

Distance Education Management Based on Interactive Smart Tablet-Assisted English Translation

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Abstract: The education sector has achieved a complete revolution thanks to the sophisticated development of computer technology and smart devices. Distance education (DE) has brought about earth shaking changes to people's learning life, and always reflects its unique advantages. At present, DE has got rid of the traditional face-to-face teaching situation, which not only makes the English translation class from closed to open, but also breaks the time and space constraints of education to meet the needs of different learners. However, in the education management, the real-time interaction and management efficiency of DE are still restricted by the practical conditions. The separated teaching and learning has greatly reduced the effect of education management and seriously hindered the teaching practice. To improve this situation, on the basis of understanding the definition, characteristics and development status of DE management, this paper has conducted effective research on English translation DE management combined with the interactive smart tablet. In order to verify its effectiveness, this paper carried out educational management practice, and evaluated the teaching results and management results respectively. The results showed that the average efficiency of educational management case processing assisted by the interactive smart tablet reached 85.35%. From the practice results, it can be seen that the interactive smart tablet can effectively assist the management of English translation DE, improve the management of students, and improve the teaching results of DE.

1. Introduction

With the development of society and the advancement of intelligent devices, the development of education is no longer limited by the traditional face-to-face teaching. English translation distance education has ushered in a new development opportunity, and through the network technology has continued to achieve popularity and progress. As a new educational situation, distance education not only has rich and diverse teaching resources, but also enables teachers and students to break the time and space limitations and achieve the coordinated development of teaching and learning. However, from the perspective of educational time, distance education still has some limitations. Because the main body of teachers and students participating in distance education often has time and space constraints, and teachers' teaching management time is limited, students cannot fully

grasp their academic achievements, and it is difficult to ensure that students complete their studies within the specified learning time. Therefore, in the era of distance education, it is necessary to formulate a reasonable and effective distance education management plan and adopt a scientific and appropriate teaching mode for teaching and management. With the development of information technology and multimedia technology, interactive smart tablet has made great progress and has been widely used in various fields. In distance education, the interactive smart tablet can effectively enhance English translation class interaction, and improve the efficiency and order of education management, which is of great significance to the intelligent and healthy development of education.

With the development of online education, English translation distance education management has attracted more and more scholars' attention. Bergdahl Nina had a deep understanding of the distance education management plan of Swedish schools and teachers, as well as teachers' experience in the transition stage between traditional education and distance education. His final results showed that school preparation was mainly related to technology, and teachers needed to develop the teaching strategies needed for the emerging learning environment of distance education [1]. Bond Melissa analyzed the management of English distance education through online survey, and argued that professional development and equipment provision are the primary solutions for distance education management. In this process, it is necessary to use a combination of synchronous and asynchronous technologies to achieve management [2]. Natalia Khudoley considered that distance learning can impart knowledge to learners of different spatial distances. He introduced the application of Moodle in the management of college English distance education and made an effective evaluation of it. His results showed that Moodle has certain utility in teaching practice [3]. Ariffin Kamisah investigated students' use of strategies in distance English learning and the correlation between these strategies and their English learning achievements. His research results showed that these strategies are conducive to education management, but the correlation between their use and students' performance is very low [4]. At present, the management of English translation distance education has made good progress, but with the deepening of the educational reform concept, the management of distance education also needs to make appropriate improvements and optimization. The current research has not taken into account the interaction and efficiency of education management.

With the development of intelligent technology, distance education management is also constantly combined with science and technology to achieve intelligent development. Huda Miftachul innovatively designed the management method of distance education by using big data method, critically commented on reference journals and books by using theme analysis, and proposed technical model references that can be applied in teaching and learning. This improved the learning environment and results of students, and improved the effectiveness of education management to a certain extent [5]. Qi Zhimin proposed a personalized learning system model based on data mining technology to improve the distance education management system by using decision tree and BP neural network algorithm. Finally, his application results showed that the method greatly improves the distance education management service [6]. With the help of science and technology, the management of English translation distance education has achieved further development, but most of the studies have not combined the problems in teaching practice to provide more effective guidance for education management, and only discussed the application of science and technology in distance education management from the theoretical level.

