

# **Online learning: it is all about dialogue, involvement, support and control - according to the research**

*Marion Coomey\* and John Stephenson\*\**

*\*Ryerson Polytechnic University, Canada and \*\*Middlesex University, UK*

## **Editor's introduction**

What does the research tell us about what works well in online learning? Coomey and Stephenson reviewed current research to find out. Designers of online learning, the review reveals, should pay considerable attention to learner control, dialogue, learner support and opportunities for direct learner involvement. There are wide variations, however, in the 'flavour' of these common themes according to the overall purpose of the learning activity, from instructional mode at one extreme to open-ended exploratory mode at the other. The chapter explores the implications of these different modes for the design, structure and management of online learning and proposes a framework to help practitioners locate their own practice and construct appropriate programmes and systems based on lessons from the review.

## **About this report**

Web-based online learning is too recent a medium to have been the subject of a systematic and comprehensive research programme to test its overall educational effectiveness. However, there is a growing number of small-scale research reports, case studies and reviews of practice. This chapter is based on a systematic review of such reports. The authors were seeking advice on good practice and any indication of new approaches to teaching and learning

being engendered by online learning. One hundred research reports and journal articles were included in the review. Most were published in the period 1998-2000. The articles were equally distributed across three types: overviews of current practice and research, conceptual propositions and individual research reports. The overviews and conceptual pieces were themselves based on other research reports, thereby extending the total experience available.

Though extensive, the scope of this review is inevitably limited. Many interesting developments are too recent to appear in research reports. Pre-1998 items describe practice before the full potential of Web-based learning began to be exploited, and innovative practice within the business world is not normally shared via research reports. Samples often contained less than 15 learners and the quality of programmes is unknown. In many cases there is little information on learner and teacher familiarity with the medium. A number of cases involved computer and multimedia students with a predisposition to using the medium effectively. Nevertheless, the evidence within the 100 items is rich and varied, and sufficient to give an indication of what might be happening more generally.

Many of the detailed accounts focused on *benefits* for learners, such as increased understanding, closer engagement with content, learner motivation, collaboration, skills development, increased learning and greater efficiency, and *detriments* such as technical problems, learner motivation, isolation, learner readiness and contact with teacher. In our analyses we concentrated on lessons learnt and recommendations based on experience, which in turn we coded as advice on the design and structure of software, content, activities, process management and the organization of online learning.

## Review of outcomes: four common features

Within the limitations outlined above, four major features of online learning were widely identified as essential to good practice. These features were: dialogue, involvement, support, control (DISC). Most 'lessons learnt' focused on the importance of *structuring* the learning activity and *designing* the materials in order to promote dialogue, secure active involvement of the learner, provide personal or other support and feedback and enable the learner to exercise the degree of control expected. A very brief selection of comments on each is presented below.

### *Dialogue*

Dialogue appears in many forms in online courses: e-mail, bulletin boards, 'real-time' chat, asynchronous chat, group discussion and debate. The

literature supports the idea that, for any type of dialogue to be successful, its use must be carefully structured into the course. Instructors and course designers, for instance, cannot assume that learners will be able to jump into group discussions, argue in online debates, or answer questions posed online, just because they are told to participate (Bonk, Angeli and Hara, 1998; Funaro, 1999; Mason, 1998). Gregor and Cuskelly (1994) suggest that if interaction between students is not structured into the course, they will not volunteer to do it.

Beaudin (1999) and Bonk (1999) present frameworks for dialogue in which a responsive moderator with a list of clearly defined questions guides the dialogue and keeps the chat on topic. Doherty (1998) and others talk about asynchronous dialogue as an opportunity for active participation and for in-depth reflection and thoughtful responses.

### *Involvement*

Involvement includes responses in structured tasks, active engagement with material, student collaborations, student direction, flow and motivation. Dee-Lucas (1999) finds that students who use systems with more clearly defined hypertext, with more choices and more defined and refined searches find solutions to tasks faster. Chan and Repman (1999) describe a state of total absorption by the student in online learning activities as 'flow'. Flow, they say, is associated with challenge, clear feedback, learner control and concentration. The need for structuring learner involvement into the system is illustrated by Wilson and Whitelock (1998) who note that the majority of students did not collaborate online with other students or become involved in extra work that was available to them because they said it was too time consuming.

