Enlightenment of Bauhaus and Ulm Design Concepts and the Spirit of Chinese Industrial Design Education

Xinxiong Liu¹, Haiping Zhao², Lin Gan³
Huazhong University of Science and Technology
Wuhan, China
¹xxliu@mail.hust.edu.cn; ²529493611@qq.com; ³381293160@qq.com

Abstract
In this paper, through the analysis of the essence and purpose about the present situation of the developing Chinese Industrial Design education, as well as the features of Chinese Industrial Design curriculums system, we have noticed the important role of design concepts and spirit of Bauhaus and Ulm, which give enlightenments for Chinese Industrial Design education system. Simultaneously, a deep investigation of the Industrial Design curriculum of Huazhong University of Science and Technology, a well-known comprehensive university in mainland China is held, furthermore, through an comparison of the features of the Chinese Industrial Design education, diverse discipline orientation, training system, curriculum and training programs from different types of schools, departments, students from different level of the of Industrial Design Department in China, thus further discuss the rational and social service of Bauhaus and the pursuit of Ulm, open and modern design education mode, experimental, critical and innovative attitude as enlightenment to Chinese Industrial Design Education, only to China’s industrial design education characteristics and the Bauhaus and Ulm. All in all, the only way to perfect and unified Chinese industrial design education system reasonable combination of design concept and spirit.

Keywords
China Industrial Design; Education; Bauhaus; Ulm; Art and Technology

Introduction
During recent ten years, the rapidly accelerating development of Industrial design education throughout mainland China has made the Industrial design discipline become one of the eight most popular and fast-developed disciplines. However, due to the complexity of the industrial design, the ambiguity of discipline orientation and teaching methodology, Chinese industrial design education is facing some misunderstandings. At present, the enlarging gap between theory and practice, art and technology referred to as bottleneck point has a negative effect to the development of the Chinese Industrial Design education. This study adopt the huge contributions of Bauhaus and Ulm in different historical periods, the achievement of the artistic design theory and practice construction and the pursuit of rational and social services of design concept, the open and modern design education model, the experimental and critical pedagogy as well as innovative attitude as a profound inspiration has shed light on design education and development all over the world. So the reasonable application of the design concepts and spirit of the Bauhaus and Ulm will improve Chinese Industrial design education system, it is indeed a big issue which is worthy of further consideration and in-depth study.

The Essence and Purpose of the Industrial Design
The first use of the term “Industrial design”, internationally recognized academic term, is attributed to the American artist Joseph Snell in 1919. In 1980, the eleventh annual meeting of International Council of Societies of Industrial Design were held, along with the first definition of industrial design: “An industrial designer is one who is qualified by training, technical knowledge, experience and visual sensibility to determine the materials, mechanisms, shape, colour, surface finishes and decoration of objects which are reproduced in quantity by industrial processes. The industrial designer may, at different times, be concerned with all or only some of these aspects of an industrially produced object. The industrial designer may also be concerned with the problems of packaging, advertising, exhibiting and marketing when the resolution of such problems requires visual appreciation in addition to technical knowledge and...
experience.” (Cheng.NL, 2011)

The purpose of the industrial design is to meet the people’s needs from both the physical and psychological aspects. Industrial design aims to make products easier for people to use and make it more efficient through rational planning. The product form, created through the reasonable product performance research, which will be in accordance with the era trend and the spirit of the age, in harmony with the environment, will give people sensuous enjoyment. The ultimate goal of industrial design is to meet the diverse needs of consumers, the designer’s task is to focus on the needs of the masses of the people, create and execute design solutions. (Long.ZJ, 2012)

**Chinese Industrial Design Discipline System Features and Case Analysis**

Chinese industrial design education began in the early 80’s, before that, the design education system was mainly on the traditional art education. In 1986, under the auspices of the Department of the Ministry of Education Ministry of Mechanical Industry, the first industrial design steering group was established, mainly for guidance and coordination of the industrial design discipline of high engineering colleges. At the same time, industrial design discipline was also formally listed in the specified catalogue by the national Ministry of education. (Zhong.L, 2005)

**The Features of the Industrial Design Curriculum System in Chinese Universities**

For historic cause and the common understanding of the comprehensive interdisciplinary subject, the discipline and specialty construction of industrial design in mainland China mainly has the following features:

- Industrial design discipline exists in different kind of universities and colleges, including Fine Art Colleges, Engineering Colleges, Comprehensive Universities, College of Agriculture and Forestry and Normal Universities. Industrial design discipline is set up as a separate Department under different schools, such as the School of Architecture, College of Art, School of Design, School of Mechanical Engineering, etc.

