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Research and innovation in teaching and learning are prime topics for the *Journal of Instructional Technology and Distance Learning* (ISSN 1550-6908). The Journal was initiated in January 2004 to facilitate communication and collaboration among researchers, innovators, practitioners, and administrators of education and training involving innovative technologies and/or distance learning.

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Donald G. Perrin, Executive Editor

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Editorial

Cogito ergo sum

Latin: "I think, therefore I am"
René Descartes (1596-1650)

Elizabeth Perrin

Cogito, ergo sum is a far cry from substantiation of the teaching/learning process in distance learning – whatever supportive technology and sophisticated interactivity is available to us.

Distance adds *dissonance*. Otherwise the overall philosophy and practice of distance learning follows standards set for face-to-face teaching and learning. Teachers impart knowledge, students absorb the information. Motivation is mostly subliminal. The teacher may truly be enthralled with the subject matter, but is teaching to pay the rent. The student may be somewhat interested in the material, but is really taking the course because it is required for graduation. When all of this is tied into *Distance Learning*, synchronous or asynchronous, video or text based – we have a big gooey confusion of research, design, implementation and evaluation of teaching and learning in the distance learning area.

Fortunately for the future of teachers, learners, and distance learning, excellent research is ongoing to identify significant aspects of the teaching/learning process and incorporate them into the design, delivery, teaching and distance learning processes. The wave of the future, *vis a vis* distance learning, continues to smash many of us, who are teachers, rather flat on the education shore. In an effort to sort out significant variables in design and presentation, we sometimes lose sight of the variable with the largest standard deviation that is most difficult to control – the learner.

A growing body of empirical and research data is paving the way for alternative systems of teaching and learning that are comparable, even competitive, with learning in traditional face-to-face classrooms, laboratories, and libraries. New technologies developed for distance learning are finding their way into face-to-face classrooms. And just as faculty learn from each other on campuses and at professional meetings, they are learning from each other on the Internet.

Ongoing research, innovation and implementation is reconfiguring distance learning through infusion of thoughtful substantive research and analyses. For 21st century education, this is indeed becoming a brave new world.

Editor's Note: Mark Hopkin's vision of a teacher on one end of the log and a student at the other has been transformed into an electronic (virtual) log. This paper take it a step further and morphs to a *student* on each end of the log!

Self-Organized Learning Environments and University Students' Use of Social Software: A Systems Theoretical Perspective

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Abstract

The paper will argue that new possibilities of digital media, especially social software, have a potential regarding development of self-organized learning environments and facilitating self-governed activities. The point of departure is that IT only plays a role as an available technology, and is in itself simply an offer. Based on a sociological perspective, the paper will clarify the concept of self-organized learning environments, which emphasizes the self-governed work of students. This perspective implies that an institution frames the project work of students and invites them to develop self-organized learning environments. Using an empirical study, the paper will argue that social software tools as a communication environment have the potential to support students' development of self-organized learning environments. We find that students' creative use of social software is an essential point, when planning higher education.

Keywords: social software, self-organized learning and communication environments, digital media, learning, IT, project work, self-governed activities, sociological systems theory

Introduction

Use of social software in support of learning is a new and still relatively unexplored phenomenon. *Social software* is a broad term which describes tools that support social relationships between people using the Web (Alexander 2006; Freedman 2006; Owen et al. 2006). Social software tools include, but are not limited to, discussion forums, file sharing, chat, e-mail, weblogs, wikis, social bookmarking and RSS feeds. The term has not grown out of an educational discussion, and social software has not been developed specifically for learning. Anderson (2005a) introduces the concept of educational social software to initiate a discussion of social software in relation to learning.

The dominating focus for technology-supported learning has, for some years, been learning management systems (LMS) (such as Moodle, Blackboard, FirstClass) (Siemens 2006). Using LMS to support learning has primarily been the focus of open and distance education. In other words, LMS have primarily been used to deliver purely web-based courses within open universities (Paulsen 2004, Weller 2002, Salmon 2000; 2003). However, web-based technologies have also found their way to campus-based universities. In recent years we have witnessed an explosion in use of LMS at universities worldwide (Paulsen 2003; 2004). LMS provide tools for development and organisation of online courses. Apart from administrative tools, the central tools of LMS are discussion forums and file sharing. These tools provide students with the possibilities to discuss and collaborate at a distance. A focus of online learning has been how to activate students and how to teach them to use online discussion forums (Salmon 2000; 2003). However, according to a report from OECD (2005), the success of LMS on campus-based universities has primarily been in relation to administrative and not pedagogical purposes.

In the literature on technology-supported learning, there is a shift in focus towards web-based social software tools and away from LMS. The shift in focus is not only a question of specific tools, but a shift from integrated systems towards a mix of online tools, which enable participation on the Web and development of social networks which go beyond single institutions and courses (Anderson 2006; Author 2006). More specifically, the shift in focus is from discussion forums and file sharing to weblogs, web communities (Facebook, Myspace) social bookmarking (del.icio.us), wikis, RSS feeds, and more. In contrast to LMS, social software underlines a focus on tools that are not organised and integrated within a system. Although there is an overlap between tools of LMS and social software tools, the latter support individual and personal use of tools in social contexts, whereas LMS support development and management of courses. This means that social software supports individualized use (Downes 2004a). Especially weblogs have been emphasized in relation to student centred activities (Downes 2004; Baumgartner 2004; Cameron & Anderson 2006; Andreasen 2006). Weblogs have a potential to support individual and creative use.

The argument for use of social software within the fields of open and distance education as well as lifelong learning is that social software provides flexibility of use and provides tools which enable students to go beyond courses and institutional settings. In relation to open and distance education, Anderson (2005a) defines educational social software as:

> "[...] networked tools that support and encourage individuals to learn together while retaining individual control over their time, space, presence, activity, identity and relationship." (Anderson 2005a, p. 4)

Anderson (2005a) identifies a potential of social software to support flexibility, which is an important aspect of open and distance education and lifelong learning (Koper 2004a; 2005; Friesen & Anderson 2004). Students should be independent of time and space; for instance students should be able to enroll continuously and control their own pace of their courses (Paulsen 2004; Anderson 2005a; Anderson et al. 2005). This quality of social software, more specifically weblogs, is emphasised by Cameron & Anderson (2006):

> "Perhaps the blog's greatest relative advantage is for non formal and open education that takes learning beyond the traditional course."
> (Cameron & Anderson 2006)

This article follows the lines of these arguments for potentials of social software in relation to a learner centred approach. We wish to extent these discussions within a context of campus-based university courses, which provide a different setting for the use of technology. The focal characteristics of social software in our discussion are also flexibility and individualized use. Our approach, however, is different than the approaches within open and distance learning and lifelong learning. In our case, flexibility and individual use is not an institutional demand, bur rather a pedagogical principle, for which we will argue theoretically through the concept of self-organized learning environment.

The aim of the paper is to outline an approach to use of digital media in support of self-organized learning environments. More specifically, the question is: How and to what extent is it possible, within an institutional setting, to support self-organized learning environments by social software?

Social Software

Important social software tools include weblogs, RSS feeds, social book-marking and wikis. A weblog is a Web page which consists of a log of dated entries, listed in reverse chronological order. The owner of a weblog continuously writes new entries and catalogues them under

different headlines. In itself, a weblog is not social, but is rather individual and often personal. Readers of a weblog can write comments on each of the entries. However, a weblog is primarily for individual presentations. Today, there are millions of weblogs about all sorts of topics. People are using weblogs to write about fashion, movies, news, cooking, computer games, and so on. (see for instance http://www.technorati.com/). Being individual means that a weblog can represent an individual on the Web. This means that weblogs can form the basis of a person's socialization on the Web. When a weblog is related to other weblogs, networks or communities are formed. People connect to other people by reading and commenting on each other's weblogs.

Further, it is possible to create individual networks by subscribing to different weblogs using RSS feeds (Downes, 2004b). Using RSS feeds means that you get notified whenever there is a new entry on a weblog. Maintaining a weblog and subscribing to other weblogs creates the possibility of active participation on the Web. Subscribing to and being subscribed to by other people means that communities are created on the Web. People get access to resources and people that other people find interesting. The combined use of weblogs and RSS feeds supports and facilitates relations and communication between people.

This is further supported by social bookmarking tools. Creating social bookmarks means bookmarking Web pages on the Web instead of in your browser. This, first of all, means that you have access to your bookmarks whenever you have access to the Web. Second, social bookmarks are social in the sense that they can be viewed by other people. When you share your bookmarks, you can see who else has bookmarked the same pages as you, what they write about them, and what else these people have bookmarked.

Finally, wikis are also considered social software. A wiki is a Web page which can be edited directly from the Web page by everyone who has access to the wiki. From the wiki everybody can edit pages on the wiki or create new pages using hyperlinks. The wiki keeps a history of changes which means that it is possible to view previous versions of the wiki and see what changes have been made. It is also possible to subscribe to wikis using RSS feeds. This means that you get notified whenever changes are made on the wiki or on a specific page on the wiki. In this way, a wiki can support collaborative development.

The potential scenario that the different social software tools make possible is increased exchange, communication and collaboration. People can share thoughts, ideas, meanings, references, and so on, which enable people to make their work visible to others. People can also share problems and questions, and thus initiate discussions. Downes (2004a) describes the possibilities of this scenario:

> "The use of computers to assist learning also enables the formation of social contacts that would otherwise be impossible in learning. Students from widely dispersed groups are able to form online groups."
> (Downes, 2004a)

We will use this scenario to discuss students' development of self-organized learning environments. However, first we present our theoretical approach and the findings of our empirical study, which forms the basis for this discussion.

