

Construction Principles and Quantitative Assessment Strategies in the Professional Curriculum of Applied Universities

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Abstract:

The teaching purposes of applied universities aims at training and exporting high-quality professional and technical talents, and the construction of professional curriculum is the fundamental guarantee for achieving this target. Therefore, formulating methods and strategies for application-oriented colleges and universities at the level of professional curriculum assessment is an important driving force for the successful completion of their educational and teaching tasks. Starting from the evaluation principles of hierarchy, centripetality and diversity of arts and crafts professional courses, this article puts forward practical paths and strategies for thinking, discussing and practicing.

Keywords: Higher education and teaching, the training of professional talents, curriculum quantitative assessment.

Training application-oriented senior professionals is the educational and teaching purpose of applied universities. The construction of professional curriculum with application-oriented characteristics is the basic content relating to the achievement of the goals of professional education and teaching in universities, the core work of professional talents training, and the key to the output level of professionals. Therefore, to effectively promote the rationality and optimization of professional curriculum construction, especially to deepen the assessment and evaluation schemes and strategies of professional curriculum, has become an important measure to strengthen professional education and teaching in colleges and universities.

I. CONSTRUCTION PRINCIPLES OF PROFESSIONAL CURRICULUM

The formulation and implementation of professional curriculum construction and assessment standards in colleges and universities are specific measures based on macro professional construction and development, and important contents for guiding and optimizing the existence, continuation, development and innovation of majors. Therefore, with regard to the implementation of professional curriculum assessment and evaluation programs, the standard principles of rationality, compatibility, humanity, timeliness and sustainability must be followed.

1.1 The Rationality of Knowledge Structure Setting

The construction of professional curriculum in applied universities is the education and teaching work carried out in the context of professional education and teaching with the goal of training application-oriented high-level professional talents. So the professional knowledge content and structure setting issues involved in the construction of related professional curriculum must conform to the construction and dissemination of application-oriented and specific professional cultural knowledge.

First of all, it presents in the rationality of the structure of applied professional knowledge. The content of professional curriculum construction in application-oriented colleges and universities is all related to the allocation and optimization of related courses in the spirit of "for practical purpose". Therefore, it is necessary not only to ensure the volume and quality of knowledge dissemination of professional theoretical courses, but also to give considerations to the teaching and experience of professional practical curriculum knowledge for the purpose of application, thereby facilitating the training of professional talents "to be versed in both art and Kongfu" in the context of "correlating theory with practice".

Secondly, it presents in the rationality of the training of characteristic professionals. The teaching tasks of applied universities must be carried out around the purpose of the output of applied professionals, and the construction of related professional curriculum must also follow the rationality of the educational and teaching purposes of developing "featured specialty" and training "professional talents". That is to say, the approaches of professional curriculum construction and assessment must follow the rationality of the established professional teaching philosophy, teaching content, teaching methods and teaching objectives, etc.

1.2 The Conformity with Social Development

Compared with the research-oriented universities, the professional curriculum construction of application-oriented universities is quite different in terms of the training of professional talents and the setting of knowledge structure. The former mainly focuses on the professional talents training model characterized by "scientific research", while the latter is dedicated to advocating the teaching ideology of "applying knowledge for application" as its core. Therefore, the conformity with social development shown by applied colleges and universities at the level of professional curriculum construction mostly shows the basic characteristics of professional talents with "skills" and "usefulness" qualities serving the demands of humanistic and social development.

The specialty of arts and crafts is a discipline that not only carries traditional craft culture and creation design ideas, but also is closely related to the humanistic demands of contemporary society and the development of craft culture. Its existence and development must first meet the development needs of the humanistic society. That is to say, the construction of professional courses must conform to the actual demands of the objective social environment, and adhere to the development and evolution of the contemporary humanistic and social environment.

1.3 Conforming to the People-Oriented Humanity

In the context of humanistic and social development, the operation and development of all walks of life cannot be separated from the characteristics of "humanity". In the scope of humanity, the "people-oriented" ideology has always been a humanistic ideology that has attracted the attention and admiration of the world. For example, the training of characteristic professionals should be aimed at serving the smooth development demands of the humanistic society; the construction of characteristic disciplines and majors is aimed at satisfying the demands of characteristic talents facing to humanistic society; the characteristic professional work performed by characteristic professionals should be in order to satisfy and address the characteristic needs of humanistic life and work, etc. All of them reflect the guiding characteristics of the "people-oriented" humanistic thought and behavior paradigm. Therefore, the curriculum construction and assessment principles of arts and crafts specialty, as a kind of fine arts in colleges and universities, admits of no exception.

