Construction and Sustainable Development of Ecological English Classroom Based on Internet Technology

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Abstract: The ecological English classroom is in the form of English teaching, which aims to give students the idea of ecological and environmental friendliness. The ecological English classroom has various teaching forms, which can increase the interest in English learning and integrate the awareness of protecting the ecology and the environment into the learning. This paper aims to use Internet technology to build a more intuitive and effective ecological English classroom. For the construction of ecological English classroom, this paper is based on Internet technology and uses cloud data centers to integrate and transmit ecological resources. This paper is divided into three parts, and it evaluates the students' achievements in three aspects: cooperation and communication ability, problem-solving ability and information literacy. In the experiment, this paper selects two grades of students for testing. The experimental group was taught in the ecological English classroom constructed in this paper, and the control group was taught by the traditional English curriculum. The experimental period was three months. Comparing the scores of the pre-test and post-test, it can be found that the scores of the experimental group and the control group both decreased by 5%. The problem solving ability and information literacy ability of the students in the experimental group increased by 20% and 34% respectively, which were 16% and 36% higher than that of the control group. This shows that the ecological English classroom constructed in this paper can effectively allow students to master the relevant knowledge of ecological, and their own awareness of ecological environmental protection is also continuously strengthened.

1. Introduction

From the perspective of the Internet, students' English application ability training and ecological environmental protection awareness training should get rid of the opposition between virtual and reality in traditional teaching. Using the virtual space of the Internet to extend the life time and display platform of education and teaching. The application of this combination of virtual and real refers to the connection of education and teaching in the real environment with the teaching in the network virtual environment. This kind of continuous teaching method based on reality education and assisted by network environment teaching avoids the drawbacks of pure network virtual teaching that is divorced from reality. Moreover, the openness of the network provides people with

a choice of massive data and information resources. The degree of freedom brought by this openness must be subject to a certain normative system, and only by giving the correct orientation can the full effect of the Internet's rich resources be brought into full play. In this regard, in the education and teaching of students' English application ability and ecological civilization, teachers should fully grasp the ideological dynamics of the educated and the basis of network behavior. It should give the educated the correct way to use the Internet to learn, improve the students' moral quality and ideological awareness, so as to enhance the students' resistance to the bad temptation of other resources in the Internet. At present, the social industry with the Internet as its core technology is gradually becoming a research center for scientific development and technological renewal, and all walks of life in society have entered a new normal of rapid development in the information age. Therefore, it is necessary to properly combine Internet technology with ecological classrooms to build an information-based and visualized ecological English classroom.

The continuous development of English teaching, many scholars have made innovations in English teaching modes and teaching forms. Le Z has studied the multimedia-assisted English classroom Teaching Mode (ECTM). His Teaching Model can introduce videos, pictures and texts into teaching practice to improve the efficiency of English teaching [1]. Handayani I designed a new method for English teaching in agricultural colleges. He solved the problem of students' oral anxiety through targeted oral teaching [2]. Mai X found that there are differences in the types of questions and answers through classroom observation of four college English teachers and analysis of interview materials [3]. Judit proposed a new dialogue teaching technology based on constructivism to improve the level of English education in Spanish high schools [4]. However, their research is more centered on the teaching form, and the application and improvement of information technology are not perfect.

The combination of Internet technology and teaching can bring a variety of new perspectives to teaching. Olakanmi EE examined the results of a training needs analysis and secondary school teachers' attitudes towards the use of ICT for teaching in ICT-enhanced classroom environments [5]. Zhu Z M developed an IoT-based intelligent classroom management system [6]. Aiming at the current shortage of cross-border English classroommommerce talents, Liu Y has put forward new insights into the teaching of cross-border English classroommommerce in colleges and universities combined with virtual reality technology and online classroom mode [7]. Liu Y aimed to explore innovative designs that change the traditional Teaching Model and examine the impact of online English reading teaching based on constructivism [8]. Soni V D designed an Internet of Things (IoT) and an AI-based paradigm. This paradigm uses convolutional neural network (CNN) based object detection to detect COVID symptoms and people by measuring temperature and maintaining physical distance between students in classrooms [9]. Mosquera L H aimed to determine the impact of implementing a virtual learning environment (VLE) curriculum in English as a foreign language at a public university in Colombia [10]. However, the technology they study is more of a way to upgrade teaching, and it does not improve the comprehensive quality and comprehensive ability of students.

The use of the Internet in teaching English has increased dramatically with the introduction of the Internet. Computer technology has received a lot of attention from foreign researchers working in this area since it has been used to teach English and has produced effective educational outcomes. Additionally, as research on diverse teaching philosophies matures, the Internet has emerged as a crucial mainstream technological resource for English instruction. In order to provide better teaching materials and ecological civilization and environmental protection resources in the classroom, this essay uses Internet technology. Students may engage in more meaningful interactions with nature thanks to the virtual reality technology.

