Asia Pacific Science Press

Journal of Educational Theory and Practice
ISSN(O):3005-9313
ISSN(P):3005-9305
Vol. 1 No.4 (2024)

Strategies for Curriculum Development in Landscape Architecture Programs in the Context of New Agricultural Science

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Abstract: With the rapid development of modern agricultural science and information technology, the construction of new agricultural disciplines in universities has become an important topic in agricultural scientific research in China. The continuous advancement of new agricultural disciplines puts forward higher and newer requirements for the training of professional talents in agricultural colleges. As an important component of agricultural science, the core content of curriculum construction and educational methods in the landscape architecture major must also adapt to the requirements of new agricultural disciplines. It is necessary to incorporate the construction of new agricultural disciplines into the medium and long-term development plan of the landscape architecture discipline and formulate corresponding specific measures to promote innovative development in landscape architecture education.

Keywords: New Agricultural Science; University Gardens; Curriculum Construction

Published: Dec 30, 2024

DOI: https://doi.org/10.62177/jetp.v1i4.134

1.Characteristics and Principles of Landscape Course Construction under the Background of New Agricultural Science

1.1 Characteristics of Landscape Course Construction under the Background of New Agricultural Science

On one hand, the new agricultural science emphasizes interdisciplinary integration and cross-disciplinary research methods. Its strategy of seeking a balance between ecology, economy, and society brings a new perspective to landscape education. Traditional landscape education may lean more towards art and design, but in the context of new agricultural science, academia and the education sector are gradually recognizing that the landscape profession is not just about landscape aesthetics; it is also about ecological stability, resource utilization, and the harmonious relationship between humans and nature. This requires future landscape educators to possess not only a solid background in design and art but also a knowledge system that includes ecology, sociology, economics, and other disciplines.

On the other hand, the new agricultural science emphasizes the importance of practice and innovation. Landscape design is a very practical job, requiring rich practical experience from design and planning to actual construction and maintenance. Therefore, the new agricultural science encourages landscape architecture students to participate more in practical projects, deepening their theoretical knowledge through practice and continuously innovating in practice.

1.2 Principles of Landscape Course Construction under the Background of New Agricultural Science

In the process of 深入推进新农科建设 , the landscape architecture major must examine and adjust traditional educational methods and ideas in curriculum development. However, during the adjustment of traditional methods and ideas, the following principles need to be grasped:

First, the combination of scientific and practical aspects. Traditionally, landscape courses tend to overly emphasize training in design skills, but the new agricultural science construction requires that the focus of landscape education should gradually shift towards how to integrate modern interdisciplinary knowledge such as ecology, environmental science, and sociology with traditional landscape design methods, providing students with a more comprehensive and in-depth landscape education.

The second is the cultivation of innovative awareness. The educational philosophy of the new agricultural science advocates for continuous innovation in research, requiring landscape education to encourage future designers to actively explore in their design practices, seeking new ideas that can better meet the sustainable development needs of society. Only through continuous innovation can landscape design continue to create value for society as times change.

Third, it is important to value the relationship between humans and nature. A core concept in the construction of new agricultural courses is the harmonious coexistence between humans and nature. This should be given more emphasis in the development of landscape courses, ensuring that students deeply understand the relationship between humans and nature. They should recognize that the true meaning of landscape design lies not only in meeting human aesthetic needs but also in creating an environment that enables harmonious coexistence between humans and nature. This requires greater attention to modern environmental issues such as ecological balance and sustainable resource use in teaching, fostering students' ecological awareness.

Fourth, emphasize interdisciplinary collaboration. The construction of new agricultural disciplines requires that landscape education should not be an isolated subject, but should engage in more communication and cooperation with other disciplines. Interdisciplinary education can not only provide students with a broader academic perspective but also cultivate their interdisciplinary thinking skills, enabling them to better adapt to the complex and changing modern society.

2.New Requirements for Curriculum Development in Landscape Architecture Programs in Higher Education under the Background of New Agricultural Science

Facing the challenges and opportunities of globalization and technological advancement, the construction of new agricultural disciplines, as a cutting-edge theory and practice in the field of agriculture, provides new research and practice paradigms for the landscape architecture major, while also putting forward a series of new requirements for the curriculum construction of landscape architecture majors in universities.

First, it is important to value the ecological environment. The concept of harmonious coexistence between humans and nature advocated by the new agricultural science requires that landscape architecture courses must reflect more deeply and study the relationship between human activities and the natural environment. This means that landscape courses need to emphasize the integrity of ecosystems, the importance of biodiversity, and the necessity of ecological sustainability.

Secondly, it is important to emphasize the integration of multidisciplinary knowledge. The construction of new agricultural science is not only about agriculture itself; it also combines various disciplines such as biotechnology, information technology, and social sciences. For the landscape architecture major, this requires the curriculum to have a broader integration of interdisciplinary knowledge, such as combining ecology, urban planning, and socio-economics with landscape architecture, in order to cultivate landscape professionals with a broad knowledge perspective.

