2002

Online learning design for dummies: Professional development strategies for beginning online designers

Ron Oliver
Edith Cowan University

Janice Herrington
Edith Cowan University

Online Learning Design For Dummies: Professional Development Strategies For Beginning Online Designers

Ron Oliver,
Edith Cowan University,
2 Bradford St, Mt Lawley 6050, Western Australia.
r.oliver@cowan.edu.au,

Jan Herrington,
Edith Cowan University,
2 Bradford St, Mt Lawley 6050, Western Australia.
j.herrington@cowan.edu.au

Abstract: Much of the conventional development of Web-based learning environments stems from design strategies that are based on providing delivery of the course content. Contemporary courseware delivery systems encourage teachers to see the design of online learning as settings as a process of electronic delivery of content and information. As a consequence Web-based courses have tended to display limited evidence of an underpinning learning design and varying degrees of use of the opportunities and affordances of the new technologies. This paper provides an overview of instructional design principles that can guide beginning designers in the creation of Web-based learning materials that support learner engagement and knowledge construction. The paper suggests strategies for professional development activities that can help beginning designers to reconsider their pedagogy and to understand the processes required to design effective settings for online learning.

Introduction

Despite modest gains and often questionable achievements, there is still unbridled interest and enthusiasm among institutions and organizations for online learning and e-learning as the means for the presentation and delivery of higher education. Online learning has been mooted as the solution to many of the problems that face institutions of higher education. Many writers have argued the use of e-learning to attract new markets and new students. Others have argued its capacity to increase levels of equity and access for existing students, while some see the new technologies as capable of reducing the costs of delivery of programs and courses (eg. Holt & Thompson, 1998; Fraser & Deane, 1997; Nunan, 1996). While many of these claims and potentials have yet to be verified the one thing we have learned from our activities in this domain is that e-learning, when done well, can improve learning and deliver enhanced learning outcomes and has the prospect to transform the way education is conducted in these settings (Biggs, 2001)

The criticisms that many people hold for much of the current effort in the design and delivery of online learning stem from the narrow instructional design models upon which much of the material is based. The design models in use appear often to have evolved from the economic, efficiency and marketing imperatives (eg. Dehoney & Reeves, 1999; Mioduser, Nachmias, Oren, & Lahav,1999; Burbules & Callister, 2000). With on-line delivery it is possible to pursue these imperatives and at the same time to pursue such goals effective teaching and learning.

Staff development for online learning

Much of the development of online learning settings is currently undertaken by academics with little experience or expertise in this field. The skills and understandings of learning that many teachers develop through their face-to-face teaching are often insufficient to support their needs in online learning settings. Those academics who feel comfortable working with technology in online environments are rare, and there is generally little transference of expertise to their colleagues (Bennett, Priest, & Macpherson, 1999), a situation compounded by an increasing number of sessional and part-time teachers (Van Dusen, 1997).

There is often a resistance to technology amongst university staff. Factors include a lack of experience or confidence in using technology, caution about methodologies teachers regard as unproven, and a belief that computer-based options threaten the human interaction teachers value in face to face teaching (Sparrow, Herrington, & Herrington, 2000). In particular, the speed of adoption of the Internet in higher education has caught many teachers unaware and unprepared to face the challenges required to succeed.

A crucial aspect of effective online learning may hold the key to the changing role of the university teacher. Wade (1994) argues that the promotion of learner autonomy means increased responsibility for the student which, if it is to succeed, requires 'a strong framework of *support and guidance* for the student from the outset' (p. 13). In designing effective online learning materials, perhaps the most important first step is to create a role for the teacher as one of coaching and scaffolding as an alternative to the more commonly used didactic forms of teaching. Novices frequently fail to achieve this in the online learning designs.