### *Support*

The need for support is the most frequently mentioned feature of online learning. Support includes periodic face-to-face contact, online tutorial supervision, peer support, advice from experts, feedback on performance, support services and software tools. Typical evidence is presented by Alexander (1999), Ewing (1999), Funaro (1999), Mason (1998), Oliver (1995), Thompson and McGrath (1999) and Warren and Rada (1998).

In almost all cases students say that effective procedures for instructor/tutor/peer feedback are the most important features of a successful online course. Students used to more traditionally delivered courses seem to expect more traditional feedback and are frustrated if they do not receive the level of attention they expect. For tutor support to be effective, Lewis and Vizcarro (1998) argue that the structure should make the role of tutor 'clear and distinct'. In distance learning and graduate programmes about multi-

media, online students seem more prepared to receive non-traditional support. When the course structure allows students to develop strong working groups, they then perceive the course to be 'congenial' and see themselves as a community (Rimmershaw, 1999).

### **Control**

Control, in this context, refers to the extent to which learners have control of key learning activities and the extent to which the learner is encouraged to exercise that control. Control can cover responses to exercises, pace and timing, choice of content, management of learning activities, learning goals and outcomes, overall direction and assessment of performance. Oliver (1998) cautions against giving control to those with little prior experience without carefully structuring the experience. Oliver reports that: 'There are many students who feel that they learn by being taught and when this aspect is removed from an instructional setting and the onus placed on the student there may be some who will not appreciate the different teaching style despite its more effective learning potential'. McConnell (1995) finds that Masters students in an online learning course repeatedly noted that they have limited control over the time expended on the course. As one student puts it, 'It's just sort of eaten into my whole life'.

## **Variations upon the messages**

The DISC themes (dialogue, involvement, support and control) occur across the board. They feature in reports of cases covering a wide range of student types (part time and full time, school children, undergraduates and graduates) and subject matter (basic skills, education, psychology, sociology, mathematics, the sciences, multimedia, computer science). They feature in both campus-based and distance cases. However, a closer examination of the evidence indicates variations in the flavour of the DISC features according to whether the intended learning is teacher controlled or learner led, or whether the learning activity is tightly specified or open-ended.

For example, there is a considerable difference between dialogue in which every element of the participation was designed by the instructor (Advaryu *et al*, 1999) and a Masters course (McConnell, 1995) in which students choose what to work on and then engage in ongoing asynchronous chat during which they can 'reshape conversations based on their ongoing understandings and reflections.' The former is highly teacher controlled and the latter is learner led.

Similarly, with involvement, support and control, there are pronounced differences in the literature in courses where the instructor shapes the participation versus the learner directing the participation. Alexander (1999)

describes involvement in a course in which students are directed to respond to two particular focus statements on their own and then in groups. In contrast, students on a human movement course (Spratt and Smithers, 1999) must become involved in their own time, searching the Web for fitness tests, taking those tests and posting the results to a database.

Support is also offered in vastly different ways online. Warren and Rada (1998) describe highly structured support in a course where the instructor made specific e-mail comments each week about how students should cover content. McConnell (1995) presents an example of learner led support in a programme where students read each others' work and provide peer feedback.

Teacher-led control is noted in a class where students were guided through a highly structured interface to reach a collaborative solution (Baker and Lund, 1997) whereas Dee-Lucas (1999) talks about students who are given an unstructured interface allowing for individual control in navigation.

## The paradigm grid for online learning

The variations in the locus of control and task specification illustrated above, and their general occurrence across most of the examples in the study, suggest that much of current experience of online learning falls within four paradigms:

- teacher-controlled, specified learning activities;
- teacher-controlled, open-ended or strategic learning;
- learner-managed specified learning activities;
- learner-managed, open-ended or strategic learning.

