

Rapid Instructional Design: Increasing Educator Capacity for Developing Elearning Solutions

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Abstract: Our paper presents the initial plan and theoretical groundwork for the rapid development of elearning solutions using Web 2.0 applications and services. The development of this model has been a collaborative venture and we outline the particular challenges at each institution that have led us to work together to develop this solution. We show how the developed model will enable each institution to meet both their particular elearning challenges and their shared elearning challenges. Through mapping the three-stage rapid development model to ten strategies for achieving rapid instructional design results we clearly demonstrate the potential of our model for achieving the desired results. We conclude by outlining some of the anticipated challenges of implementing a rapid authoring and deployment model for elearning.

Introduction

Our paper describes a collaborative project between the Learning Technology Unit (LTU), Faculty of Medical and Health Sciences (FMHS), University of Auckland and the Centre for State and Legal Studies (SALS) at Athabasca University to create a rapid elearning design, development and delivery environment comprising of case studies, online exemplars and templates to allow educators to quickly and easily create “learning episodes” (Bruner, 1977). The purpose of the 3D model (Design, Develop and Deliver) is to allow educators to engage in the rapid production and implementation of elearning solutions whilst ensuring that the technologies – in this case Web 2.0 applications and services such as blogs, wikis, social bookmarking and social networking – are used constructively by educators (Biggs, 1996; Jones, 2007).

The Institutional Contexts and Challenges

The Learning Technology Unit

The 3D project has been deemed important by the LTU for a number of reasons. First the LTU has a capacity problem. One of the core activities of the LTU has been taking on elearning projects based on an annual competitive elearning project round. This production model of elearning development has resulted in a "cap" on the number of projects taken on in any one year because the LTU does not have sufficient capacity to take on all submitted projects. The production model has also led to ongoing support and course update issues. For example, having produced courses for flexible/distance delivery, the production team has had to take responsibility for maintaining a number of the developments because educators lack the skills and/or time to maintain their own courses. Maintenance of courses utilizes LTU capacity and reduces LTU capacity to take on new work.

Educators often lack any formal qualification in education and are not familiar with the major educational theories (Doherty, 2009; Nunes & McPherson, 2003). This means that working with educators on flexible/distance learning projects requires instructional designers to engage as much in educational design as in designing for a

particular delivery medium. This increases the amount of time required to develop elearning projects, as there is a need to work sensitively with educators in order to develop pedagogically sound elearning solutions.

In order to address the capacity problem, the LTU has been running Web 2.0 staff development workshops for two years in order to increase educators' capacity to employ technologies in their teaching. The aim of the workshops is to teach educators how to use Web 2.0 constructively in their teaching. Despite the fact that the workshops have been rated highly by participants, follow-up interviews with workshop participants have shown that the participants are not putting what they have learned into practice (Doherty, Blake, & Cooper, 2009; Doherty & Cooper, 2009); at least one reason for this is that the educators lack the time to innovate in their teaching. This finding is not unusual; we know that educators are time poor and that multiple demands are placed upon their time (Goodyear, 2005; Learning Technology Unit, 2008). We are anticipating that the rapid prototyping model will help to address the issue of lack of time on the part of educators.

University strategic goals and priorities have played a major part in seeking new solutions to empowering staff to work with technologies. The University of Auckland Strategic Plan (2005-2012) commits us to the following actions: "Provide support for innovations in teaching and learning, particularly those that involve the use of new technologies, and create communities of interest amongst faculty and service division staff and students that sustain and promote innovation". The University Strategic Plan also commits us to: "Enrich face-to-face teaching and learning by providing interactive online learning that draws on international best practice in elearning". The FMHS strategic plan (2008-2012) states that the faculty will "Deliver relevant, high quality, research led programs that are fit for purpose, responsive, and appropriately delivered." The FMHS strategic plan also states that the faculty will "Support teaching and learning with appropriate facilities, staff and student support and resources aligned with priorities". Finally the Faculty Teaching and Learning Plan (2008-2011) reads that the LTU, "Support the development of blended and online learning resources and systems". There are, therefore, clear strategic drivers within the University and within the FMHS for striving to engage the majority of academics with technologies for teaching.