Based on the interactive smart tablet, this paper has effectively analyzed the management of English translation distance education, and evaluated its practicability from two aspects: teaching achievements and management achievements. The practical results of this paper showed that, in terms of teaching achievements, the average scores of students based on interactive smart tablets in speaking, listening, reading and writing were 19.36, 20.41, 19.05 and 21.48 respectively, and the

average scores of students based on traditional educational management methods in speaking, listening, reading and writing were 17.77, 18.32, 18.01 and 21.33 respectively. In terms of management processing efficiency, the average processing efficiency of educational management cases assisted by interactive smart tablets reached 85.35%, while the average processing efficiency of educational management cases under traditional educational management methods was only 70.46%. In terms of the degree of interactivity, the average degree of interactivity of education management assisted by interactive smart tablets was 78.75%, while the average degree of interactivity of traditional education management methods was 58.08%. From the practice results, it can be seen that the English translation distance education management based on the interactive smart tablet was more ideal.

2. English Translation Distance Education Management

2.1 Overview of Distance Education Management

2.1.1 Characteristics

Compared with traditional face-to-face education, DE management has four significant characteristics: openness, progressiveness of technology, resource sharing and interactivity:

Openness: DE management based on the Internet and multimedia breaks the restriction of knowledge and time, makes education management open to the modern network, and abolishes and breaks various constraints and obstacles in the process of education management [7].

Progressiveness: the implementation and realization of de management mainly rely on advanced communication and interaction technologies, including network communication technology, computer control technology and other advanced software and equipment technologies. Modernization and networking are one of the main features of de management.

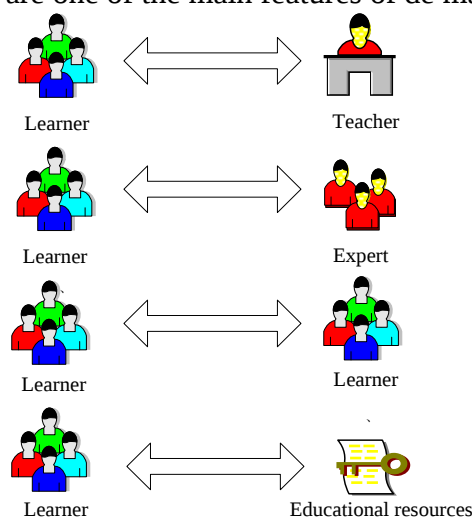


Figure 1 Interaction of distance education management

Resource sharing: de management uses multiple networks to provide different students with the educational information they need, and realizes online collection, induction, optimization and sharing of various educational resources, breaking through regional and time constraints, and fully integrating talents, technologies, courses, equipment and other advantageous resources, which can meet the personalized needs of students [8]. This allows more people to receive higher quality education services at the same time, makes more effective use of educational resources, and saves teaching costs to a certain extent. The modern de teaching mode is not easy to be restricted by

objective conditions. It no longer needs to provide centralized teaching resources for students, nor provide students with accommodation, transportation and other issues, bringing great convenience to learners.

Interactivity: the interactivity in de teaching refers to the mutual transmission of information in all aspects of teaching activities on the basis of specific teaching ideas, theories, principles, open network teaching environment and diversified resources. This interaction is realized between learners and teaching situations. There are many classifications. For example, there are multiple classifications on interactive objects, as shown in Figure 1.

2.1.2 Development Status

Modern DE as a new approach to education is gaining momentum with the development of science and technology. DE management has not only been widely recognized by the majority of learners, but also become an important means for them to communicate, communicate, learn and talk. In the process of continuous development of DE management, the off campus DE center has played a great role as a bridge and link between learners and teachers and students. However, from the current conditions and levels of distance education development, there are still many problems in English translation DE management, which are summarized in four aspects:

First, students' learning freedom is too high with a lack of effective management. DE is significantly different from the general education methods. The main characteristics of its audience group are that learners with DE as the main learning method come from all walks of life. These learners are older, with mature ideas, and their learning is not the core of their daily life. In the practice of "teaching" and "learning", such learners tend to accept education passively, rather than actively seeking knowledge and actively acquiring knowledge, nor can they communicate with teachers and other learners in depth.

