

Study on the Curriculum System Framework of UI Design in Colleges and Universities Based on the Present Teaching Status of Social Training Institutions

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Abstract: With the rapid development of science and technology, electronic products have become an indispensable tool in our lives. At the same time, the interface design of electronic product-related software has gradually been important, and drawn more and more attention. UI design usually refers to the design and beautification of a software interface. It together with the software function constitutes a selling point of the software. It can be said that UI design is an art based on the science and technology. However, colleges and universities are still in the exploration and research stage in developing courses of UI design. In order to better develop the teaching of UI design, we need to conduct an in-depth investigation through understanding and analyzing the present teaching status of the social training institutions, especially the setting of teaching courses and contents. Consequently, we can better combine the teaching features of colleges and universities to design the framework of UI design courses to promote the development of major relevant to UI design in colleges and universities, thus further help the students of relevant major to get a job.

Introduction

With the government's vigorous promotion on the network construction, the communication technology has stepped into the 4G era. The advance of science and technology has brought great convenience to our lives, and the demand for UI design is also increasing. The requirements for function of electronic product software continue to push up the demand for the technical talent of UI design. Colleges and universities as the main base for teaching knowledge and training skills, their teaching curriculum must keep up with the development of the times to meet the different needs of the market for talent, so as to provide the society with more powerful intellectual support in the context of the development of the times, creating a better way for the students to get a job offer.

Teaching Status and Prospect of UI Design Course in China

The Concept of UI Design Course. UI is the abbreviation of "user interface". It exists in our daily used electronic equipments and machinery equipments, allowing a better interaction between human and electronic equipments[1]. It is an emerging comprehensive discipline and widely applied onto the terminal screen of electronic equipment and instruments of various industries. Currently in terms of the UI design scope, UI design can be divided into WUI and GUI[2]. The former is the abbreviation for the web design, and the latter is abbreviation of graphical user interface. Generally, both are required to be responsible for the visual design of the electronic product interface. Compared with other designs, UI design generally has the following characteristics: (1) the function specificity, which means that UI design must be combined with electronic equipment to perform its operational capacity; (2) the interaction dynamics, which means that UI design needs to achieve the interaction between human and equipment to realize its function; (3) the multiple dimensions of feedback, which means that the feedback of UI design is not a simple signal output, but has a real sense of hearing and touching. Even in some designs, the sense of smell

and taste can also be evoked. Therefore, we can conclude that UI design has personalized function which is able to achieve communication between human and machine; at the same time, it can comprehensively reflect the functions and effects of a interactive software.

Teaching Status of UI Design Course in Domestic Training Institutions

The rapid development of electronic equipment has brought convenience to our lives. It can continuously meet people's demand for information. Therefore, mobile phones or tablet PCs and such electronic equipments have become the main means for people to collect information and communicate[3]. However, because the same-type products emerge one after another, competition tends to be more and more fierce; so UI design, as a means to show the software personalization, plays a very important role in competing for the market.

As the UI design is new in China with short period of development, in the early stage of development, it is not valued by colleges and universities; thus the setting up of UI design course in domestic colleges and universities is relatively imperfect, and even some colleges and universities are still in the stage of exploration. The social training institutions have higher sensitivity to the market development, so they noticed the market demand for UI design earlier, and set up relevant courses, developing under the stimulation of market demand. Hence, the training courses of UI design are mainly provided by social training institutions, and these institutions are more experienced than the colleges and universities in teaching UI design, and are always closely connected with the market demand during the development of teaching. However, the training institutions also have shortcomings. From the teaching cycle point of view, aesthetic ability and basis ability of design are unable to reach to a higher level in a short term of training. The training institutions only trained the operational capacity of some specific aspects, which can quickly meet the market demand, but obviously lacks stamina, and the overall quality of design trained by the training institutions still needs self-improvement.

Relatively speaking, colleges and universities also have their own advantages; their teaching foundation, teaching resources and scientific research ability are superior to those of training institutions. Colleges and universities can be more clear and definite in setting the framework of professional courses, and combine their teaching resources to provide students with more comprehensive practice opportunities. Then a more complete and meticulous teaching mechanism is present to improve the students' aesthetic ability and practical skills. As a result, the trained talents can meet the market demand with solid foundation and skills. But for now, the framework of UI design course system is not perfect, and still needs further development.

The Present Teaching Status of UI Design Course in Colleges and Universities

At present, there is no a specialized UI design major in domestic colleges and universities, and the courses related to UI design are mainly set for the majors of visual communication design, digital media art and industrial design and such. The teaching of UI design has been based on the teaching of theoretical knowledge, ignoring the practical teaching of the hands-on skills and the practice of user research in UI design. As a result, the talents of UI design have rich theoretical knowledge but poor professional ability to operate in the actual design and application process. At present, enterprises and institutions regard the practical operational capacity as the assessment criteria for the selection of talent, which leads to the mismatch of teaching in colleges and universities and demand of enterprises for talents, resulting in lower employment rate of UI design.