1.4 The Epochalism of Adaptation to Keep Up with the Times

Cultural education is an important link connecting the past, present and future of human cultural development. It is a humanistic ideology that is not limited by "epochalism" but is

restricted by "epochalism" factors. Therefore, the training of arts and crafts professionals and the construction and assessment of professional curriculum in applied universities must stand from the perspective of the "post-historicism era" and take a macro look at cultural development trends in different time and space contexts such as traditional, contemporary and future, thereby conducting comprehensive and systematic thinking from the perspective of the development of the professional ontology and the demands of the humanistic society.

First of all, the construction of professional curriculum must be based on the principle of keeping up with the times to optimize the development of professional ontology. From the perspective of the arts and crafts specialty, it is an important target and means to improve the professional curriculum construction and assessment system to promote the optimization of the specialty's own endogenous genes and perfect the development of the ontology content.

Next, the construction of professional curriculum must uphold the contemporary principles of humanistic and social development. That is to say, the curriculum construction of arts and crafts specialty must be based on the demands of contemporary humanistic and social development, and in the purpose of serving and promoting the development of contemporary humanistic society.

1.5 The Sustainability Based on Long-Term Development

As the saying goes, "it takes ten years to grow trees, but a hundred to rear people". For the development of culture and education, we must uphold the vision of long-term development in order to realize the sustainability of professional development and professional talents training. As far as the training of arts and crafts professionals is concerned, we must first uphold the strategy of sustainable development from the perspective of the professional noumenon. Starting from its own professional curriculum setting and curriculum assessment standards, it is necessary to focus on the current environment and status of cultural and educational development, and to formulate a professional curriculum construction system suitable for rapid development and continuity.

Second, we must adhere to the principle of sustainability that serves the needs of humanistic and social development. It is necessary to maintain the existence and development of arts and crafts specialty and its vitality value. Thirdly, we must keep a foothold on the sustainable attitude of the green cycle development of the natural environment and the humanistic and social environment. No matter from the perspectives of curriculum teaching mode, teaching method, teaching philosophy and teaching content, we must advocate the concept of green and

sustainable development.

II. STRATEGIES FOR CURRICULUM QUANTITATIVE ASSESSMENT

The professional core courses are the core knowledge frameworks that support the professional teaching ontology, and the key factors that affect and restrict the direction, target and level of the training of professionals with special characteristics. Therefore, formulating a reasonable and effective professional core curriculum scheme and implementing a reasonable professional assessment and evaluation strategy is an important path to promote its smooth development and gradual improvement. At the same time, we must uphold the "rationality, fairness and operability" of the assessment and evaluation strategy for professional courses [1].

2.1 The "Hierarchical" Assessment Strategy for Professional Core Courses

In the context of professional talents training in applied colleges and universities, the professional core courses are the key content that support the successful output of professional characteristic spirit and professional talents with high quality, the focuses of the personalized knowledge structure of this specialty that are different from other specialties and the major content of professional curriculum assessment. However, most professional core courses show the characteristics of a multi-dimensional curriculum structure composed of modularized curriculum groups. Therefore, how to effectively coordinate the collaborative relationship between professional core courses is the focus of teaching work to ensure the training and output of professional talents.

One is to build a "modular" professional core curriculum system. Starting from the four major directions of ceramic crafts, metal crafts, jade crafts and lacquer crafts included in the arts and crafts specialty, combined with the existing teaching facilities of the colleges and universities and the superior resources of faculty, to determine the structure of professional core courses dominated by ceramic craftsmanship (core I) and metal craft (core II) and go a step further to form a multi-dimensional arts and crafts professional core curriculum system that crosses and synergizes content with lacquer craft (core III) courses and jade craft (core IV) courses.

