

Research on Integrating the Ecological Education Concept into the Design of Online Course Learning Resources

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Abstract: Ecological education regards education as a complete and organic ecosystem, utilizing ecological principles, perspectives, methods, and technologies to solve some of the problems in student development. Implementing the concept of ecological education is beneficial for improving and optimizing the current educational ecological environment, and promoting the healthy and harmonious development of students both physically and mentally. Ecological education mainly involves integrating the concept of ecology into the education process, achieving dialectical unity between education and ecology, and enabling education to achieve sustainable development. In student course learning, teaching resources should grow and develop dynamically, and be able to adapt to ecological changes intelligently based on the environment. Students should participate in the regeneration and metabolism of resources driven by their needs. The article analyzes and studies the impact of ecological education on the design of online course learning resources, in order to promote the integration of ecological concepts in online teaching and course design, promote the growth of teaching resources in terms of volume and quality, and promote the metabolism of resource information, thereby enhancing the effectiveness of online course design.

Keywords: Ecological Education; Online Courses; Design; Resource Construction; Learning Ecological View

1. Introduction

Educational ecology is a discipline based on ecology, which views education and its surrounding environment as an ecosystem, studying the relationships between various elements within the system, in order to explore and reveal the basic laws of the educational

ecosystem. The core of educational ecology is to view education as an organic, complex, and unified system, in which various factors are organically linked. This kind of connection dynamically presents a state of unity and contradiction, balance and imbalance. From the perspective of educational ecology, the educational ecological environment is a diverse environmental system centered on education, which plays a constraining and regulating role in the emergence and development of education. This "diverse environmental system" can be analyzed from three perspectives or levels. One is to focus on education and combine it with external natural, social, and regulatory environments to form a single or composite education ecosystem. The second is centered around a certain level or type of education, which reflects the interrelationships within the education system. The third is a system centered on human development, composed of natural, social, and spiritual factors, including individual internal environmental factors such as physiology and psychology [1].

2. The Necessity of Studying the Impact of Educational Ecology on Online Course Design

2.1 Online Courses Have Become an Emerging Form of Course Learning

With the development of computer information technology and the continuous application of network communication technology, China's education and teaching methods and models have also undergone changes, paying attention to the status of learners and their ability to explore and learn independently. Online teaching has begun to be accepted by the public and has become a common focus of attention. The main form and carrier of online teaching is online courses. China has been paying attention to the design of online courses since entering the 21st century, and launched

the New Century Online Course Construction Project in 2000. The quality of online courses is directly related to the design of online courses. In online course design, the unity of teaching content and activities should be considered, and the comprehensiveness of course resource development should be taken into account in order to continuously meet the learning requirements of learners [2].

2.2 The Quality of Online Courses Is Influenced by Learning Resources

Online courses belong to a type of resource-based curriculum, and both course design and learning require the supply and support of resources. The level of resource construction also has a direct impact on the success or failure of course teaching. From the research materials, it can be seen that the value of resources is directly related to the learning effectiveness of learners. Resource value includes the form of resources, technical support of resources, and standards for resource interactivity, etc [3]. This also shows the importance of learning resources in online courses. Only resources that meet the learning requirements of learners or are of high quality can expand the depth and breadth of course design. These learners are not only willing to access resources online, but also interested in participating in the course design process, participating in the regeneration and construction of course resources. If there is a lack of personalization and slow update speed in the process of designing online courses, these will affect the learning efficiency of users.

2.3 Integrating Ecological Thought into Curriculum Design

In ecology and ecologism, the existence of differences is allowed, and greater emphasis is placed on the dynamics, organization, and development of things. Under the advocacy of ecology, only vibrant and dynamic online courses are necessary for the process of social development [4]. Ecological online courses emphasize the completeness of course teaching on one hand, and the overall and systematic design of courses on the other, in order to achieve sustainable development of the ecological nature of online courses under these concepts. Ecological network courses have further attracted people's attention. The

viewpoints advocated in ecological courses are holistic, interconnected, and diverse, which can open up a new blueprint for curriculum design, making the curriculum more developmental and predictable. In this state, the design of online courses under the guidance of ecological curriculum needs to respect the diversity and differences of the design, as well as the collective wisdom of teachers and students, so that the curriculum can show more creativity and care for life, which can also promote the personal development of students.