The Present Situation of Specialization of UI Design Course in Colleges and Universities.

Although many colleges and universities have set up professional courses related to UI design, in the actual teaching process, a professional and systematic teaching system to some extent is deficient. This is attributed to that, first of all, most people's understanding on UI design is not sufficient, which is limited to the art designing, ignoring the fact that UI design is a combination of science and technology and art design. Moreover, in the practical course of UI design, more emphasis is laid on the experience of human-computer interaction design; the professional

application and art form have become the design contents dependent on the product. Secondly, due to the lack of teachers in many colleges and universities, corresponding practical experience is insufficient. Therefore, it is difficult to establish a systematic teaching system in the process of teaching[4]. As a result, the professionalism of UI design teaching cannot be reflected. UI design is a new industry, and the teachers should enhance their own quality and ability to fully improve the practical experience, so as to effectively increase the level of students' professional knowledge.

Prospects of UI Design in Colleges and Universities. At present, UI design is still new in the whole design industry, and, driven by the development of the software industry, has become a high-tech industry. At the same time, a lot of IT industries (such as Tencent, China Mobile Communication Corporation, Baidu, Microsoft, Tmall, etc.) have set up a professional UI design department, revealing the high level of UI design audience. However, because the developmental period of personnel training for UI design is shorter, the UI design training is mainly provided by the social training institutions, and a large scale and high-quality talent output cannot be realized, resulting in shortage of UI design professionals and intense competition for human resources. After investigation, currently the annual salary for UI designer is about 100000-150000 RMB, and some more experienced UI designers can gain 200000 RMB a year; and senior designers will obtain higher annual salary.

The Employment Situation of UI Design in Chinese Colleges and Universities

UI design industry is emerging in recent years. Due to the scarcity of talent and mismatch between the market demand and supply, a lot of young people have joined in the UI design training industry. On the current situation, the salary for students majored in UI design after graduation is relatively ideal.

However, with the implementation of the enrollment expansion policy in colleges and universities, the employment pressure of students is increasing, and it is difficult for students to get a job after graduation. The main reason for this difficulty lies in the own mentality of students and the irrationality of the curriculum system of relevant major in domestic colleges and universities. First of all, many college students do not have a clear understanding on their major; they believe that learning UI design is only to master the skills in using drawing software, with insufficient awareness of the need of UI design industry. Therefore, the possibility of students to be recognized in the process of actual employment is low. In addition, the enterprises engaged in UI design are generally emerging enterprises, whose development is not better than the other enterprises and institutions. Hence for the sake of insurance, more people choose to enter the enterprises and institutions with a stable development. However, the employment needs of such enterprises are generally in a state of saturation, and their demands for the UI design professionals are very few, thus the number of students able to successfully obtain a job can be counted by bending the fingers[5]. Secondly, UI design belongs to a new industry, and also belongs to the sunrise industry with large developmental potential. Moreover, UI design is involved in many industries, so high-skilled UI designers are more and more valued in the industry. At the same time, since UI design is new, the talents are very scarce in the entire industry; hence it will be easier for skilled students to get a job.

The Current Teaching Status of UI Design in Domestic Colleges and Universities

Teaching Content of UI design. The colleges and universities in China have a long history of visual design teaching, but the teaching contents of UI design have not been clearly defined, and they mainly choose to add the relevant professional courses for UI design. As a result, the teaching contents of UI design in different colleges and universities of different regions are not the same[6]. For example, UI design in a university in Guangdong is not an independent major, but listed, together with several other courses, as the teaching contents of art design major. In a university in Shanghai, the multimedia design, video and multimedia design, sketch and other courses constitute the entire teaching contents of UI design major.

Teacher Team of UI Design. For most of the colleges and universities which set up UI design major, the teacher resources are relatively poor except those well-known in coastal cities. This is because the UI design is a new industry, while its subject content in teaching is more advanced, so teachers engaged in teaching and learning research are mainly young. At the same time, there is cross-disciplinary teaching in the design major, and the highly educated teachers, especially those have Master's degree or higher are scarce. This is mainly because these teachers are generally outstanding graduates directly from schools to the teaching positions. However, UI design is a discipline that has a higher demand for the practical ability. Due to lack of appropriate practical experience and fewer opportunities to participate in the actual project, teachers of colleges and universities often appear to be powerless in the process of teaching.