Second, the network teaching mode of DE makes the communication between teachers and students become less and less. Network education is a one-way behavior, and it has the characteristics of crossing time and space, openness, resource sharing and so on. DE mainly realizes students' independent learning through free link and sharing of network resources on the Internet, which makes the current communication opportunities between teachers and students and between students gradually reduce.

Third, currently the development of DE teaching resources is weak and the construction level is low. At present, most of the educational resource builders in the DE center are transformed from teachers, and they do not learn network technology in depth and systematically, which leads to uneven development of resource construction technology and uneven level of resource construction. In particular, network education resources, including video and other multimedia situations, have been unable to meet the needs of network teaching.

Fourth, the teaching equipment of the off campus learning center is not perfect and cannot provide corresponding teaching services. There are few extracurricular activity English translation class in some schools, lacking class with comprehensive functions. Some schools do not have online multimedia classrooms, nor have they established teaching websites. Even some extracurricular training institutions do not have their own classes. When organizing teaching and examinations, they choose to rent classrooms. The teaching site is very unstable.

2.2 Interactive Smart Tablet

The interactive smart tablet is an integrated technology platform. Its built-in database can carry massive resources and support audio and video formats and a variety of operating software. The smart tablet is equivalent to a blank paper with multiple comprehensive functions, and the operator

can input, modify, and delete relevant information according to his needs [9]. At present, interactive smart tablet has been widely used in education, military, economy, medicine and other fields. Its basic functions are shown in Figure 2.

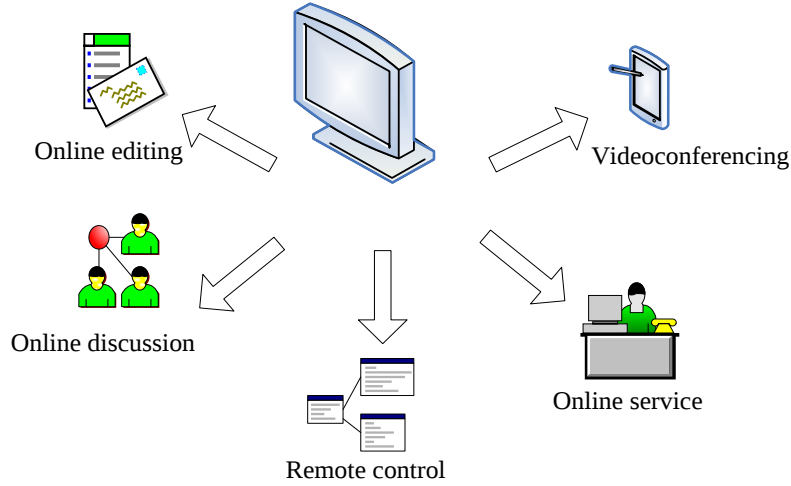


Figure 2 Basic functions of interactive smart tablet

The English translation DE management assisted by the interactive smart tablet is an online teaching management mode based on the network, which combines real-time and non real-time. Teachers and students can interact with each other through the rich educational resources available on the Internet for teaching and learning management purposes. It has three main characteristics: interactivity, flexibility and openness.

(1) Interactivity

In English learning, the interaction between learners and between learners and educational resources is a relative, specific and object interaction. This interaction is not with all resources and learners. All interactions are targeted and personalized.

(2) Flexibility

The education management based on the interactive smart tablet has great flexibility in time and space. The flexibility of space is shown in that the communication through the network has no relationship with the region where students and teachers are located, but the relatively flexible time depends on the time specified by the group learning. Teachers and students can discuss in different places within the specified time frame. Face-to-face conversation and communication must require a specific time and place.

(3) Openness

If people want to use the interactive smart tablet to carry out education management, they must set corresponding fixed management tasks. As a representative medium, the Internet plays an important intermediary role in the interactive process of management tasks. The open network has created favorable conditions for the realization of specific management tasks. In the interactive smart tablet, teachers can use the characteristics of the Internet to comprehensively position tasks, and the panel also provides rich resources for teaching management. This can help teachers to solve the management work comprehensively.