Again, it is important to emphasize the integration of technology and innovation with the curriculum. With the rapid development of technology, landscape design, planning, and management are undergoing digital transformation. Therefore, landscape education must consider how to incorporate cutting-edge technology and innovative concepts into the curriculum to ensure that students possess up-to-date technical skills and ways of thinking.

Then, the teaching should emphasize the balance between globalization and localization. The combination of global vision and local practice emphasized in the new agricultural science construction poses new challenges to traditional landscape education. Landscape courses need to reflect the trends of globalization while also delving into the specific practices of

local culture and ecological environment, thereby ensuring that students have both an international perspective and a deep understanding and application of local knowledge.

Finally, the teaching should emphasize the ethical responsibility of social participation. In the context of the new agricultural science construction, landscaping is not just about landscape design and construction; it increasingly involves communication and cooperation with the community and the public. This requires landscaping courses to emphasize the importance of social participation, cultivate students' team spirit, and their ethical responsibility towards society and the environment.

3.Strategies for Curriculum Development in Landscape Architecture Programs in the Context of New Agricultural Sciences

3.1 Build an interdisciplinary practice platform

Interdisciplinary integration is an inevitable trend in the development of landscape architecture, especially in the context of the new agricultural science construction, where its value and importance are increasingly prominent. Interdisciplinary integration should be deeply embedded in all aspects of teaching. A specialized interdisciplinary course design plan should be formulated, relying on specific projects to organize a cross-disciplinary teacher team. Based on the actual needs of the project, the roles and divisions of each discipline in the project should be determined, and then a comprehensive interdisciplinary practical platform for landscape architecture should be constructed. This interdisciplinary practical platform serves as both an online knowledge-sharing platform and offline interdisciplinary workshops or seminars. On this platform, students can not only gain knowledge support from other disciplines but also collaborate on team projects with students from different disciplines. In-depth research on existing interdisciplinary collaboration projects can allow students to see how various disciplines organically combine to solve practical problems through real cases.

3.2 Establishing a Digital Teaching Laboratory for Landscaping

In the face of rapid technological development, landscape education must also keep pace with the times, integrating advanced technology. Enriching teaching methods and means has become an inherent requirement for the construction of new agricultural courses. This can be approached from the perspectives of digital 3D modeling, remote sensing technology, virtual reality, and other technologies. Establishing a digital teaching laboratory for horticulture and incorporating several important modern information technologies related to horticulture into the teaching process will enhance the effectiveness of teaching.

Promote the widespread application of digital simulation technology in design teaching. Utilize 3D modeling software, such as SketchUp and Rhino, to allow students to simulate garden spaces in a virtual environment, achieving dynamic configuration of elements such as plants, terrain, and water bodies, thereby enhancing the intuitiveness and realism of design proposals.

Introducing remote sensing and GIS technology in landscape planning and ecological analysis. Through high-resolution remote sensing images, students can accurately analyze geographic information such as land use types and vegetation coverage. Combined with GIS software for multi-scale and multi-dimensional spatial analysis, it can provide precise data support for landscape planning.

Integrating virtual reality (VR) and augmented reality (AR) technologies to provide students with an immersive learning experience. For example, when teaching courses on the history and culture of gardens, students can "experience" classical gardens through VR technology, exploring garden styles from different historical periods.

In addition, it is necessary to continuously explore and introduce other cutting-edge technologies, such as drone aerial photography and big data analysis, to make teaching more scientific, efficient, and interesting, while also cultivating students' keen perception and mastery of new technologies, promoting innovation and development in the horticulture profession.

3.3 Improve the curriculum system for ethics education in landscape architecture.

In garden education, the guiding role of ethical education and the concept of sustainable development is crucial. It is important to cultivate students' correct values of learning and research ethics, while enhancing their personal moral quality, it is also necessary to strengthen students' sense of social responsibility, guiding them to establish a correct scientific outlook, providing important talent support for Chinese-style modernization.

In the construction of the curriculum system for horticultural professional ethics, on one hand, it is important to introduce

relevant content from environmental ethics, emphasizing in teaching the impact of human behavior on the environment. Through case analysis, students can gain a deeper understanding of the long-term consequences that unsustainable design and development behaviors may bring, thereby cultivating their sense of environmental responsibility.

On the other hand, it is also necessary to deepen the practical teaching of landscape ecology and cultivate students' awareness of ecological protection through scientific research practice. By understanding the concept of ecosystems, students can comprehend the important role of landscaping in maintaining biodiversity, regulating microclimates, and providing ecological services, further recognizing the close relationship between landscape ecological design and sustainable development.

4 Conclusion

The construction of landscape architecture courses under the background of new agricultural science is not only an update of the curriculum system but also a redefinition of the goals and concepts of landscape education. Restructuring the curriculum is not only an update and integration of disciplinary knowledge but also a foresight and guidance for the future direction of landscape development. In the future, higher education in landscape architecture should adhere to deepening the reform of new agricultural science education, more actively communicate and integrate with related disciplines, and ensure that landscape education always stays at the forefront of the times.

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