A Study on the Construction of the English Education Ecosystem for the Cultivation of Foreign Language Talents

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Abstract. From the perspective of ecology, traditional English teaching in colleges and universities is an ecologically balanced system. After a long time of running, each ecological factor in this ecosystem slowly reaches a relatively compatible and stable state. However, with the development of information technology and the leap of people's thought, English teaching in higher education is constantly reformed. These changes will inevitably lead to the corresponding changes in traditional teaching objectives, models, teaching materials, courses, and other factors, thus breaking the original ecological balance and causing many imbalance phenomena. From the perspective of ecology of education, this paper discusses the deep causes of the imbalance in the ecosystem of college English teaching, and then puts forward the optimization strategy. By advocating the collaborative development of teachers and students, the college English teaching ecosystem of foreign language talent training can be developed soundly.

1. Introduction

To meet the national strategic needs and cultivate international talents, colleges, and universities shouldering the task of training English talents pay more and more attention to the cultivation of college students' comprehensive English application ability. Foreign language teaching in higher education is being adjusted and reformed with national development. The College English Teaching Guide (2020 edition) issued by the Education Advisory Commission in 2020, pointed out the key points in the development of curriculum, teaching methods and means, evaluation, and testing in institutions of higher learning. It emphasizes that college English teaching should meet the individual growth needs of college students and pay attention to interpersonal communication and emotional communication between teachers and students. At the same time, it emphasizes the use of information technology and intelligent technology in teaching, handling the relationship between internal and external, process and result evaluation, so as to improve the quality of college English teaching and promote the development of higher education in our country and point out a new direction.[1]

Since the 1980s, domestic scholars have been applying ecology to ecological research in micro classrooms. With the continuous refinement of the research on the ecology of education, more and more scholars have noticed the connection between the ecology of education and subject teaching. Therefore, in the process of the continuous reform of college English teaching, more and more researches have been carried out on college English teaching by applied ecology of education. Xiao Xiao (2016) examines college English classes from an ecological perspective, improves the efficiency of college English classes from the aspects of development and integrity, and provides ideas for helping them to embark on the road of sustainable development[2]; Song Fuxia (2018) studied the current situation of young college English teachers in China from the perspective of education ecology, and analyzed the multi-factors of young college English teachers' learning and the interaction between teachers and the environment[3], contributing to the gaps in this field in China; Xie Anzhi (2019) regards the working environment of college English teachers as an ecosystem, and puts forward suggestions to optimize the development of teachers from the aspects of individual teachers, students, colleagues and schools[4]; Yao Fen (2019) proposed to provide reference for expanding students' ecological niche by participating in English competitions, setting real context, planning English learning, understanding English knowledge background and reading English original works[5]; Li Chen and Chen Jianlin (2017) examined college English teaching from the perspective of ecology, and analyzed the current situation of students' ecological niche and proposed a framework for expanding students' ecological niche[6]. Through method research and strategy implementation, Huang Yanan (2019) analyzed students' ecological niche from the perspective of ecology, and put forward suggestions to expand students' ecological niche, so as to provide reference for students and inspire teachers to innovate and improve teaching design[7]; Li Junhua (2019) puts forward constructive opinions on promoting the harmonious and open evaluation of foreign language teaching from the perspective of following the thinking...
of the survival, development and innovation of students[8]. Chen Wei and Yang Yue (2019) established an informational and data-oriented English education ecological environment, providing inspiration for improving the quality of college English teaching and promoting the efficiency of English learning[9].

From the perspective of ecology, traditional English teaching in colleges and universities is an ecologically balanced system. After a long time of running, each ecological factor in this ecosystem slowly reaches a relatively compatible and stable state. However, with the development of information technology and the leap in people's thinking, the English teaching of higher education is constantly reformed. These changes will inevitably lead to the corresponding changes in the traditional teaching objectives, models, textbooks, courses, and other factors, thus breaking the original ecological balance and causing many imbalance phenomena. Therefore, we should timely find out and improve the existing problems in the current college English teaching ecosystem and promote its benign development. From the perspective of the ecology of English education, this paper will analyze the main problems existing in the current ecosystem of foreign language talent training and propose constructive strategies for optimizing the ecosystem of college English teaching, and promote the further improvement of the ecosystem of college English teaching.

