

Online university degree programmes

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Abstract: Pepperdine University introduced three degree programmes over the last four years that incorporate the use of online technology: a Doctor of Educational Technology degree and two Master of Arts degrees with an emphasis on educational technology. During the implementation of these degree programmes more has been learned about the critical need to incorporate into online learning the concepts of communities of practice, reflective practice, problem-based learning, and action research. In addition, an increased understanding of the role of face-to-face meetings has developed. As technologies mature and understanding of the underlying learning theory increases, additional technology use is being explored.

1. INTRODUCTION

For an online degree programme to be successful a fundamental shift must occur in the teaching and learning strategies typically found at universities where students regularly meet face-to-face. Our experiences at Pepperdine University over the last four years have led us to incorporate a new set of teaching and learning strategies in our online courses, strategies that have produced in students deeper understanding of concepts and demonstrated ability to apply these concepts to the problems they encounter in their own educational settings. In fact, the affordances of online encourage a degree of community of practice and a level of reflection well beyond that found in students who participate in graduate school by attending weekly face-to-face classes. We believe this is because of the continuation of the dialogue in between any official synchronous online

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classes or occasional face-to-face meetings. This is a sort of 24/7 (twenty four hours a day, seven days a week) type of presence that has not existed in education before.

2. BACKGROUND

Rheingold (1988) wrote in an article foretelling the growth of online communities, 'If computer-mediated communication (CMC) has potential it is in the way people in so many parts of the net fiercely defend the use of the term 'community' to describe the relationships we have built online.' This sort of community has come to fruition in the online programmes at Pepperdine. Hiltz and Wellman (1997) summarise the current understanding of virtual communities and CMC as follows.

- The limited bandwidth of CMC can reduce 'social presence' and 'social cues'.
- CMC seems good for giving and receiving information, opinions, and suggestions; it is less suited for communicating agreement and disagreement; and it is worst for social-emotional tasks involving conflict and negotiation, such as showing tension or tension release or showing strong emotions.
- There is no 'turn-taking', so all participants can key in entries whenever they like.
- There is more equality of participation in CMC than in face-to-face group interaction.
- Asynchronicity makes interaction more convenient but raises new co-ordination problems, such as information overload. (1997:45)

These findings have definitely held true in our work with the online graduate programmes. However, there are some additional elements we have identified beyond those of Hiltz and Wellman.

3. NEWLY IDENTIFIED ELEMENTS

Our experience with the use of online tools for technology degree programmes leads us to the belief that certain key elements must be present for an online course to succeed. First, students must establish an identity face to face. This identity can then be carried into their online work. In their online work they must be encouraged to work as a community. In addition, they must be encouraged to continually reflect on their individual thinking as well as the work of the community. To assess their learning we encourage participation in collaborative work groups and we also require that students

complete an action research project. These elements are discussed in more detail below.

3.1 Importance of identity

In each of the Pepperdine online degree programmes, students are admitted as a cohort and continue to move together through their coursework. This sense of community is important to the building of a fundamental language used by this group. This language reduces the potential for misunderstanding in online settings where the contextual cues are reduced. As Wenger (1998) proposes:

...an identity must incorporate a past and a future. Learning communities will become places of identity to the extent they make trajectories possible—that is, to the extent they offer a past and a future that can be experienced as a personal trajectory (1998:215).

To better ensure that this identity is created for each cohort, we require students to attend ‘VirtCamp’ before their online sessions begin. VirtCamp was conceived first as a place where students learned the technical skills required for online learning, i.e. use of chat rooms and threaded discussions. However, these sessions are even more important as a vehicle for creating this identity and common language for each learning community. Thus it appears that face-to-face plays an important role in online learning. Without this ability to initially establish identity, the learning community is much more likely to experience discord in its dialogue because of semantic and cultural differences in the language used by the students and the instructors. This sense of the learning community as a culture is important. Many of the initial efforts in a programme are focused on moving students from thinking of learning as an individual enterprise to recognising it as a community enterprise.