In the interactive smart tablet system, it is assumed that there are h managed individuals $i_1, i_2, \dots, i_h$ in the n -th iteration group N , the management fitness values of which are $f(i_1), f(i_2), \dots, f(i_h)$ respectively, and h' unmanaged individuals $i'_1, i'_2, \dots, i'_{h'}$. Taking managed individual $i_1, i_2, \dots, i_h$ as the center, the population was divided into h particles $Q_1, Q_2, \dots, Q_h$.

In particle $Q_j, j \in \{1, 2, 3, \dots, h\}$, there are x managed individuals, and their average fitness is:

$$\bar{f}(i_j) = \sum_{j=1}^x f(i_j) \quad (1)$$

In Formula (1), $j = 1, 2, 3, \dots, x$.

In particle Q_j , there are x' unmanaged individuals, and their average management similarity is:

$$\overline{sim}(i_j) = \sum_{j'=1}^{x'} sim(i_j, i'_{j'}) \quad (2)$$

In formula (1), the unmanaged individual $i'_{j'}, j' \in \{1, 2, 3, \dots, x'\}$ is a similar intragranular individual of managed individual i_j .

Therefore, the fitness of unmanaged individual $i'_{j'}$ in particle Q_j can be estimated according to the similarity of management:

$$\hat{f}(i'_{j'}) = e^{(sim(i_j, i'_{j'}) - \overline{sim}(i_j))} \bar{f}(i_j) \quad (3)$$

The size of the particle determines the influence of the granule on the user community. To reflect the role of particles in unmanaged individuals, the weight of particles is calculated by the formula. After the n -th iteration, the weight between particles can be expressed by the formula:

$$w(n) = (w(Q_1), w(Q_2), \dots, w(Q_h)) \quad (4)$$

Based on the weight relationship between particles, this paper adjusts the unmanaged fitness estimation results, and the adjustment expression is:

$$\tilde{f}(i'_{j'}) = e^{(w - \bar{w})} \hat{f}(i'_{j'}) \quad (5)$$

With the help of interactive smart tablet, the education management of distance education can get rid of the unstable and unreasonable development situation to a great extent. With the support of the panel interaction system, each mechanism and module has a clear management responsibility and division of labor, and the interaction between the classroom and students has also been significantly improved [10]. Teachers can provide targeted one-to-one guidance or one to many guidance according to the characteristics of each student. The management subject and management object can effectively participate in the overall teaching activities.

3. Practice of English Translation Distance Education Management

To verify the effectiveness of the interactive smart tablet-assisted English translation distance education management, this paper applied it to the educational management practice of a primary school, and analyzed its practical effect. The test content of this practice was divided into two parts, namely teaching achievements and management achievements. The subjects of this paper were 120 students in the sixth grade of the primary school. This paper randomly selected 60 students to participate in the practice, and divided them into experimental group (EG) and control group (CG), with 30 students in each group. Students in EG used interactive smart tablets to assist in English translation distance education management, and they used interactive smart tablets to process teaching tools and other affairs during their study. Students in CG used traditional distance education management methods, and they used teaching tools and other affairs through traditional distance education management methods. In order to ensure the comparability of the results before and after the practice, this paper conducted a survey on the basic English learning abilities of the students participating in the experiment. The survey was carried out in the form of ability tests, mainly focusing on the students' speaking, listening, reading and writing abilities. Each part accounted for 25 points, and the total score of the test was 100 points. The test results of students in EG and CG are shown in Table 1:

Table 1 Test results of students in EG and CG

Test content	Group	Mean value	P value
Speaking ability	EG	15.23	0.372
	CG	17.19	
Listening ability	EG	18.33	0.084
	CG	19.07	
Reading ability	EG	17.66	0.517
	CG	16.53	
Writing ability	EG	19.21	0.121
	CG	21.01	

From Table 1, the P values of the results of the four tests of speaking, listening, reading and writing of the two groups of students were 0.372, 0.084, 0.517 and 0.121 respectively, which were greater than 0.05, indicating that there was no significant difference in the basic English learning ability between the two groups of students.