2. Ecology of Education

Ecology of education is a science that studies the law and mechanism of the interaction between education and the surrounding ecological environment according to the principles of ecology[10]. The concept of "ecology of education" was first proposed by American scholar Gremin in 1976[11]. Eggleston, a British scholar, innovated the research idea and published the book School Ecology in 1977[12]. Subsequently, Goodlad, an American scholar, proposed "cultural ecology" in 1987, which broadened the research scope of education ecology[13]. In 1979, Bronfen-brenner proposed the theory of "human ecology", which further developed the ecology of education and was widely recognized by Western scholars[14]. The ecology of education, based on the principles of ecology, mainly studies the basic laws of the essential interaction between education and the external ecological environment as well as the internal links and levels of education[15]. The ecology of education mainly focuses on the educational ecosystem composed of the educational subject system and the ecological environment system, as well as the harmonious symbiosis and balanced development of various ecological factors in the system[16]. In educational activities, ecological factors such as teachers, students, teaching content, teaching methods, evaluation mechanism, teacher-student relationship, classmate relationship, students' personal living space, psychological state, and teaching environment (distribution of classrooms, equipment, and seats) constitute an educational ecosystem. The factors in the system are interrelated and interact with each other. The change of any factor will affect the balance of the whole educational ecosystem and play a role in inhibiting and promoting the development of education.

The energy within the college English teaching ecosystem -- knowledge and information -- is delivered to students by teachers through teaching methods, teaching content, and teaching tools (Internet, multimedia, information technology). In this teaching process, the energy released by various ecological factors is recycled through teaching activities, thus promoting the transformation of knowledge energy and the transmission of information. In addition, various ecological factors are always in a state of constant development and change, which will lead to continuous changes in the internal structure of the college English teaching ecosystem. However, competition and collaborative development among various ecological factors will also promote the dynamic balance of the whole teaching ecosystem. When the teaching environment changes due to the development of information technology and the continuous reform of English teaching, the various factors in the teaching ecosystem should change accordingly, so as to promote the balanced development of the whole system. For example, teachers should timely adjust the teaching objectives, teaching methods, and teaching content, and scientifically use the Internet information technology and network teaching platforms to realize the transmission of knowledge. Students should adjust their learning method and rhythm in time, and use Internet information technology and network teaching platforms scientifically to realize the internalization of knowledge. The process of knowledge transfer and internalization in the new teaching environment contributes to the dynamic and balanced development of the college English teaching ecosystem to some extent. If the factors in the teaching ecosystem do not change correspondingly, the original ecological balance will be broken, leading to many disorders. From the perspective of ecology of education, this paper discusses the deep causes of the imbalance in the ecosystem of college English teaching, and then puts forward the optimization strategy. By advocating the collaborative development of teachers and students, the college English teaching ecosystem of foreign language talent training can be developed soundly.

3. Research Design

3.1. Participants of the Research

This study was conducted among first-year college English students and teachers in the university where the researcher worked. The textbooks used for college English courses are the New Progressive College English Integrated Course and the intelligent teaching platform We Learn.
3.2. Research Questions

From the perspective of the ecology of education, this paper aims to explore the deep causes of the imbalance in the college English teaching ecosystem of English talent training, and then put forward the optimization strategy. Specific research questions include: (1) What is the ecological status of college English teaching under the background of informatization? (2) If there is an imbalance in the college English teaching ecosystem, what are the reasons for the imbalance? (3) What strategies can optimize the teaching ecological environment of foreign language talent training and promote the sustainable development of college English teaching?

3.3. Research Methods

Firstly, we conducted a questionnaire survey among 1,986 students in 36 classes of college English courses. The questionnaire mainly investigates the impact of information technology and teaching reform on the college English teaching ecosystem of the university from the aspects of teaching content, teaching methods, teaching management, teaching evaluation, technical support and campus culture. A total of 1968 valid questionnaires were collected, and SPSS was used for statistical analysis of the data.

Secondly, 8 teachers of these classes and 1 student randomly selected from each class (36 people in total) were interviewed. The interviews were mainly about the evaluation of classroom teaching and the use of the intelligent teaching platform of We Learn.

