A Proposal for a Lifecycle Process for Hybrid Learning Programs

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Abstract. A hybrid learning program is a mixture of traditional in-class learning components and e-learning components. A learning program may be a single course or an entire curriculum. A learning program and courseware must be designed to help learners learn. As such, a hybrid learning program is a rather complex artifact. Commercial software is in general a very complex artifact that has a clearly defined lifecycle for planning, development, deployment, maintenance & upgrade, and termination. Although learning programs and courseware are not nearly as complex as commercial software, adapting the lifecycle process for the creation and managing of commercial software to hybrid learning programs and courseware should make it possible for the learning program managers and courseware developers to take a holistic and disciplined approach to the creation and management of hybrid learning programs and courseware. This paper proposes a lifecycle process for hybrid learning programs and e-learning courseware.

Keywords: hybrid learning, blended learning, lifecycle process, software development process, courseware development.

1 Introduction

[1] provides rigorous definitions of hybrid learning and hybrid learning programs, and shed light on the many possible types of hybrid learning. Further, it outlines a methodology for creating and managing hybrid learning programs. One common aspect of every type of hybrid learning is that it is a mixture of traditional instructor-led in-class learning and e-learning which does not require the instructor and students to be concurrently present in the physical classroom. E-learning programs are in general more complex to create and manage than the traditional in-class learning programs, since e-learning programs must take into account not only the capabilities and limitations of various technologies that can be used in creating and delivering the learning contents, but also the fact that in general instructors do not lead the learning in real-time. Since hybrid learning programs combine e-learning and traditional in-class learning, creating and managing hybrid learning programs is inherently more complex than either the traditional in-class learning programs or e-learning programs alone. If the learning program is not just for a single course, but for a curriculum, it obviously becomes even more complex.
There is considerable similarity between the process of creating and managing e-learning or hybrid learning programs and that of commercial software. Intuitively, they are both complex and therefore require upfront planning. After planning, they are developed. After development, they are deployed and assessed based on feedback from the customers (users and learners). They are then maintained and upgraded. Once their usefulness or value dissipates, they are retired. To be sure, there are some important differences between creating and managing learning programs and commercial software. In general, learning programs are not nearly as complex as software, with respect to the logic and logic branches. For learning programs, “learnability” is the most important objective, while it is in general not nearly as important for commercial software. Despite such differences, adopting the lifecycle process for creating and managing commercial software should help in creating and managing both e-learning and hybrid learning programs. It will allow the managers and developers of the learning programs to take a holistic and disciplined approach to creating and managing the learning programs, including the setting of the objectives, assessing the achievement of the objectives, learning program (and courseware) development (schedule, budget and resources), quality of the learning program (and courseware), usability of the courseware, learnability of the program, learning asset management, etc.

In this paper, I will propose a lifecycle process for creating and managing hybrid learning programs. The process is a sequence of steps. I will discuss considerations in each step in some detail. A major subset of the process is obviously applicable to creating and managing e-learning program and courseware, a subset of a hybrid learning program and courseware.

2 Lifecycle Process

The lifecycle of commercial software consists of three primary phases: planning, development and deployment, and maintenance and upgrade. The development phase in turn consists of the upstream phase and the downstream phase [2]. The upstream phase includes three key steps: requirements specification, design specification, and test planning. The downstream phase also includes three key steps: implementation, testing, and release. The design specification includes both basic (or architecture) design, and detailed design. Often the basic design step belongs to the upstream phase, and the detailed design step is pushed to the downstream phase. Further, detailed design, implementation, and testing are often done concurrently.

During the planning and development phases, documents are produced and they are reviewed by the stakeholders (i.e., people who need to know their contents). There are two types of document: one is for internal use, and another is for release to the customers. The internal-use documents include a plan document, a requirements specification, a basic design specification, a detailed design specification, a test plan, source code with block comments. The “for-customers” documents include executable code, release notes, user manuals and references. During the maintenance and upgrade phase, most of these documents undergo changes. Further, during this phase, a defect database is maintained to keep track of defects reported and resolved.