

Research on the Quality Improvement of Tourism English Education Supported by Artificial Intelligence Technology

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Abstract Intelligent technology provides opportunities for educational innovation, and its introduction into tourism English teaching and the construction of a flipped classroom model can help improve students' professional competence and cross-cultural communication ability, and cultivate composite talents in line with the industry's needs. Based on the concept of Content-Based Instruction (CBI), this study adopts the Learning Channel Smart Teaching Platform to build a flipped classroom teaching model, which is implemented through three stages of teaching: self-study before class, guided study during class and study after class, and conducts a semester-long comparative experiment in the School of Tourism, University C. The experimental results show that the mean score of students' tourism English in the experimental class reaches 85.76 points, which is 11.17 points higher than that of the control class, and the difference is significant at the 1% level. The passing rate of the students in the experimental class reaches 100% and the excellence rate is 27.08%, much higher than the 84.78% and 4.35% of the control class. The questionnaire survey shows that 78.02% of the students think that the flipped classroom teaching enhances the learning motivation, 77.56% of the students think that it improves the understanding of the course content, and 82.76% of the students are satisfied with the way of course assessment and evaluation. The flipped classroom teaching mode based on the Learning Express platform not only enhances students' learning interest and performance in tourism English, but also strengthens teaching interactivity and optimizes the learning experience. In the experimental class, 74.99% of the students were willing to actively interact with the teacher in the classroom, which was significantly higher than the traditional teaching mode. The study shows that the flipped classroom teaching with intelligent technology support can effectively improve the quality of tourism English education, and provides new ideas and practical references for the reform of tourism English teaching in colleges and universities.

Index Terms Intelligent Technology, Tourism English, Flipped Classroom, Learning Pass Platform, Learning Motivation, Teaching Interactivity

I. Introduction

Under the background of rapid development of economic globalization, tourism as an important economic pillar industry has attracted attention and faces new opportunities and challenges. Tourism English is an important tool for tourism practitioners to communicate with international tourists, and the quality and effectiveness of its teaching has a direct impact on the level of tourism services and tourist satisfaction [1], [2]. However, the traditional teaching mode of English for Tourism is mostly limited to the language level, failing to fully consider the integration of interdisciplinary knowledge and the cultivation of practical application ability [3], [4]. Although some success has been achieved in the transfer of language knowledge, there are still problems such as poor teaching interactivity, low student participation, and difficulty in meeting individualized needs [5], [6]. In order to meet the needs of the development of tourism in the new era, it is particularly urgent to explore the reform of tourism English teaching and promote the cultivation of interdisciplinary talents.

At present, with the rapid development of science and technology, artificial intelligence technology has penetrated into various industries, especially in the field of education, which has had a profound impact [7]. The integration and application of artificial intelligence technology and tourism English teaching provides a broad innovation space for modern tourism English education [8]. Under the background of constantly developing science and technology, teaching based on artificial intelligence can not only improve the efficiency and interactivity of teaching, but also meet the needs of personalized and differentiated learning, and enhance students' learning interest and participation [9]-[11]. Tourism English teaching supported by artificial intelligence technology can effectively improve students' language use ability and cross-cultural communication ability, which provides a brand-new idea and solution to improve the quality of tourism English teaching [12]-[14].

As an important window for the country's foreign exchange, international tourism plays an increasingly important role in the process of globalization. In recent years, China's opening up to the outside world has been deepening, the inbound tourism market is gradually recovering, and the demand for high-quality foreign-related tourism talents continues to grow. As an important way to cultivate foreign-related tourism talents, tourism English education in colleges and universities has a direct impact on the level of tourism services and international image shaping. However, the current teaching of tourism English in colleges and universities is facing many challenges: single teaching method, insufficient classroom activity; disconnection between teaching content and industry practice; low motivation of students; insufficient cultivation of cross-cultural communication ability. These problems seriously restrict the quality of cultivation of foreign-related tourism talents. At the same time, the in-depth application of digital and intelligent technologies in the field of education provides a new opportunity for the innovation of tourism English teaching. How to reconstruct the teaching mode of tourism English with the help of intelligent technology and cultivate compound tourism talents who meet the needs of the new era has become an important issue of education reform in colleges and universities. Flipped classroom, as a new teaching mode, subverts the traditional one-way teaching mode of "teachers speak and students listen", and by reorganizing the time and space of learning inside and outside the classroom, it transfers the decision-making power of learning from the teachers to the students, and effectively improves the students' independent learning ability and practical application ability. The integration of intelligent technology and flipped classroom has brought new development possibilities for tourism English education. Scholars at home and abroad have conducted extensive research on the application of flipped classroom and intelligent technology in language teaching, but the research focusing on the specialized field of Tourism English is relatively limited, especially the lack of systematic empirical research to verify the actual effect of flipped classroom in Tourism English teaching with intelligent technology support. Therefore, exploring the application mode of flipped classroom in tourism English teaching with intelligent technology support and its impact on students' learning effectiveness is of great theoretical and practical significance to promote the reform of tourism English education. Based on the concept of Content-Based Instruction (CBI), this study combines constructivist learning theory, effective teaching theory and media selection theory to explore the tourism English flipped classroom teaching mode with intelligent technology support. The study builds a three-stage teaching process of self-study before class, guided study during class and study after class through the StudyTone Smart Teaching Platform, and carries out a semester-long comparative experiment in the School of Tourism of University C. The study uses a combination of statistical analysis and questionnaires to examine the effects of flipped classroom teaching on students' learning performance, motivation and interactivity of teaching activities in tourism English. The study aims to verify the effectiveness of the flipped classroom teaching mode with intelligent technology support, provide theoretical basis and practical path for the reform of tourism English teaching in colleges and universities, and help cultivate high-quality foreign-related tourism talents to meet the needs of the new era.