4. Analysis of the Research Results

From the point of view of the ecology of education, the ecological system of college English teaching includes ecological subjects (students, teachers) and an ecological environment. The change of any factor in the teaching ecosystem will inevitably affect the development of all factors in the system and the balance between all factors. From the above survey results, it can be found that the development of information technology and the reform of college English teaching have positive or negative impacts on ecological factors such as teaching content, teaching methods, teaching management, teaching evaluation and technical support, and campus culture. Although the application of "Internet +" in college English teaching conforms to the requirements of applying network information technology to teaching in the College English Teaching Guide issued by the Ministry of Education in 2017, the college English teaching of the school is not sufficiently integrated with network information technology, and other ecological factors have not been properly adjusted and changed to adapt to the changes of teaching ecological environment. All these conditions have caused an imbalance in its teaching ecological system.

4.1. The Imbalance of Teachers' Ecological Niche

The ecological chain produced by teachers promotes the progress of education and the development of society. Therefore, the ecological niche of teachers not only affects the overall quality of the country, but also affects the cultivation of foreign language talents, which is the key to our overall ecological niche. Teachers with higher levels of niche recognition will make efforts to change the surrounding environment. While their ability and teaching mistakes will affect the quality of teaching and student development. The results of the questionnaire and interview show that the information technology literacy of teachers cannot keep up with the speed of information technology updates. For example, many teachers are unable to integrate information technology into all aspects of teaching and meet the individualized learning needs of students. For We Learn, many teachers just use it as a platform to assign homework and monitor the completion of learning tasks. The campus culture atmosphere of independent learning, mutual learning, and practical learning has not been constructed yet. The extra-curricular interaction with network information technology as the carrier and English language application as the goal is often passive. In addition to the completion of language training arranged by teachers, extra-curricular interaction between students or between teachers and students through network information technology is very short.

On the other hand, most college English courses are taught in large or combined classes. An average of 50-60 students per class defies the law of ecosystem tolerance. System resources cannot effectively carry the needs of each student, resulting in the unreasonable distribution of resources and the unsmooth of the knowledge information energy. Too many students and too few class hours will, on the one hand, reduce classroom communication and interaction, reduce the effect of communication and create a rigid and dull classroom atmosphere. Students lack enough classroom output practice; On the other hand, it also hinders teachers' understanding of each student's actual learning situation and makes it difficult to teach students in accordance with their aptitude. The teaching of large classes makes it difficult to provide individualized, sustainable and growth evaluation for students, resulting in a single teaching evaluation standard, ignoring individual differences of students. All these factors will lead to the imbalance of teachers' ecological niche.

4.2. The Imbalance of Students' Ecological Niche

From the perspective of the ecology of education, the niche of student factors in the classroom ecosystem can be understood as the cognitive structure and status of students' existing English knowledge in the process of knowledge energy transfer, exchange and conversion with other ecological factors, and the functional relationship between students' existing English knowledge and other ecological factors in the teaching...
process. According to the questionnaire and interview results, students lack the concept of the teaching ecosystem and do not realize that they have an impact on the whole teaching ecosystem. They mostly respond to the changes in the soft environment of teaching passively, instead of making active, reasonable and effective adjustments to their own learning motivation, attitude, method and practice, so as to achieve a harmonious coexistence with other ecological factors.

Under the background of informatization, the teaching methods of college English have been greatly improved, but under the influence of various factors, the teaching situation is not very optimistic. Many colleges' English classes are still dominated by teachers, which limits students' thinking, which to a large extent will affect the progress of academic performance and the improvement of cognitive level and subject advantage. The unclear ecological niche of students makes it impossible to achieve good results, let alone achieve comprehensive development, no matter in-class learning or extracurricular practice. Moreover, teachers' guidance on students' autonomous learning abilities is relatively lacking, and it is common for students to rely on teachers. The "Internet +" environment enriches teaching methods, micro-classes, MOOCs, online cooperative tasks, online question-and-answer, etc., so that teaching extends beyond the classroom instead of being limited to the classroom. However, due to fewer class hours, more teaching content, the imbalance of teacher-student ratio and other reasons, classroom teaching is still traditional, teacher-centered, knowledge-based, and lacks classroom interaction teaching. Teachers and students in the same teaching ecosystem can maintain the balance of the system only by identifying each other's ecological niche. However, teachers, as the limiting factor of students' English learning, have not found a proper position between themselves and students in the current English teaching, which results in the imbalance of the ecological niche of teachers and students.

