Exploring the Practice of Teaching English Professional Translation Using IoT and Cloud Computing Multimedia Assistance

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With the development of physical networks and large-scale data processing technologies, schools and classrooms in major universities are equipped with multimedia facilities and dedicated multimedia classrooms. It requires students to have a complete theoretical knowledge and also to apply it in practice. Multimedia-assisted teaching meets the requirements of education modernization, but teachers must pay attention to changing the traditional teaching mode and students’ reliance on online teaching software, as well as students’ actual teaching ability, enriching teaching contents and conditions and improving learning assessment. This paper compares and applies the English teaching syllabus based on intranet and multimedia proposed in this paper to students of English translation in a university. It is concluded that the application of the curriculum has greatly improved students’ learning performance with an average score of 10.46, which shows the importance of the foundation for improving the efficiency of English teaching.

1. Introduction

The Teaching Guideline for Undergraduate Translation Majors in General Higher Education Schools clearly states that translation majors should cultivate composite talents who are competent in language services such as interpretation and translation in various industries and international communication [1]. According to the requirements for translation services adopted and published by the China Translation Institute in 2016, translators must have certain technical skills, including the use of tools and information technology (IT) to support the whole translation process [2]. Currently, major universities are breaking the traditional “paper + pen” translation model by introducing computer-assisted translation software and establishing translation studios to meet students’ personal needs, learning needs, and future career needs. Achieving this goal depends not only on the linguistic, textual, and cultural potential but also on the ability and skills to process information [3].

Multimedia-assisted professional translation in English language teaching has certain advantages. First of all, it enriches the teaching content [4]. At present, the teaching equipment of English simultaneous interpretation in colleges and universities is basically perfect, and the classroom multimedia is getting richer. Second, it promotes the initiative of learning. The improvement of multimedia-aided teaching equipment not only makes the teaching content richer but also promotes the main position of students in the classroom. The teacher is the guide in the classroom; the use of multimedia-assisted teaching can be less “talk” and more feasible teaching requirements.

However, at this new stage, there are a series of problems with the use of this technology. First, students are too dependent on multimedia aids. Most English majors rely on learning software such as computers and cell phones, and students have easier access to learning software and are more dependent on it. Second, the teaching mode is backward. In the teaching process, great importance is attached to putting the main position of teaching on the students, but in the actual course, students also involuntarily rely on the teacher, leading to the evolution of the classroom into a traditional model [5].
Since the 1970s, intelligent learning systems have become increasingly important [6]. In particular, the United States and other Western countries paid special attention to the development of intelligent education systems. Due to the developments at that time, intelligent learning systems in the United States were mainly oriented towards physics, chemistry, and other subjects. Smart education systems in schools are being implemented gradually with great success [7]. With the application of computer multimedia technology, English teaching has become more informative in terms of teaching format and content, which has attracted the attention of students [8-10]. By reproducing audio materials through multimedia, this graphic form stimulates students’ interest in learning and improves their logical thinking skills and independent learning ability.

2. Related Work

At present, the orientation of English major undergraduate translation courses in China is mostly discussed around “translation teaching” and “teaching translation,” and domestic scholars have formed two distinctive views. For example, it is considered that the translation courses of foreign language majors belong to “translation teaching,” whose purpose is to improve students’ foreign language proficiency [11, 12]; for example, it distinguishes “translation teaching” and “translation teaching” from three aspects: subject orientation, teaching purpose, and teaching focus, identifying “translation teaching” and “translation teaching” [13, 14]; incorporating the translation courses of foreign language majors into the translation teaching system and arguing that “regardless of translation majors or not, as long as it is translation teaching, the principles and contents of translation teaching cannot be changed, and teaching should be organized according to the inherent characteristics and laws of professional translation” [15].

Through history, we can see that translation teaching has always occupied an important position, and it can even be said that before the 1980s, the core goal of teaching foreign language majors was to develop students’ translation ability, rather than to promote students’ foreign language ability by means of teaching translation. Although the teaching concepts, contents, methods, and requirements of foreign language majors nowadays are very different from those in the past, there is no need for English majors nowadays to greatly reduce the translation curriculum and lower the effective translation teaching to the level of teaching translation because of the emergence of translation majors, because translation teaching has a deep history and there are many things to learn from it. On the contrary, we should explore the methods of translation teaching and set up translation courses more scientifically with the characteristics of English majors to improve the quality of translation teaching.

