

## Strategy on the Construction of EST Translation Smart Course from the Concept of Educational Ecology

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**Abstract:** Educational ecology is a science that uses ecological principles and methods to study educational problems and phenomena, which is supposed to be applied in the English teaching. The EST(English for Scientific and Technology) translation course aims to make students familiar with the language and discourse characteristics of EST, help students master the reading and translation skills of EST, so as to improve the speed and efficiency of students' academic reading capability and cultivate their independent scientific research ability. From the perspective of educational ecology and guided by the theory of educational ecology, this study tries to construct the overall design framework of scientific and technological literature reading and translation course based on the concept of educational ecology.

### 1. Introduction

Translation is the core course of language competence in English teaching. The improvement of translation competence is the the goal concerned and pursued by English learners. However, translation course is different from other language proficiency training course. It has its own regulation and specificity, depending on the basic teaching of listening, speaking, reading and writing, and is higher than these basic teaching. The reading and translation ability of English scientific and technological literature is the best and effective way to track the latest international information, get familiar with the leading edge of the discipline and broaden the professional vision of research for English learners. At the same time, it is also one of the academic skills and qualities that educators and researchers should master. The course of reading and translation of EST aims to make students familiar with the language and discourse characteristics of EST, help students master the reading and translation skills of EST, so as to improve the speed and efficiency of students' academic reading and cultivate their independent scientific research ability. Through the teaching and training of this course, students will lay a language foundation for future academic learning and scientific research. At the same time, technical and skilled professionals also need to have solid English language application ability, proficient Chinese-English bilingual conversion ability, solid professional knowledge and good humanistic quality to provide talents for relevant posts such as international trade, business translation and foreign affairs service. Therefore, how to create a good teaching environment to improve students' enthusiasm to participate in the course teaching and improve the learning effect, so as to effectively promote the connotation construction of the course, is a problem that translation teaching should face and solve.

Educational ecology is a science that uses ecological principles and methods to study educational problems. The structure of classroom ecosystem refers to the biological information, the relationship between teachers and students and the classroom environment in a certain time and space[1]. But there are some problems in the teaching of EST translation, such as unclear teaching objectives, weakening teaching environment, low student participation and single teaching evaluation. It is unable to truly understand English scientific and technological literature and its application in research. Therefore, it is necessary to conduct investigation before class on students, understand students' expectations and requirements for the teaching of the course, apply the relevant

theories of educational ecology, involve students in all aspects from the aspects of teaching objectives, teaching environment, teaching resources, teaching activities and teaching evaluation, and reconstruct the overall design framework of ecological translation course, so as to effectively improve the teaching effect, in order to meet the needs of students at different levels, which is called covariance, meaning the interaction and synchronous evolution between a species and its related species[2].

The study of educational ecology started late in China. In 1975, Fang Binglin of Taiwan Normal University studied the relationship between environmental factors and education. After that, Li Congming published an introduction to educational ecology - ecological thinking on educational problems (1989), and believed that the development of education in Taiwan should be guided by the educational ecosystem. It was not until the late 1980s and early 1990s that mainland scholars began to introduce and study educational ecology. The research results at this stage mainly define the research objects and basic principles of educational ecology, among which three monographs are more influential. Educational Ecology (1990) by Wu Dingfu and Zhu Wenwei has become the first monograph on Educational Ecology in mainland China. It systematically analyzes the ecological environment, structure and function of education, the basic principles and laws of educational ecology, succession and evolution, detection and evaluation, and the behavioral ecology of education. Ao Renkai and Bai Yan's Educational Ecology (1992) defined educational ecosystem as the research object of educational ecology, showing different research ideas. Fan Guorui's Educational Ecology (2000) has made a breakthrough in the research content. He believes that the purpose of educational ecology research is to reveal the occurrence and development law of educational ecosystem and promote the sustainable and healthy development of its own system.

Research on educational ecology and translation teaching reform. With the gradual development of educational ecological theory in China and its gradual penetration in foreign language classroom teaching. Researchers began to study college English teachers' awareness, curriculum, teaching strategies, autonomous learning and teachers' orientation from the perspective of educational ecology. However, there are few ecological studies on the translation classroom in China, and mainly study the translation skills and Countermeasures of scientific and Technological Literature Translation from the perspective of ecological translatology, ignoring the ecosystem composed of a series of elements such as teachers, students, teaching means, teaching facilities and teacher environment in the translation classroom, as well as the penetration of educational ecological theory. However, there are less than 10 articles examining the translation classroom from the perspective of educational ecology theory. Taking a comprehensive view of the above research results, it is feasible and necessary to explore and study the English translation teaching model in the educational ecological environment. There are few relevant research results in China, and from the existing research results, it is limited to the failure to analyze the integration and penetration of educational ecology and Translation Teaching from a multi-dimensional level, the views are not systematic, and there are few case studies. Not to mention the discussion of English science and technology literature translation and reading related courses from the perspective of educational ecology. According to the characteristics of English science and technology literature translation and reading course, relevant research should infiltrate and construct the concept of educational ecology. Therefore, the author believes that the construction strategy of ecological classroom should be started from the following aspects:

