

A Comparative Study of Online Aesthetic Education Courses in Chinese and American Colleges

-- Based on the "iCourse" and "edX" Platforms

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Abstract: At present, the college aesthetic education is not compatible with the construction of an all-round education system in areas such as morals intelligence physical fitness work and aesthetics. In an era of big data and artificial intelligence, with the help of modern information intelligent means, college online aesthetic education courses take advanced and specialized aesthetic knowledge as the main content, and promote the development of students' "aesthetic and humanistic literacy", becoming a major starting point for deepening the comprehensive reform of aesthetic education in colleges. This paper simply takes college online aesthetic education courses offered by "iCourse" platform in China and "edX" platform in America as the objects, focusing on the comparison of three types of courses and their contents, such as art aesthetic education courses, professional aesthetic education courses, and comprehensive aesthetic education courses, to find their respective characteristics and problems, and to provide a reference for the integration of aesthetic education courses and information intelligence in Chinese colleges. It is expected to form a new pattern of aesthetic education in colleges, which is "comprehensively improving the quality of universal art education, promoting the combination of various disciplines and majors with innovation and entrepreneurship, and promoting the integration of aesthetic education with as morals intelligence physical fitness work in colleges", so as to provide an interpretive perspective for the construction of a diversified and high-quality socialist modern aesthetic education system with Chinese characteristics.

Keywords: College Aesthetic Education, Online Course, Comparison between China and America, iCourse, edX Platform.

1. Research Background

The all-round education in areas such as morals intelligence physical fitness work and aesthetics is the educational policy of our country. It is also the five themes of general education for all students while carrying out professional education. In Europe and America, the general education of many colleges is deeply influenced by the ancient Greek liberal arts education, and there is also a tradition of aesthetic education courses under the philosophical framework of "truth, goodness and beauty", such as Harvard's "aesthetic interpretation" course group, Stanford's "aesthetics that integrates science and art" general education, Cambridge and Oxford's "aesthetics" and "art" courses; At the same time, some universities have made in-depth exploration on the philosophy, physiology and brain mechanism of art and aesthetics [1]. For example, Harvard's "Project Zero" proves the positive impact of art, aesthetics and education on people's creative development [2].

2. Research Issues

Beauty or aesthetic education is a common concern of higher education at home and abroad. The general education courses implemented for all students are mainly based on general art aesthetic education courses, but also have many "professional aesthetic education courses" set up at the level of professional education (non-art professional education), which are closely related to the development of professional and occupational quality, and common elective general education courses across multiple majors. School

aesthetic education lays the foundation and cast souls, as well as improve students' aesthetic and humanistic qualities. Comprehensively strengthening and improving aesthetic education is an important task of higher education at present and in the coming period. Therefore, the Ministry of Education further requires that "adhere for all, improve and continuously perfect the mechanism of aesthetic education in colleges for everyone", first of all, we must "comprehensively improve the quality of universal art education and teaching", and at the same time "combine with professional teaching, social practice and innovation and entrepreneurship education in various disciplines", and actively "promote the integration of college aesthetic education with educations in morals, intelligence, physical and fitness", and "by 2035, form a diversified and high-quality socialist modern aesthetic education system with Chinese characteristics". These are all corresponding to the "art aesthetic courses", "professional aesthetic courses" and interdisciplinary "comprehensive aesthetic education courses" offered by colleges to all students. The Ministry of Education also proposed to "make full use of modern information technology means to explore the construction of a networked, digital curriculum teaching model, plan and build a number of high-quality aesthetic education Massive Open Online Courses (MOOCs)". At present, colleges have opened online aesthetic education courses to varying degrees, this paper is aimed at the college online aesthetic education courses offered by the Chinese "iCourse" platform and the American "edX" platform, focusing on the comparison of three types of courses and their contents, such as art aesthetic education courses, professional

aesthetic education courses, and comprehensive aesthetic education courses, to find their respective characteristics, advantages and disadvantages, and to provide a reference for the integration of aesthetic education courses and information intelligence in Chinese colleges. [3]