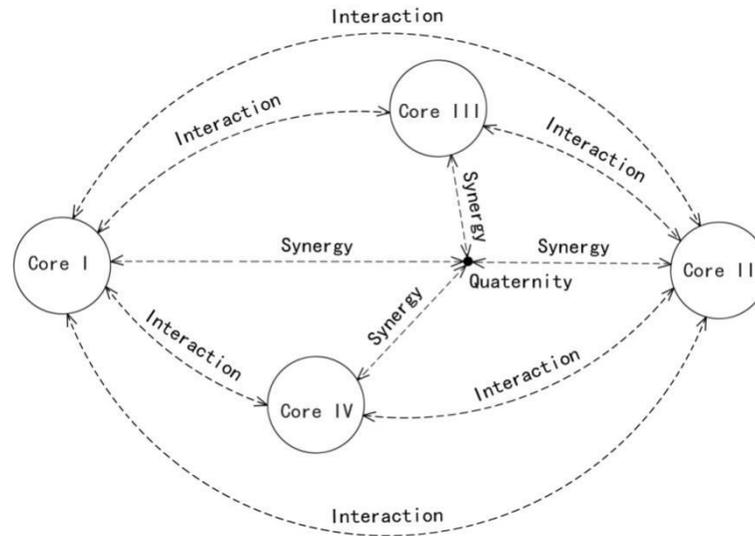


Fig 1: Module interaction diagrams of professional core courses

The other is to build a "hierarchical" professional core courses assessment standard. The hierarchical assessment standard of professional core courses is a targeted and organized professional curriculum assessment strategies based on the established core curriculum framework of the target profession. It embodies in the modular hierarchy on the basis of core curriculum content, the hierarchical progressive relationship setting of the teaching content at the teaching level of professional theoretical courses and the hierarchical assessment on the effectiveness and performance at the professional practical courses teaching level.

Take the arts and crafts specialty of Nanjing Institute of Technology as an example, its professional core courses include "Materials and Crafts", "Modeling and Crafts", "Decoration and Crafts", "Modern Handicraft Cultural Product Design", "Creative Practice of Materials and Craft Projects", "Creative Practice of Modeling and Craft Projects", "Creative Practice of Decoration and Craft Projects" and "Creative Practice of Modern Handicraft Projects", eight categories in total. Among them, three courses including "Materials and Crafts", "Modeling and Crafts" and "Decoration and Crafts" are set up separately to three different levels of curriculum content: I, II, and III. From the perspective of the setting of curriculum content, the entire core curriculum mainly presents a professional knowledge content system characterized by material technology, modeling technology and decoration technology. Following the hierarchical assessment principle of professional core courses, the relevant courses can be divided into 5 levels, namely, entry level, technician level, artificer level, professional level and master level.

The specific assessment criteria are shown in TABLE I.

TABLE I. "Hierarchical" assessment form for professional core courses

Sequence	Assessment level	Assessment content	Assessment methods	Evaluation principles
1	entry level	Good ability to master relevant professional theories and process technological knowledge	Proposition test	① Master the accuracy of professional theoretical knowledge ② Master the accuracy of basic process technological capabilities
2	technician level	Proficiency in the ability to master various professional theories and process technological knowledge	Proposition test	① The ability to master professional theoretical knowledge in horizontal and vertical dimensions ② Comprehensive mastery of process technology
3	artificer level	At least one superb process technological ability and accomplishment while possessing the "technician level" professional ability	Proposition creation	① The ability to transform from process technology to product creation ② The ability to use process technology flexibly

4	professional level	Capable of realizing the transformation of specialization quality to professional quality on the basis of "artificer level"	Project creative practice assessment	<ul style="list-style-type: none"> ①The ability to apply process technology to arts and crafts product projects ②Reform and innovation ability of process technology ③Design and creative thinking of craft products
5	master level	Be able to flexibly use design creative thinking to implement project plans under the premise of superb professional and technical literacy	Project implementation assessment	<ul style="list-style-type: none"> ①The ability to introduce special crafts and special products into the market economy environment ②The ability to independently plan and implement the research and development of arts and crafts projects ③The ability to coordinate and direct the development of arts and crafts products