The Centre for State and Legal Studies

Some of the drivers within the SALS context are the same as those within the LTU context whilst others are unique to SALS. For example, course development capacity is an ongoing issue for SALS: there are eight programs within the centre (Canadian Studies, History, Communication Studies, Political Science, Criminal Justice, Legal Studies, Health Administration and Governance) that jointly offer over 85 courses. At any given time, there are about 6-10 courses that are in revision or new courses being created.

In line with the LTU, Athabasca University's Strategic University Plan (SUP) 2006 - 2011 serves as a main driver for the need to find new ways to develop high quality online courses and to foster partnerships with other institutions. Specifically, Goal 1 states that, "Our goal is to continue to focus on the delivery of high quality open and distance education through a wide range of programs and courses.". Goal 3 focuses on co-operating and collaborating with other post-secondary institutions; it mandates that we are to, "increase research partnerships and collaborations with other internationally recognized research institutions".

However, SALS faces a number of unique challenges that result from being in an environment engaged in a significant amount of distance education whilst utilizing tutors who do not necessarily produce the courses that they are teaching. Tutors are currently not involved as part of the course development team. These tutors are often brought in at the beginning of a particular course to facilitate online discussions, mark assignments and to interact with students online. In general, tutors are required to attend one training session on Moodle, the LMS of choice at our University. However, the training focuses on the technology rather than pedagogy; often, there is a significant time delay between the training session and the actual tutoring of courses; finally, there is no formal mechanism for tutors to provide feedback on the design of a course.

Being an online learning institution, Athabasca University operates in terms of a telework policy. Whilst this is a pragmatic solution for a distance-learning university, the telework model creates a dispersed work environment. Many colleagues are not working in the same location and have limited contact with one another. The lack of face-to-face connection creates a sense of isolation and disconnect between the educators and other educators and between the educators and the institution. It is also difficult to build a viable community of practice as it takes additional effort on the part of an individual to reach out to a colleague. Furthermore, working in silos means that people are often uncertain about how effective their course design methodology, writing, and development process

are in comparison to the practices of their colleagues. Lack of peer feedback has been an ongoing and unresolved issue at the SALS.

Another issue that has arisen for SALS is that the centre has moved from a print-based, linear "factory production" instructional design model controlled by a few individuals (mostly editors) to an open, iterative, and transparent online course design process. SALS staff have had to deal with the legacy of the print mentality; in particular course professors have often felt marginalized by a central educational media development unit that dominated the course production process. As a result, educators have not felt empowered to take ownership of their courses. One member of faculty went as far as to comment that they conceived of their role as nothing more than that of a "glorified assignment marker". Being a proactive center, SALS responded by detaching themselves from working with the centralized unit; this move provided the conditions within which SALS might pioneer new directions in elearning design and development. Additionally the centre is anticipating that the partnership with the LTU's 3D project will further enhance and support SALS' faculty in working through the new process in a collaborative environment. Finally the initiative will enable the first author of this paper to build on two years of innovative work with Faculty at SALS.

Institutionally speaking, there has been a general lack of both technological and pedagogical support and this has created barriers to innovating in online learning. For example, educators have not connected with support staff and standards and guidelines for developing online courses have not been developed. The provision of the 3D workshops will help to alleviate some of these concerns, as the workshops will be supported with appropriate documentation and they will require face-to-face contact time thereby ensuring that educators connect with one another and with support staff. This will provide the opportunity to build a community of tutors an opportunity for tutors to connect with support staff in mutually beneficial ways.

Rapid Instructional Design

Considerations

Understanding the nature of our respective institutional contexts and related elearning development challenges was deemed important with respect to creating a rapid design environment that would meet the needs of staff at our respective institutions. Based upon the above analysis our model had to ensure: (1) That the educators could rapidly design an elearning solution without necessarily having any formal training in or knowledge of educational principles; (2) That educators could rapidly become technically proficient in the use of technologies for teaching so that they could develop their solutions; (3) That educators could deploy the solution that they had developed; (4) That educators could take responsibility for maintaining and improving the elearning solution; (5) That educators would be connected with one another and with their institution so that they would feel part of a community of practice; and (6) That educators would feel that they had ownership of their elearning solution. Whilst we will address each of these issues when we look at the 3D model, we will first outline our reason for choosing to use Web 2.0 applications and services in order to realize the potential of the 3D model.