## **2. Building an Information Technology Ecological Environment Based on Smart Education**

Ecological theory is considered as "one of the scientific bases for solving some major contemporary social problems. Its purpose is to study the relationship between various subsystems from the perspective of composite ecosystem, including the change law of material, energy and information, as well as the dynamic relationship between benefits, risks and opportunities". Ecological theory is often applied to other fields besides ecology; Researchers in the field of educational information technology have introduced this theory for a long time. "Like the ecosystem of nature, information technology and education and teaching are also interrelated and

form a unified ecological complex. In order to provide a stronger driving force for the reform of education and teaching, it is necessary to re-examine the whole educational information system from the perspective of ecosystem."At present, many scholars have carried out research on the ecology of educational technology. In some of the research, educational practice activities are used as the link and information technology as the means to carry out the transmission, exchange, feedback and circulation of information resources between information man and technological environment. Other scholars believes that educational information ecology is a methodological thinking and value orientation of the interaction process, law and overall ecological balance among people, educational information and educational information environment. The purpose of educational information construction is to build the educational information system into an educational information ecosystem."On this basis, others studied the evolution of educational information ecosystem, and put forward that educational information ecosystem is "a subsystem of social information ecosystem, which carries out material exchange, energy exchange and information exchange between them. The internal driving force of its evolution is the change of information environment in educational information ecosystem and the contradiction between information man"However, these studies ignore the influence and interaction between the various elements of the system, as well as the conditions and means to promote this relationship.

The application of smart technologies such as smart classroom and smart platform can make up for the role of knowledge in the educational information technology ecosystem, and the different characteristics of different types of knowledge may have an impact on other elements in the system; second, there is no first-hand empirical evidence to explain the impact and interaction between various elements in the system. This study will use empirical methods to comprehensively clarify the element composition and relationship of educational information technology ecosystem, and on this basis, explain the dilemma of the integration of information technology and education and teaching.

### **3. Construction of Teachers' Ecological Group Based on Information Teaching Methods**

In the construction of teachers' ecological group, teachers should abandon the traditional teacher led classroom centered model, take students as the learning center, and create corresponding teaching situations, in class practical teaching links and teaching plan design based on the teaching content and students' learning situation; the creation of course situations and in class and out of class practical projects should follow the characteristics of English scientific and technological literature translation course,Aiming at students' reading ability and practical application ability, teachers and students form a harmonious and mutual learning atmosphere and establish a teaching ecological relationship of mutual expectation and trust. At the same time, "big data" In this context, the integration of information technology and education has become closer and closer. As teachers, we should use information teaching means, that is, we should make full use of modern information technology and modern teaching platform, enrich and improve teaching content, optimize and improve classroom teaching. The construction of teachers' ecological group needs to rely on modern information technologies such as big data to create online and offline learning environment, and formulate personalized learning plans and teaching projects by detecting, tracking and feeding back students' learning ability. Teachers and students should establish a cooperative development relationship. While teaching students' knowledge, teachers can discuss and cooperate with students in real time with the help of mobile learning tools such as computers and mobile phones and network teaching platforms, so as to achieve mutual growth and common development progress. This puts forward new requirements for teachers.

### **4. Construction of Students' Ecological Group Based on Active Learning**

The construction of student ecological group refers to the student group that can extend and think about the knowledge points taught by teachers in the classroom ecological environment, and has the ability of teamwork, logical thinking and speculation. Only in solving complex and high-value

learning tasks can students' wisdom be brought into full play[3]. The construction of student ecological group should integrate in class and in class combination of external and external: master the course knowledge points with the help of Mu class and micro class learning. In the classroom, determine the learning objectives and tasks according to the virtual situation created in the classroom, complete them in the form of group cooperation, consolidate and apply the knowledge. In the semester project, students' reading ability and translation ability of scientific and technological literature are transformed into internalized language application ability and practical ability. Students are in the implementation of the project in case of any problems, we should communicate with teachers or other students in class in time to achieve all-round interaction, that is, teacher-student interaction, student student interaction, online interaction and offline interaction. After class, students complete corresponding extracurricular exercises or teaching tasks or investigation reports on the network teaching platform. The network teaching platform records students' learning behavior in real time and reverses the learning effect, feed it to learners, and push the materials and services for further learning according to different students' academic levels. Students can change from passive learning to active learning in their interaction with teachers, follow the natural learning law and achieve ecological interaction.