Set up of Courses for UI Design. UI design is relatively a comprehensive discipline, and its teaching curriculum involves a large number of subjects, such as web design, linguistics, product design, psychology and other disciplines. Therefore, in the process of setting up its curriculum, overall consideration should be made. However, the current UI design courses mainly involve the basic contents of UI design, resulting in overlap of a lot of the courses; while due to the lack of distinction between key courses and sub-key courses in the curriculum, students cannot better grasp the key points in the process of learning[7]. The contents of the course are relatively single, and lack correlation to some extent, leading to the lack of correlation between knowledge contents and practical teaching, and ultimately failure in converting teaching contents in classroom into practical application.

Scientific Design of Curriculum Framework of UI Design in Colleges and Universities

Framework of Basic Knowledge on Modeling. The ability to plot graphics, which is the ability to model, is the basic requirement for UI design, and sketch is closely related to drawing. In the process of learning sketch, we need to have an in-depth understanding on the relationship between objects and light, spatial perspectivity, color, and composition of a picture. At the same time we should have specific analysis and learning of the painting techniques and material performance. For example, in material performance, the glass material, plastic material, and wood grain material have different performance. The sketch is a means of representation; it needs to show subjective expression like the camera[8]. Sketch also has other forms of expression, such as abstract sketch which is usually used to express emotions, and representative sketch is usually used for emotional catharsis. The ability to model can be enhanced through the basic means of sketching, which is the basic requirement for effective connection to the follow-up courses, and also the initial stage to enhance the aesthetic ability.

Knowledge of UI Hand Drawing Skill. In the UI design of software, hand drawing is usually used for the drafting of icon, interface, design prototype and skeuomorphic icon which fully reflects the material performance; whereas in the UI design of web, character sketches, landscape sketches, spatial hand drawing and creative hand drawing will be involved[9].

Basic Knowledge of Design. Mastering the design basis is the basic requirement to enhance the aesthetic ability, master the abstract expression of graphics and creative graphical expression of information. In the process of UI design, firstly we need to understand the basic concepts and principles of design, and then can be capable in the process of design. Therefore, the basic knowledge of UI design generally includes color composition, pattern composition, two dimensional composition, LOGO design, font design, layout editing and such.

Knowledge on User Research. At present, the duties and work content of UI designers in the Internet design industry are gradually changing; UI designers are not only responsible for the visual design, but also participate in the section of user research and interactive design. In the process of developing the entire project of interface design, UI designers must deeply analyze the function, availability and usability of the product and participate in the design, instead of solely analyzing and designing from the instinct level, namely the visual level. UI design must be based on three levels of instinct, behavior and reflection. Therefore, the user-centered design concept must be integrated into the teaching through the specific theoretical knowledge of user research and practice, so that

students can fully understand the importance of user research and master the approach for user research.

Basic Application of Software. At present, the commonly used software in the process of UI design includes Photoshop and Illustrator and such. Using Photoshop requires to understand and master the basic knowledge of software interface composition and graphic design[10]. Illustrator is a software used to draw vector graphics, so we need to understand the interface and tools of the vector graphics rendering software, and master the skills of vector graphics rendering. In addition, we should also master the techniques and specification of Axure RP, which is used to design the interactive interface which can be demonstrated with high-fidelity.

The Guarantee of Optimizing the Teaching Syllabus and Teaching Objectives in Colleges and Universities

Combining the Actual Employment Orientation to Design Syllabus. The syllabus of UI design should be in line with the trend of actual needs for talent. Therefore, the colleges and universities need to investigate and analyze the current jobs that involve UI design, and design the syllabus based on the current demand for UI design, so as to meet the needs of enterprises for talent[11]. The colleges and universities can set up related professional courses such as color psychology and graphic design etc. to enhance the overall quality of students by teaching professional knowledge. The courses of product planning and analysis as well as user research can be set to perfect the curriculum system. The colleges and universities can also adjust the proportion of lesson teaching and practical teaching to ensure that students in the learning process can get enough opportunities to practice, so as to enhance their design and application capabilities to face the enterprises with a good attitude and technology application ability.

Improving the Professional Level of Teachers to Ensure the Realization of Teaching Objectives. With the rapid development of science and technology today, to do a good job in teaching UI design, it is necessary to synchronize with the development of the times[12]. Therefore, teachers need to study further, so as to comprehensively understand and master the knowledge. The schools should also strengthen cooperation with the enterprises to provide teachers with the opportunities to practice UI design, and better understand the development needs of the industry through the project design, connecting the industrial development with teaching closely, in order to enhance the quality of teaching to ensure the ultimate realization of teaching objectives.

Conclusion

Relatively speaking, the social training institutions have longer history of UI design teaching, and a certain technical capacity and teacher resources. Colleges and universities, during the development of UI design major, need to learn from the social training institutions, and effectively combine with their own teaching advantages to better set up the UI design courses and framework of teaching system, ultimately ensuring the teaching quality.

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