Chapter 2
Dual-Design Strategies for Modularizing E-Learning for Academic and Commercial Uses

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EXECUTIVE SUMMARY
This chapter addresses applied strategies for modularizing e-learning along both an academic university track and a commercial one. Academic qualifications and professional certifications have been seen as complementary in some ways, antithetical in others. Another way to visualize both is as one-in-the-same in terms of learning contents, albeit with versioning for the various differences. The chunking of a curriculum for both a formalist college setting and for a business one involves creative applications of the module format, particularly given the disparate needs and learning outcomes of the two (often) different learner audiences. This case examines the differences between the learning needs of both demographics. This case then sets the dual-design scene from an instructional designer point-of-view.

BACKGROUND
This case centers on a Midwestern university that offers undergraduate, graduate and post-graduate studies. This university was established in 1863 as a land-grant, public university. A leader in research, this institution of higher education features 60 academic departments in nine colleges: agriculture; architecture, planning, and design; arts and sciences; business administration; education; engineering; human ecology; technology and aviation, and veterinary medicine. Its graduate programs include nearly 100 master’s degree programs and some 50 doctoral programs; it attracts students from around the world. The distance learning program was started in 1974. With a popular distance learning program, the university’s Division of Continuing Education (DCE) is finding growing demand for creating trainings for companies, non-profit organizations, and other learners who are non-traditional learners. The interests lie mostly in commercial ventures, which support employee training, continuing certificate, and skills maintenance.

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Traditionally, universities have packaged learning into academic years, semesters, or quarter terms, for over a hundred years. More recent learning terms have involved short courses and even extreme accelerated learning between formal terms through “intersession” courses. The new scheduling of shorter learning chunks and the high investments in multimedia development of electronic learning has led to the popularization of modules. Modular delivery of learning offers more flexibility in accommodating learners (Crynes, 1996). Modules offer ways to disaggregate a curriculum into restructured pieces built around different learning outcomes. These smaller components may enhance the targeted use of assessments with unique learners, and provide “benefits in ease and quality of instruction” (Burgess, 2003, p. 128). This author suggests that modules also make it easier to incorporate new texts to a course. The updating and revision of course materials may also be easier (pp. 132 – 133). “Module delivery is flexible in that it is variably credit rated and can be studied in full-time, part-time and distance modes,” observes McClelland (2002, n.p.).

Prior to the initial exploration into modularizing an academic curriculum for commercial trainings, the university had not developed the in-house capacity to use its learning / course management system (L/CMS) to deliver automated trainings. It was working on various technological methods to support self-enrollments into the learning system and to allow external corporate access to their employees’ learning records—both non-trivial technological aims. It also had not developed the capacity to strategically extract contents for modularized trainings in a for-profit setting.

**Modularity**

Modularity involves strategies for organizing and delivering contents for human-facilitated learning or automated learning, through the creation and use of digital learning objects (LOs). Modules are to be interchangeable, with the ability to add context, fresh assessments, customized sequencing, and new cultural contexts to the learning. Modules may serve as stand-alone short-courses; they may complement face-to-face, hybrid, or fully online learning.

**Modules in the Research Literature**

Modules in adaptive learning systems automate customizing education to specific learners based on their profiles and learning behaviors (Agarwal, Edwards, & Pérez-Quíñones, 2006). In learning business processes, learners benefit from more personalized vs. standardized learning in modules (Hawryszkiewycz, 2005, n.p.). Modularizing a curriculum may offer different ways to version a curriculum for the “auditory, kinesthetic and visual learner” (McNutt & Brennan, 2005, pp. F1H-27 to F1H-31). Indeed, modules may offer powerful analysis of user actions to see what parts of the learning experience may be improved (Poe, McGowan, Hansen, & Singh, 2008).

Modules involve both conceptual knowledge and transfer knowledge (Barr, Pandy, Petrosino, & Svihla, 2005). Theoretical knowledge refers to the conceptual modeling of a particular learning domain. Transfer learning refers more to applied and hands-on knowledge, to a variety of professional settings and situations. In the research literature, there are different ways for the creation of learning modules. There are on-the-fly captures of learning materials in software engineering to lower the human labor intensiveness and to promote more rapid development of the module; there are resulting modules as a byproduct of software engineers’ daily work (Grützner, Angkasaputra, & Pfahl, 2002, pp. 533 – 539). A virtual work-based learning environment offers a series of critical thinking exercises in another modular build (Dansberry & Cates, 2004). Theme-based modules are created for deployment over an asynchronous learning network (with distance-
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