2.2 The "Centrality" Assessment Strategy for Professional Fundamental Courses

In the context of the education and teaching work of Chinese universities, professional fundamental courses, as the leading courses group set up by professional core courses, mainly undertake the task of training and accumulating professional basic skills and technological cultural qualities. Most of them consist of professional painting courses, including sketching, color plane composition, color composition and three-dimensional composition, etc. They have even become a kind of conventional fundamental courses setting for general education in various arts specialties. However, the arts and crafts specialty, as a new type of craft culture based on traditional craft culture, craft technology and creative design thinking, with the purpose of serving contemporary humanistic and social demands, is different from visual communication design, environmental art design, industrial products design and clothing engineering design, and has personality characteristics of art specialties. The specific performance is in the technological aspects such as the inheritance of craft culture, the standardization of craft design and the particularity of craftsmanship. And the cultivation of the

professional qualities mentioned above and the improvement of professional level must go through a relatively long development process. As the traditional handicraft industry adopts the "mentor-apprentice system" craft inheritance method, it is precisely the professional talents training model formed on the basis of its industry development law. Therefore, for contemporary arts and crafts professional talents training, although the form, mechanism and concept of talent training surpass the traditional arts and crafts talents, but those ways and methods that help improve the quality of professional talents and cultivate good quality are not outdated.

In view of this, in the context of arts and crafts teaching, the "centrality" assessment strategy of professional fundamental courses based on professional core courses has become an important approach to test and evaluate the perfection of professional fundamental courses. The specific performance is whether it can meet the basic demands of the macro accumulation of professional basic theoretical knowledge; the centrality setting of basic professional quality training in the construction of core curriculum groups; and the content level of the training of leading professional skills that promote the smooth development and implementation of professional core courses. The specific evaluation criteria are shown in figure 2.

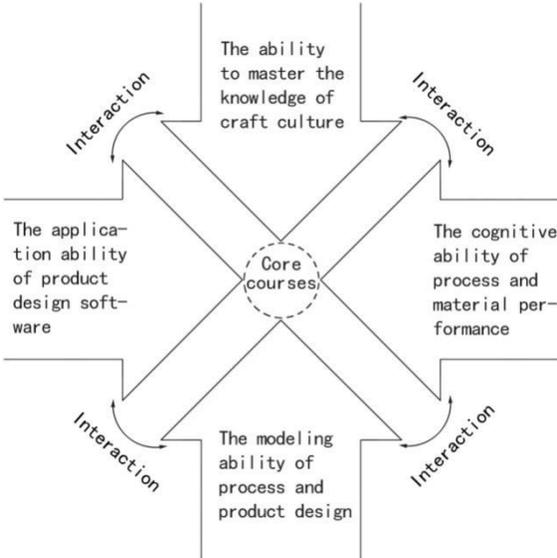


Fig 2: The "centrality" assessment and evaluation diagram of professional fundamental courses

2.3 The "Diversity" Assessment Strategy for Professional Elective Courses

The "theory of multiple intelligences" is “the theory of multiple intelligences of human beings’ proposed by professor Gardner of Harvard University in his book ‘Frames of Mind’” [2]. Therefore, in the corresponding professional curriculum teaching, we should also provide and construct relatively "diversified" professional curriculum content from the perspective of meeting the diverse demands of human intelligence to meet the needs of groups with different learning and research.

In the context of arts and crafts professional curriculum settings, professional elective courses are the extended courses of professional core courses. From the perspective of course content, they mainly focus on the needs of professional core courses and select related professional courses, to form a subordinate and expansive relationship at the level of the curriculum structure. From the perspective of professional talent training, as a kind of professional quality content outside of the required professional courses, they have become a kind of professional course content for students to choose by themselves. Professional elective courses are not only the curriculum support and medium for students to study professional credits, but also important measures to realize the characteristic, forward-looking and diversified development of professional talent training. Therefore, the assessment and evaluation of professional elective courses can roughly start from three aspects: the individuality of professional content development; the perspectiveness of the professional vision structure and the interaction of professional structure optimization.

First, the individuality of professional content development. The so-called "individuality" is mainly based on the relatively unique education and teaching of arts and crafts specialty, adopting more flexible and changeable teaching types and methods from curriculum teaching level, thereby promoting the cultivation of individualized professional talents. Under the curriculum teaching context centered on the professional core courses, it fully focuses on and explores the individual hobbies and personalized potential of students, and conducts an effective guidance and training model through professional elective courses adapted to it.