Since 2007, there has been a strong development in the construction of translation majors; by 2018, there were already 101 undergraduate schools offering translation majors. However, compared with the huge translation market, there is still a talent gap. According to the information of the training center of the State Administration of Foreign Languages in 2006, there are about 60,000 translation professionals employed in China, and the shortage of translation talents is as high as 90%. According to the data of the Translation Qualification Examination Center of the State Administration of Foreign Languages of China in 2017, the total number of people who took the translation qualification examination of the Ministry of Personnel in 2017 exceeded 720,000, and more than 87,000 people were awarded the translation qualification certificate, that is to say, only 87,000 certified translation professionals were certified in 14 years [16]. Therefore, undergraduate students of foreign language faculties (departments) will remain the main source of Chinese translation talents, which requires reforming the translation teaching mode of undergraduate English majors, focusing on improving students’ translation ability and cultivating more junior translation talents for the society. This requires that the undergraduate translation teaching mode of English majors must be reformed to focus on improving students’ translation ability and cultivating more junior translators for the society [17].

It is believed that teacher-centered translation teaching focuses on error correction, which stifles students’ initiative and creativity in translation to a certain extent [18]. It is believed that translation teachers should stimulate students’ interest and enthusiasm and then guide them to improve their level through their own efforts [19]. It is proposed that translation teaching should break the traditional practice of error correction and focus on students’ knowledge and skills [20]. The transition from teacher-centered to student-centered is a consensus in translation teaching circles. Based on the “learner-centered” curriculum concept of [21], a number of “learner-centered” translation teaching models have emerged. These models treat students as subjects, and the content of teaching takes into account learners’ subjectivity, creativity, and interactivity, but unfortunately, researchers focus on the process rather than the result. The change in the center of teaching indicates the migration of the teaching subject, fails to explain the role of the teaching object, fails to highlight the importance of teaching translation practice, and fails to clarify the effectiveness of translation tools in translation practice.

With the gradual introduction of computer-assisted translation (CAT) technology into the classroom, researchers have begun to realize the role of elements other than language or culture in translation teaching, such as translation workshops, multimedia-assisted translation teaching, and online virtual classrooms. It is believed that translation teaching should be open and market- and society-oriented [22]. The National Standard for Quality of Undergraduate Teaching in Translation believes that undergraduate teaching in translation should be student-centered, content-based, process-oriented, and collaborative and promote students’ overall development and personality development only. It advocates that the basic competencies of translation practice include the ability to apply computer technology and the ability to construct information [23]. Attempt content-oriented teaching circle of translation practice [24]. Advocate the combination of literacy and skill
learning to meet the needs of the development of the profession, professional literacy, and information literacy in addition to ethical and cultural literacy [25].

The teaching practice of multimedia-assisted translation based on constructivism adjusts students’ learning mentality, enhances students’ autonomy in learning, improves the utilization rate of spare time, and to a certain extent makes the teaching practice of translation courses become a cooperative process for teachers and students to discuss the essence of translation, experience the process of translation, and achieve harmonious translation. To a certain extent, the teaching practice of the translation course has become an enjoyable journey for teachers and students to cooperate in exploring the essence of translation, experiencing the translation process and achieving harmonious translation. It provides a useful reference for exploring the organization and implementation of translation classroom teaching.

3. Translation Teaching Framework

3.1. Translation Teaching Platform Using IoT and Multimedia for English Majors. The international development and global economic integration development have promoted the innovation of Internet technology, and with the support of Internet technology, the network education system has been formed to strengthen the development of modern education system. Although the technology is constantly innovated and the network education software has emerged, however, due to the limitation of transmission rate, the application of teaching courseware and the problem of network speed still exist, which affects the online learning effect of learners.

The modules for student users are as follows.

(i) Login and registration module: it is used to realize the registration of student account and the authentication function of login after registration

(ii) Teaching information module: to provide students with the function of viewing teaching information, such as teaching video viewing and courseware viewing

(iii) Test module: used to provide students with online test function

(iv) Message module: to provide students with windows for teaching messages

For teacher users, the modules are as follows.