4.3. The Imbalance of Teaching Elements

Firstly, the results of the questionnaire and interview show that the teaching management department and most teachers of the school focused on using network information technology to promote the improvement of teaching level, but neglected teaching from the perspective of ecological system. Due to the integration of network information technology, the actual soft environment of teaching has changed greatly, which will inevitably bring about changes in other ecological factors in the teaching ecosystem and cause an imbalance in the whole teaching ecosystem.

Secondly, according to classroom observation, it is found that the current college English teaching classroom mode mainly exists in the form of a comprehensive classroom. Within one and a half hours, the teacher should consider the explanation of knowledge and the guidance of students' listening, speaking, reading, writing and translating skills. The original intention of this teaching mode is to comprehensively cultivate students' comprehensive English ability, but, due to time constraints, students' concentration degrees, teaching task design and arrangement cannot be refined, it is difficult for students to grasp each content and skill to achieve solid results. In the long run, it is difficult for students to obtain a sense of achievement in learning, and it is likely to reduce their interest in learning and produce boredom.

Finally, through the results of questionnaires and interviews, it can be seen that no teachers think that the current college English evaluation system can fully and accurately reflect students' comprehensive ability to use English, indicating that the current student evaluation system needs to be improved. Teachers and students agree on the proportion of evaluators who want to participate in the assessment of students' English learning. They both believe that the evaluation object should not be limited to teachers, but should be composed of teachers, classmates and students themselves to evaluate students' learning. In addition, in terms of evaluation content, both teachers and students believe that the current proportion of learning strategies and students' autonomous learning ability is the lowest, which runs counter to the effect of improving students' interest in English learning and achieving "teaching people how to fish is better than giving them fish" through teacher guidance.

5. Optimization Strategy of the English Education Ecosystem for the Cultivation of Foreign Language Talents

To promote the development of English subjects in colleges and universities, meet the national demand for foreign language talent training, and promote the further optimization of the ecological system of college English teaching, the following optimization strategies are proposed based on the main problems existing in the ecological subjects and ecological environment in the investigation and research.

5.1. The Reconstruction of College English Teachers

College English teachers, as an ecological factor, occupy a dominant position in traditional classrooms. Therefore, when adapting to the new ecological environment, they should also take the first step to adjust their roles and positioning and find the most suitable ecological niche. The higher the quality of teachers, the higher the quality of students, the more suitable the teaching methods and strategies of teachers for students, the better the ability of students to master English knowledge, and the more harmonious the teaching development. We must pay attention to how to promote the development of individual foreign language teachers and teacher groups and strive to explore ways to develop foreign language teachers, so as to ensure that individual teachers in the teacher group are in a suitable ecological niche. The group of teachers is also in a suitable ecological niche in the teaching system, which promotes the harmonious and
stable development of the college English teaching ecosystem.

Firstly, in terms of teaching methods, the teacher is the teaching subject of teaching practice and the bridge between the learning subject (student) and the teaching content. The form of teaching organization adopted by teachers in the process of teaching activities is related to whether it can attract students' attention. Due to the dynamic and open characteristics of the college English teaching system, various factors constantly interact with each other, which determines that the ecological niche of each ecological factor is not unchanged, but constantly adjusted and optimized. To maintain its dynamic balance in this dynamic system, teachers need to master the ability to observe, analyze and integrate teaching content, and enrich the way of organizing teaching activities. For example, teachers should increase students' display, role play, group activities and other links, and encourage students to participate in task-based teaching activities. At the same time, teachers should increase communication among students, guide and cultivate students' autonomous learning abilities, and promote students' personalized development.

Secondly, in terms of professional development, teachers should take the initiative to communicate with other teachers, carry out cooperative research among teachers, participate in lectures and evaluation from abnormal to normal, learn from each other in a high frequency, learn from each other and grow together, and constantly improve their teaching strategies and teaching methods. Schools should adapt to the development of The Times to provide teachers with more training on new multimedia technology and equipment, as well as opportunities for in-service professional development such as inter-school communication, academic conferences, and interaction of teaching and research, and promote teachers' professional development from the aspects of teachers' receiving system and continuing learning guarantee.

