Chapter 26
Design, New Media, and Human–Computer Interactions

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ABSTRACT

In higher education design-oriented programs, collaborations with industry can be challenging to establish because of the time demands and work priories of professionals working in the field. Education should foster these relationships to enhance the overall educational experience for students. A common form of collaboration is projects in which students are given "real-world" design problems for which they propose a solution. These types of endeavors are very much practice-based and can be especially valuable in digital media and interactive design academic programs. When education partners with industry on such practice-based projects, education can add value and potentially help sustain these collaborations by ensuring that student methods and solutions are rooted in theory and call upon the rich research and theoretical bases of these disciplines. This chapter reviews approaches that educators can use to enhance educational projects with industry partners and ultimately enrich student learning outcomes.

INTRODUCTION

In today's information society, the workforce requires individuals to be adaptive to changing work demands and unforeseen challenges, work collaboratively, think critically, make reasoned decisions, and resolve fluid and ill-defined problems (Huq & Gilbert, 2017; Lee & Hannafin, 2016). In many ways, critical thinking and problem-solving can be manifested in design education's practice-based curricula structured around projects. Nelson (2003), articulating similarities between problem-solving and designing, indicates that engaging students in problem-solving using design-oriented tasks can serve as a model of teaching and learning. Design schools, for example, have a longstanding custom of studio-based learning characterized by work in open-ended design domains, creative thinking about design problems and "real-world problem-solving, creation of design artifacts or prototypes, structured dialogue focused on critique of designs, and a presentation of designed artifacts (Koutsabasis & Vosinakis, 2012, p. 486).

Many academic programs, such as Digital Media and Interactive design, unaffiliated with traditional schools of design offer design-oriented courses, minors, and even majors in subjects as visual and communication design, digital media design, information design, interactive design, or web design in which the traditions of practiced-based or problem-based learning may not be as strong or do not exist – but are applicable. Because of the applied or professional nature of these disciplines, industry often establishes the standard for practice in terms of processes, technologies, and software, which educational pedagogy attempts to emulate. To prepare students for industry professions, educators generally encourage collaborations between industry and education. Design oriented projects can be a worthwhile form of collaboration in which industry partners give students "real-world" design problems, resulting in positive learning outcomes. At the same time, educators must ensure that they ground these types of projects in research and theory of the disciplines. In programs such as Digital Media and Interactive design, teaching technologies (e.g., software) and modeling industry practices are worthwhile instructional objectives but should be balanced with theory and guiding principles. Pedagogy that focuses on software and the replication of industry designed artifacts potentially reduces design and the complexity of interaction to a minimum. Because of the dynamics of industry, it can be challenging to balance students' need to understand industry practice with underlying research and theory and to ensure that practice compliments but does not suffuse the conceptual. Additionally, educators and students can add much value to these experiences and help foster industry relationships by emphasizing theory and research.

In the sections that follow immediately below, I present several issues facing practice-based courses, the predominant focus of learning software and emulating industry practice over foundational precepts rooted in design theory, digital media, and human-computer interaction.

In the remaining sections, I present an overview of a course project that has been run over several academic semesters. The overview presents three instructional approaches to the project beginning with a focus on software and replicating existing industry designed artifacts to an approach that emphasizes theory and research. I present several advantages of these approaches and discuss their relevance to enhancing education-industry collaborations.

BACKGROUND

Education and Industry: Practice-Based Learning

Traditionally in human-computer interaction and interaction design there has been a great deal of harmony between research and practice. Carroll (2003, p.6) notes that generally ideas originated through research and "…researchers developed concepts, methods, technologies, and prototypes, and practitioners applied and developed them in products." However, this approach has been superseded with "…a more interactive view in which practice plays a more central role in articulating requirements for theory and technology and in evaluating their efficacy in application." (Carroll, 2003, p.6) Correspondingly, in digital media, interactive design and similar academic programs, industry practice informs and in many cases frames classroom pedagogy in terms of what is taught regarding technologies, processes and practices, and software. And there is usually good reason for this. A global retail industry, for instance, might have an interactive design department comprised of professionals who work on long and short term "real-world" interactive design problems, often of much complexity. The scale of these problems and corresponding projects can be quite large requiring extensive resources. Because of the scale, consequences of failed

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