3.2 Membership in a community of practice

Once the course moves from a face-to-face environment to an online environment, the online technology tools are used to enable the learners to engage in dialogue that is facilitated by the instructors. The content of the course is typically presented via artefacts such as books or other web pages that students read in advance of the discussions. Over time, Pepperdine instructors in the online programmes have developed two different formats for online dialogue:

1. chat rooms in the form of a multi-user object-oriented environment (MOO), and

2. threaded discussions in the form of newsgroups.

The chat room, in this case a specialised MOO, is provided by Tapped In (1998), a non-profit organisation funded by the National Science Foundation. Tapped In provides both a graphical and a text interface to the chat environment. Pepperdine University maintains a virtual campus facility as part of Tapped In where both students and faculty may create their own offices. Virtual classrooms are also provided with 'whiteboards' where notes may be posted to guide students in their synchronous chats.

These synchronous chats have evolved the most over the four years of our experience with online. At first we attempted to meet with an entire class at one time (typically 25 students). However, we learned that this is chaotic in an online environment where the text is scanning by rapidly and where it is difficult to recognise when it might be appropriate to call on students for input since there are no visual cues available. Now we either divide the class into small sections (6-8 people) to accommodate time zones or we divide the class into smaller virtual meeting rooms. The instructor 'moves' from room to room to listen in on the discussion and facilitate as needed, just as they might with smaller groups in a face-to-face classroom. When the discussion is complete the students post key ideas from the session to a threaded discussion for further asynchronous reflection and discussion.

This synchronous time is not an opportunity to deeply consider topics. Rather it appears to be a time for idea sharing and initial brainstorming about the concepts in the materials that students have read. Just as McGrath (1994) indicates in his circumplex model of group tasks, synchronous chat rooms are best used for creativity or intellectual tasks such as generating ideas or plans, discussing issues with no right answers, or sharing points of view. As Hiltz and Wellman suggest, it is more difficult to use synchronous time to resolve differences of opinion or to finalise a project. However, the sense of intimacy generated by the immediate contact of a synchronous discussion does lead to a further sense of community and a more developing sense of common language.

3.3 Reflection on practice

One of the most surprising discoveries of our online work has been the degree to which the depth of student reflection is enhanced by the use of asynchronous discussion tools. Schon (1987) proposes that by encouraging education apprentices to reflect on their practice in a way that encourages reflection, mentors can improve the apprentices' practice and their appreciation for the 'art' of the practice. Schon's concepts of reflection-in-action and reflection-on-action are now a major portion of our online

graduate programmes throughout the threaded discussions. Our use of threaded discussions now extends to our graduate programmes that meet in a more traditional face-to-face manner.

Spitzer, Wedding, and DiMauro (1994) report that their experiences with LabNet indicate a need for a moderator to foster reflective dialogue. The moderator must specifically engage members in doing activities and in thinking. DiMauro and Gal (1994) indicate that the following technological design factors contribute to reflection.

- Protecting workspace for reflection;
- Communicating asynchronously;
- Maintaining a chronological record of dialogue.

At Pepperdine we have found that the threaded discussion tool provided by Netscape's newsgroups is an adequate tool for this purpose. The biggest problems are the inability of students to accurately maintain threads and the sheer number of posted messages generated as students become facile with this tool. Spitzer, Wedding, and DiMauro also note that there are several contributing social factors.

- Dialogue needs to have an organising principle;
- Reflective dialogues need to be linked with action;
- The right questions need to be asked to blend structure and openness;
- Participants need to be personally committed to the network;
- An extended timeframe is needed for reflection.

Our experience corroborates that of Spitzer, Wedding, and DiMauro. In particular, instructors must develop good guiding questions for the newsgroup dialogue and appropriate guidance in the discussion of key concepts. Socratic questioning style has become fundamental.

