Reform and Practice of Web Design and Production based on OBE Concept in the Context of New Engineering

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Abstract. In this paper, based on the characteristics of web design and facture course, from the course introduction, teaching existence question analysis, training mode reform aspects and so on three aspects to illustrate how to improve the teaching effect of this course, and to explore the concept of how to use the OBE complete curriculum reform in teaching practice, thus improve the computer professional and visual communication professional social practice ability of students, in order to conform to the demand of the current web design position.

1. Introduction
In order to actively respond to the new round of scientific and technological revolution and industrial transformation, support a series of national strategies such as service innovation-driven development and "Made in China 2025", the Ministry of Education actively promotes the construction of new engineering projects. As a reform plan leading to the future engineering education, New Engineering adheres to the construction concept of "based on the present, aiming at the future and taking the initiative to change", breaks the original discipline orientation and specialty division, and strengthens the practice exploration of "industry demand orientation" and "crossover and integration" based on the problem orientation. [1]

Outcome-based Education (OBE) first appeared in the reform of basic Education in America and Australia. In his book Output-Based Education Model: Disputes and Answers, American scholar Spaddy makes an in-depth study of this model and defines OBE as "a clear focus and organization of the education system around ensuring that students get substantial successful experiences in future life". [2] The Department of Education in Western Australia defines OBE as: "An educational process based on the realization of a student's specific learning output. Educational structures and curricula are seen as means rather than ends. If they can't contribute to developing students' specific abilities, they have to be rebuilt. Turk believes that Outcomes-based Education and Outcomes Focused Education (OFE) are synonyms. Both OBE and OFE are a structure and system that learning output drives the whole curriculum activities and student learning output evaluation. The teaching mode based on OBE breaks the traditional teaching mode of "teacher-centered", emphasizes the result-oriented and the principal position of students, and realizes the fundamental transformation of the teaching mode from "teacher-centered" to "student-centered".

Website, as the fourth media, its advantages, functions and utility advantages have developed rapidly. After nearly 20 years of basic development [3], the development of WEB pages and websites has developed rapidly in the technical fields of function realization, website production technology,
webpage art design, WEB layout design, website script program, website background programming, etc. Visitors are also constantly improving and developing in terms of webpage design aesthetics, website function design implementation, user context experience, new design theory, and effective aesthetic requirements based on user interaction experience. At the same time, due to technological innovation and the improvement of the audience's aesthetic appreciation, the employment demand of social posts under the new vision is also constantly improving; Therefore, it is urgent to update and improve the cultivation of interdisciplinary talents with new engineering background, broad vision and combination of engineering and art.

2. Analysis of Existing Problems Before Curriculum Reform

2.1. Analysis of Teaching Status
At present, the domestic part of the applied undergraduate colleges and vocational colleges on the basis of professional web design course of the localization and the teaching focus, major in computer science and technology, software engineering, electronic commerce, information management, network engineering and other professional focus on the background design, code, programming, database design, etc., pay attention to training site function implementation, which focus on the talent of education background; Visual communication and design majors focus on interface planning and design beautification, and are committed to cultivate front-end design and web art; But each specialized in web design course teaching mainly exist the following two phenomena: one is the "beautiful" light, heavy function of computer professional class, some teachers' teaching and students in the learning process often only care about the realization of the function of technology, the demands on line Internet users interaction experience and interface understanding is not enough, lack of tension and vitality, website page image not enough maturity. Another kind of "light function, heavy beauty" art major, the students trained to pay more attention to the static page of art, code programming involved in the technical realization and functional appeal can not be completed; As a result, engineering students only know technology, and design students only know design but not basic code. Therefore, it is imperative to reform the teaching of web design course.

2.2. Student Body Analysis
"Web Design and Production" is a course with interdisciplinary ability, strong practical ability and high requirement for practical ability in college education. Students in application-oriented undergraduate and higher vocational colleges have different sources of students, uneven professional foundation and low practical ability. And the source of computer major in higher vocational colleges is not uniform, most of the high school or secondary vocational colleges. Some students have been exposed to computers for a long time, or some first contact with computer major, or some students have art design foundation), which puts forward higher requirements for teaching teachers.

2.3. Teacher Subject Analysis
Because of the particularity of curriculum, teaching concept and teaching means, social enterprises and inadequate demand docking positions, leading to teachers' curriculum frontier and cross cognitive deficiencies, curriculum knowledge reserve position is not clear enough, curriculum, teaching content is scripted, neglecting the case teaching, ignoring the teaching practice design, out of the job requirements, train in college professional training of students in each level is uneven, enterprises accept degree is low, the professional employment issue such as difference of sex. Teacher subject analysis.

2.4. Talent Demand Analysis
"Web Site Design" is a course that involves a wide range of knowledge, strong practicality, and requires high hands-on ability. According to many years of experience in job enterprise docking, each employer does not have an obvious division of job demand, so students should have all-round talents with design + function realization, as shown in Figure 1-2 (FIG.1 shows the web compound talent
curriculum system, FIG.2 shows the post demand of Web design artists on Zhaopin Recruitment website.)

