan.

※ This paper is based on 2022 PAAL Poster Presentation (IDENO, SAKAMOTO)

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