3. Research Overview

By the end of this survey on August 27, 2022, 716 aesthetic education courses are now available on the Love Curriculum platform in China. As shown in Figure 1, there are 5 (0.7%) "comprehensive aesthetic education courses" on the Love Curriculum platform in China. The "public art aesthetic education courses" cover 9 fields, including literature, culture, music and art, with a total of 307 courses (42.9%), with literature accounting for the highest percentage. The "discipline aesthetic courses" involve four categories: arts and physical arts, science, engineering, agriculture and forestry;

arts and physical arts aesthetic courses involve literature, design, music, physical education and other 9 majors, a total of 274 courses (38.3%), with literature still accounting for the highest percentage of aesthetic courses; science aesthetic courses, involving mathematical aesthetics, physics Aesthetic courses in science, involving mathematical aesthetics, physics, astronomy, medical aesthetics and other ten categories, a total of 62 courses (8.6%), "mathematical beauty" courses accounted for the highest percentage; engineering aesthetic courses, involving architectural aesthetics, mechanical aesthetics, materials aesthetics, engineering aesthetics, weapons aesthetics, computer aesthetics five categories, a total of 50 courses (7%); in addition, there are gardening and plant In addition, there are also aesthetic education courses in gardening and plants, with a total of 18 courses (2.5%). On the whole, the aesthetic education courses on the Chinese "edcourse" platform cover a wide range of fields.

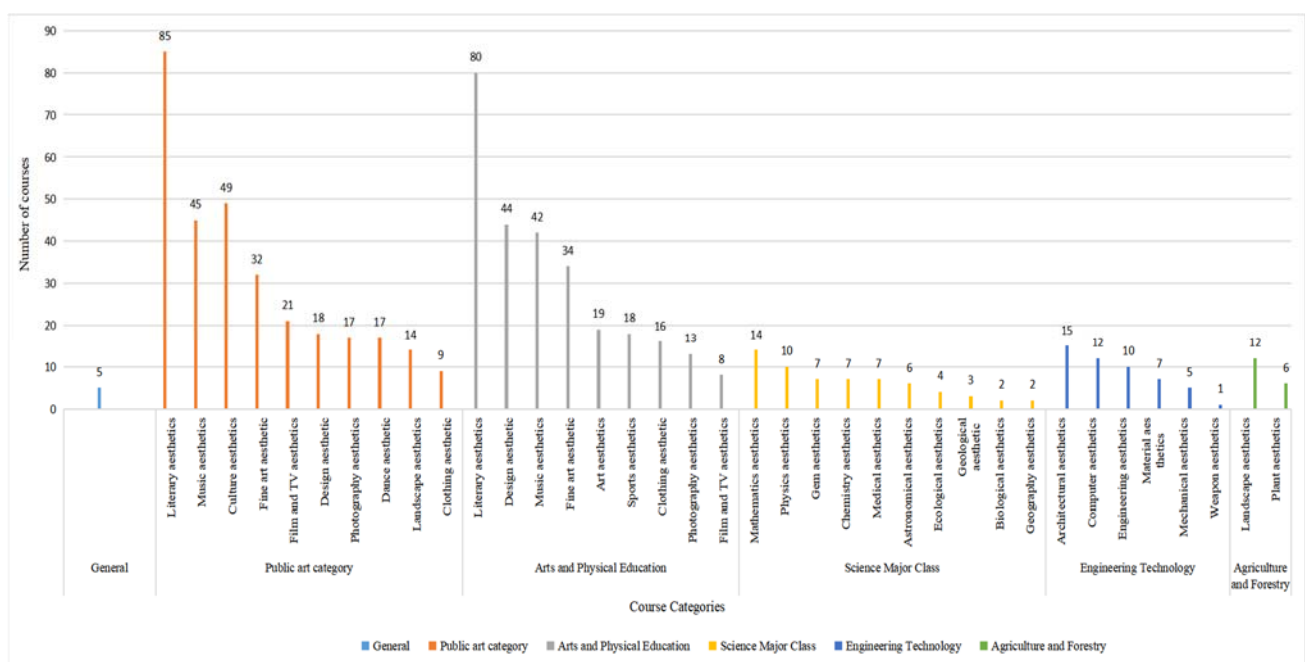


Figure 1. Aesthetic education courses offered on the "iCourses" platform in China