2. Internet Technology and Ecological English classroom Construction

2.1 Internet Technology Classroom

The Internet technology classroom is to use the sharing and convenience of the Internet to transmit the desired content directly from the data center to the classroom through the network. Classroom content can also be transmitted to the data center [11], resulting in two-way feedback, as shown in Figure 1.
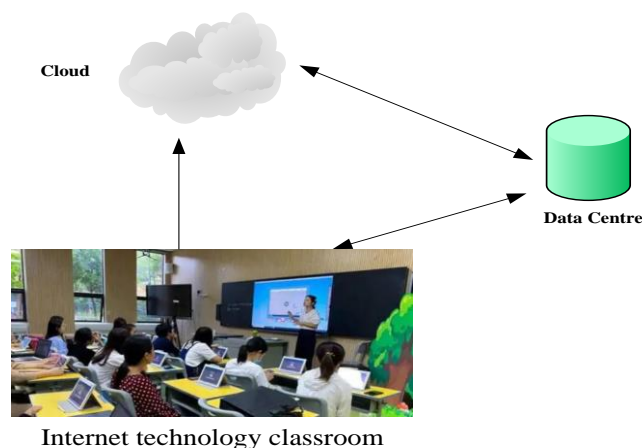

Figure 1: Internet Technology Classroom

For the English teaching research under "Internet +" conditions, it focuses on the research on Teaching Mode and teaching strategy, as well as the technical application and resource development of the Internet in the field of English teaching. The research features are as follows:

The research level of ECTM under the condition of "Internet +" focuses on the micro-level, and there is less application research on the overall subject Teaching Mode at the macro-level. Most studies model designs for a single language skill in the English subject. Such as the application in English reading, speaking, writing teaching, etc., only a few studies have studied the Teaching Mode of English subjects from the macro level. Therefore, most Teaching Mode applications focus on the cultivation of students' individual language skills, learning interest and autonomous learning ability [12].

Under the condition of "Internet +", the research method of English subject Teaching Mode is relatively fixed and single, and the practice period is short. In most of the existing studies, the research method is supplemented by the survey method, and few studies use the combination of quantitative research and qualitative research. At the same time, the period of practice research is short, and the long-term tracking of model practice is not enough [13].

2.2 Ecological Teaching Classroom

The arrival of the era of ecological civilization now means that ecological literacy has also become a standard for measuring the moral literacy of the younger generation. College students shoulder the important task of the future development of the country and society. The quality of ecological civilization should not be limited to superficial efforts, but should fully reflect their ecological literacy in the aspects of morality, intelligence, physique, beauty and labor. However, due to the immaturity and imbalance in the development of ecological civilization education for college students, college students cannot meet the qualified ecological literacy standards. Through ecological civilization education for college students, college students must have a correct understanding of the ecological environment and understand the close relationship between the

ecological environment and human survival and development. Only by being able to understand the degree of harm caused by human destruction to the ecological environment can we have a strong ecological behavior ability and guide the ecological behavior of college students with the correct value orientation. Ecological civilization education for college students is the only way to promote college students to establish correct ecological civilization values. Taking correct ecological civilization values as the guiding rules for college students in the future, we should cultivate college students into excellent ecological civilization practitioners and demonstration models, as well as promoters of good ecological civilization behaviors. As shown in Figure 2, there is a strong interaction between the ecological classroom and the ecological environment [14].
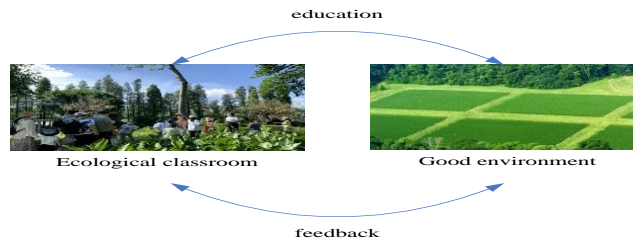

Figure 2: Ecological classroom and ecological environment

The Internet has permeated many facets of modern society, including technical advancement, social and economic processes, and human creation and living. Because of the advancement of the Internet in this setting, new media has also come to the notice of the public, and over time, the public has come to appreciate its importance. In order to implement network teaching of ecological civilization for college students, network new media technology should be used effectively. The spread of new online media is wide and fast, and the sharing of resources, information and knowledge has broadened new ways of education for college students' ecological civilization education, and it is also very convenient to acquire knowledge. The huge amount of knowledge about ecological civilization on the Internet also expands the learning resources of education, which attracts the content of ecological civilization education and English teaching. Figure 3 shows the teaching form of ecological English classroom [15].

Figure 3: Ecological English classroom format

2.3 Questionnaire and Test Algorithm

In this paper, for the data analysis after the questionnaire collection, this paper adopts the t test method, and the calculation method for the data is as follows:

We use the relevant indicators obtained from the meta-analysis, starting from the indicators to the effect of teaching, to find out the different connection states of the ecological English classroom constructed in this paper and the normal control group [16]. Functional connectivity is calculated as follows:

$$r = \frac{\sum_{i=1}^{n}(X_i - \overline{X})(Y_i - \overline{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \overline{X})^2}\sqrt{\sum_{i=1}^{n}(Y_i - \overline{Y})^2}} \tag{1}$$

Among them

$$\bar{X} = \frac{1}{n}\sum_{i=1}^{n}X_i \tag{2}$$

After the functional connectivity is calculated, a symmetric matrix at the voxel level is formed, and the values in the matrix are tested for correlation. The matrix after multiple corrections is regarded as the adjacency matrix A, the value of A_{ij} is regarded as the weight value of the edge, and D^l is the result of multiplying the adjacency matrix l times.

$$A^{l+1} = \begin{pmatrix} a_{11}^l & \cdots & a_{1n}^l \\ \vdots & \ddots & \vdots \\ a_{m1}^l & \cdots & a_{mn}^l \end{pmatrix} \begin{pmatrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{m1} & \cdots & a_{mn} \end{pmatrix} \tag{3}$$