These four paradigms can be illustrated as a grid, as shown in Figure 4.1.

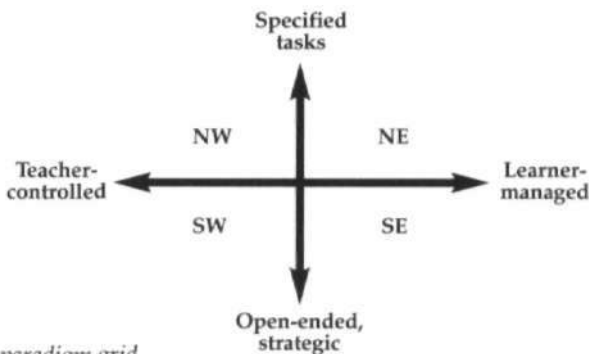


Figure 4.1 Online paradigm grid

### *Characteristics of the four paradigms*

The four paradigms were checked against the data within the 100 reports and were found to accommodate most of the examples cited. Each of the DISC features had different characteristics in each of the paradigms, with implications for the structuring and design of good practice. These DISC features are described below. For ease of reference, each paradigm is described according to its compass bearing - NW, NE, SW and SE.

#### *The north-west quadrant (teacher determined, task specific)*

In this sector, the teacher tightly specifies the activities and outcomes, including deadlines, timings, exchanges and online content (often text based), leaving the learner with little scope for initiative, except in carefully controlled situations.

Characteristics of the north-west quadrant include:

- *Dialogue.* Teacher defines/controls online dialogue and interaction. Student responds to teacher's questions and mini tasks. Dialogue with peers is specified as part of task. The focus of dialogue is usually task-oriented problem solving.
- *Involvement.* Little or no scope for learner to influence content. Activity is strictly defined and related to a pre-set task. The site is structured to lead the learner directly to specific information. Students can access information from a Web site before, during or after lectures.
- *Support.* Assumed to come only from the teacher via e-mail, phone calls or face-to-face meetings that are scheduled. The main feedback comes from the instructor.
- *Control.* Learner control is confined to responses to tasks. There is some control over sequencing, and level of engagement. The teacher controls the reading materials, the content to be learnt and deadlines.
- *Teacher role.* Instructor.

The north-west sector embraces what Mason (1998) describes as 'content with support' and Paolucci and Jones (1998) as being 'instructor led'. Dee-Lucas (1999) describes situations with 'learning goals that depend in part on accurate recall of the text'. In analysing the content of online courses, Bonk, Cummings and Jacobs (1999) find that the majority are 'little more than photocopied syllabi. In effect, instructors are employing the Web to support traditional classroom structures'.

### *Advice for the north-west quadrant*

- Provide easy access to technical support. This lesson is common to all sectors (Alexander, 1999; Bonk and Cummings, 1998).
- Structured hypertext that clearly directs students to desired goals results in more efficient use of time and clearer interpretation of task (Dee-Lucas, 1999).
- Refer to online discussions during 'real' class time (Funaro, 1999).
- Make online participation a requirement. Create reasons to participate (Funaro, 1999).

### *The north-east quadrant (learner determined, task specific)*

In this sector, the learning tasks and perhaps also the learning goals are specified *but* learners have control of how they work towards and achieve the set goals and the tasks. A typical example from the north-east sector would be a course that included case studies provided by the teacher with considerable learner discretion on how to engage with them. Schlais, Davis and Thomson (1999) describe a business course in which the text is online and there is a set path of instruction but the students also become involved in creating a simulated business in which they must create a product and sell it for profit. That interaction is structured but involves a lot of freedom. There are several examples in the literature of case studies in which students work within an otherwise traditional, lecture-based class, on group projects that require the learners to collaborate to find task solutions (Bonk, Angeli and Hara, 1998; Gregor and Cuskelly, 1994).