As of the end of the survey, 163 online aesthetic education courses are now available on the US "edX" platform. As can be seen from Figure 2, the "public art aesthetic education courses" based on the "edX" platform cover four major fields, such as literature and culture, music and art, with a total of 72 courses (44.2%), and the highest percentage of literature and culture courses; " Aesthetic education courses in the disciplines of arts and culture, arts and sports, science and engineering are the four major categories. Aesthetic courses in arts and culture are mainly in foreign languages and

literature, design, music and other six majors, with a total of 44 courses (26.9%); aesthetic courses in science cover mathematical aesthetics, physical aesthetics, chemical aesthetics, etc., with a total of 21 courses (12.9%). Aesthetic education courses in engineering technology cover architectural aesthetics, mechanical engineering aesthetics, material aesthetics, etc., with a total of 26 courses (16%). Based on the "edX" platform, we have not yet seen a comprehensive online course on aesthetic education with a high degree of integration.

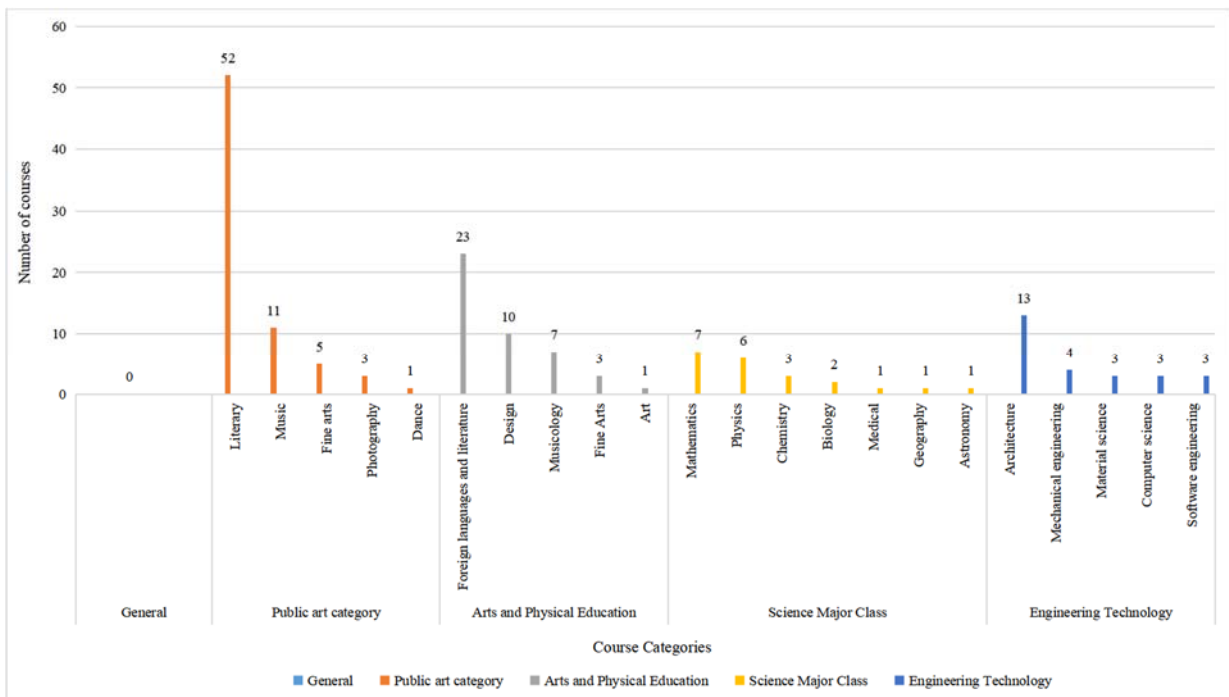


Figure 2. Aesthetic education courses offered on the "edX" platform in the US

4. Category Comparison of Online Aesthetic Education Courses

It can be seen from the surveys of "iCourse" and "edX" platforms (Figure 1, Figure 2):

Both Chinese and American artistic general online aesthetic education courses are the main forces, accounting for the highest that are strikingly similar. Courses in two countries also involve similar art categories and cover a wide range of disciplines. However, general courses of literary aesthetic education have become the leading force in artistic aesthetic education courses due to their convenience and richness, which is also the main way to implement aesthetic education courses in colleges at present.