A Social System and Psychic System

According to Luhmann (1986; 1988; 1994; 1995), systems are by definition closed, autopoietic (self-creating), self-referential and autonomous – and hence unique. In this sense the individual person, for instance, student as well as teacher, is unique. Each person, each system constructs, as it were, his/her own way of perceiving the world. According to the definition of systems, a system's environment is specific to the system, which means that the environment is system-

related. In this context, knowledge is seen as a result of learning processes in which communication is in focus. Communication constitutes the environment for conscious activities, for mental constructions. Communication promotes understanding, and understanding promotes construction of knowledge. This means that communication is the fuel that can 'disturb' consciousness and maintain learning processes. The theoretical framework therefore contains an important point: communication plays a central role within processes of learning and construction of knowledge. In other words, conscious activity and communication are mutually dependent. Systems maintain themselves through communication.(Luhmann, 1992).

All observation involves operations internal to the system; cf. the system characteristics. Thus, Luhmann calls his form of constructivism "operative constructivism" (Luhmann, 1988). Knowledge constructions require observation and selections. Luhmann writes that "Communicative success is the successful coupling of selections." (Luhmann, 1995, p.159).

Communication, as one communication unit, is, for example, when a student pays attention to a lecture on video, reads a book or attends a lecture. One communication unit is actualized in this context when the student selects understanding continuously. This demands that the students focus their attention on the communication, the video, the book or the lecture.

Social systems as well as psychic systems are based on meaning, implying that they choose to *actualize* something and leave other things alone. Based on the system characteristics mentioned above, the result is that in principle the individual system's *unique* selection decides what the system chooses to actualize. In other words, all observations and selections are systems related.

Because systems are closed, thoughts do not leave psychic systems as thoughts. In other words, the only things that systems can observe are the communicative utterances. This has implications for the (im)probability to maintain the communication particularly in communication forums where time and place are flexible. In other words, the probability to maintain the social system increases, when the communication takes place in an environment were the temporal is a "now" and the social dimension is a "face-to face" setting.

Last, communication requires consciousness – that is, a minimum of two psychic systems. This understanding has implications when it comes to conditions of communication and its maintenance. When we later introduce the empirical approach and the educational setting, the reader will notice that the conditions for communication are different concerning face-to-face-communication and communication in social software, for instance the conference system.

As a starting point, communication is most likely impossible, cf. that social system and psychic systems operate in different modes, that is communication and consciousness mode respectively, and is furthermore systems operationally closed and self-referential. Systems can make a structural coupling which for example means that systems can couple to the same theme in a communication. The concept of structural coupling, so to speak, does the improbable communication less improbable.

Research tells us that it is difficult to maintain communication in communication forums, for instance conference systems, where communication is web-based, asynchronous, written and computer-mediated (Dalsgaard, Christian., 2004a, 2004b).

The possibility to connect to the communication does not have the same conditions as when you are communicating in a conference system as compared to a face-to-face context. You have numerous points of contact when you participate in a face-to-face communication, like gestures, intonation and pausing. That is not to say that the communication is probable. We can say that the improbable communication has the potential to turn out more probable. This is not the case when you participate in conference communication. You have only the written text and maybe – if possible – with different kind of effects, capital letters, bold, drawn figures, sounds, and so on. An

addressee has to make a communicative written contribution to maintain the social system in the specific computer conference. It is not enough for example to nod the head raise your eyebrows or raise your hands. If the addressee is reached, we still have an improbability, which concerns the communicative success. "Communicative success is the successful coupling of selections.", writes Luhmann (1995, p.159).

This theoretical approach will form the basis, when we discuss the findings from the empirical study.

What is Learning and Learning Environments?

Learning is here focused on construction of an individual's mental constructions and reconstructions. As regards communication and action these are the only possibilities that the teacher as well as the student has to take bearings of a person's selection of understanding.
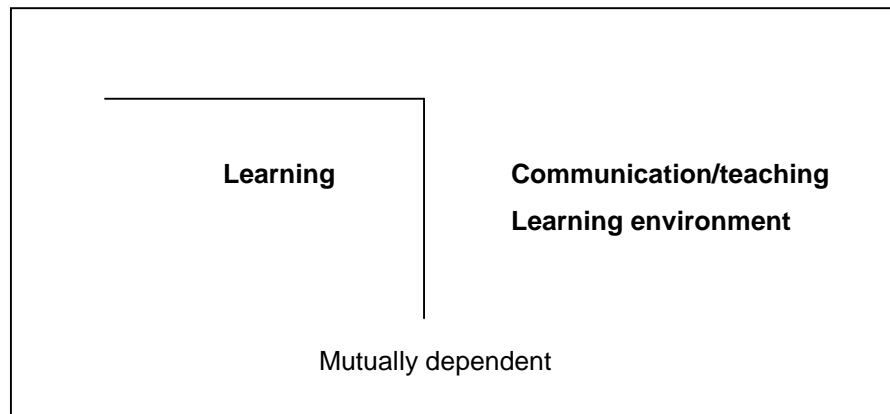

Figure 1: Learning and learning environment

Because learning depends on selections made by the psychic system, learning cannot be organized. Learning develops from the selections of the psychic system. The question is how to develop a learning environment which supports and facilitates students' learning processes and knowledge constructions. We term such a learning environment a *self-organized learning environment*. A self-organized learning environment is an environment in which students are encouraged to make their own selections and *govern their (own) learning activities.* If the point of departure is that these activities can be fruitful for knowledge constructions, the challenge is to empower students to organize their own learning activities.

Empirical study

There were two project groups (group A and B) that chose to use a conference system to support their group project. The project work took place at Information and Media Studies, University of Aarhus, Denmark, in 2005. The students in the two project groups used an asynchronous discussion forum and file sharing. In other words, the communication in the conference system was neither initiated nor organized by the educational institution. Both group A and group B consisted of two students. In group A, the students were spread geographically, because one of the students lived three hours drive from the university. In group B, the students lived close to each other and the university. Neither the students' individual work processes nor their face-to-face discussions were studied. Data was gathered by way of the students' postings within the conference system and the documents shared. Two students were interviewed to learn about their experiences with the conference system, why they chose to use the system, what they used it for and how they felt that it affected their project work. The project work ran for four months.

The educational setting

The aim of the project work was to create a mix of different kinds of conditions of learning. This was done in an attempt to support students' individual selections. An overall framework for the project work was created by the teacher. First, students were required to make a problem description as the basis of their project work. Students were then required to submit an assignment and take a final exam. Finally, students were offered guidance from the teacher. The project work itself, however, was not organized or planned by the teacher. The conditions of the project work can be characterized as a self-organized learning environment in which students themselves governed the process. Students decided how to approach their project; for instance, when it came to searching for literature, selecting empirical methods and theoretical approaches, and choosing a product to design. It was up to the students to choose which kinds of communication forums they used during their project work. However, teachers encouraged students to participate in discussions with the teachers, in the role of a guide, concerning issues related to their project. Further, students could choose to participate in seminars which discussed themes related to project work. The intention was that students within the overall framework of the project work should develop their self-organized learning environment.

The conference system used was FirstClass whose primary functions are email, asynchronous discussion, file sharing and chat.

Findings

During the four months, group A produced 164 postings, whereas group B produced 224 postings within the conference system. The study showed that the students used the conference system for different purposes:

- discussions
- preparation for face-to-face meetings,
- information exchange, and
- collaborate on writing the project report.

Discussions were primarily short exchanges of questions and answers. The discussions were no longer than two or three exchanges, and often documents were attached to the postings. Below is an example of a discussion between two students.

- [Student 1]: Should we write about, whether they are working on basis of a "core of values"? Some sort of "management philosophy"? For instance, have them talk about what, "Danish style of management" is?
- [Student 2]: I think that sounds ok. Can we do what X said and make references to their statements? You know, say "the last time we talked, you said, that ...".
- [Student 1]: We ask about the style of management right after they have talked concretely about what they are doing, because we should begin with that, shouldn't we? After that they have a chance to talk about more "fluffy" concepts and relate practice to these concepts.(Translated from Danish)

The students in both groups prepared for their face-to-face meetings by exchanging texts often supplied with comments for discussion. These postings were primarily short comments which often contained attached documents for discussion on the face-to-face meetings. Below is an example of a typical posting prior to a face-to-face meeting./

- Here are some thoughts on social constructivism! – hope it makes sense!
- See you tomorrow.

<div align="right">(Translated from Danish)</div>

Neither of the groups communicated solely through the conference system, but also met face-to-face. However, the study showed a difference in the way that the two groups used the conference system. In the interview a student from group A said that they met face-to-face one or two times a week. They used the face-to-face meetings for longer discussions on what to write within the different sections of the project report. Then they divided the work between them and wrote individually on the sections. On a few occasions, group A also used the conference system for such discussions, because they did not have a chance to meet face-to-face. The pattern of activities was different in group B. One student from group B says in the interview, that they met face-to-face three to five times a week. This meant that their discussions primarily took place at the face-to-face meetings. Whereas group B used face-to-face meetings for a lot of their discussions, group A used the conference system to support some of these discussions[1]. Students in group B collaborated more closely on each document than group A, whereas group A divided the work between them, the students in group B wrote collaboratively on each document.

The students' communication within the conference system followed roughly the same pattern. One student would send documents to the other student with comments and questions. The other student answered the questions, edited the document and provided further comments. This process continued, until the documents were finalized. In the conference system, the different versions of the documents show that the same documents were discussed and edited several times. This iterative process in which students send documents back and forth shows that communication and selections were supported by the students' use of the conference system.

The study also showed that the students used the conference system to inform each other with ideas, notes, references, links to Web sites, and more. Finally, the conference system was used to collaborate on documents for the project report. The students primarily used the conference system to send back and forth documents with comments for revision and discussion. Below are two examples of comments which were accompanied by documents:

> I have made a preliminary, very rough outline for chapter six. It would be great, if you could come up with an idea for how I should structure the transition from exposure to the three core areas.