3.4 Problem-based learning

We are often asked how we assess students in an online environment. We find that final projects, requiring students or groups of students to construct a product reflecting their learning, especially one applicable in their individual educational setting, provides best evidence of their learning and their understanding. This product construction is typically done by creating a website to reflect the students' knowledge of the area as well as their understanding of other resources available on the Web.

This use of problem-based learning has a dual benefit. Bruckman (1996), in her use of the Moose MOO, indicates that not only does community support construction activities, but construction activities also enhance community. 'A community is a group of people brought together for a purpose . . . A particularly felicitous type of community often emerges when people are brought together to construct things.' In those courses that have a

face-to-face session at the end of each course, the students present their work to their peers as well as the instructor in a final face-to-face session. In the primarily online programme, students construct a portfolio of their work that is exhibited to peers, instructors, and outside evaluators in the final week of the programme.

3.5 Action research

The culminating element for all programmes is an action research activity. In this research the students actually try to implement changes in their practice based on the theories they now understand. As they implement these changes they reflect on what is happening and document the process. In some instances, they also mentor other teachers in the process and reflect on the entire change process that does (or does not) occur. The students are guided in their efforts primarily by the work of McNiff, Lomax, and Whitehead (1996). By doing action research, students are not only learning from their own practice but they are applying their practice in a very localised way. In this culminating activity, students begin to ‘think globally but act locally.’

3.6 Video Case studies: the future

In a recent study, Talley (1998) found that video case studies are a highly desirable element for online learning. Out of 17 highly desirable elements in Table 1 that experts identified for an online learning environment for teachers, video case studies was rated the most desirable. (Note: Table 1 reflects a set of interwoven characteristics for a suggested online resource that combines elements found today in separate online tools: a website with embedded links, a chat room, a threaded discussion area, and features such as those found on Amazon.com where regular users of the site are guided to items of special interest to them.)

For this reason, Pepperdine is exploring the use of new software and technology that will allow for more desktop video-conferencing between students and instructors. While we have not yet had experience in this area, we believe, based on the work of Buxton (1992) and others, that the ability to share workspace and products will be more important than being able to view isolated faces. The use of video focused on faces provides access to cues such as non-verbal expression that are otherwise missing from the online environment but it appears that the more important element is context.

Table 1. Desirable Characteristics of an Online Learning Environment

Information Source	Format for Providing Feedback	Expert Help	Scaffolding Help	Technical Functionality
Online video demonstrations of best practices	Both asynchronous + synchronous discussions	Mentors who understand the practice and can provide expert help	Modelling of reflective practice Modelling of mentoring	Authentication of the expertise of the mentor
Links to related work and resources	Asynchronous discussion	Instructors		Amazon.com like list of interests
Collaborative units of study	Both asynchronous + synchronous discussions			All must contribute; no lurking allowed
Action research	Both asynchronous + synchronous discussions	University researcher(s)		

4. CONCLUSION AND RECOMMENDATIONS

Our experiences with online programmes have led us to understand the importance of several key elements in online learning for educators. Identity, community, and reflection are among the most important. Currently, identity is best established in the context of face-to-face meetings. Community, on the other hand, is well-supported organised and facilitated synchronous online sessions. The use of asynchronous threaded discussion to expand dialogue between limited synchronous meetings and to increase the depth of the reflection is most key. Many current online courses are web-based, click-through tutorials. We would recommend that more attention be paid to the effect of adding the concept of community of practice to these tutorials.

More research needs to be done about the differences between student learning that occurs in online courses and student learning that occurs in traditional face-to-face courses. Currently, most information is anecdotal. Finally, further design work needs to be done on the most appropriate form for the online environment.

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BIOGRAPHIES

Terence C. Cannings, Associate Dean of Education at Pepperdine University, California, has been a teacher, school principal, member of the State Department of Education, researcher, and Professor of education.. He is currently the Programme Director for the Doctorate in Educational Technology, a 60/40, face-to-face/online nationally recognised degree.

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