Web 2.0 Applications and Services

The requirement to empower faculty to develop and maintain their own elearning solutions suggested that we might focus on Web 2.0 tools. We understand Web 2.0 as a term that describes a world wide web defined by user participation, mass collaboration, users publishing content and users sharing resources. The tools that have made this possible include: blogs; wikis; social networking sites; social bookmarking services; multimedia sharing services; audio blogging; podcasting; and information push using real simple syndication (RSS) (Anderson, 2007). Web 2.0 is currently topical in educational circles (Alexander, 2006; Freedman, 2006; Joint Information Systems Committee, 2009b) with significant evaluation literature and guidelines for the effective use of Web 2.0 tools in education beginning to appear (Gray et al., 2009; Kennedy et al., 2009).

Web 2.0 applications and services are considerably easier to use than Web 1.0 authoring tools. For example, educators can now publish to the Web using a blogging service. Publishing in this way does not require any knowledge of Hypertext Markup Language (HTML). Nor does it require any knowledge regarding interface design as blogging services such as Blogger (<http://www.blogger.com>) provide a range of templates. As a second example,

Social Networking sites such as Ning (<http://www.ning.com>) allow educators to quickly and easily create collaborative environments for their classes. Students and educators can collaborate, share resources, write blogs and "plug in" other services such as document editing services. The LTU experience of teaching Web 2.0 workshops over a two-year period has shown us that educators do not struggle with the technical knowledge required to work with these tools. Web 2.0 applications and services are, therefore, an obvious choice for the 3D model of rapid design, development and delivery of elearning solutions.

Design, Develop, Deliver

Instructional design is a systematic process to help create effective learning materials in an efficient manner (Piskurich, 2000). The best known model for instructional design is the ADDIE model (Kruse, 2008), which consists of five stages: analysis; design; development; implementation; and evaluation. As most people who have experience in instructional design know, the process is a time-consuming, labor-intensive and iterative process that ideally requires constant feedback and ongoing evaluation. If we consider that the ADDIE model has been criticized for being too proscriptive and that alternative models such as the layers of negotiation model (Cennamo, Abell, & Chung, 1996) require more instructional design time, then the problem becomes even more acute. As demand for learning materials increases, there is an urgent need for faculty and instructional designers to rethink their current online development strategies. Based on this need, we aim to supplement the conventional instructional design process with rapid instructional strategies that can help speed up the design process.

Based on Thiagarajan's (Thiagarajan, 1999) 10 strategies for rapid instructional design, we will be adopting and adapting these strategies to suit our purpose. The LTU is essentially concerned with increasing staff capacity for teaching with technologies through promoting the use of Web 2.0 tools. The strategy outlined below can achieve this goal. SALS is overcoming a history of proscriptive non-participatory instructional design practice. The strategy outlined below has the potential to move instructional design at SALS to a different place through providing innovate online teaching practice using Web 2.0 tools. Educators will be empowered to try out new teaching practices in their own courses with the support of SALS. Additionally SALS needs to connect educators with one another and with support staff in order to build up a sense of community. The rapid instructional design process has the potential to achieve this aim.