> Then I have a question about, whether I have to distinguish between folder and home page throughout [the chapter]. Some forms of appeal are better suited in certain situations rather than others, don't you think?
> (Translated from Danish)

Both groups, especially group B, made many revisions on their documents. A study of the revisions, comments and discussions related to the development of the documents showed that the content has gone through several iterations. As illustrated in figure 2, students made up to 41 revisions within a month.

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[1] This different kind of use of the conference system can partly be explained by the fact that group A were not able to meet as often as group B, because of the geographical distance.

Document	Number of days	Number of revisions in the conference
Document 1	30	6
Document 2	5	5
Document 3	14	13
Document 4	15	5
Document 5	9	14
Document 6	6	8
Document 7	28	41

Figure 2: Examples of numbers of revisions in different documents.

Discussion

From the point of view of the sociological approach, the students' collaboration has initiated communication and thereby supported learning and construction of knowledge. The amount of iterations (in 2) can be seen as selections made by the students.

We argue that the nature of the project work "forced" students to make their own selections. From the chosen sociological approach, the selection process is supported by communication. The many exchanges within the conference system made the students rethink and revise their selections. Thus, the conference system supported this process and can be seen as an enhancement of the face-to-face meetings of the students. According to the students, the written communication within the conference system formed a basis for the face-to-face discussions.

The analysis of the students' communication showed that the students chose to use the conference system for different purposes. In other words, they developed different learning environments based on their ways of working on the project. Thus, the conference system supported the students' self-organized learning environment. The students used the system in their own way without any guidance from the institution.

Although in general, the conference system supported self-governed work of the students, the self-organized learning environment of the students was also limited. The study showed that the students needed tools better suited for collaboration, and, more specifically, for joint work on writing the project report. Further, by design, communication within the groups was closed in the sense that it did not involve other people.

Social Software and Conditions of Learning – A Potential

We argue that other social software tools can help better support self-organized learning environments, and, thus, can supplement the use of asynchronous discussion forums and file sharing. Different social software tools can facilitate students' development of and engagement in networks that are not organized by the educational system. Further, social software supports students' use of resources not provided by the educational system with the intention of reaching specific goals of the educational system. Social software can provide students with opportunities for communication and social relations and empower them to develop self-organized learning environments.

In that respect, social software can be considered a supplement to the organized institutional setting (Author, 2006). Use of social software is not determined by the educational system, and the communication supported by social software does not take place within the institution. Anderson (2005b) suggests:

> "Educational social software can be used effectively to create a type of overlay network to enhance the more formal institutional network consisting of student support, library, tuition, registration and other institutionalized services."
> (Anderson 2005b)

The World Wide Web provides a massive amount of resources. The potential in relation to education is big, but the complexity provides a huge barrier. Search engines like Google do an impressive job, but it is still difficult for an individual to navigate the resources on the Web, and to value their relevance. If project work – which allows students to structure their own work process – is combined with use of social software, it is perhaps possible to empower students to navigate the Web by actively taking it into use as a major resource for their self-governed work.

Social software can provide tools for a personal and individual use of the Web which is based on social networks and communication. Social software enables a personalization and individualization of the Web (Author, 2006). Weblogs can be used to develop relationships with people. Access to weblogs also means access to resources like links to Web sites, papers, references, and so on. Using social software represents an alternative way to navigate the Web than using search engines. Engaging in networks through public discussion forums and weblogs will enable students to find resources through people in their network and will enable students to engage in discussions not controlled by the educational institution.

Weblogs can be used to form networks or communities which can initiate self-organized project related discussions. Social bookmarking can enrich this network by providing students with a network of references from other people. These tools support development of social networks and can therefore facilitate communication and discussions. A wiki – or similar tools – can support the process of collaboration. At the same time, a wiki can be used to present the project for other people. Such tools can support students in their self-governed work; for instance collaboration on writing an assignment.

Especially weblogs provide an example of the potential of social software. Weblogs differ from discussion forums and conferences in an important way. As opposed to discussion forums and conferences, weblogs are owned by the individual student. A study by Andreasen (2006) shows differences in using a discussion forum or weblogs within the same course. Andreasen (2006) concludes:

> "The learning potential that can be said to exist in the use of weblogs in relation to a course conducted over the internet relates partly to the increase in the students' opportunities for making their own voice heard, and partly to the active exchange with and reflection on other students' weblogs."
> (Andreasen, 2006, p. 86)

Andreasen (2006, p. 86) argues that weblogs support development of "individual voices". These individual voices are important to the development of students' independent use of the Web. Students can form their own networks which are opposed to participating in discussion forums within an educational setting. The result is what could be termed 'self-organized networks' – networks developed by students themselves. A similar, but more formalized approach is suggested by Koper (2004b; 2004c; 2005) who uses the concept of 'learning network':

> "Self-organised learning networks provide a base for the establishment of a form of education that goes beyond course and curriculum centric models, and envisions a learner-centred and learner controlled model of lifelong learning." (Koper 2004c: 1)

The use of social software suggested above takes Koper's approach a step further. Self-organized networks are completely organized by the students without any influence from the educational institution.

Conclusion

According to the systems theoretical approach, an educational institution cannot control a psychic system, because the system is closed, self-referential, and autonomous. In other words, all selections are system dependent. Following that perspective, a learning process can, however, be initiated and framed by formalized conditions, and, given the "right" conditions, can develop self-governed activities in students' self-organized learning environment. The consequence is that learning processes are not controlled by the educational institution, and that learning and communication are not limited to the teaching and the use of resources provided by the educational institution.

The study of the two project groups suggests that a conference system offering asynchronous discussion forums and file sharing has the potential to support students' self-organized learning environment. Our study showed that students have competences to choose the right media during self-governed activities. Given that students are allowed to work independently and are provided with a range of tools, they are excellent in choosing the right media in a given context. For instance, students used face-to-face meetings to discuss and negotiate complex matters, whereas they used online discussions forums to exchange reflections during their project work.

We have argued that other social software tools – including, weblogs, wikis, social bookmarking and RSS feeds – can further empower students to develop fruitful self-organized learning environments which support self-governed activities. In other words, social software tools can provide fruitful conditions for students' self-organized learning environments.

Our empirical study points towards a need for further research which first of all aims at developing and studying campus-based courses which employ a wider range of social software tools. Further, although there is a potential in social software to support self-organized learning environments, there is also a challenge in facilitating students' use of the tools and making them aware of the possibilities of the technology. The students in both groups were not expert users, but were nevertheless able to use the system. However, it was also obvious that the students were unaware of certain features that might have been useful for them. This touches upon an important issue concerning the challenge of teaching students how to use digital media, such as a conference system. What tools are relevant, and how can teachers present tools for students?

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Negotiating Teacher Identity and Power in Online Poly-Synchronous Environments: A Heuristic Inquiry

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Keywords: identity, power, online learning, distance learning, distance education, teacher education, teacher training, synchronous learning, asynchronous learning, faculty development

Introduction

The start of the twenty-first century has witnessed an explosion of interest in incorporating technology into higher education. A number of studies have undertaken the task of exploring how computers have been used, have affected learning outcomes, and how the computer has changed the practices of the classroom (see, for example, Johnson & DeSpain, 2001). A strong tendency toward a focus on the learner has contributed significantly to a more complete understanding of the media-enhanced classroom (see, for example, Zarghami & Hausafus, 2002; MacDonald, 2003). This bias toward learner outcomes, design, and implementation has resulted in a number of studies that focus on and attempt to treat pragmatic issues of design and implementation of distance learning from the faculty point of view. In these studies the usual suspects are present such as an increase in faculty workload, incentives for faculty to develop and teach in online formats and issues of sufficient time and training to successfully implement such courses (see White & Myers, 2001; Dibiase & Rademacher, 2005; Lawhon & Ennis-Cole, 2005 & Vodanovich & Piotrowski, 2005). However, there are few studies that focus on the issues that affect professors and lecturers of graduate student teacher training programs in terms of identity, power, and professional satisfaction and growth. While Bennett and Lockyer (2004) proposed that new teaching practices must be adopted in an online age, these were addressed in terms of how such practices must evolve to accommodate the needs of students. Though no one would dispute that meeting student needs is central to the work of educators, turning a blind eye to teacher identity and self-concept in this developing age of technology transforms the teacher into another online course tool or the proverbial "man behind the curtain." Specifically, concerns of this nature fall under the domain of identity and power. As the classroom experience becomes more high tech and the physical parameters of the classroom change, so too must we re-evaluate ourselves as teachers and understand how our teaching identities change along the spectrum of the virtual classroom and how identity interplays with issues of power.

Attaining a single general theory of identity has proven to be somewhat elusive in all areas of study that seek to understand it. Researchers today opt for a blended understanding of identity that mirrors a more interdisciplinary concept of multiple approaches or choose to unify currently existing theories within the same field, distinguishing differences of emphases (see, for example, Varghese, Morgan, Johnston, & Johnson, 2005; Stets & Burke, 2000; Hogg, Terry, & White, 1995). All agree that identity is discursively created, complex, and dynamic depending on the roles and contexts in which we display ourselves. Of particular interest for this study is Zembylas' (2003 and 2005) poststructuralist perspective which links identity with power at the affective level. He claims that "construction of teacher identity is at bottom affective, and is dependent upon power and agency and an investigation of the emotional components of teacher identity yields a richer understanding of the teacher self" (p. 213). If this is the theoretical case, then issues of power must, by nature, be just as complex and dynamic. In fact, researchers such as

Wood and Fasset (2003) advocate a conceptualization of power as "distributed, embodied, and malleable" (p. 286). It therefore becomes evident that research must also begin to examine not only the changing face of education, but also the affects of these changes on those who deliver it as well as the affects of these changes on those who receive it. McShane (2004) addresses this fact indicating a desire for more qualitative "inquiry into the professional lives and subjective experiences of online lecturers" (p. 5) and Novek (1998) identified depersonalization and fear of alienation of students as being major concerns in a study of 135 faculty members.