Finally, in the aspect of teacher-student interaction, teachers should change their personal emotional tendencies and role orientation to promote harmonious and effective communication between teachers and students. Teachers should change students from passive receivers of knowledge to active learners, collaborators and participants through student-student and teacher-student communication. Teachers and students should respond to the student-centered teaching concept and form a harmonious relationship in which teachers care about students, students respect teachers and teachers discuss and grow together.

5.2. The Reconstruction of College Students

In the college English teaching ecosystem, the differences of individual students lead to their different ecological niches in the student group. The student group is at the center of the teaching system. The healthy development of individual students and the coordination of the relationships between individuals play a key role in the dynamic balance of the college English teaching ecosystem.

Firstly, in terms of learning methods, to improve the efficiency of classroom interaction, students should preview before class to reduce the lack of information related to the teaching content of teachers. After English class, students should take the initiative to summarize what they have learned, rearrange and combine the new and old knowledge of different types in a way that is convenient for them to understand. While absorbing new knowledge, students should also reflect on their learning in stages, summarize advantages and disadvantages, and constantly optimize their learning strategies and methods to become active and efficient English learners.

Secondly, in the aspect of learning attitude, learning motivation, as the internal motivation for students to send instructions to complete learning tasks, plays a key role in students' thirst for knowledge, curiosity and enthusiasm. As the subject of learning, students should correct their learning attitude, and make it clear that learning English is not to cope with the exam or find a job, so as to fully prepare for the situation that English is needed as a communication tool and put it into practice.

5.3. The Reconstruction of Teaching Elements

Both teaching management and teachers should enhance their awareness of teaching ecological systems and examine college English teaching from the perspective of ecological systems. Teachers, student administrators and ecological factors in the teaching environment, such as curriculum system, syllabus, teaching content, network information technology, teaching tools, and campus culture, are no longer independent individuals. Teaching reform is no longer the reform of a certain ecological factor, but should consider the correlation, mutual promotion and mutual restriction among them from the perspective of the teaching ecosystem. It should not only coordinate the relationship between itself and the teaching ecosystem but also balance the harmonious symbiosis of various ecological factors within the system.

Firstly, the change in the ecological environment will bring positive or negative impacts to the ecological subject, or promote or hinder the development of the ecological subject. Whether it is teaching reform or the reconstruction of the teaching ecosystem, to bring positive influence to the ecological environment, it is necessary to consider how to help the ecological subjects adapt to the new ecological environment through positive changes. According to the analysis of the questionnaire results, it can be seen that the information technology literacy of teachers needs to be further improved. The construction of campus culture, the adjustment of the teacher-student ratio of teaching and the establishment of ecological multi-dimensional teaching evaluation can stimulate the positive change of the ecological subject of the university.

Secondly, in college English teaching, both students and teachers have a reasonable range of tolerance and adaptability to class size. If it exceeds the upper or lower limit of this range, it will cause certain obstacles for
teachers and students to carry out English teaching activities, and easily lead to low teaching efficiency, poor teaching effect and other consequences. Considering the bearing capacity of the ecological subject, it is suggested to set the class size at 35 students and control the floating range within 10 students, so as to help teachers better manage and control the classroom, improve the teaching effect and promote the common development of teachers and students.

Finally, the evaluation system of students needs to be further optimized, such as increasing self-evaluation, peer evaluation and teachers' evaluation of practical activities. The way of self-evaluation reflects the student-oriented teaching concept, so that students fully understand themselves and promote the sustainable development of students. Evaluation among students can make students better realize their shortcomings and the gap between them and others, and promote mutual learning and development among students. Teachers' timely feedback and evaluation of students' practical activities can promote the transfer of students' English knowledge and exercise their autonomous learning ability and practical application ability.

6. Conclusion

In short, college English courses are a complex ecosystem, and each ecological factor has its niche. Both ecological environment and ecological factors have more or less impacts on ecological niches, so it is very important to strengthen the cultivation of the core ability of ecological factors. Ecological foreign language teaching is not static, not a single line of interaction, but a dynamic process of interaction between teachers, students and their environment. Only with the coordinated development, co-evolution and mutual promotion of various ecological factors, can the ecological balance of the college English ecosystem be better achieved.

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References