- The backgrounds of students are dived into two types, some of them are from science & engineering background, and others have liberal arts and arts background.

- The granting of a degree in industrial design is quite different for undergraduate students and postgraduate students, for example, the undergraduates can be granted a Bachelor’s degree in engineering, also can be granted a Bachelor of Arts degree, that means they could choose one from the two different types of degree, while the postgraduate can only be granted a master degree in arts (Zhong.L, 2005).

The diversity and complexity industrial design discipline setting led to some differences of industrial design education in Chinese universities. As reported in Chinese Industrial Design Discipline Development Strategy (draft) "... the complexity of this professional, often leads to ambiguity of professional orientation and professional teaching... "Curriculum construction and training plan of industrial design education is supposed to be different within the different kind of the colleges and universities, for the different background of students, however, it is still a long way to go for the establishment of a unified discipline system of Chinese industrial design education.

**Case Analysis of Chinese Industrial Design Specialized Curriculum Setting in Universities**

Huazhong University of Science and Technology is a well-known comprehensive university, The Department of industrial design is set up under the School of Mechanical Science and Engineering. The following table is an industrial design discipline undergraduate curriculum in the year 2012 of Huazhong University of Science and Technology, shown as an example about industrial design specialized construction in comprehensive university.

These two forms above analysis the different training plan for literature, art and science & engineering students of the industrial design department of Huazhong University of Science and Technology:

Firstly, foundation curriculum set is different for students from different background, for example, actually, art and liberal arts students already have more artistic experience and knowledge than science & engineering students, so the proportion of the foundation curriculum is relatively high and compulsory for art and liberal arts students; while for science & engineering students, the proportion of the foundation curriculum is basically low and the courses are elective.
<table>
<thead>
<tr>
<th>Course Categories</th>
<th>Applicable Disciplines</th>
<th>Main Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Core Courses</td>
<td>Each Discipline (required)</td>
<td>Product Design(Ⅰ), Exhibition Design(Ⅰ)</td>
</tr>
</tbody>
</table>

<p>| Table 2. Curriculum for Science &amp; Engineering Students Undergraduate of Industrial Design Department in HuaZhong University of Science and Technology |
|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|</p>
<table>
<thead>
<tr>
<th>Course Categories</th>
<th>Applicable Disciplines</th>
<th>Main Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Courses in General Discipline</td>
<td>Each Discipline (required)</td>
<td>Brief History of Industrial Design, Performance Techniques, Design Sketch(Ⅰ), Design Basis(Ⅱ)</td>
</tr>
<tr>
<td></td>
<td>Each Discipline (Elective)</td>
<td>Design Colo(Ⅰ), Product Form Design, Visual Communication Foundation</td>
</tr>
<tr>
<td>Basic Courses in Discipline</td>
<td>Each Discipline (required)</td>
<td>Computer-aided Industrial Design(Ⅱ)CAD, Introduction to Design, Ergonomics</td>
</tr>
<tr>
<td></td>
<td>Each Discipline (Elective)</td>
<td>Shadow and Perspective(Ⅰ), Model, Modeling Materials and Technology</td>
</tr>
<tr>
<td>Professional Core Courses</td>
<td>Each Discipline (required)</td>
<td>Product Design(Ⅰ,Ⅱ)</td>
</tr>
<tr>
<td></td>
<td>Each Discipline (Elective)</td>
<td>Packaging Design, Interior Design(Ⅱ), Product Design(Ⅲ)</td>
</tr>
<tr>
<td>Professional Orientation Courses</td>
<td>Each Discipline (required)</td>
<td>Appreciation of Chinese and Foreign Arts</td>
</tr>
<tr>
<td>Internship and Practical Training</td>
<td>Each Discipline (required)</td>
<td>Production Practice, Graduation Design (paper)</td>
</tr>
</tbody>
</table>

Secondly, the professional curriculum set for science & engineering students need to be improved, for example, the professional core curriculum set for liberal arts and art students is classified clearly and supposed to be compulsory; while the professional core curriculum set for science & engineering students is classified in only one category, there are three types elective courses, which makes students find it difficult to choose courses under no guidance.