Both China and America are concerned about the combination of aesthetic education and professional education. The professional aesthetic education courses of the liberal arts in the two countries cover a similar scope, such as literary aesthetic, artistic aesthetic, and sports aesthetic. And both the two countries have offered mathematical aesthetics, physical aesthetics, chemical aesthetics, biological aesthetics, etc. Online aesthetic education courses in the field of science, and mathematical aesthetics account for the highest proportion; On this basis, China has also offered courses on gem aesthetics, ecological aesthetics and geological aesthetics, and the research objects of these categories of courses are closely related to natural beauty, and the opening of ecological aesthetics also indicates the awakening of human green consciousness and aesthetic consciousness of life under the ecological crisis; Regarding the online aesthetic education courses of engineering technology majors, China and America have offered architectural aesthetics, mechanical engineering aesthetics, material aesthetics, computer aesthetics. Moreover, America has offered software

engineering aesthetics, which is inseparable from its strong core competitiveness of software.

5. Comparison of the sampled contents of online art and aesthetic education courses in China and the United States

Art and aesthetic education is the most crucial way to implement aesthetic education in colleges and universities, in this regard, "colleges and universities are supposed to actively explore the construction of a public art curriculum system with the cultivation of aesthetic and humanistic literacy as the core, take the cultivation of innovative ability as the focus and the development of the inheritance of excellent Chinese traditional culture and the education of art classics as the main content", as well as "comprehensively improve the teaching quality of universal art education." [4]

Based on the two platforms, China and the U.S. take four representative general arts aesthetic courses in poetry, painting, drama and music to compare the similarities and differences respectively. As can be seen by comparing Figure 3, the similarities are: the aesthetic keywords and the methodological rules used in the same type of art aesthetic courses are almost the same; formal and harmonious beauty is common to all art elective aesthetic courses, moreover, scheme, rhythm, unity and harmony are common to all art aesthetic courses. The difference lies in the fact that due to the different cultural traditions and art education philosophies of China and the United States, the Chinese art education curriculum emphasizes "writing" and sensuality while the American art education curriculum emphasizes "realism" and rationality.

Course content	The aesthetic point of view	Keywords	Law of beauty	Kinds of beauty	Knowledge points and aesthetic styles
The course list					
China: Introduction to Li SAO	Poetry	Language Cadence Image Emotion	Rhythm Cadence Unification Harmony	Beauty of words and images Beauty of artistic conception and lofty. Beauty of personality and spirit Beauty of melancholy, spectacularity and culture	Strange imagination, anger and lyricism Fragrance and elegance, ups and downs Willingness of rather die than submit; lofty ambition and noble behavior
US: The Divine Comedy; Dante's Journey to Freedom				Beauty of words and images Beauty of artistic conception and openness Beauty of rational interest and seeking truth Beauty of life and lofty	Bleakness and gloominess, strange imagination Solemn and sacred feeling, religious color Fantasy metaphor, extreme goodness and beauty
China: Art Appreciation	Painting	Line Pen And Ink Composition Modeling Color	Rhythm Cadence Comparison Coordination Unification Harmony	Beauty of lines and ink Beauty of modeling and nature Beauty of spirit and verve Beauty of creating artistic conception, and beauty of unification	Vivid portrayal of meaning, sound and image Moving gracefully; interest of pen and ink Fine brushwork and heavy color; elegant coloring technique
US: Drawing Nature, Science and Culture: Natural History Illustration 101				Beautiful lines, beautiful watercolor Beauty of light and shadow and nature Beauty of realistic painting, and science Beauty of rational thinking and integration	Vivid image Gorgeous color and realistic texture Gorgeous and exquisite and watercolor rendering
China: Beijing Color and Rhythm	Drama	language conflict situation stage	Rhythm Cadence Coordination Unification Harmony	Beauty of language and shape Beauty of connotation and art Beauty of human nature and artistic conception Beauty of unification and culture	Artistic conception of the song and lyrics and truth Virtual programs, authentic and decent manifestation Compliance with rhythm and tone, interest concept and look
US: Shakespeare Matters				Beauty of lines and beliefs Beauty of tension and music Beauty of realism and moral Beauty of reason and democracy	Ups and downs with distinct personality Good and evil are intertwined with common sense and contradiction Perfect illusion and hook-ups
China: Appreciation of the Top Ten Traditional Chinese Songs	Music	Cadence Melody Harmony Polyphonic Musical Form	Rhythm Contrast And Coordination Equilibrium Unification Harmony	Melodic beauty perceptual beauty Power beauty three-dimensional beauty Fusion is beautiful Spiritual and cultural beauty	Grand and impassioned The atmosphere is bold and long and deep Elegant, euphemistic and elegant
US: 18th-Century Opera: Handel & Mozart				Passion beauty merges beauty Beautiful melody beautiful note Tension beauty lyric beauty Realistic realistic beauty	Loop back and forth step strength Drawl long form elegant Implicit elegant style is anaercentic