Characteristics of the north-east quadrant include:

- *Dialogue.* The teacher sets out the general responsibilities and procedures, but not participation, content or use. Scope is confined to the task, but the systems and protocols support student-managed dialogue with other students, peers and experts.
- *Involvement.* Task-focused self-managed groups. Groups can be self-selected and/or self-moderated. The learner is able to relate or adapt tasks to his or her own circumstances and aspirations.
- *Support.* The tutor provides advice on the nature of the task, learning goals and so forth. Support is mainly by e-mail contact, or tutor-moderated discussion groups. Students provide feedback to members of their own groups and others.
- *Control.* Conduct of tasks is up to the learner. Emphasis is on navigable links to a wide variety of sources. There is use of resources outside the

programme and wide discretion over activities, content and learning outcomes.

- *Teacher role.* Coach.

Design features in this sector include flexible time scales, use of case studies, opportunity for learner to set outcomes and goals, multi-level open linkages and the availability of agents or tools for self-managed learning. Paolucci and Jones (1998) describe this sector as one where the 'instructor has control over content and learning activities and indirect control over technology and student has control of content through hypermedia'.

Wegner, Holloway and Garton (1999) say that 'students not used to this method of inquiry evidently experienced some discomfort making the transition from teacher centered to learner centered learning'.

### *Advice for the north-east quadrant*

- Keep groups small (Alexander, 1999).
- Assign students roles and make those roles clear and explicit (Barros *et al*, 1998).
- Groups with appointed leaders tend to solve tasks more effectively (Oliver and Omari, in press).
- Provide training in how to use social behaviours online (Hackman and Walker, 1995; Marjanovic, 1999). (This lesson also applies to the SW and SE sectors.)
- Develop strategies that enhance two-way interaction (Bonk, Angeli and Hara, 1998).
- Make it a requirement that students respond to others' contributions (Gregor and Cuskelly, 1994).
- Motivation increases when students realize that their work will be displayed (Bonk and Dennen, 1999).
- Course structure allows students to always know what they are doing and what needs to be done next (Sumner and Taylor, 1998).

### *The south-west quadrant (teacher-determined open-ended strategic learning activities)*

In this sector, the programme or teacher sets the overall direction, generalized outcomes, purpose, field, scope or level, and the learner is able to explore, access and use any specific material relevant to that direction *or* the instructor begins the course with teacher-determined and task-defined activities as in the north-west sector but after the 'set' learning is completed the



students continue to explore the subject area in an unstructured way. The learner-managed element of the north-east sector is structured and controlled by the teacher with freedom for the learner to explore.

In one example of an elective course in a Masters in Education programme (Alexander 1999), students follow up a week of intensive class sessions with asynchronous debate from their homes. Ogborn (1998) describes a system called 'world maker' in which students create ecological models using real objects and the goal is pure discovery. The students find out through their own trial and error what works in the environments they create and what does not, within a more traditional, teacher-supported classroom.

Characteristics of the south-west quadrant include:

- *Dialogue.* A combination of dialogue styles found in the north-west quadrant during the instructor-led segment of the course and in the south-east quadrant during the learner-managed segment of the course. It could be managed by the teacher and is focused on the overall direction and purpose of the study. It involves use of asynchronous dialogue but with instructor setting out roles for students, making students participate as leaders or respondents in discussions or asking students to categorize their responses.
- *Involvement.* It could start out as solo activity with the student learning rules/concepts/theories from online texts and possibly traditional lectures. Text may be online but there are also locations for students to write and place their 'discoveries' (links, data and content). Once students have mastered 'the basics', they create something new of their own. Group activity is mainly confined to the course group.
- *Support.* Tutor support could be online or occasionally face to face. There is a range of support: traditional feedback in the first phase of the course (north-west quadrant)/ instructor acting as facilitator, offering suggestions but not answers during the 'discovery' phase of the course (south-east quadrant).
- *Control.* The learner has control of specific learning goals within the generalized goals. Learners manage their own unstructured discovery activities within given parameters. They are free to set their own personal goals within the generalized activity.
- *Teacher role.* Guide.