Traditionally, research on online and distance learning has identified two virtual environments, synchronous and asynchronous. However, we will argue that such interaction actually takes place in a poly-synchronous time-space continuum in which there exists a set of synchronistic sub-types. (See Figure 1) We define poly-synchronicity as the all-encompassing paradigm of time and space within the virtual learning environment. Within the poly-synchronous realm, we identify asynchronicity, synchronicity and a third which we will name dis-synchronicity as is defined as the experience of being involuntarily taken out of synchronous interaction by either human or technical means. It is important to define dis-synchronicity as not merely a technical glitch or interruption of connectivity to the internet. Rather, it is the locus of a socio-affective significant event. This study explores issues of teacher identity and power as they develop within these zones of cyber-interaction.
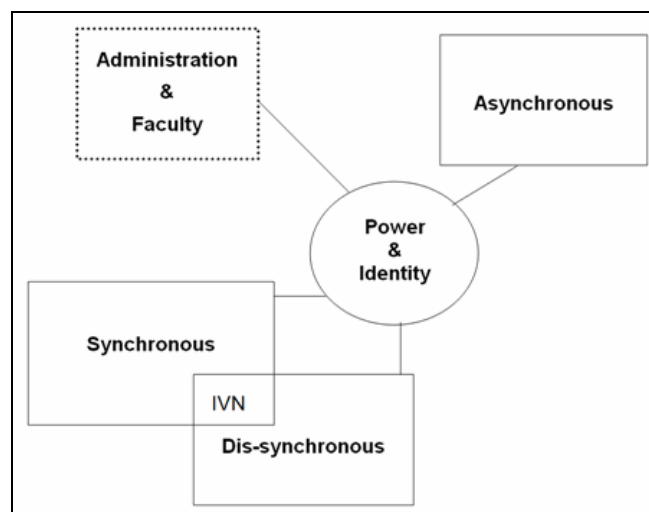

Figure 1. Model of Identity and Power in the Poly-synchronous Environment

Methodology

Two faculty members at the same department were involved in graduate instruction in online environments. One instructor, via collaborative hybrid Interactive Video Network (IVN) and WebCT summer courses which included both synchronous and asynchronous modes. The other faculty member used a WebCT format in which both synchronicities were also used.

However, while the instructors were engaged in different online learning environments, both experienced similar feelings of loss of power and identity over the course of instruction. As these instructors, hereafter referred to as John and Ann[2], will be directly involved in teaching courses of

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[2] Names have been changed

a similar nature in the future, it becomes imperative that these issues of power and identity be addressed.

The germ of the present research began as a simple conversation between John and Ann as they shared stories of their experiences working in an online environment. Continued discussion led to the emergence of common threads between two different online teaching experiences, which in turn prompted them to engage in a heuristic inquiry of power and teacher identity in the online environment.

Patton (2002) posed the following as a guiding question of heuristic inquiry: "What is my experience of this phenomenon and the essential experience of others who also experience this phenomenon?" (p. 107). That is to say that this approach, unlike many others, involves the researcher as a primary participant within the study. In essence, the lived experience, undertaken through considerable reflection of the researcher, is at the heart of any heuristic inquiry. However, heuristic inquiry is not just the simple act of describing one's experiences, but rather a structured approach to inner reflection that culminates in sharing one's experience with others who have undergone the same process. As Douglas and Moustakas (1985) state, "Heuristics is concerned with meanings, not measurements; with essence, not appearance; with quality, not quantity; with experience, not behavior." (p. 42). Therefore, as the educational environment continues to evolve as a virtual entity, placing instructors in new roles with new challenges and questions of identity, it is appropriate that any research of this kind look to those who deliver such types of instruction. As it is the efforts of those instructors who will continue to propel education in this direction, it is only fitting that an investigation of the perceived changes that take place within them as instructors be carried out in a firsthand and deeply personal way (See Hiles, 2001 and 2002).

By engaging in heuristic inquiry, instructors may find solace in knowing that they share many aspects of similar experiences with one another, lending credibility and consequently recognition of the effects of the changing face of education on faculty members. Kleining and Witt (2000: online) assert in their four rules of heuristic inquiry that, "The analysis is directed toward discovery of similarities…It tries to overcome differences." It is important to note that participants in heuristic inquiry need not have identical experiences, but rather that they discover commonalities. For example, as Miles and Huberman (1994) state, when working with qualitative data, "…you may find several routes to the same outcome. Or you may find that different cases have different routes to *different* outcomes." (p. 208). West (2001) also states that "Using heuristics we need to be mindful that we are collecting stories about phenomena that have their own truth to participants", nonetheless, he also states that "it [heuristic inquiry] provides access to material which an outsider would take a longer time to reach and maybe never reach. (p. 130). This will become key in our discussion of the similarity in issues of power and identity of John and Ann, who had different online teaching experiences.

In order to understand the heuristic process, we must give some attention to the phases of it set forth by Moustakas (1990). These six phases include: initial engagement, immersion, incubation, illumination, explication, and finally, creative synthesis. In the first phase, initial engagement, John and Ann struggled to clearly identify exactly what had led to feelings of isolation, distance, and compromised power in their respective online courses. The second stage, immersion, was an ongoing task the two continued to reflect on previous as well as current work in the online environments and begin to recognize those elements of online instruction that contributed to the question at hand. During the incubation phase, John and Ann spent a considerable amount of time discussing, redefining and re-evaluating their thoughts on their experiences, as both prepared for another term in which they would teach their online courses. It was through this discussion that they were able to move into the fourth phase, illumination, in which new connections were made involving the teacher's role in online instruction and the impact on identity. In the next phase,

explication, John and Ann were able to more definitely classify the poly-synchronous modes that led to their concerns. The remainder of the present research will represent the phase of creative synthesis, in which the two participant-researchers seek to construct a model of the poly-synchronous learning environment and subsequent impact on power and teacher identity. As the reflections of the two instructors involved in the current study will show, these phases do not represent a linear process, but rather an ongoing evaluation of, in this case, the affects on teacher identity and power that result from delivering online instruction.

Teaching Contexts

John's courses occurred over two summers. During the first summer he functioned as a facilitator in Mexico of the IVN portion of two courses, a graduate seminar in sociolinguistics and a methods course. For the first two weeks, students worked independently by completing various readings and assignments that were posted on a WebCT course page. For the next eight days, students met on-site at two universities, one in the United States and the other in Mexico. Both classes connected via IVN everyday for approximately five hours per day, with one meeting in the morning and the second in the afternoon. The morning and afternoon courses in the U.S. were taught by Sam and Karen, colleagues, while John maintained both courses at the site in Mexico, taking on the role of teacher and technology facilitator. The remaining weeks of the courses were again spent independently by the students completing the course assignments via WebCT and reflecting on material discussed during the IVN portion. During the second summer, John took full control of the entire online environment, both WebCT and IVN, and was the instructor of record for a graduate seminar in applied linguistics. As a hybrid, the course's first three weeks were conducted through WebCT. The next four days were taught through IVN from the university in the United States and then John traveled to Mexico to finish the next four days of the IVN portion from Mexico. The course then reverted back to the WebCT format until its conclusion.

Ann, meanwhile, taught two graduate courses wholly online via WebCT. The components of both courses consisted of various reading assignments, participation in discussion boards and a weekly one-hour chat. Ann was the sole instructor, as well as the technology facilitator, for both courses. Different from John's courses, all of which were taught in English, one of Ann's courses was conducted entirely in Spanish. In addition, both of these classes were taught over the course of an entire sixteen-week semester rather than during an intensive summer session. Enrollment in the English-language course figured at 18 students, and 8 students in the Spanish-language course.

Results

Identity and Power within Poly-synchronous Modes

Through the inquiry, John and Ann found they experienced similar feelings regarding power and teacher identity that were conditioned under the various synchronous contexts created by online learning.

The Asynchronous Mode

It seems a logical assertion that the asynchronous mode would by its very nature produce issues of power and teacher identity as the instructor is not an active participant in the learning environment. In the case of Ann's course, the asynchronous environment is defined as the discussion board component of both WebCT courses, to which students were asked to respond at threads begun by the instructor. The expectation was that students would post at least 45 substantive responses throughout the course of the semester. At the beginning of the semester, Ann was able to maintain a positive sense of identity as the instructor for the course by posting discussion questions she believed would generate thoughtful discussion of the course material,

rather than a workshop-like atmosphere where students would simply trade activities and techniques that they used in their own courses. Furthermore, since the goal of the discussion board was to promote autonomous learning and in-depth dialogue amongst the students, Ann felt that it was imperative to limit her involvement in the discussions to that of the one to post the original question; which seemed a natural approach so as not to wield too much power over the students in the development of the discussions. However, as the semester progressed, Ann noticed that the students were participating very little in the discussion board, and what few posts had been made were in fact the very type she had sought to avoid. This created an inner conflict for Ann because she began to feel certain that in a traditional classroom environment, students would be more responsive to discussion prompts and that in fact the anonymity provided by the online environment allowed students to take on a more passive role in the course. In this mode, Ann felt a diminished sense of power to adequately steer the discussion of the course and that her role had been reduced to simply that of Webmaster; ensuring that the infrastructure of the course was running smoothly rather than attending to content as well.