Figure 3. Comparison of sample content of online courses of art education between China and America

6. Comparison of the Sampled Contents of Aesthetic Education Courses for Science and Technology Majors

Science and art are inseparable and aesthetic education that combines science and aesthetics can promote the development of logical and figurative thinking, which further contributes to the cultivation of creativity. Aesthetic education combining science and aesthetics can promote the development of logical and figurative thinking and help cultivate creativity. All universities must “promote the reform and innovation of aesthetic education” and promote “the integration of aesthetic education in colleges and universities with the teaching of various disciplines, social practice and innovation and entrepreneurship education”, [5] so as to cultivate high-quality composite engineering talents with both professional and humanistic qualities.

6.1. Comparison of the contents of the aesthetic education courses of science majors

Based on the two platforms, four representative aesthetic education courses in physics aesthetics, mathematics aesthetics, chemistry aesthetics and medical aesthetics are

extracted from China and the United States respectively. By comparing Figure 4, it is revealed that the formal aesthetic laws of rhythm, symmetry, and unity and harmony are common to the online courses of aesthetic education in science disciplines in China and the United States. The difference lies in the fact that the Chinese online science aesthetic education courses mostly start from professional knowledge and theory, highlight the conceptualization and systematization, as well as state the aesthetic factors in science majors in a deductive way while the U.S. starts from real life, adopts heuristic and inquiry style and implicitly guides students to discover and experience the aesthetic factors in science, as well as highlight the cross-fertilization of multiple disciplines with aesthetic ties. The Chinese Science Aesthetic Education online course is more phenomenal and students are mostly the passive appreciators who feel the aesthetic phenomena in various disciplines under the pull of the teacher's narration and stay in the perceptual stage of beauty while the United States attaches great importance to students' understanding of the laws so that students actively explore the beauty in science as discoverers and focus on learning transfer, in this regard, it expects that students can discover the beauty of the laws and philosophy in natural disciplines.