Mason (1998) calls this sector 'wrap-around', with the teacher's emphasis on providing supportive navigational material such as study guides, wrapped around existing texts and resources with the students interacting through e-mails and postings. Paolucci and Jones (1998) describe the instructor as

mediator in this sector. He says the instructor and learner are a dyad with the instructor having indirect control over learning activities and both having control over technology and content. And there are difficulties if learners are more used to, and expect, the level of direction they enjoyed in more familiar north-west quadrant situations. Lewis and Vizcarro (1998), for instance, note that a conflict for teachers lies in the 'desire on the one hand to force students to be autonomous in their actions whilst on the other hand providing adequate guidance'.

### *Advice for the south-west quadrant*

- Structure the learning environment to promote co-operation within groups (Ewing, 1999).
- Provide examples and instruction of ways to work online in groups (model ways to have a lively dialogue) (Funaro, 1999).
- Creation of labels to allow students to structure dialogue (Sloffer *et al*, 1999).
- Keep dialogue on topic through carefully designed questions, guidelines for learners, and online summaries (Beaudin, 1999).
- Categorize messages, summarize threads of discussion (Advaryu *et al*, 1999).
- Provide steps in the problem-solving process (Oliver and Omari, in press).

### *The south-east quadrant (learner-managed, open-ended activities)*

In this sector the learner is in control of the overall direction of the learning, including learning outcomes and longer terms goals. Personal goals ('reasons for being there') are as important as specific learning outcomes. There may still be a finishing time in most cases but finding your way to the end point involves a lot of learner freedom of choice.

In Mason's examination of online course models (1998) she discussed the Open University's Masters in Open and Distance Education programme. Students integrate comments from discussion conferences into assignments and then 'reflect on what they have learnt from the various elements of the course, including discussion, reading and joint work'.

Characteristics of the south-west quadrant are:

- *Dialogue.* Self or collaboratively (peer-group) directed. There is wide discretion over choice of discussion groups, from peers to 'public' specialist interest groups. Asynchronous dialogue with other specialists. External sources of specialist assistance.

- *Involvement.* Total involvement in the learning activity. The student could be working alone or in a team. Learners relate the learning to their own personal, vocational and academic needs.
- *Support.* Contacts with supervisor initiated and monitored by the learner, facilitated by the system. The teacher is in the background, offering advice on procedures and resources. Feedback is sought from a variety of sources and experts. The structure and design of the online learning facilities provide a framework of support within which the learner has considerable discretion.
- *Control.* The learner determines the goals and outcomes and monitors progress.
- *Teacher role.* Facilitator.

Mason (1998) calls this situation 'integrated' with an emphasis on 'collaborative activities, learning resources and joint assignments... the heart of the course is online discussion and processing information and carrying out tasks'. Paolucci and Jones (1998) talks about the 'technology as tutor' with the learner exercising control 'through use of the system'. Bonk, Angeli and Hara (1998) found that by structuring electronic learning activities, 'students will have more time to reflect on course content and to make in-depth cognitive and social contributions that would be nearly impossible in a traditional classroom'.

Sloffer *et al* (1999) say that the key component to learner centred environments *is* inquiry: 'a questioning that derives from puzzlement, a difference between what the individual expected and what he or she observed'.

### *Advice for the south-east quadrant*

- The role of the tutor, and the amount and level of tutor participation, should be clearly defined (Lewis and Vizcarro, 1998).
- Embed prompts and other ways for students to interact with the content in order to make the thinking process clear (Henderson *et al*, 1998).
- Provide synchronous events (along with asynchronous events) to maintain student enthusiasm and a 'real time' sense of participation (Mason, 1998).
- Develop criteria for students to assess each others' work (McConnell, 1995).
- Remember that 'free for all' open discussions do not usually work (Mason, 1998).
- Provide guidelines and carefully designed questions (Beaudin, 1999).
- Create a structure to make teams collaborate (solve problems through a

voting system; write collaborative assignments by dividing tasks into sections) (Marjanovic, 1999).

- Beware that learners could become so involved in browsing that they might not be thinking about the learning related to specific subject matter (Ewing et al, 1999).