3. Ecological Issues of Learning Resources in Online Course Design

3.1 Lack of Multi-Dimensional Design Resources

Firstly, there is the problem of uneven differentiation and monotonous resource hierarchy. In online courses, each course design needs to reflect a certain ecological aspect of learning resources, with its own development space and unique personality within the entire resource system. Diversified course resource design can analyze ecology separately and differentiate it from other online course resources [5]. If there is uneven differentiation of resources, not only will the overall quality of resources be poor, but they will also not meet the learning needs of learners. From the current design of online courses, the types of resources reflected in many courses are relatively single, usually consisting of simple images, text, and some non-dynamic learning materials. There are relatively few resources in terms of audio, video, and animation. Secondly, teachers have too many preconceptions. Many online course designs do not optimize students' self-exploration [6]. Generally, resources are provided by teachers to students, and it can be said that teachers manipulate teaching resources. Due to the weak ability of teachers in many places to grasp information, this has resulted in relatively single learning resource design, which is very likely to cause students to have poor learning.

3.2 The Designed Resources Lack Regeneration

The resource forms designed in online courses are generally added in the order of course

learning objectives, content, and textbooks. Such designs generally only consider whether the course objectives can be achieved, without considering the inherent connectivity of course resources. This artificially separates the internal connections between various resources, making course resources exist in an isolated form. In addition, there is a situation of data accumulation in the distribution of resource design, which also indicates that some textbook content is completely presented on the internet without any processing. The same knowledge point has multiple templates and does not form a whole [7]. In the process of designing online courses, the quantity and quality of resources have received great attention and are also prominent issues. A large quantity does not necessarily mean that students have abundant learning resources, nor does it mean that their learning quality is superior. Many designers excessively pursue a huge amount of resources in the process of designing online courses, but the consequences of such a huge amount may be chaos, increasing confusion for learners and adding cognitive burden. The main reason is that the competition mechanism for course resources is ignored in the process of designing online courses. Many online courses lack resource-based evaluation, which makes it difficult for designers to clarify which resources have stronger adaptability and are more liked by learners, and which resources cannot adapt to changes in the ecological environment. If feedback from learners is not received, it will greatly reduce their enthusiasm and enthusiasm for learning. Teachers of online course design do not provide detailed analysis and planning on what kind of learning content and the style of resources to be deployed before releasing course resources to students. As a result, the resources that students can access in the course are limited, and the relevance between resources and learning is not very strong. One form of resource may appear many times, and the ecological nature of resources may lose their original effectiveness due to overlap.

3.3 The Designed Resources Lack Evolution

In the process of course resource design, there is a certain connection between learning resources and learning activities. Learning resources also provide styles and carriers for learning activities. Many materials and

information are not sufficient. Generally speaking [8], in online course design, new information generated by learning activities may become an effective supplement to learning resources. However, in the design of many online courses, Not only has the common course objectives not been differentiated, but there has also been no effective connection found between learning activities and course resources. Many learning activities and the provided learning resources are not well connected, and even if students use the learning resources in the course, they cannot complete their own learning activities. They also need to seek other resources to complete the instructions for the activities. This will make students doubt the effectiveness of online courses and resources. The learning requirements and learning status of many learners are well displayed in learning activities, but designers in the process of designing online courses have not taken into account the impact of learning activities, nor have they effectively used learning resources. As a result, the resource system cannot grasp the changes of learners well, and due to the limitations of many resource forms, there is a lack of intersection between resources and activities.

4. Strategies for Integrating Ecological Concepts into the Design Process of Online Course Learning Resources

4.1 The Design of Learning Resources for Online Courses

Firstly, establish an ecological resource perspective. The development speed of network science and technology is relatively fast, and the time for updating is also very fast. Learning resources are not fixed after being designed and generated, and need to be updated according to changes in the curriculum, society, and students. Therefore, in network course design, learning resources also have a certain lifecycle. From generation to evolution, from evolution to development, is a relatively complete process, every stage needs to be taken seriously [9]. In order to adapt to the learning status and characteristics of learners, curriculum designers need to maximize the value of resources and explore the maximum development space of resources in the process of designing course resources.

Both teachers and students need to have a certain awareness of the lifecycle of the use of online course resources. In this way, designers need to view course resources as living objects with vitality in the process of course design. This is also the perspective of ecological resources, which promotes the continuous development and change of knowledge according to the changing needs of learners, and promotes the development and change of online course resources.