Among them

$$a_{ij}^{l+1} = a_{i1}^l a_{1j} + a_{i2}^l a_{2j} + \cdots + a_{im}^l a_{mj} \tag{4}$$

a_{ij} is the p-value of the Pearson correlation coefficient after multiple corrections:

$$D^l = A^{l-1} * A \tag{5}$$

The Spearman rank and Pearson correlation thresholds were both 0.05 [17]. The statistics for the Pearson correlation test are as follows:

$$t = r\sqrt{\frac{n-2}{1-r^2}} \tag{6}$$

The Spearman rank correlation test is calculated as follows:

$$r_s = \frac{\text{cov}(rg_X, rg_Y)}{\sigma_{rg_X}\sigma_{rg_Y}} \tag{7}$$

$$t = r_s\sqrt{\frac{n-2}{1-r_s^2}} \tag{8}$$

rg_X, rg_Y are the rank variable, $\text{cov}(rg_X, rg_Y)$ is the covariance of the rank variable, and $\sigma_{rg_X}, \sigma_{rg_Y}$ are the standard deviation of the rank variable.

The correction method uses an improved uniform B-spline smoothing for correction, and the node vector is

$$T = \{t_0, t_1, \cdots, t_m\} \tag{9}$$

T is a non-decreasing sequence,

$$t_i - t_{i-1} = c \,\forall i \in \{1, m-1\} \tag{10}$$

$t_i \in [0,1]$, C are constant control nodes. The degree of definition is:

$$p = m - n - 1 \tag{11}$$

$$N_{i,j}(t) = \frac{t - t_i}{t_{i+j} - t_i} N_{i,j-1}(t) + \frac{t_{i+j+1} - t}{t_{i+j+1} - t_{i+1}} N_{i,j-1}(t) \tag{12}$$

$$N_{i,0}(t) = \begin{cases} 1, if \ t_i \le t \le t_{i+1} \ and \ t_i < t_{i+1} \\ 0, otherwise \end{cases} \tag{13}$$

Define the curve as:

$$C(t) = \sum_{i=0}^{n} P_i N_{(i,p)}(t) \tag{14}$$

The segmentation method is mainly Hidden Markov Random Field Model

$$P(Y_n \in A | X_1 = x_1, \cdots, X_n = x_n) \tag{15}$$

Among them, $X_n Y_n$ obeys the random process of discrete time, X_n is a Markov process and the value cannot be directly observed.

$$Q(\theta | \theta^{(t)}) = E_{Z|X,\theta^{(t)}}[\log L(\theta; X, Z)] \tag{16}$$

$$\theta^{(t+1)} = \arg \max_{\theta} Q(\theta | \theta^t) \tag{17}$$

$Q(\theta | \theta^t)$ is the parameter of maximum likelihood estimation, given the current condition variables X, Z, to find the value that maximizes the next time [18].

The definition of the shortest distance l_{ij} is as follows:

$$L = \frac{1}{N(N-1)} \sum_{i,j \in V, i \ne j} l_{ij} \tag{18}$$

The mean curvature value of the cortex, which is calculated as

$$H = \frac{1}{2}(k_1 + k_2) \tag{19}$$

k_1, k_2 are the principal curvature

$$k = \frac{|f''(x)|}{(1 + f'^2(x))^{3/2}} \tag{20}$$

The methods of statistical analysis we used are described in detail below.

Shapiro-Wilk test is a method of frequency statistics to test the normality of samples. Its null hypothesis is that the sample $x_1, \cdots, x_n$ comes from a normal distribution, and the test statistics are:

$$W = \frac{\left(\sum_{i=1}^{n} a_i x_{(i)} \right)^2}{\sum_{i=1}^{n} (x_i - \bar{x})^2} \tag{21}$$

Among them

$$(a_1,\cdots,a_n) = \frac{m^T V^{-1}}{(m^T V^{-1} V^{-1} m^T)^{1/2}} \qquad (22)$$

$x_{(i)}$ is the ordered sample, $\bar{x}$ is the sample mean, and V is the covariance of the ordered statistic. If the p-value is less than the confidence level, then the null hypothesis is rejected and the sample does not conform to a normal distribution.

3. Construction of Ecological English classroom

3.1 Construction of Teaching Mode

The construction of ecological English classroom should take English learning as the goal and ecological civilization as the ideological criterion. This article will construct the complete five elements of the Teaching Model. For the theoretical basis, choose Ecological Civilization Education and English Learning Construction Theory. As for the teaching goals, ecological teaching is used as the form, and English cooperation and communication ability, problem-solving ability and information literacy are the goals. For teaching evaluation, this paper takes all aspects into consideration [19]. Around these five elements, an ecological ECTMl under the condition of "Internet +" is constructed, as shown in Figure 4.
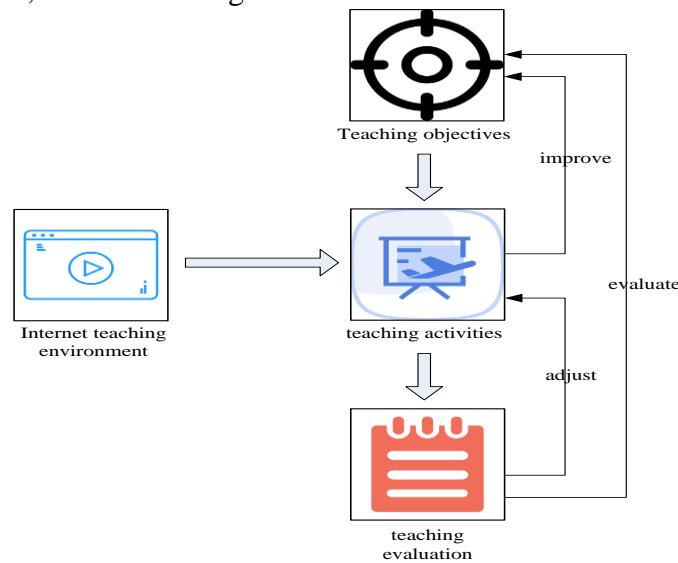