Course content The course list	The aesthetic point of view	keywords	Law of beauty	Kinds of beauty	Knowledge points and aesthetic styles
China: University Physics (Magnetism, Vibration and Wave, Optics, Quantum)	Physical	The conceptual model symbol formula The experiment	rhythm symmetry proportion unification harmony	The beauty of movement is simple Sports beauty science beauty Mechanical beauty system beauty Deduce the essence of beauty	Simple harmonic motion double slit interference Coincident image concept refinement Eddy electric field singular helix
US: Waves & Optics				The beauty of nature is balanced Movement beauty process beauty Migration beauty fusion beauty Practice beauty philosophy beauty	Circular aperture diffraction rotation symmetry Conservation of energy in normal shape The formula is simple isometric fringe
China: Ten Lectures on Mathematical Culture	Mathematics	concept symbol formula image	rhythm symmetry unification proportion harmony	Beauty of theory; beauty of simpleness Strange and abstract beauty Fun beauty suspense beauty Precision beauty essence beauty	The golden section is planar symmetry The arithmetic sequence is regularly distributed Perfect magic square equation curve
China: Paradox and Infinity				Simple beauty curvaceous beauty Philosophy is beautiful and strange Innovative and abstract beauty Accurate beauty practices beauty	An infinite set Snowflakes curve Repeated arrangement of successive changes Normal distribution exact inference
China: Interesting Chemistry and Materials	Chemical	The element structure appearance The nature of the	rhythm comparison coordination Unified and harmonious	Color beauty three-dimensional beauty Natural beauty material beauty Structural beauty is conserved beauty Beauty of science is beauty of synthesis	Flame color reaction atomic number Crystal clear dissolve diffusion Superconducting phenomenon catalysis
US: Science in Art: The Chemistry of Art Materials and Conservation				Structure is beautiful and material is beautiful Beautiful space color and lustre Natural beauty scientific beauty Integrated beauty ecological beauty	Colorful and fine grinding REDOX nanoparticles Molecular polymerization is flexible and elastic
China: Medical Humanities	Medical	In patients with The doctor technology nursing	rhythm comparison coordination Unified and harmonious	The soul is beautiful and the body is beautiful Moral beauty operates beauty Environmental and cultural beauty Beauty of science and spirit	Doctor-patient empathy human proportion Sincere and responsible, beautiful and warm Rigorous standard superb skill
US: Artful Medicine: Art's Power to Enrich Patient Care				Fusion beauty structure beauty Philosophy beauty soul beauty Moral beauty instrument beauty Innovation of human beauty	Integrity, respect, compassion and kindness Technical excellence selfless dedication Humanistic care listening and sharing

Figure 4. Comparison of sample content of online aesthetic education courses for science majors in China and America

6.2. Comparison of online aesthetic education courses for engineering majors

Four representative aesthetic education courses in architectural aesthetics, computer aesthetics, material aesthetics and engineering aesthetics are taken from the two platforms respectively. By comparing Figure 5, it is revealed that the online courses of engineering aesthetic education in China and the United States also adopt the formal aesthetic laws of rhythm, symmetry, unity and harmony, which reflects harmonious beauty and scientific beauty. The difference lies in the fact that the Chinese online aesthetic education courses for engineering majors mostly show the aesthetics of

engineering entities and technical tools, highlight the aesthetic form of knowledge points and technologies, so they neglect the explanation of their inner aesthetic essence and laws, so the explanation is relatively shallower; while the United States focuses on guiding students to logical reasoning and through strict and exquisite reasoning, the discipline professional knowledge, rational thinking and aesthetic factors are organically connected and integrated, moreover, they also highlight the inner logical beauty, emphasize the coexistence of aesthetic and rational depth, as well as the unity of normative and innovative beauty, scientific beauty and ethical and moral beauty.

Course content	The aesthetic point of view	Keywords	Law of beauty	Kinds of beauty	Knowledge points and aesthetic styles
The course list					
China: Crossing the "Rainbow" of Nature -- An Introduction to Bridge Engineering	Bridge	Function in the form of structure layout material	Rhythm Symmetry Equilibrium Coordination Unification Harmony	Function beauty, color and quality beauty The structure is beautiful and simple Comprehensive beauty and scientific beauty Preserving beauty means beauty	A magnificent and graceful arc Soft and rigid porous layout The elements are coordinated and vivid
US: The Art of Structural Engineering: Bridges Bridges				The beauty of structure and coordination Scientific beauty rational beauty Practical beauty layout beauty Precision beauty ethical beauty	Elegant appearance structure art Nature is the scale of science Innovation consciousness city symbol
China: Fundamentals of Programming -- Discovering the Beauty of Computing	The computer	Data Variable Structure Language Algorithm	Comparison Coordination Unification Harmony	Thinking beauty rigorous beauty Structure beauty cycle beauty Image beauty logic beauty Science is beautiful and fun is beautiful	Sequential regular logic operations Branch structure count loop Data versus array variables
US: Computing: Art, Magic, Science				The beauty of logic and simplicity The beauty of structure and science The beauty of program and verisimilitude Beauty of philosophical and comprehensiveness	Fractal art and Boolean logic Language model and standard curve Precision calculation and data coding
China: The Fascinating World of Materials	Material	Composition Structure Features Texture	Rhythm Symmetry Coordination Unification Harmony	Beauty of form and symbolization Beauty of structure and integration Beauty of creativity and texture Beauty of science and emotion	Polymerization structure and grain structure Physical properties and Chemical properties Dimensional accuracy and precise laser machining Color profusion and material texture
US: Mechanical Behavior of Materials				Beautiful color and beautiful philosophy Beautiful structure and three-dimensional beauty Comprehensive beauty and scientific beauty Logical beauty and accurate beauty	Hooke's law and high temperature creep Cubic lattice and polishing Plastic flow and metallic luster
China: Introduction to Engineering	Engineering	Material Structure Technology Function	Rhythm Equilibrium Comparison Coordination Unification Harmony	Structure beauty and function beauty Art beauty and tools beauty The beauty of science and the beauty of balance Environmental and cultural beauty	Color match and material echo Effect model and region symbol Harmonious factors and harmonious environment
US: Introduction to Engineering: Imagine. Design. Engineer!				Structure beauty and function beauty Beauty in form and integration beauty Economic beauty and ethical beauty Beauty of innovation and comfort	Simulation design and virtual reality Modeling elements and structure outline Economic-effectiveness aesthetics and innovation consciousness