During the first summer, John's role as facilitator precluded his involvement in the WebCT segment of the classes. However, during the second summer as instructor of record John's asynchronous environment utilized WebCT's discussion board component. Students were to post a total of at least 25 responses to both readings and other students' postings in the hope of creating an autonomous student-centered learning environment where students could reflect on their own L2 acquisition as it pertained to the readings and to other students in the class. Like Ann, John too posted initial guiding questions based on the first readings of the course. Many of the students responded to the initial prompts, however, participation soon waned and became reduced to shorter blurbs that expressed agreement with what other students had posted. Some students elaborated and posted significant responses that tied chapter topics to their own L2 acquisition process. Others, on the other hand, were posting responses that still reflected uncertainty with WebCT itself. One student even talked to John face to face claiming that she did not find the discussion board useful at all.

In essence, John felt that a significant portion of his teacher identity had been removed the picture. Namely, his teaching personality or style, which contributes to the rapport created between teacher and students, had become compromised in the discussion boards. The discussion board was pure business and nothing of his teaching personality could be gleaned from the original prompts. In terms of power, John felt that it had been reduced to virtually nothing because of his original desire to create autonomy in learning. He also surmised that students were either unwilling to participate or were participating minimally because of a credibility gap amongst students themselves. The authority had been removed and students simply agreed with each other often, but were not being reinforced by a figure of authority.

To combat this, during the course of the semester he began to post more of his own responses to student responses. The effect was immediate. Once he became more involved students began to participate more. His responses became the magnet that created more threads in the discussion board. While pleased at the increase in student responses, he was also let down by the fact that the autonomous learning environment he had hoped to create could only be achieved via his direct authority, thereby creating what could only be deemed as a semi-autonomous environment. In terms of identity, little of his teaching personality could be construed due to the fact that it was pure business. Therefore, at the asynchronous level, more guiding and prompting needs to occur as many students may feel lost without it. True autonomy in learning, in John's experience, is nothing more that wishful thinking as the technology remains very new to so many people.

The Synchronous Mode

In the case of Ann's course, the synchronous environment was represented by the weekly hour-long chat, in which all students participated. Given the number enrolled in the course, students were randomly placed into chat groups, the end result being four groups of four students. These groups were re-arranged every three or four weeks during the semester so as to give students the opportunity to interact with different classmates. Each week one student was assigned the role of the facilitator, who moderated the discussion within his or her chat room. Ann sent the discussion questions to the facilitator several hours prior to each discussion. Ann was also logged on to each chat room to participate in each group's discussions.

Once the students became familiar with the chat system, the chat sessions ran very smoothly; the students were engaged in conversation and each group developed their own style of moderating the discussions. Ann began to notice that the conversations during the chat sessions moved at an astounding pace, with students quickly firing off questions and responses to one another. This presented a problem for Ann, who was trying to maintain a presence in all four chat rooms. Even when she focused on just one chat group at a time, she found it difficult to contribute to the discussion since every time she entered a new group; she had to play catch-up on the group's dialogue up to that point. Although this was exactly the level of interaction Ann had hoped for in other aspects of the course, such as the asynchronous discussion board, in this synchronous environment Ann's sense of identity was again diminished by trying to maintain discussions with four different groups, all of whom where engaged in a very fast-paced dialogue. In several instances Ann believed that her presence would not have been missed had she not logged on to the chats. While this kind of student interaction, as previously mentioned, may be the ideal from a teacher's point of view, in the online environment, it led Ann to feel isolated and disconnected from the discussions with the students. Although Ann normally enjoyed the role of "guide" in discussions, this fast-paced synchronous environment left her feeling very much like a fly on the wall. Ultimately Ann began to believe that had the course taken place in a more traditional classroom format, she would have had more power to participate in the discussions in a way that would have allowed her to ask more questions of the discussion groups in an effort to add depth and insight to the activity at hand.

At the conclusion of the semester in which this course took place, Ann was asked to pilot a new feature of WebCT in the spring. This feature would allow for live audio conversation to take place during online meeting sessions rather than the typed chats which had been used before and could possible resolve some of the issues Ann had experienced in the synchronous mode during her other courses. Having been approached by the department head, Ann reluctantly agreed to the pilot, feeling that politically it would have been hard for her to say no. Ann's willingness to teach the online courses during the fall semester had labeled her somewhat of a "techie", and an adventurous one at that, willing to try new innovations. After careful reflection, Ann realized that her sense of identity and power were being challenged. Ann would have been less inclined to agree to the pilot had the request not been made by her department chair, who was very enthusiastic himself about implementing new technologies and incorporating them into the courses offered by the department. Since in the department head's eyes Ann was becoming someone who would be willing to try new technologies in her classes, she felt that she could not refuse the request. Furthermore, Ann realized that her professional identity was also heading in a new direction, though not necessarily by her own choice, nor in one that she was comfortable with. Although Ann did enjoy learning how to use new technologies and their instructional applications, it was not her passion as an academic, and her involvement in such endeavors took her away from her true interests.

The synchronous portion of John's first summer experience was unique as several themes emerged, from perceived unequal power, which affected aspects of his teacher identity. With Sam

in the United States and John in Mexico, both classes were linked via IVN. Sam's role as lead teacher implied that he would take charge of lectures. Again, students and faculty on site in Mexico interacted with those in the United States. Some very good topics of discussion were generated and the rapport of both sites was outstanding. It was determined early on that the presence of a faculty member serving at both sites would best optimize the usage of the IVN in case of an unforeseen problem with the connection. The result was generally very positive with John contributing to the lecture at appropriate points that highlighted what Sam was lecturing. While there was a significant amount of contribution from both faculty members, unequal power played a role in affecting issues of efficacy from John's perspective because of the fact that John is untenured and Sam is tenured. This issue developed as a result of what Martyn (1997) referred to as the interlocutor effect. Martyn's study dealt with learners' production of language and how it changed in the presence of different interlocutors producing varying levels of comfort depending on the person being talked to, by extension, the same thing occurred to John during the collaborative teaching component of the IVN.

Given the previous discussion of unequal power relations, John often felt as if he had to rethink how he was presenting himself to the class. This is not a surprising discovery since aspects of identity certainly change if one believes that they are being watched. Furthermore, much of the discussion was collaborative and more akin to a conversation than a lecture. Conversation is collaborative as well and an individual who has more social power, as in Sam's case, will tend to exude more control over the turn-taking mechanism. Karen, the teacher of the Methods course, disclosed this feeling too. As John watched her teach from Mexico, she was noticeably uncomfortable with the IVN component and often would email John revealing that she felt like she was being watched. Again, the interlocutor effect created by unequal power amongst the faculty participants caused both John and Karen to feel a little constrained and with heightened anxiety thus forcing them to renegotiate their teacher identities. During the second summer John split the IVN portion in two and spent four days in the US classroom and four days in the Mexican classroom in contact with both sites. This face to face component at both sites increased his comfort level with both classes and his sense of teaching identity was normalized.

The Dis-synchronous Mode

During the chat sessions, Ann also experienced issues of power and identity in what has been coined in this paper as the dis-synchronous realm. A feature of the WebCT chat function is that of a private message; one sent to another in the chat room that can be viewed only by the sender and the recipient. It was only by accident that during one session, a student in the chat room in which Ann was participating that a student mistakenly selected her to receive a private message intended for another student. The content of the message referred to an upcoming assignment, and that the students believed Ann's requirements to be too demanding. While Ann had already been aware of these sentiments by several students in the course, the use of the private message system during the chat session led to feelings of being "taken out" of the conversation involuntarily, as these inter-personal mini-discussions were clearly taking place without her knowledge. Serious feelings of diminished power arose from this experience in the dis-synchronous realm. Although at times Ann had felt removed from the synchronous discussion of the chats sessions, she had been able to take strides in trying to maintain her presence in them. However, through the private message system, she was powerless to do anything of the kind. The synchronous environment often produces moments of dis-synchronicity when the simultaneous nature of the discussion becomes compromised involuntarily. One can conceptualize the synchronous environment, both chat and IVN, as a wave that flows back and forth between the interlocutors. This wave, as any wave, will have its peaks and its troughs. At their peak, everything appears to be in real time, however, there are occasional moments when involuntary glitches, or troughs, occur. In an email correspondence John wrote to Ann he states:

> In any event, there is about a two second delay in the transmission of IVN. Often this occurs at a transitionally relevant position to a next turn in a conversation. Well, what do we do when we watch TV? A lot of watching. You actually see for just a couple of seconds people just staring at you. The effect is actually quite chilling. When, in a normally flowing conversation, we approach the end of a statement, an audible and visual next turn is expected, but in this case, we see a sustained gaze. The two second delay is enough to produce a noticeable sense of deviation from the norm and internalize an emotional reaction.

In this case it was the gaze of the audience and teachers at the other end. The transitionally relevant place in the turn-taking mechanism of a conversation at times becomes compromised during the IVN component and affects delivery at the affective level.

Implications

Implications of this study indicate that teachers and stakeholders and those involved in the decision-making process of implementation of online course delivery, as well as teachers, need a more complete understanding of online teaching as it pertains to instructor identity and power. An example of this would be the hybrid collaboration that took place at this university. Teachers need to fully understand the issues of unequal power as it plays out in collaborative pedagogy. Different teacher personality traits and teacher identities may be more at ease with this type of course delivery as they interact with other members of the their own departments or other faculty. Germane to this point is the issue of a more self-actualized faculty who understand themselves and their own capabilities and comfort with technology. Faculty need to be realistic with themselves before committing to participating in an online course environment by understanding that they may face challenges other than issues of training and logistics. They should actively confer with faculty members also involved in online learning in order to share their feelings and experiences as instructors. Such interactions would be beneficial in helping instructors feel less isolated during such courses, and prepare them for future courses. By highlighting the differences between online teaching and the traditional classroom teachers can develop their own coping strategies as they pertain to power and identity and come to terms with expectations that they may have which may affect the outcomes of the course. Furthermore, instructors must realize that issues of identity and power do not end with chat session. The ramifications of these issues are profound and will continue to manifest and impact a teacher's identity and sense of power long after the conclusion of a course.