Changed roles for the teacher

A traditional approach to the design of learning environments proposes that the best way to deal with complexity is to simplify a topic by breaking it down into its component parts. However, Perkins (1991) suggests that the temptation to over-simplify learning environments should be resisted, and instead designers and teachers should search for new ways to provide appropriate scaffolding and support. In this situation, the teacher provides the skills, strategies and links that the students are unable to provide to complete the task. Gradually, the support (the scaffolding) is removed until the student is able to stand alone.

Many designers and administrators of online units believe that they should be self-contained resources that include everything the student needs to learn a particular topic. However, teachers who expect students to work individually on online units are not only denying them the benefits of collaboration, but also the benefits of expert assistance—providing hints, suggestions, critical questions, and the 'scaffolding' to enable them to solve more complex problems. Collins, Brown and Newman (1989) point out that coaching is highly situation-specific and is related to problems that arise as students attempt to integrate skills and knowledge, a role that is still best performed by the teacher. Instead of providing and delivering information, the lecturer's principal function is to create collaborative, challenging and supportive learning environments within which the learner operates.

Instructional Design for Web-based learning

Conventional approaches with their content-based approaches can be difficult molds for many teachers to free themselves from. In our work with such teachers we have developed strategies that we have found quite successful in assisting this move. In previous research, we have described a framework for designing online learning settings (Table 1). The framework comprises three interconnected elements which are presented as critical components for the design of learning settings. In particular, the framework highlights various distinctions between the elements involved in the design of online learning settings (Oliver, 1999).

Table 1. Framework describing critical elements of online learning settings

learning design elements	description
learning tasks	The activities, problems, interactions used to engage the learners and on which learning is based
learning resources	The content, information and resources with the underpinning knowledge and with which the learners interact
learning supports	The schedules, scaffolds, structures, encouragements, motivations, assistances and connections used to support learning

The framework provides a means to identify the various elements within learning settings and suggests emphases which can be made in the instructional design process. Contemporary learning theories posit that the forms of learning design most appropriate to higher education are those based on constructivist learning principles. The above framework takes on particular and discrete forms when applied this way.

a. Learning Tasks

Most beginning online learning designers commence their planning by considering the content to be learned. Such approaches are very common and characterize online settings based on pages of text and images which

learners are required to read and follow. The learning activities in technology-based environments play a fundamental role in determining learning outcomes (Wild & Quinn, 1997). They determine how the learners will engage with the course materials and the forms of knowledge construction that will take place. Contemporary thinking suggests that the activities must be active and engaging (eg. Wild & Quinn, 1997).

The beginning online learning designer must be encouraged to think not about content but about how learners will be required to use the content. They need to consider ways to engender cooperative and collaborative activities among learners which provide opportunities for reflection and articulation. The selected activities need to provide the purpose and the context for learners to deal with the content and information (Duffy & Cunningham, 1996). The designers need to plan activities with an active role for the learners in which there is encouragement and provision to take control, make decisions and act in a self-directed fashion.

b. Learning Supports
While considering the forms of learner activity the beginning online designer must also plan ways for the setting to support the leaner. This critical design element involves the provision of the support necessary to guide learners and to provide a feedback mechanism which is responsive and sensitive to their individual needs (eg. McLoughlin & Oliver, 1998). A number of writers have developed frameworks to describe the ideal forms of support required for on-line learning environment and in each case, there is usually a strong argument made for an active and involved teacher (eg. Laurillard, 1993). The role of the teacher needs to be planned as that of a coach and facilitator in place of the more didactic style often assumed. In contemp orary settings, this form of learning support is called scaffolding in recognition of the way in which it helps to build knowledge and is then removed as the knowledge construction occurs.

c. Learning Resources
In choosing the learning activities and planning the supports for learning, the requirements for the forms of course content required will become evident. In learning environments based around learning tasks, learners will need access to a variety of forms of content. The materials need not all be on-line. The use of conventional materials along with electronic sources can provide the diversity often required. Previously designers created course materials where the content was rigidly organised and presented to the learners in a strict sequence. Today it is recognised that learners need to be able to access resources in a variety of ways and from a variety of perspectives (Herrington & Oliver, 1995).