II. Intelligent technology-supported tourism English flipped classroom

International tourism is an important window for a country's foreign exchange. With the increasing frequency of international exchanges, the importance of foreign-related tourism has become more and more prominent, and the demand for foreign-related tourism practitioners has increased accordingly. Adapting to the internationalization development trend of China's tourism industry, tourism English courses in colleges and universities are committed to cultivating high-quality foreign-related tourism talents, so that students can master professional English while possessing professional knowledge, and proficiently use English to introduce China's rich tourism resources to tourists from all over the world. However, it has been proved that the traditional teaching mode of emphasizing language knowledge but not tourism professional skills can no longer meet the requirements of today's society for foreign tour guide talents, and it is necessary to fully introduce intelligent technology to innovate the teaching mode of tourism English in colleges and universities, so as to lay a foundation for improving the quality of cultivating talents for foreign tour guides.

II. A. Tourism English Teaching Philosophy and Objectives

II. A. 1) Characteristics of English for Tourism Programs

Compared with other professional English courses, English for Tourism in Colleges and Universities is a practical English based on professional knowledge of tourism, including English for Tourism Studies, English for Tourist Guides and English for Restaurants, which belongs to the category of English for Specialized Purposes (ESP), focusing on cultivating students' ability to apply professional language in vocational contexts, and emphasizing the practicality of the language and the industry-oriented nature [15]. Students are required to have not only rich professional knowledge of tourism management, but also strong professional English expression and cross-cultural communication skills.

(1) Outstanding professionalism and practicability. Tourism English in colleges and universities is characterized by a high degree of specialization and strong knowledge migration, and the content covers a number of aspects with strong professionalism. Tourism English mainly serves the tourism industry, and the teaching content is based on the knowledge of tourism English, learning tourism-related professional knowledge, professional vocabulary and expressions, emphasizing the training and improvement of the students' oral and professional skills in tourism English, and the professional practicability is stronger, and more attention is paid to the cultivation of students' practical ability.

(2) Communication and Interaction Highlighting Interculturality. The professional knowledge of English for tourism in colleges and universities covers a wide range of topics, including the customs of tourist destinations and the general knowledge of related foreign tourism. Therefore, the teaching of tourism English in colleges and universities should not only import the profound connotation of the cultures of foreign nations, but also highlight the essence and characteristics of Chinese culture. Only by mastering the characteristics and differences of the two cultures can we remove cultural barriers in communicative activities and obtain more effective communication and exchange.

II. A. 2) Tourism English Teaching Philosophy

Content Based Instruction (CBI), i.e., content-dependent foreign language teaching, refers to basing language teaching on the teaching of a certain subject or a certain topic content, combining language learning with subject knowledge learning, and promoting the improvement of students' language proficiency while improving their subject knowledge and cognitive ability. Unlike traditional language teaching, the CBI teaching concept emphasizes content learning rather than mere language learning, and uses the second language as a tool for exploring knowledge through the teaching of subject knowledge or the discussion of topics, and ultimately develops the linguistic competence of the second language [16].

The concept of CBI teaching implies that the focus of foreign language teaching has shifted from grammatical and discourse competence to English for the Discipline and learning strategy competence. Providing students with access to comprehensible input through the teaching of subject matter knowledge and focusing teaching on the content of the language rather than its form can attract students' interest, eliminate learning anxiety, and promote the development of language skills in an authentic context. Students' skills, both academic and linguistic, can also be greatly enhanced by urging them to actively participate in the analysis and comprehension of specialized instructional materials through a variety of instructional modalities.

II. A. 3) Objectives of Teaching English for Tourism

Based on the above CBI teaching concept, the teaching objectives of the English for Tourism course need to be centered on at least three levels, i.e., knowledge objectives, ability objectives and affective objectives.

(1) Knowledge Objectives. Students should take the six elements of tourism, namely "food, accommodation, transportation, travel, shopping and entertainment", as the main line to link the activities of travelers and tourism industry, and to understand the basic contents of airport customs, hotel catering, shopping, sightseeing explanations and emergency handling. Accumulate relevant English language knowledge, train basic sentence patterns for situational dialogues and on-site explanations, learn practical writing and operating procedures for official forms, and familiarize with policies, laws and regulations for tourism development.

(2) Ability Objectives. To help students develop the ability to use fluent and authentic English to accurately convey the ideas of excellent traditional Chinese culture and to introduce the country's great rivers and mountains, scenic spots, customs, gardens and architecture, and specialties and delicacies. Cultivate students' cross-cultural communication ability, analyzing and problem-solving ability, so that students have the ability to receive foreign tourists to lead tours, and have good expression, affinity and interpersonal communication ability.