Additionally, expectations that stakeholders, such as administrators, and participants have about results of the online course are better understood through the experience of others during the process of delivery. While much research will continue to focus on student learning outcomes of online instruction, significant consideration must now also be given to the effects it has on those who teach it. Administrators and training specialists must be aware that teaching online is not simply a matter of uploading documents and managing copious amounts of email, but rather a serious undertaking by instructors who will be challenged in their sense of self and their role in a new instructional format. They must also become aware of type-casting, so to speak, certain instructors as those who are always willing to experiment in their courses with new technologies. Administrators and training specialists should actively seek feedback from instructors regarding online instruction that encompasses more than incentives and impact on workload. They should not lose sight of the human factor in what could be seen as the dehumanization of education.

Conclusion

In this paper we have identified teacher identity and power as issues which merit exploration in our emerging online learning communities. By defining the fields in which these concepts occur, a more coherent picture of identity and power as they relate to graduate lecturers and their thoughts behind the scenes is obtained. Asynchronously, Ann's belief that students would challenge themselves intellectually via the face-diminished context of the online environment resulted in a diminished sense of power to control the discussion boards discursively. John's experience within the context of being untenured and working with a tenured individual of considerable power affected his sense of efficacy in his affective teacher identity. Synchronously, both John's and Ann's teacher identity was affected discursively. Ann's chat experience left her isolated and distant from the multitude of discussions, unable to respond enough and John's awareness of "being watched" via IVN led him to be more disciplined with his word choice and self-presentation. Dis-synchronously, both John and Ann were involuntarily taken out of the synchronous mode either by the voluntary decision by another to exclude or an electronic glitch of timing. The common denominator in the two experiences at this level is again discursive. Ann lost her voice. She was effectively the unintended recipient of a message and remained powerless to do anything about it. In John's case, the delay affected the turn-taking mechanism of normal conversation which had affective ramifications.

Given the dynamic nature of teacher identity and issues of power, every individual teacher who engages in some form of online teaching is bound to have a particular set of circumstances that affect their teacher identities. The shared experiences of John and Ann have supported the need for further investigation into online teaching contexts as they impinge upon concepts of our teaching selves which are inherently personal experiences.

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Editor's Note: TAM is an excellent Technology Acceptance Model. Educational institutions have the challenge to migrate to eLearning using this verified model for implementation.

Factors Influencing the Acceptance of e-Learning Courses for Mainstream Faculty in Higher Institutions[3]

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Korea

Abstract

E-Learning is a neologism that encapsulates a range of learning modalities in which students process information electronically rather than through face-to-face contact with others (i.e., teachers and other students) or through traditional paper-based modes of expression and communication. In a school setting, e-learning implies teacher-directed learning activities using computers, including, for example, completing and submitting assignments electronically, participating in group "chats" involving near-simultaneous written dialogue, and obtaining teacher feedback electronically. The potential benefits of e-learning are many, including cost-effectiveness, enhanced responsiveness to changing circumstances, consistency, timely content, accessibility, and more rapid feedback provide customer value. The proponents of e-learning stress the importance of using communities of interest to support and enhance the learning process. They also emphasizes that people learn more effectively when they interact and are involved with people participating in similar endeavors.

Although the use of e-learning in higher education has significantly increased over the past decade, resistance to new uses of technology by professors and lecturers in university and colleges worldwide remains high. The purpose of this study is to identify the determinants of professors' intentions to increase their use of e-learning methods in universities. A survey of a sample of Korean university professors was used to investigate a proposed model of influence, and structural equation modeling was used to analyze the results.

The hypothesized model was largely supported by this analysis, and the overall results indicate that intentions are mainly influenced by two factors - perceived ease of use of e-learning and its perceived usefulness, with perceived ease of use being influenced by the technical support available and, to a lesser extent, both factors being influenced by prior experience in e-learning use. As in other research built from the Technology Acceptance Model (TAM), it can be concluded that Perceived Ease of Use and Perceived Usefulness are critical to the future use of e-learning systems.

Keyword: higher education, information and communication technology, e-learning, distance learning, structural equation model, Technology Acceptance Model (TAM)

Introduction

The new information and communication technologies, over the past decade, have had an enormous impact on all levels of education in Korea, as they have elsewhere in the developed world. E-learning in Korea has been expanding rapidly in many sectors due to the well-

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established infrastructure of the internet. Two illustrations of the success of e-learning are the emergence of cyber-universities offering higher and lifelong education totally without a physical campus, and the huge market for online training programs developed in the private sector. In Korea, the e-learning market generated 1.3 billion dollars of earnings in 2004, and is expected to grow to 4.4 billion dollars by 2010 (KERIS, 2006).

Despite this growth, professors in many higher education institutions that are well equipped with e-learning technologies are still reluctant to use them on a widespread basis in their teaching.

E-learning technologies have the potential to rescue the isolated and underprivileged students from their loneliness and improve the effectiveness of learning, by providing immediate and individualized interactions with professors, tutors and peer-students. Despite all the positive assertions about the impact that e-learning has on higher education, many faculties remain skeptical about the effectiveness of e-learning and its related technologies. E-learning technologies require professors to adapt to a new way of communicating with their students as well as a new orchestration of learning activities (Dillon and Walsh, 1992; Smith et. al, 2000). Many roles and functions change when faculty incorporate new information and communication technologies into their teaching (Gunawardena, 1992; Baldwin, 1998).

Most of faculties that are reluctant to try e-learning courses prefer the face-to-face contact with their students and want to have a complete control over the flow of teaching materials which they prepared for the courses. In addition, for example, professors are not used to planning interactive teaching strategies in advance of planning their delivery of content. Wolcott (1993) stressed that it is particularly challenging for university faculty to focus on instructional activities, because most faculties are trained to become expert in content areas, not in teaching planning. Another factor hindering the participation in teaching through e-learning may be the limitation of resource allocated for e-learning content development (O'Quinn and Corry, 2003). Many institutions expect their faculties to develop content on their own time with little institutional help or resources. With limited resource allocated for e-learning, fostering e-learning technology acceptance among faculties in higher institutions remains a critical challenge for administrators.

Faculties in higher institutions differ from general end-users of information technology in business settings. For instance, professors are independent and have complete control over what they teach and how they teach. Such characteristics affect faculty adoption of new technologies, and, as a result, the literature on technology adoption processes in private industry may not fully apply to the university setting (Hu et. al, 2003).

This research is concerned with e-learning intentions and plans by faculties in higher education institutions. The goal of the research discussed here is to help us understand the factors influencing the usage and acceptance of e-learning, particularly in Korean higher education institutions. We employ a modified version of the Technology Acceptance Model (TAM), a model which has been widely used and empirically validated to explain why individuals use a particular information technology (IT). In studies using the Technology Acceptance Model, users' perceptions of both the usefulness of IT and its ease-of-use have been found to be key determinants of individual technology adoption (Hsu & Lu, 2004). However, factors motivating the acceptance of e-learning as a particular form of IT may differ from findings based on other IT environments, including traditional off-line IT. This research proposes that additional variables, such as institutional support, uneasiness in preparing e-learning content and e-learning course experiences, enhance our understanding of behaviors of university faculty in accepting e-learning as a teaching strategy. In this study, a structural equation model is employed with survey data from 156 professors in Korean universities to empirically assess the strength of the relationships in the proposed model.

The remainder of this paper is organized as follows: In Section 2, we give a brief review of the previous studies using TAM and extensions of it applied to a variety of IT fields, and then discuss some possible extensions that might apply particularly to instructional settings in higher education. In Section 3, a research model is presented based on the literature review. Section 4 presents the research methodology employed to test the proposed hypotheses, and Section 5 gives the statistical results from analysis. We conclude the paper with a brief discussion of these results, and implications for researchers.

Theoretical Background

Technology Acceptance Model

TAM has received considerable attention from researchers in the information systems field over the past decade. The theoretical basis of TAM can be found in Fishbein and Ajzen's (1975) theory of reasoned action (TRA). In TRA, an individual's belief influences attitudes, which in turn trigger behavioral intentions and then actual behaviors. TAM proposed by Davis (1989) adapted this belief attitude-intention-behavior chain to understand the determinants of IT acceptance and use.

Davis attempts to explain an individual's actual behaviors or behavioral intentions, based upon the user's perception of the usefulness (PU) and the ease of use (PEU) of a particular IT (Davis, 1989). Both PU and PEU influence the individual's attitude towards that IT use, their intentions to use it, and their actual use. In addition, TAM assumes that Perception of Ease of Use (PEU) also influences a user's Perception of Usefulness (PU) of that IT application.

Many of subsequent studies have extended the original version of TAM to incorporate additional variables with specific contexts. For instance, in studying people's acceptance of the World Wide Web, Moon and Kim (2001) proposed a new construct called "perceived playfulness." Other constructs, such as perceived enjoyment (Teo, Lim and Lai, 1999), perceived critical mass (Luo and Strong, 2000), compatibility in virtual stores (Chen, Gillenson, and Sherrell, 2002), and flow (Hsu and Lu, 2003; Novak, Hoffman, and Yung, 2000) have been added to TAM in e-commerce, multimedia operation and on-line game applications of the theory. And in some studies, the key construct of "attitudes" in the original TAM has been dropped from consideration. Davis, Bagozzi, and Warshaw (1992) found that attitudes do not play a significant role in predicting IT use, and thus several of the subsequent studies did not include the attitude in the model (Igbaria et al., 1997; Venkatesh, 2000; Venkatesh and Davis, 2000).

In most of the TAM related research, considerable efforts have been made to introduce and test a new set of antecedents of perceived usefulness and perceived ease of use. Based on empirical studies by Venkatesh and Davis (1996) and Venkatesh (2000), Venkatesh (2000) lists control, intrinsic motivation, and emotion as responsible for perceived ease of use, where "control" can be interpreted as meaning self-efficacy. According to Bandura (1986), self-efficacy is defined as "people's judgment of their capabilities to organize and execute a course of action required to attain designated types of performances." In other words, self-efficacy is a person's beliefs about his or her ability to accomplish a particular task.

