

Research on Collaborative Education and Innovative Cultivation under Digital Transformation

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Abstract: The research aims to deeply integrate Chinese aesthetic education with modern digitalization, with the aim of shaping design education with distinctive Chinese intellectual creation, and at the same time rooting a sense of responsibility for cultural inheritance and the values of design aesthetics and ethics in the hearts of students. It implements the teaching policy of “a thousand faces for a thousand people” and the cultivation policy of practical talents proposed by Secretary Li Shufu, breaks through the traditional educational boundaries, creatively builds a shared learning platform, advocates the learning mode of open cooperation, free discussion and in-depth interaction, and greatly stimulates the students' initiative and creativity in learning.

1. Introduction

This study actively responds to the “innovation, openness, inclusiveness, sharing and win-win” concept of aesthetic education, adheres to the practical exploration of “art, craft, science and technology, business”, cross-fertilizes the first and second classrooms, and builds a variety of teaching modes such as online and offline blended teaching, multidisciplinary cross-teaching, industry-teaching fusion teaching, and community-based mutual education. We have set up various teaching modes such as online and offline hybrid teaching, multidisciplinary cross-curricular teaching, industry-teaching fusion teaching and community-based mutual aid education, etc. We have also borrowed the modern technology cloud platform to build a learning ecosystem, realize the synergistic education of “internal integration and external integration” in which wholly-funded teaching strengthens the cultivation of human beings, and build a diversified and shared dual-creative teaching mode.^[1] Under the program of “Thousand People, Thousand Faces”, docking with enterprises and government projects, and with “China's Smart Manufacturing” as the core orientation of the project practice, we aim to innovatively break the shackles of traditional design, explore an interdisciplinary design thinking system integrating new technologies and emerging platforms, and then shape a new design thinking system by integrating the on-line and off-line education modes, and then create an interdisciplinary design thinking system integrating new technologies and emerging platforms. The design thinking system thereby shapes a multifaceted and inclusive educational approach. This process not only cultivates students' sense of design responsibility and self-awareness, but also is a revolutionary attempt to “integrate industry and education” with the traditional education model.

2. Educational and pedagogical issues that need to be resolved for “ internal integration and external integration” synergistic education and teaching

2.1 How to create a full-factor classroom teaching reform

In the current rapid change of digitalization, the development of the industry is changing day by day, and the standards and requirements of enterprises for employing people have also shifted from special to multi-dimensional, and the traditional classroom planning categories are too detailed, too specialized, and in the limited time can not meet the demand for mastery of multiple disciplines, which restricts the enhancement of the comprehensive quality of the students.^[2] In order to adapt to the cultivation of applied talents, it is necessary to integrate diversified teaching resources, innovate teaching methods and means, implement a multi-dimensional teaching system, and promote the positive change of the roles of teachers and students, so as to stimulate the students' interest and potential in learning, improve the quality and effect of teaching, and cultivate composite and applied talents with innovative spirit.

2.2 How to realize the non-standard academic teaching policy of “thousands of people, thousands of different”

The current education system is generally faced with a “one-size-fits-all” teaching model, with a standardized way to assess non-unique outputs, which overly strengthens the elements and content of knowledge transfer, which will solidify the individual development of students, and gradually cause students to lose the ability to think critically and rely on top-down driving, and are used to believing in authority and books, thus lacking in critical thinking.^[3] Thus, there is a lack of critical thinking. How to explore personalized teaching strategies, use big data to customize personalized learning paths, to differentiate teaching is a concern, and the establishment of flexible teaching models and systems, multi-dimensional assessment of student growth and development, and promote the maximization of each student's potential, before the opportunity to achieve the dual goals of equity and quality of education and progress.

2.3 How to effectively establish the teaching and cultural industry chain and realize the integration mode of “production, learning and research”.

There is a significant gap between education and industry, with students' practical abilities disconnected from market demands. Modern education lacks a teaching system that is oriented towards market demands. Even though a considerable number of enterprise policies and project steps have been incorporated into curriculum implementation, actual project cooperation with the cultural industry remains in a simulated state, failing to fulfill the objective of aligning construction design courses with real-world practical projects. Furthermore, there is a scarcity of integrating scientific research outcomes into teaching results, thereby not achieving the students' goal of integrating “production, learning, and research” modes. It also lacks the transformation of scientific research results into teaching results, and has not achieved the purpose of enabling students to realize the output of practice to the industry and form a benign interaction mechanism.

2.4 How to build a blueprint for the transformation of achievements

The education field is now facing problems such as the difficulty of effectively transforming achievements into practical applications and poor output channels. Lack of clear educational goals, paths and results-oriented system, although cooperation with enterprises has been established, the

lack of a fast channel and incentive mechanism for results transformation makes industrial cooperation, social services and other projects lack practical value when actually landing. Therefore, it is an important difficulty to widely apply educational achievements to social and economic development, and how to enhance the social value and economic benefits of educational achievements is also a sustainable concern for the educational endeavor.