(3) Emotional objectives. Through the learning of theoretical knowledge and the cultivation of practical ability in the course, students will gradually establish the professional ethics of love and respect for work. Understand the differences between Chinese and Western cultures, respect each other's cultural customs and traditions, overcome the inferiority complex in foreign communication, and let students gradually establish the sense of Chinese cultural confidence. Thinking independently and practically, collaborating and undertaking tasks, and developing a good teamwork spirit.

The above three levels of cultivation objectives complement each other, promote each other, and are equally important in the practical teaching of English for Tourism.

II. B. Flipped classroom supported by intelligent technology

II. B. 1) Learning Link Smart Teaching Platform

Learning Access is a platform to assist teaching and learning, providing teachers and students with a convenient online teaching environment. Learning Pass has the following four distinctive features:

(1) Applicability. No matter what type of device is used, you can log in to Study Pass, no matter whether the device is Android or Apple system, you can apply Study Pass, Study Pass has both software version and web version, the application is very convenient, teachers can also send notices and upload resources at any time, and Study Pass is applicable to teachers, students and the community.

(2) Immediacy. Whether in the classroom or outside the classroom, teachers can instantly carry out activities such as checking in and voting on the Learning Commons, and students can also participate in order to get instant feedback and evaluation.

(3) Richness. Learning through the resources are very rich, super star group accumulated from the establishment of nearly twenty years to the present time, in the learning through the top almost can be found, has a large number of learning resources, can be used for people to learn and work.

(4) Free of charge. Learning Channel is free and open to the majority of users, users can use Learning Channel for free, free to download books, periodicals, newspapers and other resources, free to watch the course and so on.

Therefore, in this paper, we use StudyPass to carry out tourism English flipped classroom teaching practice, under the theoretical guidance of constructivist learning theory, effective teaching theory and media selection theory, and follow the principles of systematicity, feasibility and integration to establish the framework of tourism English flipped classroom teaching activities.

II. B. 2) Flipped classroom teaching model

The tourism English flipped classroom teaching model based on Learning Tong is shown in Figure 1. In the teaching process based on the Learning Tong wisdom teaching platform, whether it is classroom teaching or pre-study before class and after-class consolidation through the Learning Tong platform, students show strong interest in learning, and the degree of student participation is much greater than that of the traditional teaching mode. Students effectively utilize fragmented free time, subconsciously cultivate independent learning ability, strengthen teamwork consciousness, and improve academic performance [17].

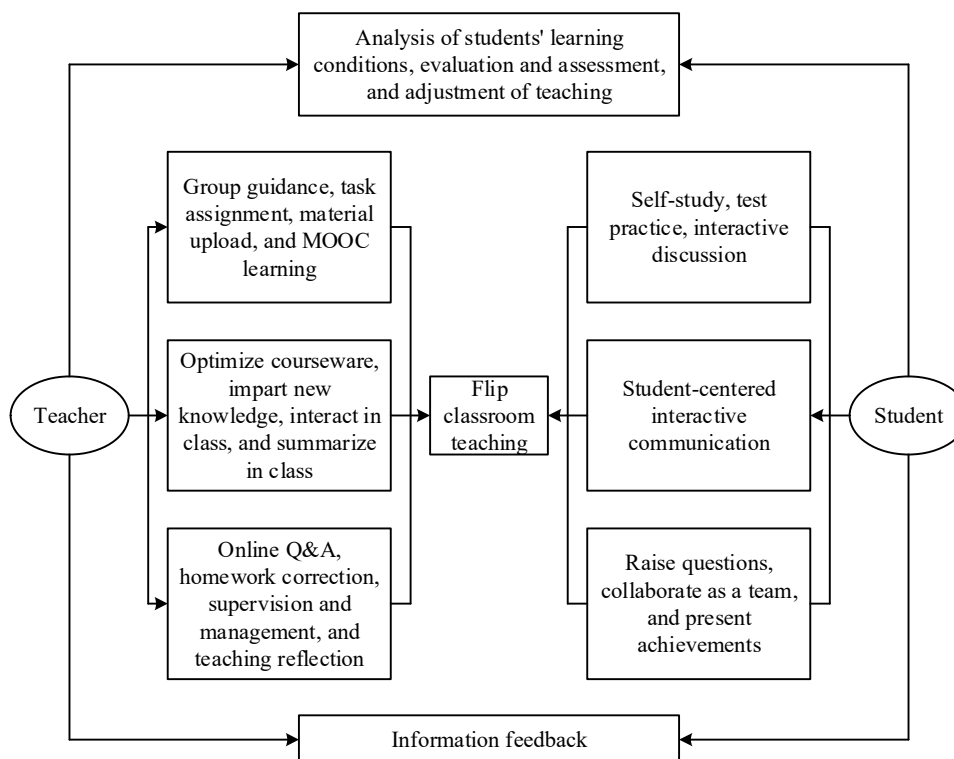


Figure 1: Flipped Classroom Teaching Mode of Tourism English

The learning pass platform can not only intuitively display the students' learning result data, but also see the students' learning process data, effectively carry out the students' learning evaluation and summarization, discover problems in time, and carry out the course content in a targeted manner. Practice has proved that this efficient and interesting interactive learning mode can invariably extend the limited time of the classroom, create a relaxing and

pleasant learning atmosphere, expand students' professional knowledge, enhance students' interest in learning, and ensure effective communication and feedback between teachers and students.