Another important antecedent of PEU is "facilitating conditions." Facilitating conditions refer to "objective factors, 'out there' in the environment, that several judges or observers can agree make an act easy to do" (Triandis, 1980). User judgment of difficulty in using a system will incorporate external dimension of control. External control is expected to exert its influence in the form of resource facilitating conditions. Facilitating conditions serve as situational anchors in the formation of PEU. For instance, Chang, Cheung, and Lai (2000) and Chang and Cheung (2001) studied factors affecting the acceptance of the World Wide Web in workplace settings. In e-

learning settings, facilitating conditions might include hardware, software, university policy, etc., that allow faculty to access the expert supports provided by higher institutions.

With respect to the antecedents of perceived usefulness (PU), Venkatesh and Davis (2000) proposed TAM2, in which social influence processes and cognitive instrumental processes are incorporated into the original TAM. The social influence construct emphasizes what the authors refer to as "subjective norms." Subjective norms refer to a person's perception that people who are important to him or her (called "referents") think one should or should not perform the behavior in question (Fishbein and Ajzen, 1975, p. 302). Subjective norms tend to make one incorporate the referent's beliefs into one's own belief structure and thus generate a profound impact on shaping a person's behavior. Theories of conformity in social psychology suggest that group members tend to comply with the group norm, and moreover that these in turn influence the perceptions and behavior of members (Lascu and Zinkhan, 1999). Thus, if one's referents believe a particular innovation is useful, one may come to believe that it is actually useful. In previous studies, subjective norms are included as a direct determinant of perceived usefulness.

Factors affecting e-learning acceptance by faculty

Although the literature on factors affecting university faculty regarding e-learning is limited, there are several interesting studies that discuss motivators and inhibitors for use of e-learning in teaching.

Ertmer (1999) identified two types of barriers, external (related to technical skills needed to operate a computer and use internet) and internal (concerned with intrinsic motivation and fundamental beliefs about current practice). He stressed the importance of clarifying the relationship between these different types of barriers or that delineates effective strategies for addressing different barriers. Betts (1998) looked at the motivation behind the use of distance education and found that faculty were motivated by intrinsic factors (e.g., challenge) and were inhibited by lack of release time and technical support. Rockwell, Schauser, Fritz and Marx (1999) also published similar results.

Schifter (2000, 2002) studied two other factors for their impact on a faculty member's intention to offer an e-learning course: personal needs (e.g., saving time and monetary rewards) and extrinsic motives (e.g., a requirement of one's department and support of school officials). Their data showed that faculty who had taught online was more likely to name intrinsic motives while those who had not were more likely to name extrinsic motives. Fredericksen, Pickett, Shea, Pelz and Swan (2000) drew similar conclusions, suggesting that faculty motivated to offer e-learning courses rated the experiences more satisfying than those where motivation was a fear of being left behind. To increase the number of participating faculty and cumulative experiences in e-learning courses, rewarding faculty and releasing time for training need to be considered (O'Quinn and Corry, 2003).

Development of the Research Model

Figure 1 illustrates the extended version of TAM examined in this research. Our model uses TAM but excludes attitudes, mainly because of its limited mediation effects on intended behaviors, as discussed in Davis et al. (1989). It also asserts that the intention to develop and offer e-learning courses is a function of its perceived usefulness by faculty, perceived ease-of-use, and the uneasiness that faculty feel in offering courses in a digital form. In the context of e-learning acceptance by faculty, Perceived usefulness can be defined as the extent to which faculty members believe that developing and offering e-learning courses would improve the quality and effectiveness of their courses, whereas perceived ease-of-use refers to the extent to which faculty members believe that developing and offering e-learning courses is relatively easy to accomplish. In terms of the other elements in the model, uneasiness of faculty and prior experience in e-

learning courses are hypothesized to be directly related to perceived usefulness of e-learning. We also propose that experiences in e-learning courses and facilitating conditions directly affect perceived ease-of-use.
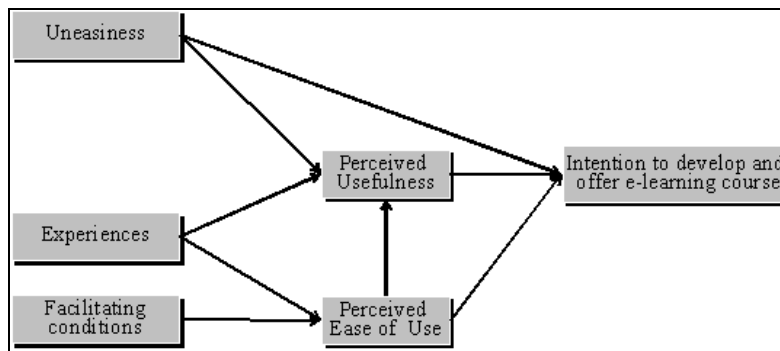

Figure 1. Proposed Structure model

Since this research model is an extended TAM, the following TAM-related hypotheses are proposed in the context of e-learning acceptance:

Hypothesis 1. Perceived usefulness is positively related to intention to offer an e-learning course.

Hypothesis 2. Perceived ease of use in developing and offering e-learning course is positively related to perceived usefulness of e-learning course.

Hypothesis 3. Perceived ease of use is positively related to intention to offer e-learning course, even beyond its mediation by perceived usefulness.

To develop and offer e-learning courses, faculty need to follow a number of steps: planning and developing curriculum content, developing supporting materials for tutors, integrating multimedia applications, providing feedback to course content, implementing various teaching techniques and strategies, etc. During the course of development, all the educational materials for the course are being digitized and transformed into web-based publication, which enables the open sharing of the teaching materials and strategies with enrolled students and later on with their fellow educators and other students who are interested in topics discussed in course materials. E-learning courses provide users with open access to the syllabi, lecture notes, homework problem solutions, exams, reference lists, even some video clips from lectures. Making faculty's core teaching materials openly available for anyone with access to the Internet may have some negative impact on faculty, who feel uncomfortable with openness, by its nature, of e-learning. In principle, by sharing course materials, along with their teaching know-how and experiences in developing courseware publication process, one can inspire fellow faculties to share their course content, hopefully creating a knowledge web for everyone. But in reality, this principle may not hold (Q'Quinn and Corry, 2003), and faculty reluctant to sharing their course materials and teaching strategies may feel that e-learning is not useful and not worth investing time and efforts, thereby showing no interest in related information technologies. Hence, we propose the following hypotheses:

Hypothesis 4. Uneasiness in sharing their course materials and teaching strategies is negatively related to perceived usefulness of e-learning courses.

Hypothesis 5. Uneasiness in sharing their course materials and teaching strategies is negatively related to intention to develop and offer e-learning courses.

Despite all the positive statements about e-learning, some faculty still remain skeptical about its effectiveness and may be overwhelmed by the technological and pedagogic expertise required to develop e-learning course materials and deliver courses on the internet. Faculty trying to

implement e-learning courses faces a variety of challenges when adapting their teaching strategy to internet-based learning system (Rockwell et, al, 2003). For instance, courses need to be designed in such a manner to allow the students to gain access to course materials in a way that makes sense to them (Wolcott, 1993; Carr, 2001). Hence, for faculty to be successful in offering e-learning courses, higher education institutions need to help faculty develop e-learning educational models and instructional techniques for easy implementation.

In TAM, facilitating conditions serve as situational anchors in the formation of perceived ease-of-use [Chang, Cheung, and Lai, 2000; Chang and Cheung, 2001, Karahanna and Straub, 1999]. In the context of our research, facilitating conditions provide or arrange a set of external conditions or social circumstances that make developing and offering e-learning easier for faculty, but whose absence would not prevent it from being achieved. The following list of strategies is illustrative of facilitating conditions in this particular context: an on-line faculty resource and information gateway, a series of workshops and instructional design sessions for e-learning, a comprehensive handbook for course developers, a course template, a faculty help desk and studio for multimedia content development, an instructional design partner to support faculty development and course design, etc. These conditions would facilitate the development and delivery of e-learning courses, and the following hypothesis is proposed:

Hypothesis 6. Facilitating conditions for developing and offering e-learning course is positively related to perceived ease of use.

O'Quinn and Corry (2003) suggest that one means of enabling faculty to overcome their reluctance to participate in distance education would be to provide them with opportunities where they can integrate elements of distance education in their offline courses, a combination that is often called a blended course. By using a combination of e-learning and a classroom setting, faculty would be able to experience the taste of multimedia content, on-line learner-to-learner interaction, and web-based feedback to their content. Familiarity with course delivery mechanism and interaction with students allows the faculty to concentrate efforts on subject matter, and thus improving the self-efficacy and effectiveness of courses utilizing information technologies. It has also been suggested that development and delivery time and effort in web-based distance courses may partially depend on the accumulation of instructor experience and the level of institutional support (Visser, 2000).

In the original statement of TAM, it was suggested that intention to use information technology might be better explained if perceptions of ease of use varies as a function of user experience level (Adams et al., 1992). Later, "revised" TAM presentations specifically addressed how the interrelationships among variables vary as a function of time and experience (Taylor and Todd, 1995; Morris and Turner, 2001). In this research, we suggest that knowledge and skills gained from past e-learning experiences will help faculty shape intention through heightened level of ease of use as well as perceived usefulness.

Hypothesis 7. Experiences in developing and offering e-learning course are positively related to perceived usefulness.

Hypothesis 8. Experiences in developing and offering e-learning course are positively related to perceived ease of use.