(1) Teaching achievements

Teaching achievement is an important evaluation index to judge the final effect of education management. Good education management methods have a significant role in promoting students' learning ability. Therefore, the teaching achievement test in this practice mainly focused on the change of students' basic English learning ability. After a semester of educational management practice, the test results of the two groups of students in speaking, listening, reading and writing are shown in Figure 3:

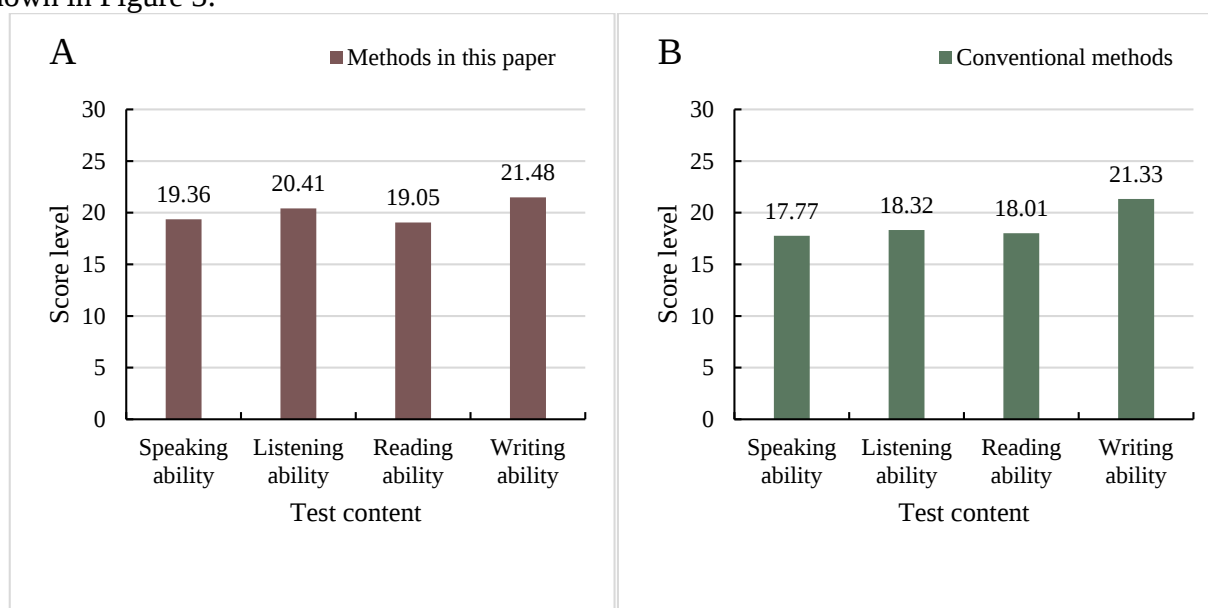


Figure 3A shows the teaching results of the methods in this paper.

Figure 3B shows the teaching results of conventional methods.

Figure 3 Teaching achievements of two groups of students

It can be seen from Figure 3 that the two groups of students showed different levels of teaching achievements in speaking, listening, reading and writing. In Figure 3A, the average scores of students assisted by interactive smart tablets in speaking, listening, reading and writing were 19.36, 20.41, 19.05 and 21.48, respectively. Among them, the test scores of each part reached more than 19, and the test scores of each part increased significantly compared with those before the practice. In Figure 3B, the average scores of CG students in speaking, listening, reading and writing were 17.77,

18.32, 18.01 and 21.33 respectively. Under the traditional distance education management method, the students' basic English learning ability was not significantly improved, and even the performance regressed. For example, the average listening test of students in CG had a slight downward trend compared with that before practice. From this data, the effect of English translation distance teaching assisted by interactive smart tablet was better.