II. B. 3) Strategies for Flipped Classroom Utilization

(1) Pre-course application. Teachers set up pre-course pre-study tasks, through the online teaching platform, so that students can have an understanding of the content and objectives of teaching, and understand the tasks and focus of teaching. Teachers can upload the relevant contents of the course to the learning platform before teaching, and the uploaded contents can include the contents of the articles (vocabulary, phrases, paragraphs and dialogues), videos, pictures and other materials related to them, so that students can log into the learning platform to preview in advance and record the questions and difficulties encountered in the process of learning. Students can also download more videos related to the upcoming learning content from the Learning Pass platform for learning, so as to enhance their understanding of the upcoming learning content and prepare for learning in class. Pre-class pre-study not only helps students understand the upcoming learning content in advance, but also stimulates their desire to explore new knowledge, laying a foundation for offline teaching [18].

(2) In-class utilization. Taking the knowledge lecture as a means and students' preview as a basis, teachers in the classroom adopt the mode of face-to-face communication, teacher's teaching, students' questions, teacher's answers, teacher's evaluation, student-student mutual evaluation to carry out teaching, guide students to think through the offline teaching, cultivate students' sense of cooperation and ability, and enhance their exploratory spirit, so that students can exercise their communication and expression skills in the teaching. Teaching is transformed from the original one-way teaching of knowledge by teachers to the way of teacher-student interaction and student-student interaction. Teachers can give students an in-depth understanding of what they have learned through flipped classroom teaching, as well as broaden their horizons and stimulate their interest in learning, in order to better achieve the purpose of flipped classroom teaching.

(3) Application after class. After completing the teaching, in order to let students better master the teaching content, teachers can supplement the online transmission of some reading articles and exercises related to the teaching content for students to consolidate what they have learned, and they can also encourage students to make videos according to their own understanding of what they have learned. In addition, teachers can also let students practice offline, provide students with pictures of famous scenic spots, or let students determine their own tourist attractions, simulate leading foreign tourists to sightseeing scenes, use English to tell the whole story, and give awards to students with outstanding performance. Students can also be allowed to record the audio introduction of a certain attraction and display the outstanding works on the platform for all students to learn.

III. Teaching Experimental Design of Flipped Classroom for Tourism English

Tourism English is an important tool for tourism practitioners to communicate with international tourists, and the quality and effectiveness of its teaching has a direct impact on the level of tourism services and tourist satisfaction. However, the traditional teaching mode of English for Tourism is mostly limited to the language level and fails to fully consider the integration of interdisciplinary knowledge and the cultivation of practical application ability. In order to meet the needs of tourism development in the new era, it is particularly urgent to discuss the reform of teaching English for Tourism and promote the cultivation of interdisciplinary talents.

III. A. Teaching experiment and questionnaire design

III. A. 1) Experiments in Teaching English for Tourism

(1) Purpose of the experiment. The main purpose of this experiment is to study the application of flipped classroom teaching with intelligent technology support in tourism English courses in colleges and universities, and to test the effect of the use of flipped classroom teaching through flipped classroom teaching for students majoring in tourism English in the School of Tourism of University C.

(2) Experimental subjects. The objects selected for this experiment are two classes majoring in Tourism English in the College of Tourism of University C. The numbers of the experimental and control classes are 48 and 46 respectively.

(3) Control of independent variables, dependent variables and irrelevant variables. The experimental independent variable is the choice of the organization form of tourism English flipped classroom teaching, the dependent variables of this experiment are students' interest in learning tourism English, their motivation to learn English and their performance in tourism English, etc., and the irrelevant variables of this experiment are mainly the teaching content, the teaching progress, and homework assignments. In the experimental process, we try to keep the teaching content, teaching hours, teaching progress, homework arrangement, etc. of the experimental class and the control class as consistent as possible to avoid the interference of irrelevant variables.

(4) Experimental method. Use SPSS software to quantitatively analyze the data obtained from the experimental class and the control class before and after the experiment. Using questionnaires to survey students after flipped classroom teaching to analyze the changes in their interest in learning English for tourism and so on.

(5) Experimental process. The experiment started on September 1, 2024 and ended on January 31, 2025, lasting one semester. The whole experiment is roughly divided into three stages as follows:

Experiment preparation stage. Before the experiment, by analyzing the tourism English scores of the experimental and control classes, it was confirmed that there was no significant difference between the two samples. Based on the questionnaires and teacher interviews, the students' learning situation and problems were analyzed, and under the condition of ensuring the same teaching schedule and content, the experimental class utilized the flipped classroom teaching to start the teaching of Tourism English course, and the traditional teaching mode was applied to the control class.

Experimental implementation stage. Implemented from September 1, 2024, the experimental content is unit 1~6 of Tourism English, and the same teacher is chosen to be the teacher of Tourism English in two classes. When conducting the experiment, the independent and dependent variables were controlled while avoiding the interference of irrelevant variables.

