

# Aesthetic Education Curriculum Construction and Innovation In The New Engineering Education:An example of teaching an art appreciation aesthetics education course

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**Abstract.** The cultivation of creative ability is the core element of the cultivation of new engineering talents, and the cultivation of creative and aesthetic ability should not be missing at the same time as the cultivation of innovative technical ability. This paper takes the art appreciation course as an example to build and innovate the construction of aesthetic education courses in the new engineering education:based on aesthetics, the traditional classical aesthetic cases are used to establish a multidisciplinary integration of creative and aesthetic knowledge system; through the design of Innovative aesthetic case , the students' innovative aesthetic thinking ability is cultivated, and finally the innovative aesthetic quality of new engineering talents is improved, completing the sublimation from aesthetic education to innovative aesthetic education.

**Keywords:** New engineering; innovative aesthetic; multidisciplinary knowledge; thinking; quality.

## 1. The Importance of Aesthetic Education Programmes in the New Engineering Education Environment

In the environment of rapid development of global intelligent, digital and Internet+ industries,the new economic situation and industrial development urgently require China to reform the traditional engineering education system and put forward the mode of New Engineering talents cultivation, the core idea of its teaching reform is to cultivate new engineering talents with innovative and entrepreneurial abilities facing the new economy and the future[1].

For the cultivation of innovative ability of new engineering talents, many colleges and universities currently focus more on the cultivation of students' innovative ability at the technical level, while ignoring the cultivation of students' innovative ability at the aesthetic level[2]. Any industrial design is ultimately subject to social and user scrutiny, so the designer needs to consider everything from engineering design, art form design to user experience.

At present, engineering schools have begun to pay attention to aesthetic education teaching, but most of them still remain at the level of Aesthetic, which cannot well support the demand of the new engineering for the innovative aesthetic. Therefore, it is necessary to study how aesthetic education can be upgraded from Aesthetic education to Innovative Aesthetic education in the field of new engineering. This paper combines the reform attempt of Shanghai Jiao Tong University's new engineering talents cultivation[3] with the art appreciation aesthetic education course as an example to analyze the importance of aesthetic education to the cultivation of new engineering talents, reconstruct the traditional aesthetic education course system, optimize the design of the aesthetic education course so that its aesthetic education with new engineering characteristics can become a helping fulcrum to cultivate the innovative thinking ability of new engineering talents.

## 2. Aesthetic Education Curriculum Construction Model in the New Engineering Education

At present, in most universities in China, the aesthetic education courses are mainly in the three major categories: art, music,film and theatre; the course content is mainly divided into art history

and theory courses, art appreciation courses and art experience courses, all of which better reflect the significance of aesthetic in the aesthetic education courses and can effectively enhance the aesthetic ability of students, but the reflection of the cultivation of students' Innovative aesthetic ability is insufficient, which restricts the need for innovation at the aesthetic level in the training of new engineering talent. Therefore, it is necessary to carry out the reform of the aesthetic education curriculum for the new engineering disciplines[4].

In recent years, many comprehensive colleges and universities have begun to introduce Art Appreciation into their engineering training programmes and set it up as an aesthetic education course, but the design of the course is often still copied from the construction mode of the professional courses in design and art colleges, which is obviously the traditional teaching mode with aesthetic quality as the training goal, and cannot adapt to the demand of the new engineering talents for the cultivation of Innovative aesthetic ability. In my opinion, the teaching method of aesthetic education in engineering colleges should be changed from the traditional narrative knowledge teaching method to the innovative case inspiration teaching method. The specific idea is: based on aesthetics, through traditional classical aesthetic cases, establish a multidisciplinary integration of aesthetic knowledge system; through the design of innovative aesthetic case, cultivate students' innovative thinking ability, and ultimately achieve the improvement of the innovative and aesthetic quality of the new engineering talents, and complete the sublimation from aesthetic education to innovative aesthetic education.

#### A Case Study on the Innovation of the New Engineering Aesthetic Education Curriculum Framework

In the traditional teaching of Art Appreciation, the main structure of students' mastery of the knowledge system in the time dimension, but when Art Appreciation is taught as an aesthetic education course in the new engineering disciplines, the time dimension is sunk as a guide, focusing on the introduction of innovative cases in the development of art and the establishment of a multidisciplinary inspired knowledge system for innovative aesthetic.

The Renaissance master Leonardo da Vinci in art appreciation as a teaching example, the distribution of lesson time is shown in Table 1 (2 hours, 90 minutes). It can be seen that the traditional course teaching emphasises the appreciation of art in the time dimension and constructs a good aesthetic knowledge system for students. However, in the classroom teaching of the new engineering course, narrative teaching in the temporal dimension is simplified, and Leonardo da Vinci's paintings are analysed in a case-based approach, framing the students' multidisciplinary and integrated body of knowledge about the aesthetic innovation.