Second, the perspectiveness of the professional vision and pattern. Professional elective courses are professional auxiliary courses that are at the edge of the core content of professional teaching. Regarding the setting of professional elective courses, most of them follow the prerequisite principle of fullness and optimization of professional core courses, and also include implicit trend of future-oriented “curriculum teaching reform”. Therefore, the establishment and assessment of professional elective courses should not only be constrained on the "established" evaluation of the existing teaching system structure and curriculum provision, but should have the driving force for sustainable long-term development. The "theory of multiple intelligences"

also believes that professional curriculum evaluation “must adhere to the developmental perspective, focusing on the situationality, authenticity, and development function of the evaluation [3]. In other words, the evaluation criteria for professional elective courses must be set laying emphasis on exploratory, experimental, pioneering and perspectiveness of the professional development vision and pattern.

Third, the interaction of professional structure optimization. Under the background of the development and integration of the world's multiculturalism, cross-regional, cross-industry, cross-discipline, and cross-professional exchanges and interactions are becoming more prominent and frequent, and there is no exception for the curriculum construction of arts and crafts specialty. From the paradigm level of "interactive" thinking and behavior, the arts and crafts specialty has inherent advantages. First of all, its own noumenon is constituted by diversified forms of craft culture and there are no lack of behaviors and representations of interdependence and fusion among the genes of internality. For example, from the perspective of form characteristics, in the design of purple clay pots dominated by ceramic craftsmanship, there have been examples of cross-painting crafts and metal crafts since ancient times. From the perspective of process technology, intelligent 3D printing technology has established an extremely close relationship with ceramics, metalwork, and jade craft. From the perspective of functional design, arts and crafts products are no longer in the category of practical daily utensils and decorative ornaments, and even interact with social public space, transportation, aerospace and other more multidimensional fields. Therefore, no matter from the perspective of the times development or the perspective of future development, the exploratory thinking with the interactive setting of professional elective courses as the link is an important path to effectively promote the optimization of curriculum construction and the expansion of space potential for the arts and crafts specialty on the premise of unshakable professional core courses.

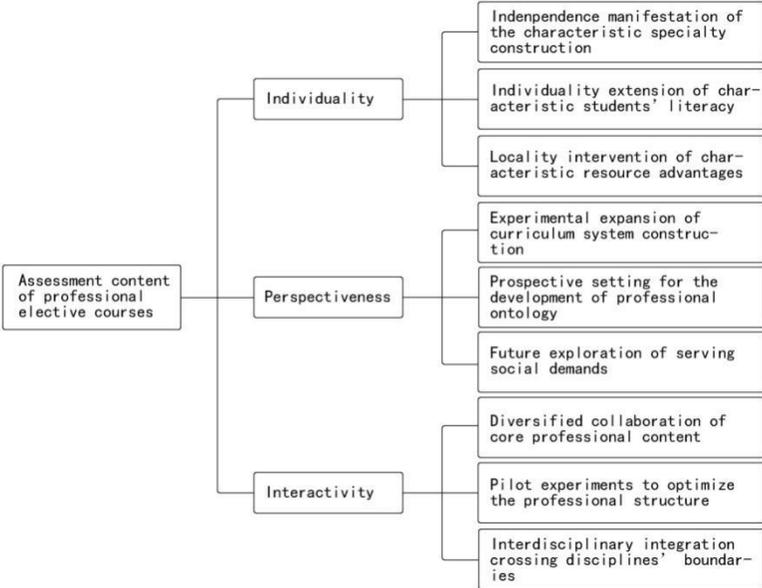


Fig 3: The assessment and evaluation diagram for the “extensibility” of professional elective courses

The "diversified" assessment strategy of professional elective courses proposed above is to put forward effective paths and strategies from the perspective of professional curriculum evaluation. At the same time, combining the specific content of the evaluation subject and evaluation form to carry out the formulation and implementation of detailed evaluation standards.

III.CONCLUSION

The scheme and strategy for quantitative assessment of professional curriculum are not limited to the evaluation of the established course content. From a more macro perspective, the overall modular structure of professional curriculum, the construction of hierarchical echelon, and the semantic emphasis of the main-slave and auxiliary curriculum content should be thoroughly combed and analyzed, and then to draw up effective strategies for the evaluation of professional curriculum. The "hierarchical" assessment strategy for professional core courses, the "centrality" assessment strategy for professional fundamental courses, and the "diversified" assessment strategy for professional elective courses are effective paths and strategies to guide application-oriented universities in the construction of professional curriculum and the training

of professional talents with high quality, which are worthy of consideration, discussion and testing by relevant aspirants and colleagues.

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