Secondly, it satisfies the multidimensional nature of ecological resources. In the design process of online courses, they can be organized according to projects, themes, and chapters. However, regardless of the organizational form used, the resources in online courses need to serve the entire course and become a universal resource. These resources belong to the background of a course and also include some software tools, related books, and materials. For example, in the course, it is indicated that the learning reasons for each chapter and the relationship between the previous chapter, etc., are used to enable learners to engage in targeted learning. In the design process of course modules, learners' learning resources can be divided according to different purposes, for example, they can be divided into guidance resources, basic resources, and expansion resources [10]. In each module, it is necessary to present learners with the structural knowledge of guided learning resources, in order to purposefully guide students towards better learning. This will involve learning goals and objectives, allowing students to learn in a more clear state. Finally, reserve space for the development and growth of resources. In the process of course design, each course is a collection of knowledge points, especially in online courses. In the process of designing online courses, a course can be divided into several themes, with sub themes below each theme that contain several knowledge points. Therefore, designers need to consider designing these knowledge points as objects with fewer knowledge points but high relevance, and use some self-contained resources to achieve online teaching. In the process of designing online courses, learners can reorganize resources according to their own needs and establish a variety of learning modes. In the process of online course learning, students often encounter a situation

where their learning time is not concentrated enough, and they generally hope to obtain learning solutions or problem-solving answers within a short period of time. Therefore, if some short time resources can be added to the design of online courses, learners can complete their learning goals in a relatively short period of time, this avoids the problem of poor effectiveness in learning new knowledge and old knowledge.

4.2 Ecological Dynamic Generation of Learning Resource Design for Online Courses

Firstly, provide various forms of support for the formation of resources. In online courses, learners need certain platform support to use learning resources, which is conducive to effective mastery of learning resources by learners [11]. Designing course modules is an effective way to set up comprehensive functional modules in the online course environment, providing users with some social software. For example, a platform can be designed to provide learners with a place to write learning experiences, which helps to continuously improve the course and also encourages learners to provide reliable learning resources to upload to the platform, so that learning resources can be shared. Design a platform for homework and discussion, providing a showcase, collection, and more of the work, so that learners and educators can have further discussions. Curriculum designers need to design courses from the perspective of learners, identify areas of interest to learners, and spontaneously create new projects. Create an interactive indicator structure system in online courses, so that learners can also become creators of learning resources and promote the generation of learning resources.

Secondly, multiple interactions promote the formation of resources. In curriculum design, the status between educators and learners should be equal, and equal dialogue should also be possible. Teachers need to break through traditional classroom roles and use humble and friendly language and attitudes towards students in order to interact with learning, encourage learners to express their opinions in the classroom, approach from a new perspective, externalize these issues, and enhance learners' enthusiasm on the basis of emotional interaction. In addition, teachers

also need to conduct better and more comprehensive monitoring of learners, achieve effective tracking, in order to have a comprehensive understanding of students' learning situation, and provide students with more thinking and guidance. Teachers should participate more in the discussion process with students, and communicate with them through text messages, videos, and videos. Processing existing learning information into specific environments can effectively promote the balance of information in the online course ecosystem.

4.3 The Late Stage Improvement of Online Course Learning Resource Design Promotes Ecological Autonomy

Ecological learning resources must have certain developmental attributes and present a vibrant trend in the overall learning process. This requires good cooperation among various design resources and interaction to achieve learning objectives. Designers can establish a resource cluster that links effective resources together, just like organisms in the biological world [11-12]. For example, important information such as keywords and knowledge points can be used to present the content of individual learning resources vividly, achieving the correlation of resources themselves. Learner learning resources can also be made into RSS content within a certain dimension, which students can subscribe to. This way, students can find a more satisfactory individual resource in the process of summarizing and comparing.

5. Conclusions

To achieve good teaching results in online courses, the quality of learning resources must be valued and guaranteed. The goal of designing ecological learning resources is to provide learners with learning resources with multidimensional, regenerative, and evolutionary attributes. Propose strategies for ecological design of learning resources in online courses, in order to enhance the ecological attributes of learning resources. Effectively design resources from three aspects: elastic preset, dynamic generation, and autonomous evolution. Elastic preset provides raw materials for the dynamic generation of resources. Dynamic generation is based on the learning experience of learners and the

foundation of preset resources. Autonomous evolution forms a trend of active renewal and development. The ecological design strategy provides practical and feasible operational guidance for achieving the ecological attributes of resources. Learning resources from an ecological perspective should be a whole with strong adaptability and development capabilities, capable of achieving autonomous evolution. The resource ecological design strategy proposed in the article has also achieved good results in practice and is recognized and loved by most learners.

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