An Approach to Web-based Instructional Design for Beginners
Putting these elements together in a meaningful and effective fashion is aided considerably if beginning online designers follow the 6 stage process outlined below.   This process provides an organizational framework that can assists novice designers and teachers to focus on strategies that create learner-centred settings which can engage and support student learning. The framework helps to remove the attention away from the content as the organising element towards learning tasks. The provision of such a framework for the novice designer provides a strong scaffold for their learning, particularly if models and exemplars are also provided for them to follow. It is often a very simple process to model the form of professional development provided around this framework as well.

Table 2: Task-based design strategies

Stage	Stage (cont.)
1. Plan the intended learning outcomes	4. plan resource needs
2. Plan the learning tasks	5. plan support strategies
3. choose assessment strategies	6. plan the organization strategy for the online materials

1. Planning the intended learning outcomes
The best place to commence the process of developing the online learning resources is by considering the intended learning outcomes. The beginning designers need to recognize that intended learning outcomes need to be expressed in terms that describe the learning that will be achieved. For many courses, it is possible to express objectives in terms of the learner performance or competency.

It is important that the learning outcomes are not expressed solely in terms of learning process or strategies. The processes and strategies are the means by which the learning will be achieved. It is important for the beginning designers not to confuse the activities, which are a means to an end, with the intended learning outcomes.

2. Planning the learning tasks

Once the learning objectives have been stated, beginning designers need to consider and plan the learning processes that will provide learners with the experiences that will help them to learn. The learning processes need to be carefully planned with the intended learning outcomes in mind. Planning the learning experiences involves consideration of ways to engage the learners in ways that will cause the required forms of cognition and thinking. The learning activities need to involve a variety of processes that will cause the learners to deal meaningfully with appropriate resources and information.

The best forms of learning activity to consider are those that are authentic. Authentic activities have been described earlier and usually involve the development of a product or an artefact in much the same way as the learner will need to demonstrate and practice in real life. Effective learning designs often involve forms of communication and collaboration, activities that encourage the learners to reflect on their learning and to articulate their ideas in ways that strengthen and assist the knowledge construction process. Some examples of typical learning designs include:

- Having learners design and evaluate a project plan or proposal. To complete the design the learners need to develop skills and competencies in the underpinning knowledge and concepts;
- Having learners work collaboratively to develop a solution to an ill-defined problem. The learners need to plan the problem solving process, gather the necessary information, decide on the steps to be taken, suggest a solution and demonstrate the reasoning;
- Having learners assume the roles of particular players in a role-playing setting. This involves exploring the person whose role they are playing, understanding the context and the issues and acting in scenarios in ways that use this knowledge to build a further understanding of the person and the setting.

The critical factor in planning the learning design is to consider activities that are independent of the learning resources. It is important when planning the design not to be concerned with the content and resources and to see these as completely independent elements in the design process.

3. choosing assessment strategies

At the same time as the learning activities are being planned, it is important to decide how the learning outcomes will be assessed. The use of authentic learning activities provides a sound basis for assessment since the outcomes from the activities often demonstrate the extent and scope of the learning that has been achieved. The assessment strategies need to be derived from the stated learning outcomes. It is important that the forms of assessment not only provide evidence of the extent of learning but also provide guidance to the learners in ways that can model and demonstrate areas where further activity is still required.

4. planning support strategies

Online learning is best designed with deliberate and intentional support mechanisms for learners. There are many possible support strategies that can be implemented and these include roles for the teacher, other learners, workplace associates, peers, and mentors. It is also possible to plan the learning activities so that they have inbuilt supports and to provide resources which can assist in supporting learners.

The purpose of any support in an online setting is to enable learners to undertake the activities that have been set in ways which assist their independence and self-regulation. With authentic learning settings, students will require a range of supports to assist them as they develop their knowledge and skills. Many of these supports, scaffolds, can be reduced as the learning process progresses to the point where the learners develop the capacity to cater for themselves. Beginning designers can be encouraged to plan the supports as they plan the learning tasks. Often the tasks suggest the forms of support that will be required.