The end stage of the experiment. At the end of the experiment the final paper was used to test the experimental subjects' knowledge of tourism English in the two classes, and then the data were analyzed. A survey of student feedback after the experiment was conducted on all students in the experimental class, while some students in the experimental class were randomly selected for interviews to understand their feedback on flipped classroom teaching, and finally the conclusion of this study was drawn. The application effect of intelligent technology-supported flipped classroom teaching in tourism English course is comprehensively judged to test the experimental hypotheses and draw experimental conclusions.

III. A. 2) Questionnaire design implementation

Students play a major role in the learning process, and their perception and evaluation of English courses are important references for curriculum development. By conducting the questionnaire survey, we can effectively understand the current situation of students' learning of English courses, find out the problems of the courses, and refer to the results of the questionnaire as the basis for the development of course objectives, course content and other levels. The questionnaire survey was implemented in early February 2025.

On the basis of combing domestic and international literature and combining the first-hand information from the research in the experimental colleges and universities, a student questionnaire with five dimensions including basic student information was formed. Before formally distributing the questionnaire, 30 students were randomly pre-surveyed, the questions were modified, and one question was eliminated. In the formal research, the questionnaires were distributed during the break of recess on rainy and cloudy days, which lasted about 20 minutes. In order to ensure that the information in the questionnaire is true and valid, explain to the class the terms that are slightly more difficult to understand in the questionnaire, such as "teaching method", "textbook content", "professional ability", etc., before filling out the questionnaire.

III. B. The Process and Implementation of Teaching English for Tourism

III. B. 1) Teaching Process of English for Tourism

Figure 2 shows the teaching process of tourism English. In the pre-course stage, teachers should deconstruct the discipline, reorganize the content, and couple the structure to the standard course objectives, design the unit teaching objectives and processes, and arrange for students to observe the microclasses of the gold-medal tour guide explanation and the pre-course test of the cloud class. Design tasks about tourism text analysis and translation practice, tour guide explanation and attraction introduction that are practical, exploratory and innovative, and real-time supervision, guidance, generalization and feedback on the problems reflected in students' pre-course learning. In the classroom teaching stage, teachers focus on students' generative problems in the pre-course stage, involving consolidation of knowledge, summarization of features and common expressions in tourism texts, discovery of cultural connotation and ideological and political elements, and summarization of cultural differences and communication principles. The teaching forms are diverse, including inquiry-based quiz, comparative study of text translation, case study of lecture video, group report, flipped classroom and so on. In the stage of post-course practice and development, professional teachers together with special industry tutors always pay attention to and guide students to carry out post-course simulated scenic area lectures and tour guide service practice, summarize the problems that appear in students' online and offline teaching activities, homework practice and simulated tour guide practice, and carry out teaching rectification and improvement in a targeted way. The improved courseware and learning resources will be released to the learning platform again for continuous improvement.

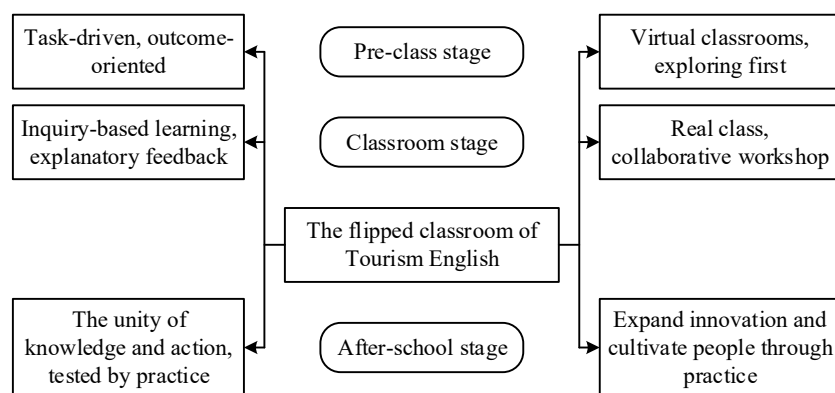


Figure 2: Teaching process of Tourism English

III. B. 2) Teaching English for Tourism Implementation

(1) Self-study before class. Before the lesson, the teacher divides students into five learning groups according to their learning situation, releases the learning material of this lesson “The Chinese and English Guide Words of Dalongtan” through the Learning Channel platform, and asks students to learn independently on the teaching platform, draw the adjectives in the reading material and understand the Chinese meaning with the help of a dictionary. The teaching method of flipped classroom is utilized to improve students' motivation for independent learning and cultivate their good habit of active learning. Then students read aloud the key vocabulary in the lesson with the help of an audio dictionary. Finally, the teacher analyzes the feedback from students' self-study, answers questions online, and adjusts the teaching strategy according to the problems.

(2) Guided learning in the lesson. Teachers play a video of the scenery of Dalongtan Park as an introduction to bring out the learning content and how to introduce the natural scenery. The video of the situation in the target scenario introduces the new lesson, which is intuitive and vivid, and is conducive to stimulating students' curiosity and improving their motivation to learn. Teacher releases the task book of this lesson, organizes students to seek solutions and complete the learning task through group discussion and learning, how to introduce the Dalongtan Park of Liuzhou to the Australian couple in English? Students seek solutions and complete the learning tasks through group discussion and learning, realizing the learning mode of taking students as the main body, taking tasks as the guide and cultivating active exploration.