Thirdly, according to professional direction of the curriculum, the bridging courses between professional core courses and foundation courses is different for science & engineering students and liberal arts and the arts students, there is a specific and diverse bridging curriculum set for students from low grade and different background to choose their further professional research direction according to their own situation, for example, the Chinese and Foreign Art
Appreciation set as a compulsory course for science & engineering students means to improve their artistic accomplishments, the classification of elective courses set for science & engineering students according to their different features is relatively suitable for science & engineering students.

Finally, in the practical curriculum setting, it is several times much more for art students than for the science & engineering students, which is not reasonable and suitable to cultivate the practical ability of science & engineering students.

A brief Review of Professional Curriculum of Industrial Design Department in Chinese Universities

The above analysis and comparison shows that there are so many differences in curriculum and training plan between different types of schools, different departments, different students of Industrial Design, furthermore, even in the same school, the same faculty of the Department of Industrial Design, curriculum and training plan are different for art and liberal arts students and science & engineering students. Therefore, professional curriculum, training plan, professional positioning and orientation of training in Chinese Industrial Design Department shows the culture of non-uniformity, diversity and difference.

The Design Concept and Spirit of the Bauhaus and Ulm

The education system of Bauhaus and Ulm School of Design has become a typical program design training and design practice, the Bauhaus design foundation course has gained worldwide reputation and international recognition. So far it is still the core of the German design theory teaching method and the design philosophy of the part. (Zong.MM, 2003)

Bauhaus course of development which is considered not only a cornerstone of modern design education process, but also exploration process has made remarkable achievements in teaching methods, design exploring for basic teaching. Bauhaus early on that "art and technology combined". Firstly, the concept of art, culture, borne by the maestro teaching to cultivate aesthetic ability and creativity; secondly, it solved the technical problem through the workshop process teaching borne by skilled craftsmen, design teaching and industrial production between act as a "bridge". Bauhaus is always for practical and public service as the purpose.

The Ulm School of Design was established in Germany in the 1950s, called the "New Bauhaus " period. Ulm School of Design pioneered systematic approach of design education, put forward the principle of rational design through the integration of science and art, thereby creating a teaching of design based on a structured problem-solving approach.

Firstly, Ulm School of Design sought to emphasize analytic methods encompassing sociological, economic, considerations which are closely linked with the Bauhaus teaching ideas, but more thorough and more pragmatic than Bauhaus. Basically, Bauhaus based on the Arts and Crafts model, in which the artist-designer saw their primary role in product development as form-giving, while Ulm created a distinctive style by adding the ‘lowest energy consumption, the highest effectiveness’ requirements to the design education.

Ulm Model became well-known for their design education gave top priority to society, and design was not a performance, but a service. Secondly, Ulm Model emphasized science, modernity, openness philosophy of education and set close ties to focus on modeling, science and technology, to encourage academic exchanges, to motivate teachers and students of innovation, to focus on the actual use of a variety of techniques and theoretical training and education.

The theoretical and practical contributions of the Artistic Design Construction of Bauhaus and Ulm education model in different historical periods are enormous. Pursuit of rational and social services in the design concept, open, modern design education model, experimental, critical and innovative attitude bring deep enlightenment in the new era of industrial design education. (Hou.YR, Tan.HN. 2011)

Conclusions

Modern industrial design education should pay more attention to coordinate the relationship between style and structure; seamless integration of design and production; in the final analysis, is to make the perfect combination of art and technology. Chinese industrial design education should adopt the rational, design concepts, open education model and innovative spirit of Bauhaus and Ulm in order to better improve the teaching system of the industrial design disciplines in mainland China. In the future, the development of Chinese industrial design education will always be closely linked to the core of art and technology, combined with the characteristics of long-term development of Chinese industrial design, reasonable use the design philosophy of the Bauhaus and Ulm to
establish an open, modern industrial design education mode. In short, China’s industrial design education should be the characteristics of the industrial design discipline system, combined with the design concept and spirit of Bauhaus and Ulm, the establishment of industrial design education system with Chinese characteristics.

REFERENCES

Cheng.NL. General Introduction of Industrial Design [M].
Zong.MM. Research of the Ulm Design Education System [J].
Hou.YR, Tan.HN. Enlightenment of Bauhaus and Ulm Spirit of Practice Teaching in Design Education [J].