![Image](image_url)

**Figure 1.** Job demand of Web designer (data source: Zhaopin.com)

![Image](image_url)

**Figure 2.** Job demands of senior Web design artists (data source: Zhaopin.com)

3. Reform of Course Teaching Mode

3.1. Educational Philosophy

With the demands of the development of China's higher education connotation from the "khalid ents, lead the students to adapt to the future society" concept of education to "teaching as the center to learn as the center of" focus, and then to "passive learning into active learning, shallow to deep learning study and the realistic requirement of information technology into the classroom" teaching method change in three dimensions. In the process of constructing "double first class", China's higher education needs to implement "learning-centered" excellent teaching. Based on the new engineering background, combined with the concept of student-centered OBE, based on the learning development of students, to understand the current status, explore the potential of students, and promote all-round development; Student learning as the center, learning as the center of education; Taking learning effect as the center, we attach importance to the role of measurement and feedback in learning, and establish
an effective feedback mechanism, so that effect evaluation can effectively help students to adjust their learning, teachers to adjust their teaching, and schools to adjust their work.

3.2. Teaching Design
The teaching of "Web Design and Production" should be based on the emphasis of professional teaching, combined with the orientation of professional courses and the reality of students, pay attention to the connection between hands-on ability and social positions, pay attention to the combination of technology and art, and be based on the teaching material, but separated from the teaching material. Current textbooks and reading a large number of computer professional art design of the teaching material, basic thousands of books one side or the same curriculum content system of writing short board effect is more noticeable, web design and front desk design related content description or basic no less, so combining demand and actual job experience in teaching, teachers should try to supplement relevant art and design at the front desk design knowledge, construct teaching content, increase teaching scope, rich teaching cases, strengthen the authenticity of teaching content, create conditions, inspire students' positive motivation and emotion, so that the students can actively persistent inquiry learning, We strive to construct, compile and apply professional teaching courseware in line with social needs and students' reality.

The teaching process should pay attention to the time spent in class. The basic knowledge is taught through SPOC online learning platform. Students use the online platform to explore and construct knowledge, and take the initiative to construct meaningful learning according to their interests and abilities. Students' extracurricular time is mainly through the teacher's teaching video, lecture video and network communication, classroom teaching is mainly used for problem discussion, case practice or practical operation.

The five elements of active teaching should be followed in teaching design, which are "content usefulness", "learning authenticity", "task challenge", "process interactivity" and "benign environment".

3.3. Discussion of Teaching Content
Based on zhaopin website for web design talent requirements and related enterprise job demand research, in a professional and curriculum orientation, students knowledge reserves before the commencement of the course, basic cognitive and based on the current status, combining with teaching experience, put forward "two objects, three phase, modularity, progressive type" of the "art of engineering, complementary type" teaching content design; SPOC is used to build the teaching framework of the course knowledge system, including video, image, audio, animation, learning cases, design materials, web page templates, design schemes and other teaching resources. "Two objects" mainly refer to engineering majors represented by computer science and technology and art majors represented by visual communication and other related majors. According to the employment demand of enterprises and the common contents of courses, the teaching content system is constructed:

1. Basic professional skills: The knowledge of web design software (DREAMWEAVER+FLASH+PHOTOSHOP), related network programming languages (HTML, CSS, JQuery), Database learning (SQL Server, MySQL, Oracle), etc.;
2. Front-end art design of web pages: design artists for web pages, including web design theory, color, composition, font design, PHOTOSHOP, matting and adjustment, layout design, logo design and other modules.

3.4. Countermeasures for Teaching Implementation
- This course is a course with strong hands-on ability, high practicality and high degree of interest of students. Compared with abstract theoretical courses, students prefer courses with high degree of participation, strong sense of accomplishment and intuitive vividness. Therefore, the course design can be in the form of a large number of work demonstrations, case imitations, assigned material design, theme proposition design, etc., using task-driven, design group discussion and other methods, so that students can explore and learn independently, propose solutions and stimulate their interest, so as to achieve better learning effects.
According to the recruitment requirements, combined with the teaching practice, the general requirements for students: (1) Proficient in web design three musketeers DREAMWEAVER+FLASH+PHOTOSHOP software use; (2) With good design skills and creative thinking ability, can grasp the visual color and website layout, and requires the designer to be sensitive and active; (3) have a wealth of visual design experience and unique overall site planning ability and special site design ability. (4) Individual companies require the ability of hand-drawing, illustration and cartoon design, which gives us the idea of differentiated training and holistic improvement in teaching.