Figure 4: The ECTM under the condition of "Internet +"

3.2 Teaching Objectives

The teaching goal system is shown in Figure 5. The overall goal is to improve students' English performance and information literacy, cooperation and communication skills, and problem-solving skills, which are the core literacy of Chinese students.
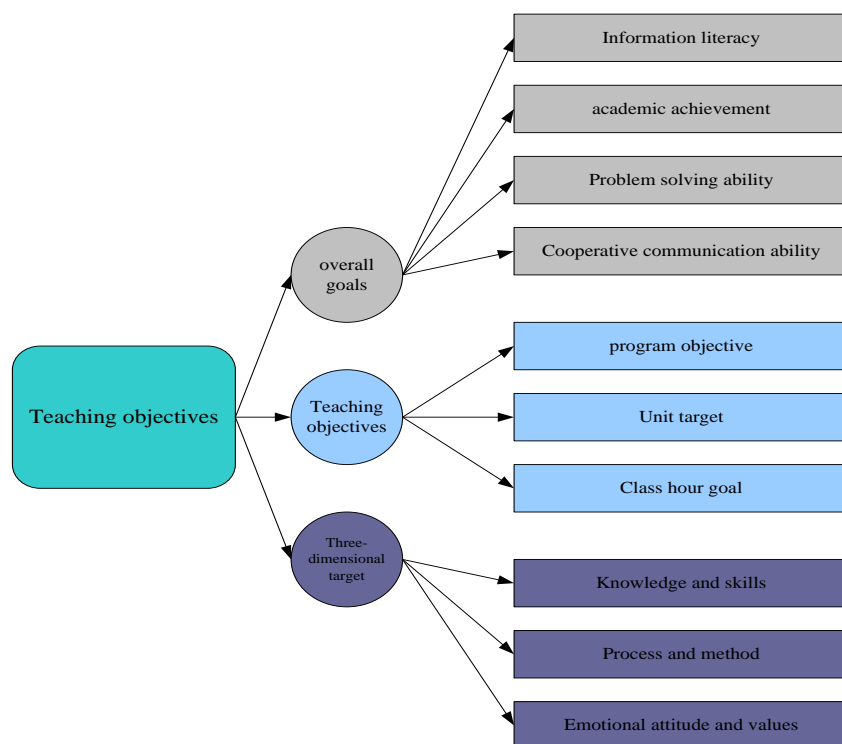
Figure 5: Teaching objectives

3.3 Internet Teaching Environment

The Internet teaching environment is the guarantee for the Teaching Mode to achieve the teaching objectives, and provides support for the effective application and creation of the Teaching Mode. The Internet teaching environment is the sum of Internet terminal equipment, online learning resources, digital teaching tools, etc., as shown in Figure 6. The terminal equipment mainly refers to the smart phone. The purpose of the smart phone mainly includes search and query functions, English education applications, photo recording functions, and reading and viewing functions. Smartphones can be used for communication between teachers and classmates. Students can inquire about information anytime, anywhere, read e-books, micro-lecture videos, news materials, take photos and record their homework and learning results, upload them to the teaching platform, and effectively carry out time management, subject learning, language learning, and intellectual development. Online learning resources include preset and generative resources. The learning content of preset resources is relatively fixed. It mainly comes from school resources, social resources and open resources. Teachers and students can access, filter, and obtain anytime, anywhere, in the form of documents, micro-lectures, audio and video, pictures, etc.
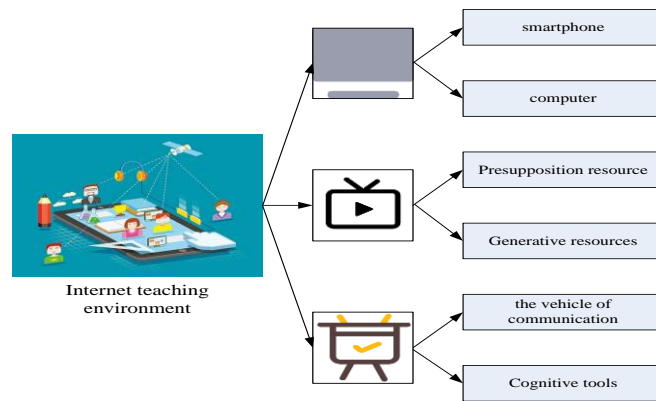
Figure 6: Internet teaching environment