3. Internal integration and external integration” synergistic education teaching application method.

3.1 Collaborative education policy under “three integration”.

The module builds an all-round and multi-level talent cultivation system, aiming to cultivate compound talents who are rooted in basic theories and proficient in industry frontiers, and at the same time rich in innovative spirit and practical ability. This policy deeply integrates the basic knowledge system module, the industry space development strategy module and the innovative practice expansion teaching module, establishes different curriculum modes for the inter-disciplinary tutor team, enterprise tutors and craftsmen on campus, realizes the main classroom of curriculum teaching, the invisible classroom of cultural cultivation, and the big classroom of social practice, promotes the diversification and synthesis of the knowledge structure, and grasps the operation rules and strategic planning of the enterprises in the market.

3.2 “Borderless” Convergent Discipline Construction

To establish students' diverse thinking dimensions, utilize big data tracking capabilities, launch the "Shared Community Platform," and implement the "Sense of Participation" design program. Through this platform, pose design problems and encourage students to formulate solutions in the short term. This will allow them to clearly define their personal abilities through various project experiments and achieve accurate positioning. Combined with the online and offline hybrid teaching mode, it provides students with an online space for exchanging ideas and sharing resources, and gives full play to their individual strengths to match learning resources, so that they can explore and research independently, and form and output their thinking and abilities.

3.3 Create a standardized version of school-enterprise docking under the dual-creation service-oriented model

There are two types of winds in the industry, one is application-oriented, targeting the principle of market landedness and practicality, and the other is research-oriented, tapping the future market value. Therefore, for these two segments, the corresponding module specification can be realized, i.e., the industry standardization specification and the domestic and international leading professional specification, so as to realize the docking of specialization and industry, the docking of course content and occupational standards, and the docking of the teaching process and production, and to make use of the universities, industries and associations to build a “four-pronged” standardization model, Industry and associations to build a “four-in-one” practice and innovation cooperation, establish a “SWOT mode” practice ecosystem, and realize innovation and entrepreneurship projects in the teaching process.

3.4 Establish digital platform incubation circle

The results can be exported and transformed in multiple dimensions after landing, using the

Internet platform to launch the “cloud platform display” module, integrating high-definition pictures, 3D models, VR/AR experience, dynamic video and other multimedia displays, so that the audience can experience the works in an all-round and immersive way, and combining the popular new media communication channels to form a social media matrix, utilizing the content to build a “SWOT mode” practice ecosystem. The social media matrix is constructed, using content marketing and topic creation to effectively publicize individual works, and borrowing data platform consulting to realize the transformation of scientific research, patents and competitions.

4. The synergistic educational reform of “internal integration and external fusion” has realized six paradigm shifts.

4.1 Shift of teaching pattern.

With the resource tracking of the Internet platform, covering diversified modules such as national policy orientation, industry dynamics tracking, science and technology frontier exploration and tournament information courier, it broadens students' thinking and horizons, and leads them to think deeply and look forward to the future of the industry development of China's construction from the height of the national development strategy;

4.2 Transformation of teaching content.

From "Made in China" to "Created in China," we combine the wisdom of traditional craftsmanship with the prowess of cutting-edge science and technology, pursuing artistic aesthetics and design innovation to create products that embody the strength of China's brand. Transitioning from a single classroom lecture format, we adopt a dual tutor model incorporating enterprise mentors and teaching tutors, and realize interdisciplinary collaborative teaching among teachers with diverse professional backgrounds. We also establish a curriculum team comprising these teachers.

4.3 Transformation of results dissemination.

Explore the comprehensive design strategy of "integrating the real and virtual, visual innovation, cultural empowerment, and interconnected communication." Establish a virtual museum, utilize the digital platform to narrate the stories of handicrafts, and create a series of agricultural product brands that evoke "cultural nostalgia," thereby achieving brand incubation and value transformation. At the same time, we have formed an all-round and three-dimensional promotion system through various channels such as scientific research, patents, academic papers, design competitions and exhibitions.

5. Conclusion

In the future, this teaching reform will further promote the optimal allocation and sharing of educational resources. Through the ever-improving digital platform, high-quality educational resources will cross geographical restrictions and achieve wider dissemination and sharing. At the same time, with the application of advanced technologies such as big data and artificial intelligence, education will become more personalized and intelligent, which can better meet the diverse learning needs of students and stimulate their innovative spirit and creative ability.^[4] In addition, the teaching reform will also promote the in-depth integration of industry and education, and promote the further improvement of the integrated mode of industry-university-research. Through

cooperation with the government, enterprises, industries, associations and other parties, education will be brought closer to market demand and more high-quality talents with practical ability and innovative spirit will be cultivated. These talents will become an important force to promote social and economic development and provide strong talent support for industrial upgrading and innovative development. In terms of cultural inheritance, the teaching reform will pay more attention to the inheritance and innovation of Chinese outstanding traditional culture. By integrating the wisdom of traditional craftsmanship with the power of modern science and technology, we will create more specialty product brands with Chinese elements and reshape the perfect combination of traditional craftsmanship and modern science and technology.

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