The Practice of Web Product Design and Development Course Design

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ABSTRACT

People who design and develop web product need interdisciplinary knowledge and skills from various fields. Thus in most Chinese vocational colleges, students are lack of a completed experience to fulfill employers' needs before they leave colleges. In this paper, we propose a project-based approach to design the course, in which students unify business, product design and development theories into one project practice to build the web product. Over different stages and increasingly complexity, students learn how to interact with customers, build project management skills, design product with business mind instead of focusing on design aesthetics and developing programming skills only.

Keywords

course design; web product; teaching methods

1. Background: Understanding of Web Product

It is irrelevant to the scale of use when work with the web application as a product. "Product" means that organizations need to continually explore a repeatable pattern to find the breakeven point and then maximize [1]. We highlight the web-based application as a product to bring unique user experience as well as the speed of business result oriented.

2. The Workflow of Course Design

Chinese vocational colleges are designed to train service industry-oriented employees whose positions are between white-collar and blue-collar. Typical web product course instructional designs used in Chinese vocational colleges are from three cores: software programming, product design, marketing and operations. Although every core comprises a solid group of subjects which are classical in their own domains, they are lack of comprehensive workflow to reflect the coherent relationships. The graduates therefore cannot receive desired experience by their future employers from the traditional theory bias course design [2].

In our practice, we break and reorganize subjects from the three cores into a project-based course. The course is illustrated as figure 1, using three concentric circles to show the stages, job descriptions and outcomes from every position. We regard the whole picture as a project and include three iterated stages as sub-projects. The detailed job descriptions can be considered as tasks executed by students, and outcomes naturally become metrics to assess the performance of teachers' teaching and students' learning. By going through this course, students not only receive skills through the real project practice, but help them construct the career path by recognizing their strengths and weakness.

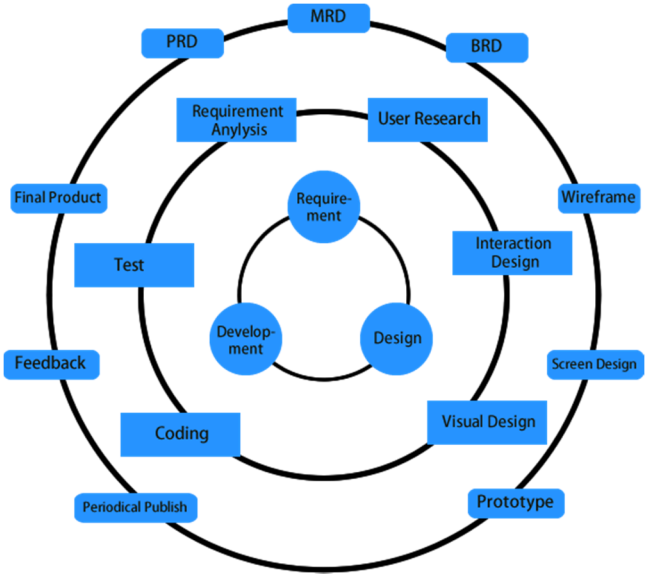

Figure 1. Web product workflow.

2.1 Business Requirements Analysis Stage

At this stage, defining and refining users' wish list into effective requirements is the key. By a full function and reproducible web site project, we put students into a "real" business role to observe the interview from potential customers starred by guest lecturers from the industry, and then summarize Business Requirement Document, Product Requirement Document, and Market Requirement Document to train their abilities in using qualitative and quantitative measures to define clients, buyers and users requirements; analyzing the market competitors, building sale strategy and ROI analysis to provide feasible research for the next stage [3].

2.2 Design Stage

The main aim of design is to provide an early accessible and usable experience to users. At this stage, it is separated into two job positions: interactive design and visual design. We pair two

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students into these two positions a group based on their strong points. By using wireframes, interactive mockups and UX specifications, students learn how to plan and build compelling interactions to impress stakeholders. By following the iterative and collaborative process of UX prototype as a team member, it builds the interactive foundation to every web project. Afterwards, visual design focuses on depicting the user interface to different resolution screens at the pixel level, and exports the high-fidelity product prototypes at last [4].

2.3 Develop Stage

The realization process of web products happens at this stage. Web products are characterized by fast development, fast publish and fast iteration. The fast response speed means improvements in functionalities and enhancements to user experience. Code programming becomes positive learning-doing process with the aim of business goals, user experience and expandable functions. Along the way of development, students add new ideas and upgrade user feedbacks to publish the periodical web products. The more feedbacks students receive, the more improvements to the final product; the more engagements in the whole process, the deeper understanding what potentials they have.

3. Changes to the teaching methods

In this course, students face multiple subjects spread in different curriculums, which help them learn knowledge and skills from practice to theory to guide practice. This practice-theory mode turns the traditional classroom-based mode into result-oriented mode, also challenges educators to transform their teaching skills and knowledge range to meet new mode requirements [5]. We take an example of one lesson process, which is also suitable to a sub-project even the whole project.

3.1 Task lead-in

At the beginning of every class, educators first present the final results of this class to students, then explain technical features and metrics based on Product Requirement Document. By analyzing the tasks, students conceive and design solutions constructing upon they learned in the past class, implement and operate the techniques details individually or in group.

3.2 Interaction

Although this course has a practice bias, educators still need to demonstrate how to use new techniques with real examples. In our experience, the ratio of demonstration, exercises and practice is 1:2:3. After the demonstration, students begin their own exercises to make a full copy from the educators' standard outcomes. They code and discuss puzzles with classmates, and consulting educators is normally the last resort. Meanwhile, educators review every student outcomes and correct mistakes in a workshop-like lab. In a workshop environment, educators act as masters and students as the prentices.

The interaction between educations and students even extend to the assessment. Our assessment composed of the three periodical project assessments and an oral test. We believe that strict procedures ensure great outcomes. In the oral test, we give students more open questions to test their reaction speed, communication skills, ideas beyond the project itself and feedbacks about the course.

3.3 Learning for real practice

Chinese vocational colleges hope to facilitate students enough experience required by future employers before they leave campus, so that enterprises can save necessary new staff training cost and make graduates more competitive than four-year bachelor students and polytechnic school students [6]. The final project is not designed to let students copy what educators did on class, on the contrary we do hope student summarize a methodology suitable to themselves in the future study and work.

4. Summary

In this paper, we present a project-based course framework to link among business, design and development subjects and facilitate student a compressive experience through the process of project outcomes. With our empirical practice, we focus on expansive capabilities of web products design and development in this interdisciplinary course. Due to the changing of teaching methods, we realized educators actually become the key to success. We hope more and more educators will contribute new teaching methods, project cases, workshop facilities, web product workflow in the future.

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