3.4 Teaching Activities

Teaching activities refer to the organization and guidance of teaching content, the mixed application of teaching methods and methods, and the transmission and guidance of teaching emotional value. The specific operating procedures and practices of teaching activities at different stages are different. Any Teaching Mode will have relatively fixed operating procedures, but it is not fixed. The teaching activities of the ECTM under the condition of "Internet +" are divided into three parts: pre-class learning (online + offline), classroom learning (offline), and after-school assistance (online + offline), as shown in Figure 7.
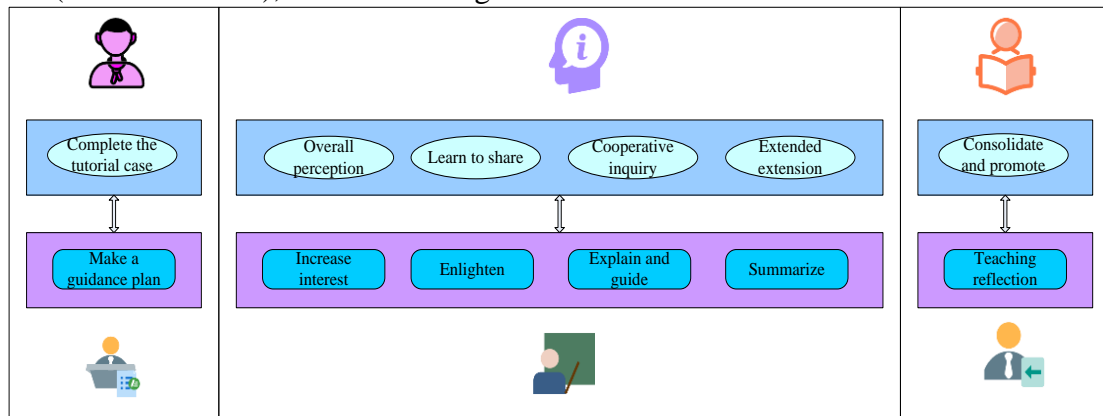

Figure 7: Operational procedures for teaching activities

3.5 Teaching Evaluation

Teaching evaluation is an indispensable basic requirement and link in the process of teaching activities. The evaluation of ECTM under the conditions of "Internet +" emphasizes the diversification of teaching evaluation, and the specific evaluation indicators are shown in Figure 8.
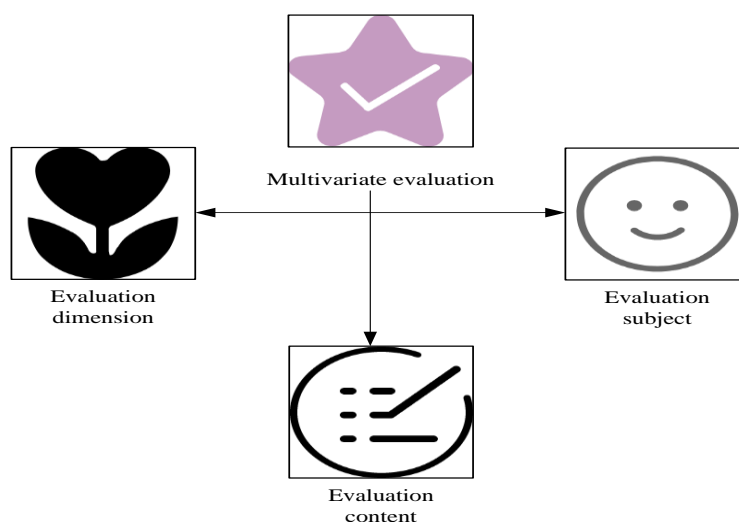
Figure 8: Multiple evaluations in English classroom

4. Evaluation of Ecological English classroom Practice

4.1 Experimental Design

This paper focuses on the impact of ECTM on students' English achievement, cooperation and communication ability, problem-solving ability and information literacy under the condition of "Internet +". The independent variable is the Teaching Mode, and the dependent variable is English achievement and three ability indicators. The validity of the Teaching Mode is verified through the changes of the dependent variables.

In order to carry out the experiment more smoothly and efficiently, sufficient preparatory work was carried out before the experiment. Preliminary preparations include formulating an experimental system, training experimental teachers, mobilizing students' parents, and equipping experimental equipment. First, a scientific and efficient management system has been formulated, with a clear division of responsibilities, to ensure that problems found are solved in a timely manner, so that the experimental plan can be successfully completed. Second, pre-training was carried out for teachers participating in the experiment, so that teachers could clarify the experimental content, experimental process and precautions. At the same time, training on the use of teaching platform tools is carried out for the teachers of the experimental class, so that teachers can be proficient in operating the Internet teaching tool platforms such as the cloud school home platform, teaching assistants and interactive classrooms in advance. Third, a teaching practice mobilization meeting was held for the parents of the students. The purpose and significance of the experiment were introduced to them through the parents' meeting, and questionnaires were distributed to collect parents' problems and suggestions on how to supervise and manage students' learning by using mobile phones. By developing a mobile phone supervision and management manual for parents, it allows parents to play a role in supervision and management. It cooperates with the school's teaching experiment through home-school co-education. In terms of facilities, the experimental equipment includes intelligent all-in-one computer equipment for the class, mobile portable electronic equipment such as students' smartphones and tablet computers, and experimental data recording and analysis equipment.

4.2 Experimental Data

Before and after the experiment period, the experimental class and the control class were measured in English achievement, cooperative communication ability, problem-solving ability and information literacy ability. A total of 124 data were recovered, with a recovery rate of 100%. 2 are invalid results and 122 are valid data. Through the analysis of students' performance, communication ability, problem-solving ability and information literacy assessment data, the following conclusions are obtained.

(1) Analysis of differences in English learning performance

The results of the difference analysis of the English scores of the experimental class before and after the semester are shown in Table 1.

Table 1: Independent sample T-test for pre-test and post-test scores in experimental class and control class

Pre and post test	grouping	mean score	T test
pre-test	test group	93.0	0.550
	control group	93.9	
post test	test group	91.5	0.187
	control group	87.6	

The analysis results in Figure 9 show that there is no significant difference in the pre-test English scores between the experimental class and the control class before the experiment (Sig=0.550, Sig>0.05). It can be seen that the pre-test scores of the English scores of the experimental class and the control class are homogeneous, and the students' initial English knowledge level is relatively consistent, which can be studied in groups. There was no significant difference in post-test English scores between the experimental class and the control class (Sig=0.187, Sig>0.05).