The planning of support strategies should be a part of the planning of learning designs and learning resources, both of which have the capacity to provide supports for the online learner. Learning activities that provide learning support include collaborative settings, settings involving workplace activities, involvement of buddies

and mentors. Learning resources that provide supports include such items as templates, checklists learning pathways, and performance support systems.

5. planning the resource needs

In order to complete the learning activities the learners will need access to a variety of resources and information and part of the design process is to decide the forms and extent of the resources that will be needed. Learning resources can take many forms including such information sources as textbooks, newspapers, journals and online information sources. The beginning designers need to select resources from a variety of settings. They should be discouraged from considering writing and developing the resources themselves. They need to be encouraged to consider reuse and choosing from among those that already exist.

Depending on the forms of learning activity, the resources might also include documents and manuals from industry settings, legislation, rules procedures and policy manuals. In online settings there is considerable scope for the use of existing documents and resources. Often the environment will include resources that have been specially built for the learning setting. For example examples of previous students' work, interviews with experts, selected readings, compilations of resources. It is not uncommon for the resource sets to contain tutorials and learning modules to assist students to acquires some of the underpinning skills and knowledge.

Part of the design process is to determine what resources students will need to complete the activities that have been set and to collect (and make) these resources for the learning setting. As more and more resources are being placed on the Web, the need for developing resources is diminishing and many learning settings are able to be resourced almost entirely from existing materials. The majority of the resources in online settings should have no instructional elements. It is best to separate the learning activities from the learning resources so that both the resources and the activities can be modified and customised and reused. When the resources are also instructional elements, the capacity for customisation and reuse is significantly hampered.

6. planning the organization strategy for the online materials

Once the learning activities, resources and supports have been designed, the final stage is to consider an organisational and contextual strategy that will provide a natural and intuitive setting for them. There are many ways to organise online learning settings. Many teachers will have access to powerful online courseware delivery systems such as WebCT and Blackboard. These tools provide their own organizational frameworks for the learning setting. In some cases, it is possible and useful to design a unique interface and organizational structure, for example, a virtual setting reflective of the learning context.

Beginning designers with access to courseware delivery systems are often able to play a significant part in the process of developing the online setting. The critical factor in organising the setting is to ensure that all aspects of the learning designs, the learning resources and the learning supports are clearly evident to the learners and freely accessible. The site needs to enable learners to move freely within and to know at all times where they are in the hyperspace and how to get to all other places.

Summary and Conclusions

We have been working with beginning online designers for some years now across a variety of projects and educational sectors. Many of those looking to design and build online courses for the first time, have preconceived ideas about how the setting will be formed and many times these ideas are based on very conventional views of teaching and learning. The strategies we have presented in this paper provide a strong framework to guide the professional development of these teachers. The framework provides a structure which causes the teachers to rethink their pedagogies and to plan engaging and active learning settings where the role of the teacher is more a coach and facilitator than an expert delivering content. As well as providing a mechanism to assist in a pedagogical rethink, the framework als o provides a form of blueprint and template to guide effective design strategies.

The biggest challenge we have found in providing learning support for beginning designers is to help teachers reconsider and to alter the pedagogical viewpoints they hold. Strategies that assist in this endeavour are tasks and activities that provide the learners with models and exemplars to follow. It is very important for the professional development exercise to practice what it preaches and for it to be an example of best practice. There

are now many examples and cases for teachers to use for this purpose and the success of these endeavours is now becoming evident in the growing number of quality online learning settings that are beginning to emerge.

References

Burbules, N., & Callister, T. (2000). Universities in transition: The promise and challenge of new technologies. *Teachers College Record, 102*(2), pp. 271-293.

Biggs, J. (2001). The reflective institution: assuring and enhancing the quality of teaching and learning. *Higher Education, 41*(3), 221-38.

