

# Development Strategy Design Mechanism of Local Colleges and Universities Based on Ecological Niche

Gang Wang

School of Marxism Studies, Anshun University, Anshun, 561000, China

asxywanggang@qq.com

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**Abstract:** Local colleges and universities play an important role in the process of improving the popularization of higher education in China. They are the base and source of cultivating for all kinds of talents at all levels and play an active role in promoting the development of regional economy, society and culture. However, in the development process of local colleges and universities, some prominent problems have been exposed, such as the indistinct characteristics of running schools, the unreasonable utilization of educational resources, and the serious homogenization of education resources. This work briefly summarized the strategies of ecological niche theory in the development process of local colleges and universities, systematically combed the main problems faced by the sustainable development of local colleges and universities, and applied ecological niche theory to discuss the realistic path of sustainable development of local colleges and universities from the aspects of optimizing teaching resources, finding out the orientation, strengthening schools based on talents and serving social economy.

## 1. Introduction

The higher education system can be analyzed from the perspective of system relevance, adaptability and balance based on ecological niche theory. According to it, the ecological niche of colleges and universities can be defined, which is the relative position and function of a some colleges and universities formed in the process of active interaction with the environment and other colleges and universities in its specific ecological environment and period. The ecological niche of colleges and universities has three characteristics, which are sociality, timeliness and dynamic controllability. Its contents include ecological niche width, ecological niche situation and ecological niche expansion [1]. At the same time, this work explained the problems existing in the development of local colleges and universities from the perspective of ecological niche in three aspects. Firstly, the ecological niche transition overlap leads to similarity of thousands of schools; Secondly, the ecological niche width is too small, the utilization rate of educational resources is low and the environmental bearing capacity is poor, which leads to the deterioration of educational environment. Based on the above-mentioned problems in the development of local colleges and universities from the perspective of ecological niche, this work put forward the ecological niche strategy of sustainable development of local colleges and universities [2].

## 2. Ecological Niche Theory

### 2.1 The Concept of Ecological Niche.

Ecological niche refers to the position occupied by a species in the ecosystem in time and space and its functional relationship and function with the related species. It is the position of a species in the biological environment and its relationship with food and natural enemies. Each species has only one ecological niche, that is, each species occupies the specific time and space. The concept of ecological niche is one of the cornerstones of ecology, and ecological niche theory is the pillar of ecology. Species with the same or similar living habits in nature will not appear in the same region

precisely because of the existence of ecological niche. If they appear in the same region, they must exist in different spaces, for example, lions live in grasslands, while crocodiles live in water [3-4]. If they exist in the same space, they must make use of different foods to survive, for example, tigers are carnivore, while sheep are herbivore. If they need the same food, their foraging time must be staggered, for example, lions forage during the day, tigers forage in the evening, and wolves forage late at night. There are no completely overlapped ecological niche of any two species in nature, since if overlap exists, competition will exist inevitably. The more serious the overlap, the more intense the competition. The concept of ecological niche explains the universal law of survival and competition among individuals, populations and species. Since the 1980s, it has been used in the research of other disciplines. There are three points in the research results of higher education: Firstly, any university has a specific ecological niche; Secondly, there is a competitive relationship among colleges and universities; Thirdly, the resource or space occupied by each university is a collection of multiple places. Therefore, it is very important for colleges and universities to recognize the conditions and resources of their ecological niche and to make good use of it.

## **2.2 The Phenomenon of Unreasonable Ecological Niche in the Development of Local Colleges and Universities.**

Firstly, excessive overlap of ecological niche leads to malignant competition. When two organisms use the same resources or occupy other environmental variables together, the phenomenon of ecological niche overlap will occur. Ecological niche overlap in education is mainly manifested in the aspects of school-running mode, school-running way, teaching means and teaching content [5]. In the stage of popularization of higher education, many local colleges and universities are comparing unrealistically with others influenced by the environment regardless of local conditions and their own strength in running schools. Secondly, the ecological niche width is too small, and the utilization of educational resources is low. Ecological niche width is the sum of all kinds of resources used by a biological species. Ecological niche width can be regarded in education as the completeness extent of educational facilities and educational resources. The greater the ecological niche width, the stronger the possibility of successful development of educational resources, and the stronger the competitiveness of the corresponding schools. Thirdly, the poor environmental bearing capacity worsens the educational environment. Ecological bearing capability refers to the maximum capacity in a certain dimension of ecological niche (such as spatial dimension), that is, the threshold. Local colleges and universities are the main force of the higher education system, however, their development speed and scale have exceeded the limit that they can bear. The result of this abnormal expansion is that the structural development scale of the higher education system is ecological imbalance, the educational environment worsens and the teaching efficiency and quantity also decrease accordingly [6].