This shows that after the first round of teaching practice, the English performance of the experimental class did not improve significantly. The reasons for the obvious improvement in the English performance of the experimental class may be: First, the experimental period of the Teaching Mode is insufficient. The experimental period is 3 months, and the performance improvement effect of the new ECTM is not obvious in a short period of time. Second, teachers are in the stage of adapting to the new Teaching Model. Teachers need time to adapt to the transition of Teaching Mode, and in the early stage of Teaching Mode experiment, teachers are still in the stage of application and exploration. In a limited time, teachers cannot use the new Teaching Mode to implement activities, and it is difficult to give full play to the advantages of the Teaching Mode, so the improvement of students' performance is not significant. Third, students' learning autonomy is weak. The new ECTM under the condition of "Internet +" has high requirements for students' autonomy. Students can independently complete the guided tasks before class, conduct exploratory learning in class, and complete homework on time after class. These are the prerequisites for performance improvement. Students are accustomed to passively accepting knowledge under the traditional classroom Teaching Mode, their learning autonomy is inhibited, and their autonomous learning ability is relatively weak. Students also need time to change their learning attitudes and adjust their learning methods to adapt to the new classroom model, so the performance improvement in a short period of time is not significant.

(2) Comparative analysis of ability changes

In order to explore whether the cooperative communication ability, problem-solving ability, and information literacy of the experimental class are different before and after the semeste. The analysis results are shown in Table 2.

According to the result analysis of Figure 10, there is no discernible difference between the experimental class and the control class in terms of their capacity for cooperative communication

prior to the experiment (Sig=0.322, Sig>0.05). Before the trial, there was no discernible difference in the experimental class's capacity for problem-solving from that of the control class (Sig=0.158, Sig>0.05). Prior to the trial, there was no discernible difference between the experimental class and the control class in terms of information literacy (Sig=0.424, Sig>0.05). In order to study the students' starting skills in groups, it can be shown that the cooperative communication ability, problem-solving ability, and information literacy pre-test scores of the experimental class and the control class are homogenous. After the experiment, there was no discernible difference between the experimental class and the control class in terms of their capacity for cooperative communication (Sig=0.252, Sig>0.05). After the experiment, there was no discernible difference in the experimental class's capacity for problem-solving from that of the control class (Sig=0.582, Sig>0.05). Before and after the experiment, students' information literacy did not change significantly (Sig=0.910, Sig>0.05).
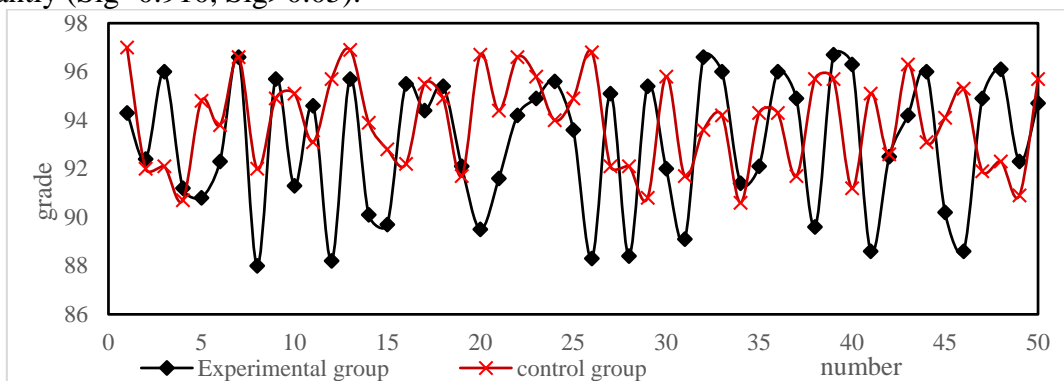