(i) Course information management module: to manage teachers’ course information

(ii) Teaching resource management: for adding, deleting, querying, and viewing of courseware, teaching videos, and other functions

(iii) Test management: for publishing and managing test paper information

(iv) Personal information management: able to query and modify the teachers’ personal accounts and other operations

The modules for administrator users are as follows.

(i) Course management: administrators can retrieve and modify online courses

(ii) Discussion management: the administrator can delete and query the messages in the discussion area

(iii) Announcement management: the administrator can publish website announcements and modify and delete them

3.2. Functional Realization of English Professional Translation Teaching System. Teaching English requires a combination of listening, reading, and writing skills for students. Registration allows you to view and change your profile. Also, as the main content, students can watch lectures, video tutorials, ask questions, and complete online tests. Among other things, these functions ensure that students can use the learning center through the system to learn effectively and achieve the goal of independent learning, as shown in Figure 1.

Online learning section combined with Figure 2 includes online question answering, video tutorials, and learning tests. This unit is the basic module for students’ English learning. Students must sign up and select the corresponding class and study class. Students can communicate with the class in combination with their actual English level. At the same time, on the basis of reviewing the test stage, realize self-awareness. The platform system can report according to students’ academic achievements.

As shown in Figure 3, the administrator can manage teacher information, student information, courses, data, etc. The administration center is used by teachers for user management, managing courseware, adding assignments, managing online Q&A and other basic information management, and managing the message board with functions such as forum management and replying to messages. Therefore, teachers and administrators have similar login functions, but teachers are more inclined to teaching, because the whole
3.3. Translation Teaching Resource Platform for English Majors

3.3.1. Design Concept. With the development of Internet and database, educational institutions use a large number of online learning platforms. The platform user requirement analysis based on different design ideas is used to develop a functional online learning platform. The system uses c/s architecture, as in Figure 4.

3.3.2. Construction of Cloud Platform. Through the cloud platform, customers can view the platform resources anytime and anywhere. Student users can log into the system at any time to study online, take tests and exams, exchange learning experiences, and share learning resources. It should be noted that teaching personnel are both teachers. Teaching resource developers include teaching resource designers, producers, and developers. The system administrator is responsible for the construction, use, system maintenance, and management of the cloud education platform. The platform is interactive, autonomous, and intelligent, so the development and application process of teaching resources of the platform can be realized dynamically on the cloud computing platform. Figure 5 shows the supply relationship of teaching resources in the cloud platform. The main contents of the cloud platform design are (1) collecting user demand analysis, carrying out teaching design as well as teaching resource production; (2) formulating a scientific, comprehensive, and perfect teaching resource evaluation system; and (3) testing the use of the platform by teachers and students and reconstructing the feedback. The cloud platform adopts the technology of virtualization, which can save the construction cost of data center; it can carry the business operation capacity of multiple educational institutions; it can reduce the material and financial consumption of education system and improve the operation efficiency of facilities.

The courseware generation cloud is mainly responsible for making, generating, and automatically collecting courseware resources as well as uploading the generated courseware to the cloud platform after live broadcast and recording. The
generated courseware should meet the national quality course evaluation standards and can be reviewed online after the evaluation. The courseware generation cloud is the overall architecture of courseware generation cloud, as shown in Figure 6.

The course resource cloud provides students with a rich and massive amount of course resources. Two different course ends can share the video screen of the lecture at one end; both sides can exchange audio and video, ask questions, and discuss with each other. The Education Resource Cloud is designed to provide educational resources for teachers’ teaching and research activities, including micro-lesson teaching and real-time voice communication. Teachers conduct “interactive teaching” discussions and exchanges to improve teaching and academic standards. The content of “interactive teaching” discussion can be recorded and stored. Smartphones, tablet PCs, and personal computers are used as the terminal of the platform. The cloud platform can carry out online teaching activities and share courseware resources and videos in various formats.

3.3.3. Database Design. Student and teacher users can change the password and personal information of the account through the customer. As shown in Tables 1 and 2, the database is designed for student/teacher and administrator user databases.

Online teaching videos and recorded video information are stored in the cloud, as shown in Table 3.
4. Experiments

4.1. System Test. Whether the system can operate normally and has a certain degree of reliability and safety, the performance test session is indispensable. System test items and results are as shown in Table 4.

The test results show that the system is operable and easy to operate, and the system is stable and reliable in operation.