(3) After-class study. Teachers set up post-course extension homework - ask students to introduce a natural landscape in their hometown, shoot it into a video, send it to the class WeChat group and the school-enterprise cooperation international travel agency expert guidance group, the travel agency to make an evaluation and select the excellent homework.

IV. The effect of teaching practice of tourism English flipped classroom

As one of the key majors in colleges and universities, the tourism English major needs to adhere to the teaching reform from the tourism English major, establish a new tourism English teaching mode as soon as possible to meet the current requirements for high-quality tourism English talents, and strive to build the tourism English major course as a characteristic and key type of course. In view of the current situation of teaching English for tourism in colleges and universities, it is necessary to study a set of reform programs that are in line with the characteristics of the tourism English major and can reflect the characteristics and advantages of the English course itself.

IV. A. Comparison of pre- and post-tourism English scores

IV. A. 1) Tourism English Achievement Statistics

At the end of the semester-long teaching practice of the English for Tourism course, a test paper was prepared based on the content of the English for Tourism course, and the students in the experimental class (TE1) and the control class (TE2) were tested at the same time. The total score was 100 points, and it was set that 80 points or more was excellent, 70 points or more was good, and 60 points was passing. The tourism English scores of the students in the two classes were counted, and the statistical results of their tourism English scores were obtained as shown in Figure 3.

As can be seen from the figure, there are no students with scores below 60 in the experimental class, and the number of students in each interval of 60-70, 70-80 and 80-90 is 11, 24 and 9 respectively, with the proportion of 22.92%, 50.00% and 18.75%, and the number of students with scores of 90 or above is 4. The number of students in the control class who scored below 60 points was 7 with a percentage of 15.22%, while the number of students

in each range of 60-70, 70-80 and 80-90 points was 22, 15 and 2 respectively, and their percentages were 47.83%, 32.61% and 4.35%, and the number of students who scored 90 points or more did not exist. Comparative analysis of the results of the two classes can be found that the passing rate of students in the experimental and control classes is 100% and 84.78% respectively, and the number of students who scored more than 80 points at the level of excellence is 13 students in the experimental class and only 2 in the control class, and the rate of excellence of the students in the experimental class and the control class is 27.08% and 4.35% respectively. Therefore, it can be shown to a certain extent that the flipped classroom teaching mode of the Learning Pass platform with intelligent technical support can effectively enhance the students' performance in tourism English and provide support for the quality of tourism English education and talent cultivation level in innovative colleges and universities.

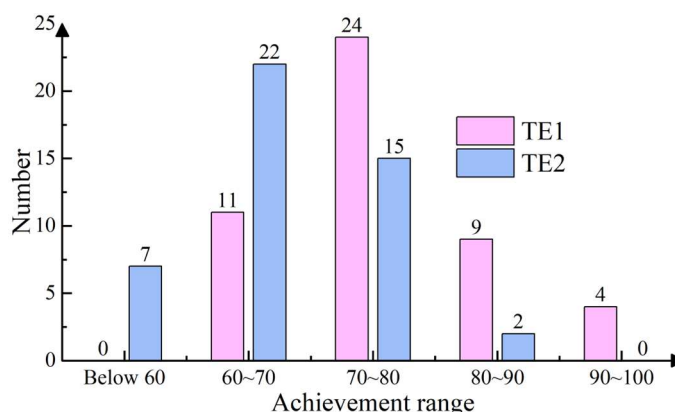


Figure 3: Statistical results of Tourism English scores

IV. A. 2) English scores before and after the experiment

In order to verify the experimental hypothesis that the flipped classroom teaching mode of the Learning Express teaching platform based on intelligent technology support can improve students' performance in the tourism English course, an achievement test was conducted before the experiment for both the experimental class (TE1) and the control class (TE2), and this was used as the pre-test scores of the students in the two classes. After the experiment, the test was also administered and used as the students' post-test scores. The type of test questions and the number of questions were the same for both tests. The test questions of both tests were objective questions, including vocabulary and structure, reading comprehension, and vocabulary matching, which mainly examined the students' vocabulary of the English for Tourism course and their understanding of the passage.

The results of the pre-test of the Tourism English course, which were collected, were subjected to an independent samples t-test using SPSS software to test the results of the pre-test of the teaching experiment. The results of the pre-test of the tourism English course are shown in Table 1. As can be seen from the above data, the average scores of the experimental class and the control class before carrying out the teaching experiment of Tourism English are 71.68 and 72.05 respectively, and the difference between them is relatively small, only 0.37 points. At the same time, the Sig. value is $0.584 > 0.05$, the data show that there is no significant difference between the two classes' scores, which can provide a valid sample for the performance of the effect of the teaching comparison experiment.

