EXPERIENTIAL EDUCATION PROJECTS IN COMPUTER INFORMATION SYSTEMS

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EXTENDED ABSTRACT

The article presents an innovative approach to experiential education in the context of the web development projects in the undergraduate curriculum of a Computer Information Systems (CIS) program. CIS is one of the eight academic options in the College of Business Administration at a regional university. The university is a national leader in polytechnic education. One of the university's core values is a "learn-by-doing" educational philosophy that emphasizes active learning and integration of theory with practice. The undergraduate CIS students learn how to solve business problems through the development and implementation of information and communication technologies.

In the effort to provide CIS students with experiential learning opportunities that integrate academic learning with practice, several sections of the web development course in the CIS curriculum were re-designed as service-learning offerings. Service-learning is a form of experiential education that requires students to apply theoretical knowledge acquired in the classroom to field-based assignments aimed at serving the needs of the community [2]. The student-centered service-learning benefits range from enhanced academic learning to cognitive and affective development [1, 3].

CIS students enrolled in the service-learning sections of the web development course engaged in the field-based projects to conceptualize, design and implement web portal sites for the teachers of a local elementary school. Educational web portals provide technology infrastructure with customized educational resources and communication tools [4]. In addition to collaborating with real-life client on the design and development of the web portals, CIS students also kept detailed journals to reflect on their academic learning as well as their interpersonal and personal growth throughout the academic term.

The dual objectives of the experientially-based service-learning course in web development were to teach students how to design, test, and implement interactive web portals through prototyping and client-oriented development techniques, and apply this newly acquired knowledge to practice in a field setting. The domain-specific learning objectives of the course were as follows:

- Develop interactive web pages utilizing a web development tool
- Integrate web images, as well as the video and audio files into web pages;
- Design a web portal by applying the web design and usability principles
- Utilize rapid, iterative prototyping throughout the web site development life cycle
- Test and implement a web portal on a web server
- Train a non-technical client to manage content and graphical user interface of the web portal site
- Document the web development process and structure/content of the web portal site
- Critique web portals by applying contemporary principles of usability
- Manage the web development project phases from initial investigation to web portal site implementation activities.

In order to provide CIS students with deeper, more meaningful academic learning grounded in practice, the instructor structured the web development projects according to eight phases. The deliverables of each preceding phase became the inputs to the next phase. The instructor structured the projects based on the lessons learned from a prior academic-community pilot initiative in which a dyad of a college student-elementary school teacher collaborated on a "proof of concept" web portal for an elementary school classroom.

The eight phases comprising the service-learning project in web development ranged from pre-planning activities to full implementation of the web portal sites. In the *pre-planning* phase, the instructor met with the elementary school principal and several K-6 teachers to plan the project, to get the buy-in for teachers' participation, and to sign the requisite paperwork for project initiation. The pre-planning phase was followed by the *introductory meeting* phase during which CIS students met with the elementary school teachers (i.e., their clients) to learn more about each other and to set up the logistics for meetings throughout the academic term.

The next two phases of the project where the technical phases which involved *requirements gathering* and *prototyping* to develop and enhance the evolving web portal pages. More specifically, as the CIS students learned the techniques and methods of the web development process (i.e., site definition and planning, information architecture, site design, and site construction/testing) they iteratively applied this knowledge to build and test portal pages. During the next phase, *client training phase*, students trained the teachers how to update and keep the web pages consistent and current. The training phase was followed by the *final presentation* phase to unveil the completed web portals to the elementary school administrators and teachers. The next phase, *project implementation*, involved uploading educational web portals to the school server and turning over to the portal documentation reports to the school's principal. And, in the final phase, *project reflections*, students engaged in reflecting on what they learned in the course, why this learning was important, and how they planned to leverage the newly acquired knowledge and skills in subsequent courses as well as in their professional careers.

Carefully planned and well-executed service-learning projects are of great value to college students due to their potential to transform students into engaged and active learners who not only learn by doing, but reflect on meaning of learning and knowledge. The experiential learning projects in web development provided CIS students with education that integrated theory with practice and reflected the university's "learn by doing" teaching/learning philosophy. The virtuous cycle of "learn by doing" and "do as you learn" made the classroom theory come to life, promoted reflection on the meaning and value of learning, and motivated students to engage in critical analysis of web development techniques and methods. As students learned about the web development process, client-developer interactions, and client training in a field setting they gained valuable subject domain knowledge, critical-thinking skills, and personal / interpersonal competencies. Furthermore, the experiential learning activities of the web development project equipped students with the knowledge and skill to be successful in the field-based projects of the subsequent senior project course.

Experiential education through service-learning projects can be a highly effective educational method with significant benefits to college students. Such projects can also promote the reputation of academic programs and add value to the non-profit organizations in the local communities.

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