4.2. Analysis of Data. The contents included attendance, teaching plan, class performance, homework records, communication and discussion records, evaluation records, test records, and final exam records. After data comparison, students using the online teaching platform had better attendance, classroom performance, teaching initiative, homework completion, communication and discussion, and test level than the regular class. The comparison of the contents of the electronic files can better monitor the implementation of student teaching and the implementation of the teaching process. Experimental test final result statistics table is as shown in Table 5.

The statistics in Table 5 show that the average score in the general grade (Grade A) final examination was 62.9, while the average score in the experimental grade (Grade B) final examination was 73.19. The total number of laboratory assignments increased by 10.29 points, a significant increase. At the end of the exam, the experimental class scored 1.08 in composition, 4.82 in listening, 2.35 in word translation, 1.20 in reading, and 1.05 in translation, which shows that the experimental class has a better effect of using the college English translation teaching platform in English teaching and the teaching method is more scientific. Therefore, the college English teaching platform is more feasible and effective. In Figure 7, we show the changes of two different students’ scores in specific sections of the exam. And in Figure 8, we further show the performance of students in different translation lessons.

In the attempt of multimedia-assisted translation course teaching for English majors, this paper conducted special surveys on three aspects of students’ learning autonomy, after-school activities, and ideal learning status, respectively, as shown in Tables 6–8. The survey period was from the beginning of the translation course to the end of the translation course, which lasted for one year; the survey subjects

| Evaluate your own learning autonomy | Before the start of the translation course (%) | After the translation course (%) |
|------------------------------------|-----------------------------------------------|----------------------------------|
| A: very strong                     | 22                                            | 43                               |
| B: fair                            | 61.88                                         | 55.3                             |
| C: not strong                      | 12.65                                         | 5.8                              |
| D: very poor                       | 5.5                                           | 1                                |
| E: other                           | 0.85                                          | 0                                |

Table 7: Comparison of students’ use of leisure time before and after multimedia-assisted translation teaching.

| Main activities engaged in after school | Before the start of the translation course (%) | After the translation course (%) |
|----------------------------------------|-----------------------------------------------|----------------------------------|
| A: learn a profession                  | 18.25                                         | 32.2                             |
| B: learn computer                      | 15.55                                         | 29.0                             |
| C: develop their own interests         | 37.85                                         | 37.1                             |
| D: entertainment and recreation        | 28.39                                         | 11.3                             |

Table 8: Comparison of students’ psychological expectations of learning before and after multimedia-assisted translation teaching.

| Students expect learning to be         | Before the start of the translation course (%) | After the translation course (%) |
|----------------------------------------|-----------------------------------------------|----------------------------------|
| A: easy and enjoyable, yet productive  | 59.07                                         | 48.39                            |
| B: challenging and enjoyable           | 29.14                                         | 44.45                            |
| C: innovative learning                 | 11.82                                         | 7.55                             |

Figure 8: Comparison of performance in different translation lessons.
were 105 students in the three undergraduate classes taught; the survey means were questionnaires, and 99 and 100 valid questionnaires were returned twice.

We further analyzed the students' feelings after experiencing the smart teaching platform. The specific results are shown in Figure 9. The vast majority of students think that the platform has significant help, accounting for about 70%.

5. Conclusion

This paper presents the application of online education platform in English teaching in order to develop a professional English translation teaching system for students, and this paper provides insight into the relationship between media networks, multimedia technology, and intelligence. Combining multimedia technology and intelligent system, a professional English translation function system is developed. In addition, an online and offline communication channel for teaching English simultaneous interpretation is widely developed to enhance mutual learning between teachers and students. Third, there should be teachers. The English translation teaching system should orient, learn, and think about students as a whole in order to enhance their logical thinking, reflect on themselves constantly in the process of forming a cognitive world, fully stimulate their motivation and initiative, and improve their English listening, speaking, and writing skills. The teaching practice of multimedia-assisted translation based on constructivism adjusts students' learning mentality, enhances students' autonomy in learning, improves the utilization rate of after-school time, and to a certain extent makes the teaching practice of translation courses a pleasant journey of teachers and students cooperating to discuss the essence of translation, experience the translation process, and achieve harmonious translation, which provides a useful reference for exploring the organization and implementation of translation classroom teaching.

Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declared that there are no conflicts of interest regarding this work.

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