A. pre-test score distribution
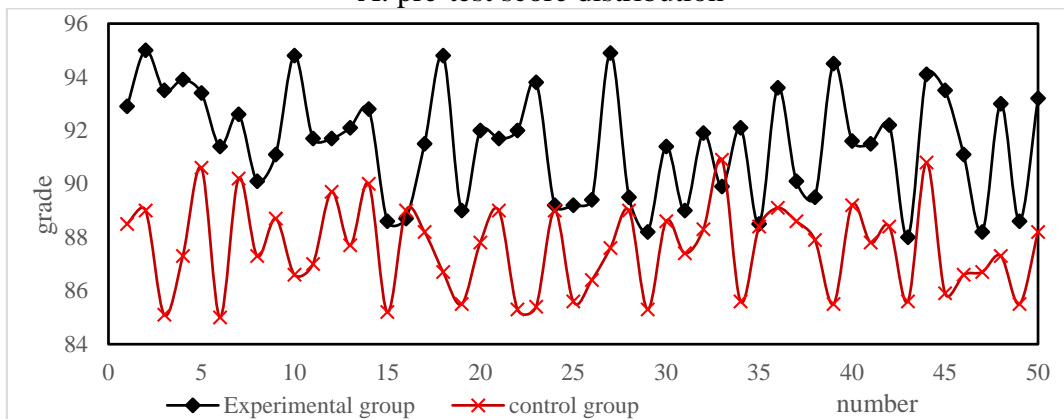
B. Post-test score distribution

Figure 9: Results of grade changes
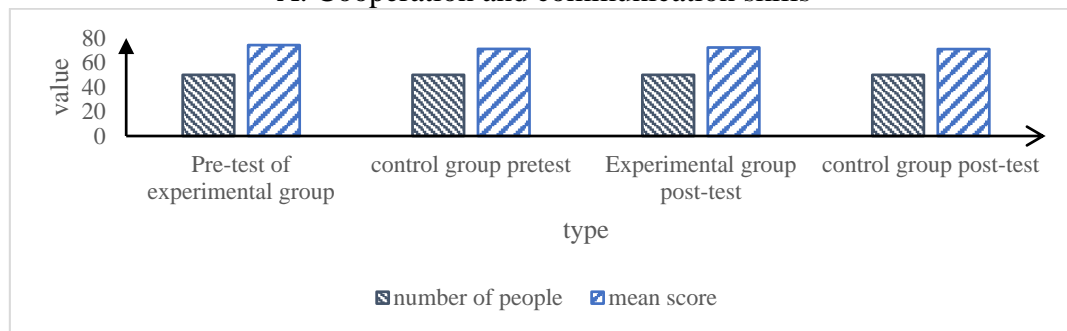
Table 2: Independent sample test of pre-test and post-test ability in experimental class & control class

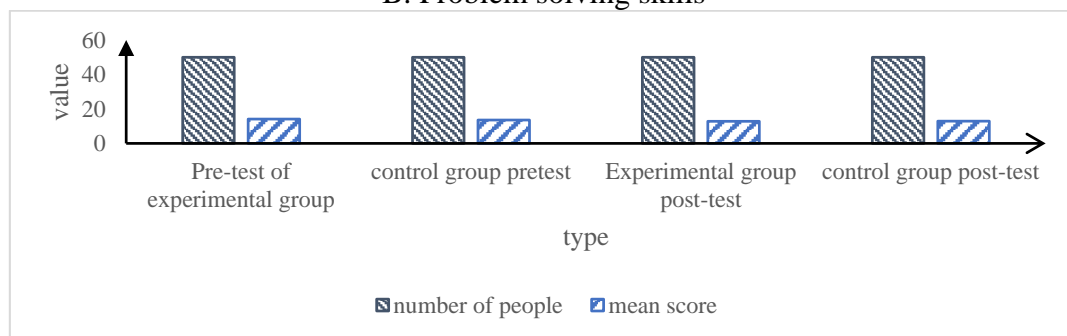| ability	Pre and post test	T test
Cooperation and communication skills	pre-test	0.322
	post test	0.252
problem solving skills	pre-test	0.158
	post test	0.582
Information Literacy	pre-test	0.424
	post test	0.910
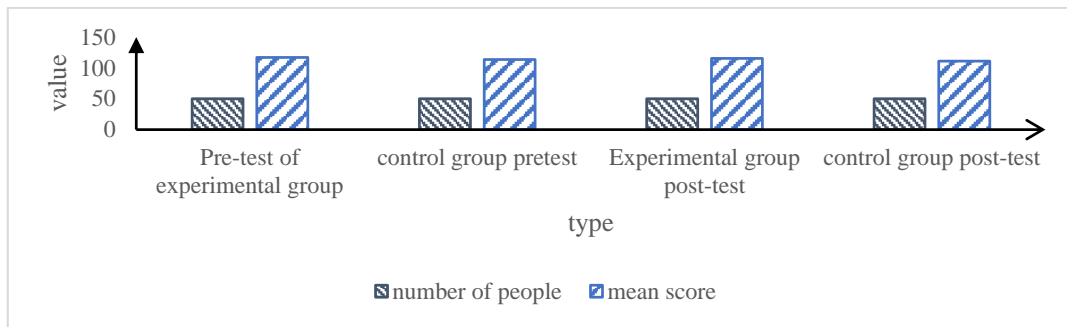
A. Cooperation and communication skills

B. Problem solving skills

C. Information Literacy Ability

Figure 10: Changes in the pre-test and post-test abilities of the experimental class and the control class

Therefore, the cooperation and communication, problem-solving ability and information literacy of the experimental class may not be significantly improved. In order to further analyze the differences of students' cooperative communication ability before and after, it is necessary to conduct longitudinal pre-and post-test comparative analysis on cooperative communication ability, problem-solving ability and information literacy. The analysis results are shown in Table 3.

Table 3: Paired sample test of pre-test and post-test ability in experimental class and control class

ability	grouping	pretest mean	post-test mean	Correlation coefficient	significance level
Cooperation and communication skills	test group	116.48	114.81	0.296	0.547
	control group	113.63	111.11	0.247	0.457
problem solving skills	test group	74.23	71.99	0.226	0.221
	control group	71.14	70.94	0.458	0.921
Information Literacy	test group	14.12	12.83	0.999	0.058
	control group	12.91	13.61	0.405	0.203

According to a study of the data in Table 3, there is no discernible change between the experimental class's cooperative communication skills before and after the experiment (Sig=0.547, Sig>0.05). Before and after the trial, there was no discernible change in the pupils in the control class (Sig=0.457, Sig>0.05). Students in the experimental class did not significantly differ in their ability to solve problems before and after the experiment (Sig=0.221, Sig>0.05), and students in the control class did not significantly differ in their ability to solve problems before and after the experiment (Sig=0.921, Sig>0.05). Before and after the experiment, there was no discernible change in the information literacy of the students in the experimental class (Sig=0.058, Sig>0.05), and there was also no discernible difference in the information literacy of the students in the control class (Sig=0.203, Sig>0.05).