Table 1: Comparative Analysis of Pre-test Achievements

-	Class	Number	Means	SD	SMV
Travel English	TE1	48	71.68	21.45	3.175
	TE2	46	72.05	20.78	2.638
The levene test of the variance equation		The t-test of the mean equation			
		t	Sig	95% CI of the difference	
F	Sig			Lower	Upper
1.372	0.215	0.514	0.584	9.476	5.238
-	-	0.514	0.579	-9.381	5.104

At the end of the teaching experiment, the students' performance in tourism English in the experimental class and the control class were tested again, and the obtained data were subjected to independent samples t-test, and their

specific results are shown in Table 2. In the post-test results of the tourism English course of the two classes, the average scores of the experimental class and the control class were 85.76 and 74.59 respectively, and the mean scores of the students in the experimental class were 14.08 points higher than those of the experimental class before the experiment, and 11.17 points higher than those of the control class. And the independent sample t-test results of the post-test results show that its Sig value is $0.002 < 0.01$, which exhibits an extremely significant difference at the 1% level. It indicates that the flipped classroom teaching mode of the Learning Express platform supported by intelligent technology is feasible to be applied to the English for Tourism course, and it has a significant effect on improving students' performance. This is mainly because the platform-based teaching provides students with more colorful teaching resources and improves students' interest in learning, and the homework requirements of pre-study before class and consolidation after class deepen students' understanding and mastery of knowledge. The easy-to-carry feature of cell phones increases students' learning time, and simulation training deepens students' mastery of words, sentence patterns and grammar.

Table 2: Comparative Analysis of Post-test Achievements

-	Class	Number	Means	SD	SMV
Travel English	TE1	48	85.76	14.63	1.795
	TE2	46	74.59	18.75	2.832
The levene test of the variance equation		The t-test of the mean equation			
		t	Sig	95% CI of the difference	
F	Sig			Lower	Upper
1.475	0.081	3.479	0.002	-12.581	-1.743
-	-	3.218	0.002	-12.569	-1.782

IV. B. A Survey of the Flipped Classroom of English for Tourism

IV. B. 1) Analysis of basic student perceptions

The effectiveness of the application of Xuetong platform in tourism English teaching supported by intelligent technology needs to be further explored in addition to students' performance in tourism English courses. Based on this, this paper designed the questionnaire from four dimensions (Q1~Q4) of "flipped classroom teaching enhances the learning motivation of tourism English courses", "flipped classroom teaching enhances the learning understanding of tourism English courses", "I hope that more knowledge outside the course will be integrated into the teaching of tourism English courses in the future", and "I am satisfied with the performance evaluation and assessment method of the courses". The questionnaire adopts a five-level Likert scale, that is, L1~L5 represents strongly disagree, unified, uncertain, disagree and strongly disagree respectively, and a total of 48 points were issued in this questionnaire, and 48 copies were effectively recovered. The obtained questionnaire data were statistically obtained, and the results are shown in Figure 4.

Based on the statistical results of the data in the figure, the following conclusions are drawn:

(1) In the question of flipped classroom teaching enhances the motivation to learn English for tourism course, the total number of students who agreed and strongly agreed reached 78.02%, indicating that most of the students are satisfied that the LearningThrough Flipped Classroom teaching supported by intelligent technology is helpful to enhance their motivation to learn English for tourism course. However, there is also a certain percentage of students who are unsure or disagree, which may require further instructional design and improvement.

(2) In the question of flipped classroom teaching enhancing the understanding of learning English for Tourism course, 28.92% and 48.64% of the students agreed and strongly agreed respectively, indicating that the vast majority of the students believe that teaching English for Tourism flipped classroom course is helpful for them to understand the professional knowledge and skills. This also reflects the effectiveness of the teaching content and teaching methods.

(3) In the question of hoping to incorporate more knowledge outside the curriculum into the teaching of the tourism English course in the future, more than 70% of the students agreed and strongly agreed, and only 0.73% of the students strongly disagreed. It shows that a certain percentage of students think that integrating knowledge outside the curriculum is helpful for teaching professional courses, but there is also a certain percentage of students who are not sure or disagree, which may need further investigation and analysis.

(4) In the question of being satisfied with the course's performance evaluation and assessment methods, it reached 82.76% of students agreeing and strongly agreeing, indicating that a certain percentage of students think that flipped classroom teaching is helpful for the evaluation of tourism English courses, but there is also a certain percentage of students who are not sure or disagree, which may need further investigation and analysis.

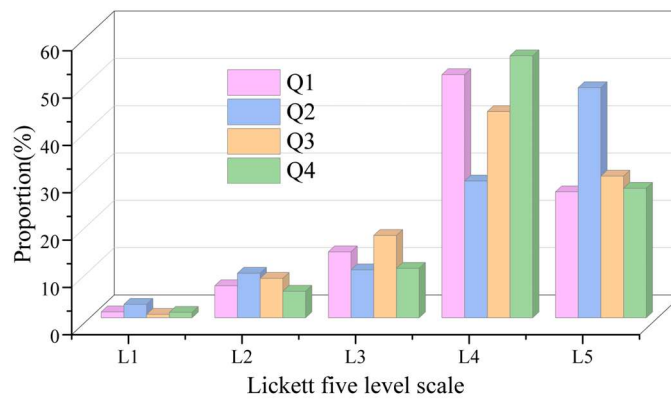


Figure 4: Basic perception analysis of students

IV. B. 2) Comparative study of teaching evaluation

On the basis of analyzing students' basic perceptions of the flipped classroom teaching mode, this paper further explores students' learning satisfaction (LS) and the interactivity of teaching activities (TA). Learning satisfaction and interactivity of teaching activities of students in experimental and control classes were studied separately using questionnaires, which were used for data collection through a five-point scale (K1~K5), mainly comparing the learning satisfaction and interactivity of teaching activities of the two groups of students in different teaching modes. Figure 5 shows the results of different teaching evaluation in different classes.