## **Implications of the study**

### *Horses for courses*

This review of current experience of online learning and the paradigm grid should be of assistance to anyone seeking to take account of case study reports when structuring and designing online programmes. Both authors of this report have heard colleagues referring to 'what does and does not work according to research' without reference to the paradigm of the case on which the research is based. The grid could be a useful means of helping researchers to communicate their findings for the benefit of developments elsewhere. The observation, for instance, that online materials and user activities must be tightly structured, clearly signposted and closely supervised will be helpful only if the readers of the case study are seeking to develop an online north-west experience for their own learners. If the readers want to develop a programme for south-east learners, then such advice would lead to disappointment for the teacher and frustration for the learners. Similarly, if a teacher follows the advice from case studies within the south-east sector when building a programme for north-west learners, student confusion and disorientation will certainly follow. Therefore, the grid and the DISC elements within each sector of the grid can help instructors and designers create online courses that relate directly to their students' learning needs and their own content requirements.

### *Transition strategies*

The study also points to the importance of designers of materials referring to the normal paradigm experienced and expected by students when designing online programmes. Students used to clear instructions and narrowly defined tasks, for instance, will need considerable help with online learning in any sector other than the north west. Any teacher seeking to exploit the full freedom of the Web, for instance, should first identify the learner's normal learning paradigm. If, as is likely, any of the learners are steeped in north-west culture, the teacher or designer will have to pay particular attention to managing the shift to, say, the south-east quadrant. This will require the provision of carefully signposted and well-structured means of securing the transition to new patterns of dialogue, interaction, support and control.

## Migration to learner-managed learning

The range of teaching and learning paradigms described in this study is comparable to that found in non ICT-based learning contexts. It reinforces the argument of others in this book (for example, Alexander and Boud) that teachers using online learning merely re-create their normal pedagogical stance. The north-west sector is comparable to traditional didactic teaching, instruction or formal training, whilst the SE sector equates with the open-ended learner-managed mode that is increasingly appearing in higher education, the workplace and continuing professional development programmes. New technology, it might appear, is replicating existing approaches to teaching and learning by other means.

However, it would be misleading to conclude from this evidence that educationally nothing is changing. The paradigms may be the same but the technology of online learning appears to facilitate a migration from traditional didactic modes to more learner-managed learning modes if teachers and designers wish to take such a journey. By focusing attention on dialogue, involvement, support and control, online learning addresses features that facilitate such migration (Stephenson and Yorke, 1998). Intelligent or intuitive 'agents' or software tools that anticipate needs, provide ease of access to relevant information at the right time, acknowledge personal learning styles, facilitate self-management of progress and forward planning, will make it easier for the teacher to assume a less directive role (Aroyo and Kommers, 1999). The most significant feature of online Web-based learning for those seeking to promote more learner autonomy is its capacity to take learners beyond the provision of their teachers and to engage with a greater variety of materials, learners, experts, support tools and fields. As Bonk (1999) observed, Web-based learning:

offers a chance for students to enter into dialogues about authentic problems, collaborate with peers, negotiate meaning, become apprenticed into their field of study, enter a community of experts and peers and generally be assisted in the learning process.

Universities in the UK, Europe, North America and Australasia are developing online versions of their existing programmes. Increasingly, these initiatives will move from HTML texts of lecture notes towards a fuller exploitation of online learning tools, agents and protocols. By focusing attention on dialogue, involvement, support and control, and through learner-focused agents and procedures, online learning may be the means by which managing one's own learning becomes a common feature of all undergraduate experience. As Doherty (1998) has observed:

Adaptive transformative pedagogy may be the greatest challenge and the true future of higher education and the learner will be at the core. The student will be paramount in mediating his or her own learning. Learner control will emerge as the dominant characteristic of 'every time, every place for everybody' learning.

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**For a full set of items** reviewed, please contact: Marion Coomey, [mcoomey@acs.ryerson.ca](mailto:mcoomey@acs.ryerson.ca)