4.3 Factors for Constructing Ecological English classroom Teachers

(1) Changes in teachers' teaching concepts

The implementation of the ECTM under the condition of "Internet +" has promoted the transformation of teachers' technical concept and teaching concept, and formed a new teaching concept. First, teachers view educational informatization more objectively. With the development of teaching practice, teachers are deeply aware that the Internet has penetrated into all fields of English teaching. Internet technology has unique advantages in developing teaching resources and optimizing teaching evaluation. Educational technology can empower English teaching and solve the current teaching difficulties in various disciplines. It is a way to help optimize and improve the teaching effect. Teachers gradually agree with the ECTM under the condition of "Internet +". Secondly, teachers actively change their teaching methods, and the "student-centered" teaching method is normalized. Teachers are actively adapting to the new classroom Teaching Mode, and teachers are moving from the "center" to the "edge" of the classroom, from the traditional "one-sided" to "multi-faceted". Classroom teaching puts more emphasis on students' autonomous learning, inquiry-based learning, and interactive learning with the help of network platforms.

(2) The improvement of teachers' teaching and research ability

The implementation of the ECTM under the condition of "Internet +" has effectively exercised teachers' teaching and research ability, and the professionalization of teachers has grown rapidly. In this process, teachers integrate teaching and teaching research, conduct theoretical research on problems encountered in the reform of Teaching Mode, and summarize teaching experience. With the support of the Internet, the knowledge reserve has been continuously expanded to meet the teaching needs, and the teaching methods have been continuously improved to achieve the teaching purpose under the guidance of the Teaching Model. Based on the characteristics of the subject, and guided by the ECTM under the "Internet +" condition, teachers explore and discover the teaching rules and teaching methods that deeply integrate the Internet and English teaching. Therefore, the implementation of the ECTM under the condition of "Internet +" improves the teaching and research ability of teachers, and promotes the growth of teachers from teaching teachers to research teachers.

(3) The realization of teachers' stratified teaching

The implementation of the ECTM under the conditions of "Internet +" prompts teachers to carry out layered teaching, taking into account the development of students with different abilities. The core of the new classroom Teaching Mode is to take students as the center. In this Teaching Mode, students are required to study independently and think actively, which requires higher students' autonomous learning ability and knowledge base. Therefore, it is easy to cause the outstanding students to have a low sense of achievement, and the poor students to be left behind, and then the phenomenon of polarization occurs. Layered teaching can effectively solve the problem of taking

into account the development of students with different abilities. Especially in the pr-class learning and cooperation and communication links, teachers understand the differences in advance and form groups by classification.

4.4 Factors of Constructing Ecological English classroom Students

(1) Changes in students' learning attitudes

Using the English "Internet+" teaching method in the classroom encourages students to transform their learning attitudes and increase their enthusiasm for learning and classroom participation. The idea of "student-centered" is the basis of the new traditional teaching model in the "Internet +" environment, where the main responsibilities of teachers and students and the teaching connection inside and outside the classroom are reversed. Compared with the regular classroom, in the preparatory class, students have more opportunities to investigate and present independently. Therefore, classroom learning is more exciting for students. Interesting and practical teaching activities stimulate students' learning motivation, and students obviously invest more thinking, emotion and speech behavior in the classroom. The specific performance is the positive change in the number of classroom participants, participation interest, and participation effect. Therefore, the implementation of the ECTM under the conditions of "Internet +" stimulates students' learning motivation and enhances their learning enthusiasm.

(2) Changes in the way students learn

The implementation of the ECTM under the condition of "Internet +" promotes the transformation of students' learning methods. Students' subjective initiative can be brought into play, and independent learning is normalized. Influenced by the change of teachers' teaching methods, the classroom of "teacher speaks and students listen" has been transformed into a classroom of "teacher teaches and students learn". Students have more freedom and power both inside and outside the classroom, and their initiative and creativity are brought into full play. In the pre-class guidance session, with the guidance and support of teachers, students can independently clarify their learning goals, plan their learning time, complete the content of the guidance, and conduct self-assessment. Students gradually adapt and become accustomed to autonomous learning, inquiry-based learning, and online interactive learning, thereby realizing the occurrence of deep learning. Therefore, the implementation of the ECTM under the condition of "Internet +" improves the students' learning autonomy, and the students' learning methods change from passive learning to active learning.

(3) The stability of students' academic performance

The implementation of the ECTM under the condition of "Internet +" focuses on the cultivation of students' academic performance, and the academic performance is basically stable. However, from the quantitative results of the experiment, the implementation of the conventional classroom Teaching Mode under the condition of "Internet +" did not significantly improve the students' English performance, but the students' academic performance was basically the same in the practice process of the Teaching Mode. Therefore, the implementation of ECTM under the condition of "Internet +" has a stable effect on students' academic performance.

5. Conclusion

Ecological English teaching classroom is the trend of English teaching development. English teaching has developed from pure English teaching to teaching that blends English with a variety of subjects. For ecological English teaching, this paper first introduces the ecological classroom and information technology classroom, and gives a conceptual explanation of the ecological English classroom of Internet +. After that, the five elements of the Teaching Mode of the ecological English classroom of Internet + are described in detail, and the construction principle of the

ecological English classroom is introduced in detail. Finally, through the comparison of the classroom constructed in this paper with the traditional classroom, the suggestions for the construction of the current Internet + ecological English classroom are obtained. Of course, this paper also has many shortcomings. For ecological English classrooms, this paper does not conduct field investigations related to ecological knowledge, nor does it screen ecological knowledge. Therefore, in the follow-up research, we will have a deeper understanding of the relevant knowledge of ecological civilization teaching, and better integrate English with ecological civilization.

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