Table 1 Distribution of teaching time and content Leonardo da Vinci as a teaching example

	1. Background knowledge	2. Explanation of works	3. Summary	4. Classification design	Total
Traditional Class	20min	Analysis focusing on the artistic aspects of the work (50min)	Artistic Summary (10min)	Later influence (10min)	
New Engineering Class	10min	A multidisciplinary and innovative knowledge framework for paintings (50min)	Summary (10min)	Interactive discussions (20min)	90min

The work is a multidisciplinary fusion of the innovative and aesthetic of knowledge system, expressed as follows (Fig.1): Anatomy (Fig.1-1.1), through the study of human anatomy, Leonardo da Vinci addressed the realistic representation of the human body in painting and sculpture in art, and also contributed greatly to the study of medicine in later times. Geometry (Fig.1-1.2), the position of the figures in the work, with the Virgin at the centre of the picture, St John and Jesus on each side and the angels, forms a stable and not dull triangular composition, a compositional rule that has become a signature of the classical Western style. Perspective (Fig.1- 1.3), the accurate representation of three-dimensional space in a two-dimensional plane is a fundamental principle of Western painting, and Leonardo da Vinci further subdivided perspective into: line perspective,

colour perspective and occluded perspective, using scientific measurements and integrating optics (Fig.1-1.4), i.e. the precise presentation of the size of the painted object, the lightness of the colours and the clarity of the contours. In addition to this, the work reflects Leonardo da Vinci's research into the light and shade of objects, the natural excesses of chiaroscuro (Fig.1-1.5), and the study of the natural botany (Fig.1-1.6).

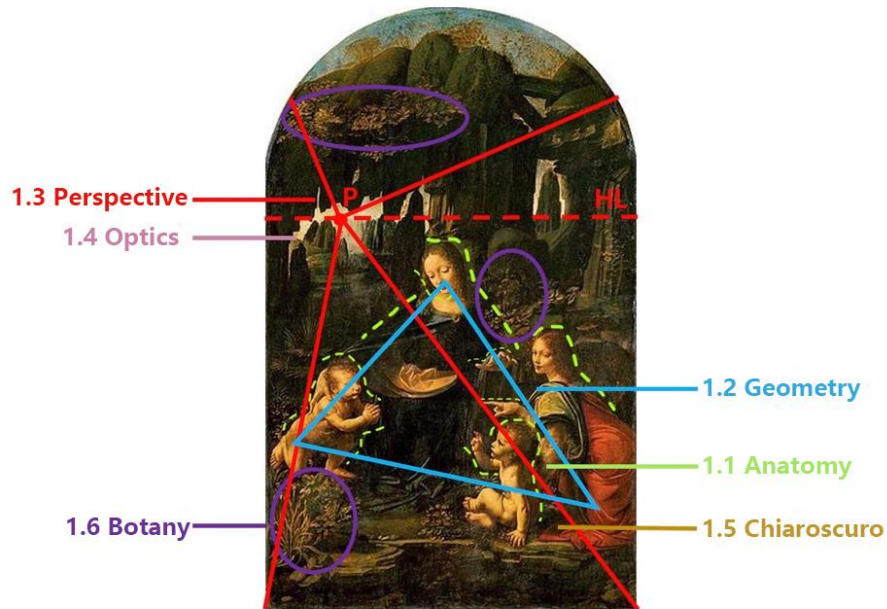


Fig. 1 Renaissance Leonardo da Vinci's Madonna of the Rock

The paintings of Leonardo da Vinci have become an insurmountable peak in the history of Western art. In addition to his amazing talent and persistent belief in art, his multidisciplinary and innovative knowledge has played a decisive role in promoting the innovative aesthetic in his art.

### 3. Summary

The cultivation of innovative qualities is the most important goal in the training of new engineering talents, and innovation is the inexhaustible driving force for human development. The quality of innovative aesthetic is an important part of the quality of innovation, to meet the requirements of innovative design of beauty, the innovative aesthetic quality from the philosophical level, is the individual in inheritance of the innate acquired characteristics of the basis, through a large number of acquired knowledge acquisition and thinking training, the formation of the quality of being able to solve beauty, create beauty[5].

This paper takes the aesthetic education course Art Appreciation as an example, establishes knowledge elements in the talent training programme to cultivate the quality of innovative aesthetic, builds a multidisciplinary integration of the knowledge system of innovative aesthetic, and through the case teaching method, embodies the way of innovating aesthetic composition to guide the new engineering students to no longer see the traditional one-sided perspective of the perceptual way of existence of aesthetic, and inspires students to create aesthetic and lead aesthetic with an attitude of multidisciplinary knowledge integration.

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