## **3. The Design Mechanism of Ecological Niche in the Development of Local Colleges and Universities**

### **3.1 Positioning Rationally the Functional Ecological Niche of Local Colleges and Universities.**

Firstly, the orientation of functional ecological niche of local colleges and universities should be consistent with the functions of colleges and universities. At present, colleges and universities need to be equipped with four functions: talent training, scientific research, social service and cultural inheritance and innovation. Among them, talent training is the core function of colleges and universities. Local colleges and universities have become or are becoming the core of local and even regional knowledge innovation and an important force to promote the transformation of scientific and technological achievements into productive forces. The function of scientific research is an important function of colleges and universities. Local colleges and universities should use the resources to serve the development of local and even national economy, politics, science and technology as well as culture and to become the service center of the society. Secondly, the functional ecological niche width of local colleges and universities should be appropriate. The

functional ecological niche width of local colleges and universities refers to the types and functions played by local colleges and universities in their respective regions [7]. The width of functional niche of local colleges and universities should not be too wide or too narrow. Too wide functional ecological niche means that colleges and universities play too many roles and functions, so that colleges and universities are difficult to realize and maintain their core competitiveness. Too narrow functional ecological niche means that colleges and universities play too few roles and functions, which will inevitably lead to too few resources available to colleges and universities, affect the performance of the functions of colleges and universities and be not conducive to the long-term development of colleges and universities.

### **3.2 Optimizing Continuously the Resource Ecological Niche of Local Colleges and Universities.**

Firstly, the resource ecological niche of colleges and universities should be positioned reasonably based on their functional ecological niche. In order to perform its functions, local colleges and universities must have corresponding university resources as support, which means that the resource ecological niche of local colleges and universities should be reasonably positioned based on the condition of the functional ecological niche of colleges and universities. The kind of resources possessed and utilized by local colleges and universities should be aimed at achieving better functional ecological niche positioning, giving full play to the role of colleges and universities and serving the society better [8]. Secondly, each resource sub-ecological niche should be consistent with each other. The resource ecological niche of local colleges and universities is a compound ecological niche, which includes disciplines, teachers, scientific research, teaching and other related material resources. These sub-ecological niche should match each other. First of all, the teaching faculty should be constructed based on the establishment of the disciplines. In addition, the scientific research direction should be condensed and set according to the research direction and expertise of teachers. Finally, the teaching mode and content should be planned and taught according to the orientation of the disciplines, the teaching faculty and the direction of scientific research.

### **3.3 Constructing Favourable Spatial Ecological Niche of Local Colleges and Universities.**

Firstly, the geographical location of spatial ecological niche of local colleges and universities should be reasonable. Local colleges and universities should try to choose the location where the environment is beautiful and can meet the environmental requirements of university resources. As a place for students to study and live and for teachers to teach and research, colleges and universities should try to provide students and teachers with a beautiful and comfortable environment [9]. All kinds of resources in the local colleges and universities also have the requirements to the environment. If the geographical location of the spatial ecological niche in local colleges and universities is not optimized enough, it should combine with the needs of resources for the environment and adjust or optimize continuously the geographical location of the spatial ecological niche based on the circumstances offered by colleges and universities. Secondly, the layout of the spatial ecological niche of local colleges and universities should be reasonable. Positioning the spatial ecological niche of local colleges and universities reasonably and making its layout reasonable and harmonious with each other can meet the requirements of spatial distribution of all kinds of resources. Generally speaking, the space containing the same kind of resources should be relatively centralized in the layout, while the space containing the different kinds of resources should be separated from each other in the layout [10]. At the same time, the spatial layout of the different resources with strong correlation should be separated from each other but easy to connect with each other. For example, the teaching buildings of local colleges and universities should be concentrated together as far as possible, office buildings should be concentrated together and accommodation buildings should be concentrated together. However, teaching buildings, office buildings and accommodation buildings should be separated in a certain distance to avoid mutual interference; The teaching buildings and office buildings of the same department should be separated from each other but relatively close to each other.

#### 4. Summary

The ecosystem of higher education is a special natural, economic and social complex ecosystem, in which different universities and majors occupy a certain position of time, space and function. In the process of specialty construction in local colleges and universities, they should not just copy the development model of other colleges and universities, but should apply the ecological niche theory based on their existing foundation of specialty, the stage of economic and social development, the characteristics of regional resources and the competitive market of specialty. In order to enhance the core competence of specialty, improve the quality of talent training and satisfy the demand of economic and social development, they should find the construction and development mode which is suitable for professional development and has distinct characteristics and advantages. The specialty ecological niche of higher colleges and universities is a hyper-volume unit with dynamic change of multiple factors and category of space, time and function. The specialty construction of local colleges and universities needs to be based on the accurate positioning of specialty ecological niche. What is more, according to the new requirements of the changing new situation and industry development, it should actively take measures to strengthen the construction of the teaching faculty, improve the level of scientific research, optimize the training scheme and curriculum system, strengthen the construction of the platform, expand the field of professional services, improve the suitability of niche factor and constantly improve the level and ability of professional school running.

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