(2) Management achievements

The management achievements in the teaching management practice in this paper referred to the efficiency results and interaction degree of teaching management methods. In this paper, 12 cases were randomly set up in teaching practice, and the processing efficiency and interactivity of the two types of educational management methods were compared. The results are shown in Figure 4 and Figure 5:

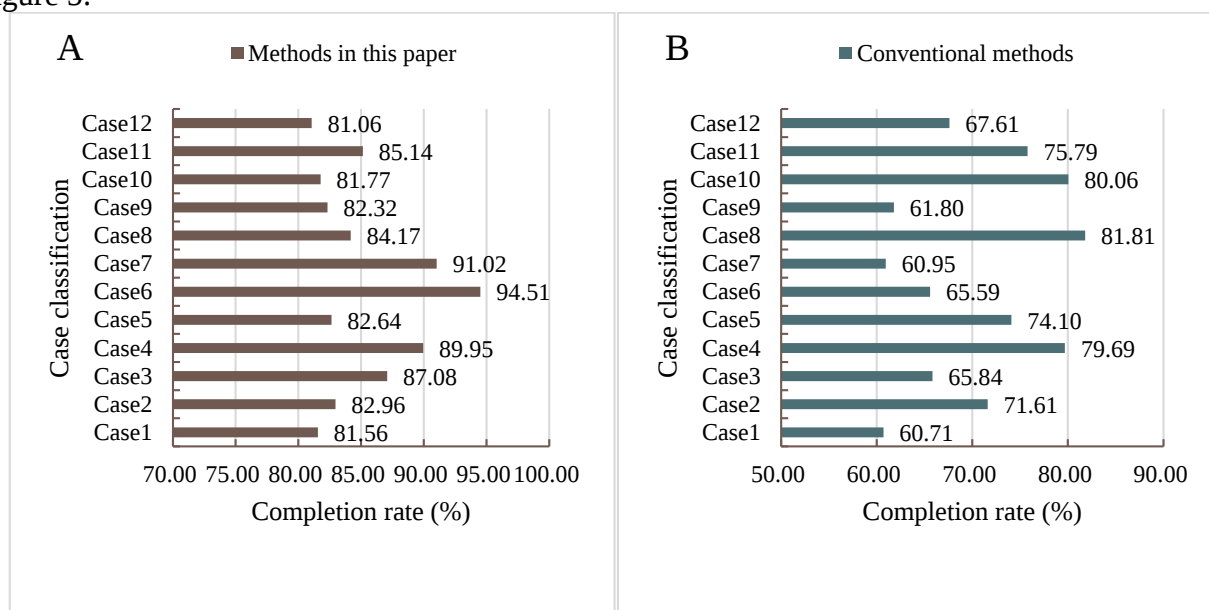


Figure 4A shows the processing efficiency results of the methods in this paper.

Figure 4B shows the processing efficiency results of conventional methods.

Figure 4 Processing efficiency results

As English subjects focus more on the overall development and growth of students, compared with other subjects, the cases of English translation distance education management are often more complicated. In Figure 4, the two types of educational management methods had different processing efficiency in the face of cases of different complexity, but overall, the processing efficiency of this management method was generally higher than that of traditional educational management methods. In Figure 4A, the average processing efficiency of education management cases assisted by the interactive smart tablet reached 85.35%, and the processing efficiency of some cases could reach more than 90%. It can be seen that the efficiency of teaching management was greatly improved through the interactive smart tablet, which was due to the powerful auxiliary function of teaching management of the smart tablet. In addition to providing rich and diverse teaching resources, the interactive smart tablet can also be used to annotate, modify, save and print, which greatly facilitates the organization of teachers' teaching activities and the management of various affairs after class, so that the quality and processing efficiency of education management can be improved simultaneously. In Figure 4B, the average processing efficiency of education management cases under the traditional education management method was only 70.46%, and the processing efficiency of some cases was only about 60%. It can be seen that the traditional education management method can no longer adapt to the development of current teaching practice.