## **5. Construction of Ecological Learning Environment Based on Intelligent Classroom**

Smart classroom ecological environment is an online and offline classroom ecological environment established with big data, cloud platform and other information technologies as the core. Taking the learning network teaching platform as an example, teachers can upload teaching videos, ppts and lesson plans of English knowledge points before class, students can preview and complete relevant homework before class, and publish groups in class using multimedia, mobile phones and other devices. After class, there are testing and evaluation links to test students' learning effect. The teaching place of the ecological environment of the smart classroom is not limited to the classroom, but extends to the activity place outside the classroom. Other multi-dimensional relationships, which improves the communication and cooperation between teachers and students and students. The smart classroom ecological environment adopts intelligent learning analysis technology, which can timely feed back the completion of exercises to teachers, and push personalized learning materials and homework according to the level and degree of students, so as to achieve the purpose of teaching students according to their aptitude. In the smart classroom ecological environment, there is a real teaching situation. It can be shown to students through online live broadcast and streaming media, and students can realize the "input" and "output" of knowledge in the real teaching situation. In short, the smart classroom ecological environment is the classroom teaching environment and the teaching platform for timely obtaining teaching resources, pushing teaching contents, creating learning situations and evaluating teachers' teaching and students' learning. Through integration, an online and offline combination conducive to cooperative exploration and collaborative discussion is formed as a harmonious ecological environment.

However, there are several urgent problems in College English teaching, especially in the course of reading and translation of EST:

Large English classroom scale and low classroom participation. Some scholars put forward that "educational ecological carrying capacity refers to the ability of self-maintenance and self-regulation among various elements of the educational ecosystem, as well as the capacity of the development scale of educational ecological subjects that can be carried by the educational ecological environment"[4]. Similarly, the ecological carrying capacity of English smart classroom refers to the self-sustaining and self-adjusting ability of the English smart classroom ecosystem, as well as the resource bearing capacity of the classroom ecological environment to the class size. At present, the proportion of English teaching class size in schools at all levels in China is large, which exceeds the bearing capacity of the English classroom ecosystem. Because the class is too large, the class size is too large. Due to the limited time of classroom activities, some students' classroom activities are difficult to get the guidance and help of teachers, and then lose their learning enthusiasm and initiative, from the "master" of the classroom to "people on the edge of the

classroom". Students' classroom activity and participation are very low, which needs teachers to take measures to improve.

The ecological structure of English wisdom classroom is unbalanced. Every system has a structure, which generally reflects the order and organization among the elements. It is the internal basis for the coordination or imbalance of the system and the fundamental premise for the system to realize its function[5]. Before the application of information technology in English teaching, the relationship between English classroom ecology is single, and the relationship between teachers, students and classroom is at the balance point. In recent years, Multimedia, network teaching platform, mobile teaching platform and other information technologies emerge one after another. It is true that these modern information technologies have changed the roles of teachers and students and brought vitality and vitality to the traditional classroom teaching. On the other hand, teachers and students' excessive dependence on information technology will cause ecological factors between information technology, teachers' ecological group and students' ecological group. The imbalance of proportion is embodied in the excessive dependence of teachers' ecological group on information technology, the failure of students' ecological group to change the traditional learning methods in time, the students' learning autonomy is not high, they do not actively participate in classroom activities and are "student-centered" .

In this case, we should take reform on the evaluation mechanism and build a healthy English Translation Classroom Ecology. The construction of English smart classroom ecosystem is inseparable from the reform of evaluation mechanism and the establishment of a healthy English smart classroom ecosystem. The traditional classroom teaching evaluation subject and evaluation form are single, and it is urgent to build a diversified evaluation mechanism. On the one hand, the teaching evaluation subject is diversified, such as the common problems faced by teachers' ecological group, students' ecological group and teaching subjects can be evaluated mutually, that is, teachers, students, teachers and students, teachers and teaching objects, students and teaching objects can evaluate each other. Moreover, these evaluations are two-way, negotiated and cooperative, which promotes the harmony and stability between teachers' ecological group, students' ecological group and intelligent ecological environment. Secondly, the forms of evaluation are diversified and flexible using quantitative evaluation, qualitative evaluation, formative evaluation and summative evaluation, our evaluation is both quantitative evaluation based on data and qualitative evaluation based on logical analysis; there are not only formative evaluation based on teaching process, but also summative evaluation based on teaching results.

To build a harmonious and stable English smart classroom ecosystem has become an important research topic for front-line English teachers. The current English smart classroom ecosystem has problems such as excessive ecological carrying capacity of English smart classroom and unbalanced ecological structure of English smart classroom. We should start from changing teaching methods, changing teaching ideas and reforming evaluation mechanism, Alleviate the ecological carrying capacity of English smart classroom, reconstruct the ecological structure of English smart classroom, and build a healthy English smart classroom ecology for EST translation course.

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