

# The Exploration of K+S System Talent Training of Industrial Design

Li-qiu Shi<sup>1</sup>, Bing-bing Yan<sup>1</sup>, Feng Yu<sup>2\*</sup>

<sup>1</sup>School of Mechanical Engineering, Jiamusi University, Jiamusi, China

<sup>2</sup> Educational administration, Jiamusi University, Jiamusi, China

e-mail: jmsdxshiliqiu@163.com

\*Corresponding author: jmsdxyf@163.com

**Abstract** - This paper analyzes the characteristics and development of the current industrial design education at home and abroad. It combines some of the problems of the current domestic industrial design education, and investigates the problem of industrial design professionals' training direction, curriculum provision and ranks of teachers and so on under the new situation. Then it puts forward some specific K + S training pattern of talented person.

**Index Terms** - K+S talented person; training pattern; teacher team.

## 1. Introduction

"General Institutes of Higher Education Undergraduate Course Catalog And Professional Introduction", has been published in 1998 by the Ministry of Education, describes the training objectives of the industrial design like this " :the major brings up high-level specialists with the basic theory of industrial design, knowledge and application ability and can undertake industrial product design, visual communication design, environmental design and teaching, and research work in application of advanced expertise in public institution, professional design departments and scientific research unites".

The industrial design is the youngest undergraduate major in the list of Mechanical Engineering of the Ministry of Education. It is a comprehensive and cross-cutting edge of science. The most significant feature of industrial design is its innovation and practice. The purpose of design education is not making the students do but understand design. The professional attributes of the industrial design determine that the graduates of design education (industrial designer) need stronger inter-professional capacity, all the solid skills, extensive contacts with the community, and to be actively involved in the design practice[1]. To comfort varied social needs, it is a quite urgent problem in front of industrial design education how to combine the features of the subject, update the concepts of education, deepen the educational reform, draw up 1 personnel training mode, make the design education and market demand comply with a standard[2].

Therefore, it is a common topic of all industrial design majors to think of industrial design major curriculum provision from the perspective of characteristics of a comprehensive university and the personnel requirements, to establish and improve the scientific and rational industrial design professionals training mode, and shape the innovate consciousness with Chinese feature, which adapts to our

nation's circumstance and the industry designing teaching course system of practical ability. It also is of great significance for cultivating more outstanding design talents with the comprehensive quality to serve the community.

## 2. Overview on the Development of Industrial Design Education

Domestic industrial design education started late, relatively later more than half a century than Western developed countries. Due to shorter history, the design education system is not yet perfect. Most of the early design education was in art schools, in the past decade a large number of comprehensive universities and engineering colleges have established design major and faculty, there is a large-scale education. Therefore, the colleges which offer industrial design major currently are mainly two ways: first set in a comprehensive university or in engineering-based mechanical engineering, the School of Design, second, set in art schools. Although both backgrounds have certain school basis, there is a common problem: the arts and sciences split up quite seriously, the students' knowledge structure is easy to tilt to one side. Comprehensive university teaching content includes liberal arts courses, but it floats on the surface and focus on the professional skills training because of the effect of inertia of teaching management, results in that the ability of students' solving the comprehensive, complex practical problems reduce. Their creativity also is not fully developed.

The United States is the first country whose industrial design are professional, its industrial design education has a long history, and has accumulated plenty of experience, the formation of the its distinct characteristics is worth our studying and analyzing carefully. Its industrial design is set at the School of Design, Architecture, Academy of Fine Arts and Institute of Technology. About 40% have created little or no contact with the arts disciplines together. The focus of design education was on the product design at the beginning, and become more and more specialized. Compared with it, there are still many deficiencies in the domestic industry and design education. Number of truly engaged in product design is small from the aspect of the whereabouts of the annual Industrial Design graduates. On the one hand, industrial design talents are a great need for domestic enterprises. On the other hand, industrial design graduates can not find their place within the enterprises and choose to change jobs. There is the existence

of subjective factors when students choose the jobs. It also reflects that the traditional industrial design education can not meet the objective reality of the modern business needs. Therefore, the teaching content, teaching methods, and talent training mode must be reform. In the process of talent training mode, how to take this general direction of the success will be the key to our future talent training[4].

### 3. The Components of K+S Talent Training Mode

According to the development trend of the major, study the direction of "K+S" talent training research. K+S talent training mode is a general term for "Knowledge" and "Skill". For the development of "K" talents, rationally adjust teaching methods according to the characteristics of science in teaching. Learn to add and update the design knowledge and ideas so that they can choose and integrate the knowledge from a vast of information and ensure the design meets the requirements of the times. As for the S students, students' learn modeling and artistic quality of the profession are principal. To have practiced vocational skills, develop students' creative thought and the ability of the entire design. Rely mainly on school-concentrated practice while students contact subsidiary, and combine with social practice, paid labor, and employment choose. Put into employing unit directly after graduation, complying with employment requirements.