In the experimental group, 82.17% of the students agree and support the flipped classroom teaching mode, among which 63.66% of the students like the Learning Express flipped classroom teaching mode supported by intelligent technology very much, and this part of students think that the Learning Express flipped classroom teaching mode can stimulate and enhance their interest in learning English for tourism, which is conducive to improving their English learning efficiency. However, 5.78% of the students think that the Learning Express flipped classroom teaching mode takes up too much of their spare time and increases their learning burden in the process of self-study. At the same time, the survey found that in the application of the Learning Express flipped classroom teaching mode, the students' attendance rate was higher, their concentration on learning was effectively improved, and the atmosphere of the tourism English classroom teaching was more active than before. In addition, 1.42% of the students thought that the use of the Learning Express Flipped Classroom teaching model in tourism English teaching made independent learning more difficult, and they had to consult a lot of materials by themselves in order to complete it, and there were fewer choices of projects provided by the teachers. This also suggests that teachers should increase the choice of teaching programs to meet the English learning needs of different students and improve the effectiveness of their independent learning.

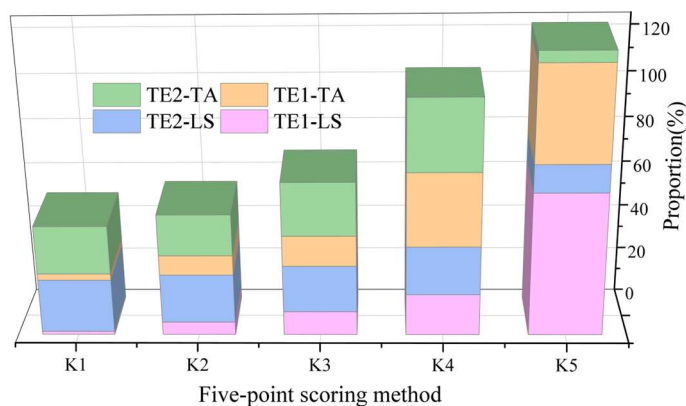


Figure 5: A Comparative Study on Teaching Evaluation

In the control group, students in the "Would you like to actively interact with the teacher in class?" The number of students who chose "willing" accounted for the highest proportion (31.76%), and the proportion of students who chose "very unwilling" and "unwilling" reached 39.63%. It can be seen that more than one-third of students are unwilling to have effective interaction with teachers in tourism English classes, which is not conducive to the

improvement of tourism English teaching quality. In the experimental class, 74.99% of the students chose "willing" and "very willing" to carry out tourism English courses using the flipped classroom teaching mode of Xuetong. It can be seen that in the flipped classroom teaching mode of Xuetong supported by intelligent technology, more students are willing to interact with teachers in the tourism English classroom to improve their travel English learning ability, and then acquire more tourism English knowledge and skills.

V. Conclusion

The flipped classroom teaching mode supported by intelligent technology significantly improves the quality of tourism English education. Through the comparison experiment between the experimental class and the control class, it is found that after applying the flipped classroom teaching on the Learning Express platform, the average score of the students' tourism English achievement in the experimental class reaches 85.76, which is 14.08 points higher than that before the experiment, and 11.17 points higher than that of the control class, reflecting the significant teaching effect. The passing rate of students in the experimental class reaches 100%, and 27.08% of them reach the excellent level, while the excellent rate of the control class is only 4.35%. This indicates that the intelligent technology-supported flipped classroom teaching can effectively improve students' achievement performance.

The positive impact of flipped classroom teaching is further confirmed by the results of the questionnaire survey. 77.56% of the students believed that flipped classroom teaching enhanced their understanding of the English for Tourism course, and 82.76% of the students were satisfied with the way the course was assessed and evaluated. In terms of learning satisfaction and teaching interactivity, 82.17% of the students in the experimental class agreed with the flipped classroom teaching mode, and 74.99% of them were willing to actively interact with the teacher in the classroom, which was much higher than the willingness of students to interact in the traditional teaching mode.

The effectiveness of the flipped classroom teaching model is mainly due to three advantages: first, the rich and diversified digital teaching resources satisfy students' individualized learning needs; second, students change from passive acceptance to active exploration, which improves their learning motivation and participation; and third, the complete learning chain of pre-study before class, interaction during class and consolidation after class strengthens the knowledge comprehension and memory. However, a few students (5.78%) reflected that the flipped classroom increased the learning burden, and 1.42% of the students thought that the content of independent learning was more difficult, which suggests that teachers should increase the range of choices of teaching programs to meet the needs of different students.

Overall, the flipped classroom supported by intelligent technology has injected new vitality into tourism English teaching and improved teaching efficiency and quality, which is worth reference and promotion for tourism English educators in colleges and universities.

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