In the process of teaching, in order to present the DREAMWEAVER CS6 teaching based on web design software, the three stages of teaching: (1) the first part of web design basics, USES the basic module teaching method, seven factors, using a web page of text, images, tables, forms, navigation, hyperlinks, multimedia, and effects of each module are classified teaching, focusing on the main design and technique to realize the teaching module, the technique about + case analysis model to make the students have basic preparation, so as to cultivate the students' concentration. (2) The second part of the web design coding improvement, mainly for HTML, CSS code related to learning. By learning the code, students can understand the basic techniques and code implementation of the works according to relevant cases, and also lay the foundation for the next step of learning the language of network development; (3) The third stage for the web layout design and art design integration of related learning, DIV+CSS web layout technology explanation and beautification, let students in the existing works on the basis of technology beautification, integration and improvement. At the same time, the SPOC platform provide form, content rich variety of teaching elective module, adopting modular, progressive type, case teaching design, for the web page art design theory of the missing student to provide technical support and promotion, the construction of teaching related content includes color perception format design, logo design and visual communication, and the technique to realize the design and layout, font, creative design and ideas related to planar part.

Pay attention to case teaching, pay attention to the special training, according to the theme of the related content of practice, lectures, import from the cases, the design purpose, design thinking, design techniques, technology related problem discussion, role, empathy and other aspects to cultivate the students' appreciation ability and creation ability, works in the case of middle school students, in the case of growth; Independent inquiry, deep learning, teachers play a leading role.

### 3.5. Teaching Methods and Characteristics

In terms of teaching methods, this course adopts relevant teaching methods such as active learning taxonomy, cooperative learning method, problem learning method and CDIO, and makes full use of big data, educational informatization, network resources and modern teaching means to improve teaching effect from two aspects of "teaching" and "learning".

Based on the teaching idea of student-centered, from "teach" the level of the main complete basic knowledge teaching, the teaching video, electronic PDF electronic books, large screen multimedia presentations, online demos, network teaching and so on all kinds of teaching means, first make the classroom teaching lively and fascinating, improves the teaching effect and improve the teaching efficiency. Include:

- Using multimedia teaching system to broadcast teaching. The common problems of the students (the key points that need to be prompted) are demonstrated through "broadcast teaching", so that the students can see the operation effect immediately.
- Use the Internet to extend classroom teaching to extracurricular activities, and students can learn relevant content on the Internet according to their needs. Teachers' courseware and teaching materials have been uploaded to SPOC Teaching Resources Download Center for the convenience of students' after-class study and review.
- Based on the practical problems of Web design and Production, carefully prepare various typical cases to construct the macro teaching design of the course. For example, travel website imitation, design, personal website imitation, Beijing Opera facial makeup cultural propaganda. With several cases as the carrier, it forms a complete teaching design layout with increasing technical difficulty, clear principle and technology, and gradual integration of design code.
From the perspective of "learning", the teaching design based on students' independent learning is actively completed through such links as situation creation, information resource provision, independent learning strategy design, group collaborative learning, organization and guidance of independent discovery, and independent exploration.

1. Through creating a situation conducive to students' independent learning to construct the meaning of knowledge, complete the situation creation link; Online course design before class is the key link of online teaching implementation. The design of online courses should meet the basic requirements of systematization, structure and refinement.

2. Complete the provision of information resources by providing information resources or teaching resources related to the current learning topic.

3. By inducing students to study independently, construct independently and complete the design of autonomous learning strategy; In the implementation process of class, learning activities can be organized in various forms, including micro-video learning, reading text resources (PDF electronic documents, teaching content, chapter outline, etc.), case analysis, participation in discussions and interactions, etc. Special attention should be paid to the design of autonomous learning task list, which should be coordinated with learning resources, course guidance, learning guidance and other materials to regulate and guide the construction process of students. In the content design, time requirements, learning objectives, learning content, learning tasks and homework should be clarified.

4. Complete the collaborative learning between groups through cooperative communication, thought collision and learning from each other; The essence of learning is change, while the essence of teaching is change, which is the result of both internalization and externalization. The implementation of the whole process is the dialectical essence of "in" and "out"; The teaching process is "in", while after-school evaluation and supervision is "out". Effective output is the most effective learning. The design mechanism of online learning activities must be in and out alternately. We should guide students according to the situation and teach students in accordance with their aptitude.

5. On the basis of constructing meaning, students' innovative spirit and practical ability can be further cultivated through discovery learning and research learning to solve practical problems, so as to complete the links of organizing and guiding independent discovery and independent inquiry. It is necessary to make full use of the difference of network space and time, students' exploration initiative, teaching cooperation and advantages of various platforms, give full play to the advantages of network resources and teaching interaction, and reflect students' high initiative and participation.

4. Conclusion
In the context of new engineering, web design and production has developed rapidly. In order to gain good social recognition, it must be improved from both teaching and learning levels, among which the teacher of curriculum design is the key point of teaching organization. Web design and production course, because of its class attribute is a combination of technology and art, and through a lot of, mature, conforms to the contemporary case teaching, let the students to read a lot of thinking, pay attention to the accumulation and the vast majority of cases the theme of the special training, so that the students practice in web design course completion, thus increasing social enterprise professional recognition, to create a good employment environment for students, to realize the goal of cultivating and unit of choose and employ persons, the school students employment "win-win-win" situation.

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