#### A. Curriculum emphasizes pertinence

Starting from the actual social needs, in accordance with the principle to adjust the curriculum system and optimize the teaching content of reality, function, practice and enough to work, and professional skills development needs to make some adjustments to the curriculum, with emphasis on technical ability training.

#### B. The Basic Course Stressed Adaptability

In industrial design professional teaching, we should correct the phenomenon that basic courses and specialized courses are out of line, so that the basic course truly become the professional "basis". Break the original basic course teaching pattern, and beyond the simple skills and experience of teaching.

#### C. Courses Teaching Emphasis on Practicality

In accord with the characteristics of professional education, we should emphasis on specialized course and the practicality of the theoretical teaching. Summarize of the past teaching experience, combining with the school situation and actual demand for social industrial design talent. The courses teaching and the theory of teaching content must be adjusted and valued the emphasis on practicality.

#### D. Practice Teaching Emphasis on Continuity and Gradual

Develop the students' ideological education and awareness from a professional practice, understanding the professional; In the teaching of basic theory courses, professional basic courses and specialized courses, combine with the experimental course, recitation, curriculum design and field teaching to strengthen the understanding of theoretical

knowledge, To achieve the theory and practice teaching alternating penetration.

### 4. Improve the Ability of Curriculum and Graduation Design

At the aspects of the practical content and function, skills training are the center. Focus on the basic skills of operating training. Correct operating procedures, processes and norms which students are easy to overlook. And through curriculum design and graduated from Design Practice to inspire stunts awareness of the material, process awareness, pragmatism, and the creative thinking ability which is based on them. Try our best to combine students' graduate design research with teachers' practice teaching base and the production technology, and strive to meet the needs of the students' personality development.

### 5. Build up the Ability of Young Teachers

Aiming at the problem of teachers team construction's weakness in the comprehensive universities industrial design major, building up a team with reasonable structure, innovation, the young "dual-qualified teachers with great concentration, strengthen the training of young teachers' comprehensive ability, ensure the quality of teaching . Detailed measures of improvement as follows:

1) Send the young teachers to the senior colleges to receive related professional training, and encourage teachers to lead students to participate in domestic and foreign design contest.

2) At present, most of the professional teachers in universities directly become teachers after graduation, and they have been engaged in the teaching work for many years , but lack actual experience of design . So, to improve the quality of teaching and the teachers' professional level, we must establish flexible teaching management mechanism. Except the teachers of our university, we should employ professional designers with practical experience to join the teams of teachers ,undertaking a part of teaching tasks to make up the shortage of teaching and ensure the quality of teaching.

3) If possible we can employ some influential experts and professors of high academic level from some universities whose major of industrial design was set up earlier to our school and speak a main course .Not only teaching the students well, but also drive some young teachers to master the teaching experience.

Think of the industrial design engineering talent cultivation mode from the perspective of engineering colleges' characteristics and talent requirements. Aiming at the problem that prevalence of teaching practice and theory are so serious out of line in traditional teaching model that graduates continue to suffer in employment, we proposed "K+S "talent training model under the four-year undergraduate education system to realize industrial design professionals teaching mode . The mode ask the theory and practice must be in parallel. In the curriculum, actual product design is center, and curriculum design, production practice and graduation design

and other aspects of arrangements for students. Arrange students to complete the corresponding task, training base, teaching and practice, the smooth transition of the theoretical study and employment with the use of curriculum design, production practice and graduation design. Further enhance the employment and competitiveness of university students. It's a new exploration of a new teaching model, a great significance to the cultivation of wide caliber, thick-based compound talents.

Moreover, we should set up the penetration mechanism that can promote the arts and sciences cross under the specific teaching management system. Further enhance the marginal subjects development of industrial design, thus in the design teaching and scientific research activities to realize the mixture and application of the interdisciplinary subjects knowledge .Strive to make design education more appropriate with the market, reflecting the design spirit of the time.

## 6. conclusion

This paper analyzes the characteristics and development of the current industrial design education at home and abroad. It combines some of the problems of the current domestic

industrial design education, and investigates the problem of industrial design professionals' training direction, curriculum provision and ranks of teachers and so on under the new situation .Then it puts forward some specific K + S training pattern of talented person .

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## References

- [1] J.H. Xu. Industrial design talent cultivation system construction and optimization. Jiaxing University, vol. 17, pp.108-111, 2005.
- [2] J.S. Jiang, G.M Cao, H.M Wang. Industrial design professional talent cultivation system exploration. Journal of hunan institute of science and technology, vol. 6, pp.85-87, 2003.
- [3] Hangyue Chen, Changlin Song. Industrial design professional talent training mode to explore. Hangzhou university of electronic industry, vol. 2, pp.69-71, 2004.
- [4] Kun Li. Industrial design to explore teaching mode. Art education , vol. 8, pp.131, 2008.