Figure 5. Comparison of sample content of online courses of aesthetic education for engineering majors in China and America

7. Summary

How to offer online aesthetic education courses in a more reasonable way, how to make aesthetic appreciation, aesthetic expression and aesthetic creation activities deeply integrated with modern technical means and platforms such as digitalization and intelligence, how to use VR virtual technology to create aesthetic space to realize more realistic aesthetic situations and methods, how to use cell phone terminal APP to realize students' learning and teachers' guidance anytime and anywhere so that students can be infected, inspired and created in a richer experience and so on are all issues worth exploring in depth. The online aesthetic education curriculum is not only a matter of curriculum categories and contents, but also a matter of making full use of online platforms and the Internet to implement rich aesthetic education teaching, which is to be further explored on the basis of the research in this paper.

We are supposed to build a pyramidal structure of college aesthetic education curriculum that "educate people with esthetic, cultivate people with culture and nurture people with esthetic". The general study of art and aesthetic education courses is regarded as the "base of the knowledge tower" for cultivating the artistic and aesthetic qualities; professional aesthetic education course is regarded as the "backbone of the knowledge tower" for cultivating the aesthetic qualities of various majors; comprehensive aesthetic education course is

the "top of the tower" for shaping perfect personality. Only there are solid tower base and tower backbone can students ascend to the top of the tower. While China seems to have a slight advantage in terms of "integrated aesthetic education programs" online, actually, the United States has a large number of substantial research results in the integration of science and aesthetics. It is also worthwhile to study and learn from our higher education and university aesthetic education programs in terms of the integration of multiple disciplines and aesthetic education. In addition to building online aesthetic education courses, we also need to focus on the construction of offline aesthetic education activity courses, art skills training elective courses, aesthetic education courses of campus environment and so on. Promoting the deep integration of online and offline aesthetic education courses with the cultivation of advanced specialists is an important task and mission for higher education in the new era.

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- Taking “iCourse” and edX” Platform as an Example (SWU1909584).

References

- [1] Anjan Chatterjee, et al. *Aesthetic Brain*. Zhejiang University Press, 2016.
- [2] Gardner Howard E, et al. *Art, Mind, And Brain*. China Renmin University Press, 2008.
- [3] Ministry of Education of the People's Republic of China: Opinions of the Ministry of Education on Effectively Strengthening the Aesthetic Education Work of Colleges and Universities in the New Era, Teaching Sports and Arts [2019] No. 2 [EB/OL] (2019-4-2).
- [4] Ministry of Education of the People's Republic of China: Opinions of the Ministry of Education on Effectively Strengthening the Aesthetic Education Work of Colleges and Universities in the New Era, Teaching Sports and Arts [2019] No. 2 [EB/OL] (2019-4-2).
- [5] Ministry of Education of the People's Republic of China: Opinions of the Ministry of Education on Effectively Strengthening the Aesthetic Education Work of Colleges and Universities in the New Era, Teaching Sports and Arts [2019] No. 2 [EB/OL] (2019-4-2).