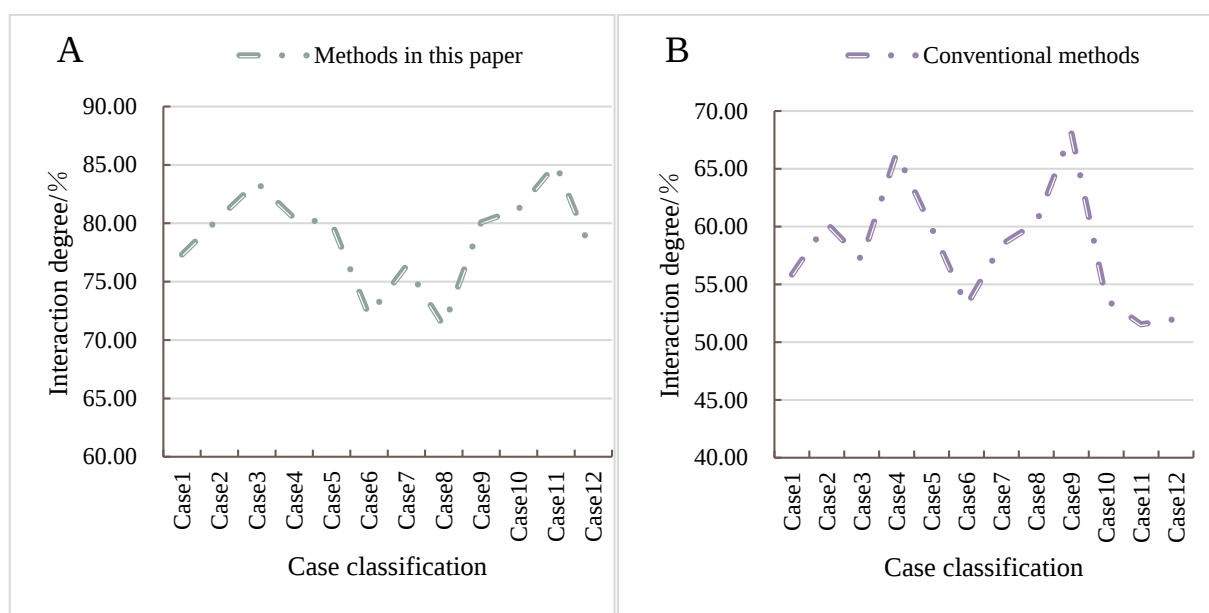


Figure 5A shows the degree of interactivity of the methods in this paper.

Figure 5B shows the degree of interactivity of traditional methods.

Figure 5 Degree of interactivity

In the management of English translation distance education, in addition to focusing on teaching results and management efficiency, the degree of interaction of management is also very important. In Figure 5A, the average degree of interactivity of education management with the help of interactive smart tablets remained at 78.75%, while in Figure 5B, the average interactive degree of traditional education management methods was 58.08%. From the practical data, the degree of interaction between the two methods was obviously different. In the methods in this paper, education management not only focused on teachers' participation, but also focused on students' experience and feelings. The use of interactive smart tablets can help teachers mobilize students' enthusiasm in education management and give students more opportunities to show and communicate to promote the communication and interaction both between teachers and students and between students and students, thus forming a good class atmosphere, which allow students to ask questions in the communication and solve the problem. This is more conducive to the improvement of English learning effect.

4. Conclusions

With the development of knowledge economy, the importance of English translation education has been deeply explored. With the vigorous development of intelligent devices, distance education with network as its core has ushered in a wider space for development. As a new form of education, good education management is not only the basis for the continuous development of distance education, but also a practical problem that must be faced in teaching practice. This paper has made an in-depth study of English translation distance education management based on the interactive smart tablet. With the strong technical support of the interactive smart tablet, English translation distance teaching has achieved relatively ideal results, and students' basic English learning ability has been greatly improved. The efficiency of education management has also been significantly improved. With the use of the interactive smart tablet, the interaction between teachers and students has been constantly enhanced, and the class is flexible and diverse, and more attractive. Although the English translation distance education management based on interactive smart tablet assistance

has achieved good results, the research in this paper still needs to be improved. In the follow-up research, the defects and deficiencies in this paper need to be continuously improved, and the healthy development of English translation distance education management should be constantly promoted.

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