Bennett, S., Priest, A., & Macpherson, C. (1999). Learning about online learning: An approach to staff development for university teachers. *Australian Journal of Educational Technology, 15*(3), 207-221.

Collins, A., Brown, J.S., & Newman, S.E. (1989). Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics. In L.B. Resnick (Ed.), *Knowing, learning and instruction: Essays in honour of Robert Glaser* (pp. 453-494). Hillsdale, NJ: LEA.

Collis, B. (1998). WWW-based environments for collaborative group work. *Education and Information Technologies, 3*, pp. 231-245.

Dehoney, J., & Reeves, T. (1999). Instructional and social dimensions of class web pages. *Journal of Computing in Higher Education, 10*(2), pp. 19-41.

Duffy, T., & Cunningham, D. (1996). Constructivism: Implications for the design and delivery of instruction, *Handbook of research for educational telecommunications and technology* (pp. 170-198). New York: MacMillan.

Fraser, J. & Deane, E. (1997). Why open learning? *Australian Universities Review, 40*(1), 25-31.

Herrington, J . & Oliver, R. (1995) The critical elements of situated learning environments. In J. Pearce & A. Ellis (Eds) *Learning with Technology, ASCILITE'95 Conference Proceedings*, (pp. 395-403). Melbourne: ASCILITE.

Holt, D. & Thompson, D. (1998). Managing information technology in open and distance higher education. *Distance education, 19*(2), 197-227.

Jonassen, D., & Reeves, T. (1996). Learning with computers: Computers as cognitive tools. In D. Jonassen (Ed.), *Handbook of Research for Educational Communications and Technology* (pp. 693-719). New York: MacMillan Library Reference.

Laurillard, D. (1993). *Rethinking University teaching: A Framework for the Effective Use of Educational Technology*. London: Routledge.

Mioduser, D., Nachmias, R., Oren, A., & Lahav, O. (1999). *Web-based learning environments: Current states and emerging trends.* Paper presented at the Ed-Media 1999. World Conference on Educational Multimedia, Hypermedia and Telecommunications, Seattle, USA.

McLoughlin, C. & Oliver, R. (1998). Scaffolding Higher Order Thinking In A Tele-learning Environment. Ottmann, T. & Tomek, I. (Eds). *Proceedings of Ed-Media/Ed-Telecom 98 World Conference On Educational Multimedia And Hypermedia & World Conference On Educational Telecommunications.* Virginia: AACE. (pp. 977-983).

Nunan, T. (1996). Flexible delivery -What it is and why is it a part of current educational debate. In *Higher Education Research and Development Society of Australasia*, Perth: HERDSA.

Oliver, R. (1999). Exploring strategies for on-line teaching and learning. *Distance Education, 20*(2), 240-254.

Savery, J. & Duffy, T. (91995). Problem-based learning: An instructional model and its constructivist framework. *Educational Technology, 35*(5), pp. 31-38.

Perkins, D.N. (1991). What constructivism demands of the learner. *Educational Technology, 31*(8), 19-21.

Sparrow, H., Herrington, J., & Herrington, A. (2000). 'Shovelware' as staff development: A useful introduction to moving online. In M. Wallce & A. Ellis & D. Newton (Eds.), *Proceedings of the Moving Online Conference* (pp. 236-246). Lismore, NSW: Southern Cross University.

Van Dusen, Gerald C. (1997). The virtual campus: Technology and reform in higher education. *ASHE-ERIC Higher Education Reports, 25*(5), 1-147. [ED412815].

Wade, W. (1994). Introduction. In W. Wade & K. Hodgkinson & A. Smith & J. Arfield (Eds.), *Flexible learning in higher education* (pp. 12-16). London: Kogan Page.

Wild, M., & Quinn, C. (1997). Implications of educational theory for the design of instructional multimedia. *British Journal of Educational Technology, 29*(1), pp. 73-82.

Vygotsky, L. (1978). *Mind in society*. Cambridge, Massachusetts: Harvard University Press.