The 10 strategies for rapid instructional design are (1) Speed up the process; (2) Use a partial process; (3) Incorporate existing instructional materials; (4) Incorporate existing non-instructional materials; (5) Use templates; (6) Use computers and recording devices; (7) Involve more people; (8) Make efficient use of subject matter experts; (9) Involve trainees in speeding up instruction; (10) Use performance support systems. In the initial six-step process we will implement will make use of the following techniques:

1. **Design:** This phase will involve LTU and SALS support staff in the rapid creation of learning design templates and online prototypes (Strategies 1 and 5) for the constructive use of Web 2.0 applications and services in teaching. We will use extreme design tools to speed up the design process (Strategy 1, 6) at the brainstorming, content mapping, and navigation design stages (Good, 2009). The online prototypes or exemplars will consist of "shells" across a variety of Web 2.0 applications and services. The electronic templates will be modeled on Joint Information System Committee (JISC) templates (Joint Information Systems Committee, 2009a). Our fundamental design principle will be based on Bruner's conception of a learning episode as consisting of acquisition of knowledge, transformation of knowledge and evaluation of knowledge (Bruner, 1977). If the learning episode involves the learner in these three activities then we will have achieved a result that involves students in the higher order learning activities for the cognitive domain (Bloom, 1956). We will also incorporate existing instructional design materials from a variety of sources (Gray et al., 2009) including Web 2.0 implementations that have been appropriately evaluated (Deng & Yuen, 2007; Elgort, Smith, & Toland, 2008; Jones, 2007) in education (Strategies 3 and 4).
2. **Development:** By the end of design phase, we will have a set of online exemplars together with design templates that will allow support staff to work with Faculty on the development of Web 2.0 learning activities. The templates will take the form of electronic worksheets that will allow faculty and tutors to work through the elements of a particular intervention in terms of their own subject discipline. A recent Joint Information Systems Publication from the UK provides an "Effective Practice Planner" to design, share and discuss a technology-enhanced learning activity. We are anticipating that our own templates will

be based on modified version of this planner (Joint Information Systems Committee, 2009a, pp.46-47). Involving Faculty in the design process will increase their sense of ownership of the online material (Strategies 7 and 8). A Faculty member might look through a variety of templates and associated online exemplars. The member of faculty might then pick a template that focuses on increasing collaborative class activity. The template would take the member of faculty through a series of steps until the faculty member had created a learning activity tailored to their particular circumstances. Faculty at both institutions would be provided with access to professional development workshops in order to learn how to use a particular Web 2.0 tool (Strategy 10). Online resources would support the workshops and Faculty at the LTU might choose to make use of the online resources rather than attending the workshops (Strategy 10). This kind of flexibility is particularly important at the LTU, as faculty are not always able to attend scheduled professional development opportunities. SALS, on the other hand, would want to see Faculty attend workshops because the dispersed nature of their educators.

3. **Delivery:** During the delivery phase, SALS will introduce an online peer-review system together with some simple feedback mechanisms for usability testing. At the time of writing the LTU is not clear whether they will implement an online peer-review system. The peer review system step can be seen as a short-cut to the beta testing that usually takes place at the end of the development cycle (Strategies 2, 7). Whilst jumping straight to “live” testing might seem a little reckless, it has to be remembered that the design templates will be grounded in case studies and research literature and that we will, therefore, be implementing solutions that have already been delivered and evaluated. Secondly, we are describing discrete interventions that are intended to enhance the teaching and learning process and as such the risk factor is much lower that would be the case were we talking about implementing an entire course without carrying out any testing. Finally, the pedagogical underpinning for the elearning solutions is solid.

Considerations

We are trying to reduce the time and effort required to develop elearning solutions. We hope to achieve this through empowering educators to develop their own flexible/distance learning activities using Web 2.0 applications and services. However, we will not reduce instructional design time at the cost of quality. In project management terms, quality is defined by the acceptance criteria for the project (Office of Government Commerce, 2006). The acceptance criteria for rapid elearning developments would relate to: the rigor of the learning design; the functionality and usability of the learning environment; and the student learning experience. The second issue that we can identify has to do with rate of technological change. Existing applications and services change at a daunting rate (Go2Web2.0.net, 2008) and the templates that we put in place will need to change to reflect this fact. Additionally, new templates will need to be produced as new technologies emerge. However, with a solid educational foundation, these templates can be produced quickly and easily. Finally, evaluation of these innovations will be important; minimally, we will want educators to evaluate their own courses, evaluate one another’s courses, and to reflect on their teaching and student learning. We are anticipating that we will apply for ethics approval for this project so that we can publish the results of these evaluations as a part of a research project around rapid prototyping.

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