Research Method

Data Collection

The data used to test the research model were obtained mainly from universities offering e-learning courses for credits in Seoul, Korea. More than 500 faculty members received cover letters that provided an overview of the study and a copy of the survey. Of more than 500

surveys, 35% responded, including 89 men and 67 women. The respondents averaged 40.8 years in age and had an average of 9.7 years of teaching; the male-to-female ratio was approximately All respondents had completed doctoral degrees. Table 1 summarizes the profile of respondents.

Table 1

Profile of respondents

		frequency	Percentage (%)			frequency	Percentage (%)
	none	81	45.5		< 5 years	51	28.8
the number of e-learning courses developed	1	30	16.9	teaching experiences	6-10 years	49	27.7
	2	22	12.4		11-15 years	34	19.2
	3	11	6.2		16-20 years	26	14.7
	4	11	6.2		> 20 years	17	9.6
	more than 4	23	12.9				

※ n=178

Measurement

To ensure the content validity of the scales, the questionnaires were developed from the literature; the list of the items is presented in the Appendix. The scales to measure perceived usefulness, perceived ease of use, and behavioral intention to use were adapted from prior studies (Davis, 1989; Venkatesh & Davis, 1996; Hu et al., 2003; long; Ong & Lai, 2006). The scale for facilitating conditions was adapted from Cheung et al. (2000) and Thompson et al. (1999). To develop a scale for measuring uneasiness of faculty, we utilized measures introduced in a study by Q'Quinn and Corry (2003).

The respondents indicated their agreement or disagreement with the survey items using a five-point Likert-type scale. In addition, to measure experience with e-learning, we asked respondents to provide the number of e-learning courses they have developed and offered for credit. Consistent with prior research on TAM, we measured demographic variables such as gender, education, position, and years of teaching experience. Table 2 presents a list of the items used in this study.

Data Analysis and Results

Measurement Model

A confirmatory factor analysis using LISREL 8.30 was conducted to test the measurement model. The fit of the overall measurement model was estimated by various indices provided by LISREL (see Table 2).

Table 2

Fit indices for measurement model

Construct		questions	factor loading	t-value	composite reliability	average variance extracted
perceived usefulness	PU1	Developing and offering an e-learning course improves the quality of education.	1.04	13.85	0.84	0.73
	PU2	Developing and offering an e-learning course makes it easier to do my job.	0.89	12.21		
	PU3	I find developing and offering an e-learning course to be useful in my job.	0.78	11.38		
perceived ease of use	PEU1	The process of developing and delivering an e-learning course is clear and understandable.	0.63	7.70	0.75	0.61
	PEU2	Learning to develop and offer an e-learning course is easy for me.	1.01	10.96		
	PEU3	I find it easy to develop and deliver e-learning content for courses.	0.94	9.88		
facilitating conditions	FAC1	Technical and clerical support is available for assistance whenever I have a problem with the process of developing or delivering an e-learning course.	0.88	10.22	0.75	0.60
	FAC2	Specialized instruction and guidelines concerning the development and delivery of e-learning courses are available to me.	0.69	8.24		
uneasiness	UNEASY 1	I feel uncomfortable since teaching materials and know-how of my own may be open to everybody.	0.90	7.55	0.79	0.66
	UNEASY 2	I feel like I am losing control over the teaching and learning process	0.63	6.87		
experiences	EXP	How many e-learning courses have you developed and offered in the past?	1.00	-	-	-
intention to develop and offer	INTUSE1	To the extent possible, I would develop and offer e-learning courses.	1.00	13.09	0.84	0.72
	INTUSE2	I intend to increase my use of the e-learning system in the future.	1.11	13.54		

χ^2=42.47, p<0.065, TLI=0.97, CFI=0.98, Normedχ^2=1.41, GFI=0.96, RMSEA=0.045

The ratio of χ^2 to degrees-of-freedom (df) was used, and a value of 1.424 was obtained, which does not exceed 3 (Carmines and McIver, 1981). Also note the normed χ^2 were 1.41, well below the recommended level of 2. The goodness-of-fit (GFI), non-normed fit index (NNFI), and comparative fit index (CFI) are other indices of fit. These indices typically range from 0 to 1, with values greater than 0.9 representing reasonable model fit. For the measurement model, values of 0.96, 0.97, and 0.98 for GFI, NNFI, and CFI, respectively, observed, providing a good fit to the data. Root mean square error of approximation (RMSEA) describes the discrepancy between the proposed model and the population covariance matrix. RMSEA was 0.045, which is within the recommended cutoff values of 0.08 (RMSEA) for good fit (Byrne, 1998).

Table 3

Discriminant validity for the measurement model

Construct	average variance extracted (AVE)	shared variance					
		experiences	perceived usefulness	perceived ease of use	facilitating conditions	uneasiness	intention to develop and offer
experiences	-	3.23 (0.35)* 9.35*					
perceived usefulness	0.73	0.45 (0.14) 3.13	1.00				
perceived ease of use	0.61	0.47 (0.15) 3.25	0.37 (0.08) 4.53	1.00			
facilitating conditions	0.60	0.46 (0.15) 3.02	0.33 (0.09) 3.88	0.55 (0.08) 7.02	1.00		
uneasiness	0.66	0.10 (0.15) 0.66	-0.17 (0.09) -1.98	-0.12 (0.09) -1.39	-0.31 (0.09) -3.44	1.00	
intention to develop and offer	0.72	0.69 (0.14) 4.88	0.83 (0.04) 19.91	0.58 (0.04) 8.14	0.45 (0.08) 5.59	-0.23 (0.09) -2.56	1.00

*) standard error, **) t-value

Reliability and convergent validity of the constructs were estimated by Cronbach's alpha, factor loading, and average variance extracted (see Table 2). Cronbach's alphas for all constructs were above the 0.70 threshold for explanatory research. The average extracted variances were all above 0.50, recommended level (Hair et al., 1998), which meant that more than one-half of the variances observed in the items were accounted for by their hypothesized constructs. All of the factor loadings of the items were greater than 0.50, with most of them above 0.70, well above the recommended level for significance (Hair et al., 1998). To examine discriminant validity, shared variances between constructs were compared with the average variance extracted of the individual constructs (Fornell and Lacker, 1981). The results showed that the shared variance between constructs were lower than the average variance extracted of the individual constructs, confirming discriminant validity (see Table 3). Consequently, the observed reliability and validity suggested adequacy of the measurements used in this research.

For the rest of paths from the external variables to the TAM constructs, the results were mixed. Two hypotheses concerning the effects of external variables (experiences and facilitating conditions) on perceived ease of use were supported (H6 and H8). Faculty with more experiences with e-learning courses and more favorable perception toward facilitating conditions found the e-learning easier to implement. Experiences with e-learning course also had a positive effect on perceived usefulness (H7). Contrary to our expectation, uneasiness did not have significant effects on perceived usefulness as well as perceived ease of us as hypothesized. Therefore, hypotheses H4 and H5 were not supported.
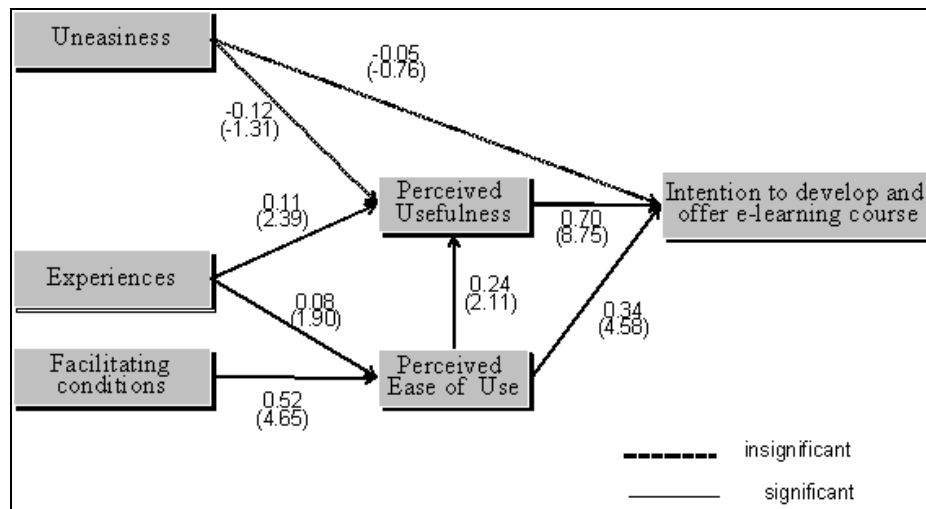
Figure 2. Results of structure model

In Figure 2, significant paths are depicted by bold lines and insignificant paths by dash lines.

The explanatory power of the structured model was also shown in Table 4. R2 values show that perceived ease of use and perceived usefulness account for 80% of variance in behavior intention. Experiences and facilitating conditions account for 34% of variance in perceived ease of use, whereas experiences and uneasiness account for 20% of variance in perceived usefulness.

Table 4

Structural equation model analysis of the research model

hypothesis	path	direct effects		indirect effects	
		coefficient	t-value	coefficient	t-value
H1	perceived usefulness → intention	0.70	8.75*		
H2	perceived ease of use → intention	0.34	4.58*		
H3	perceived ease of use → perceived usefulness	0.24	2.11**		
H4	uneasiness → perceived usefulness	-0.12	-1.31		
H5	uneasiness → intention	-0.05	-0.76		
H6	facilitating conditions → perceived ease of use	0.52	4.65*		
H7	experiences → perceived usefulness	0.11	2.39*		
H8	experiences → perceived ease of use	0.08	1.90**		
	uneasiness → intention			-0.08	-1.30
	facilitating conditions → intention			0.26	4.02*
	experiences → intention			0.12	3.12*
	perceived ease of use → intention			0.17	2.10**
	R^2(perceived usefulness)	0.20			
	R^2(perceived ease of use)	0.34			
	R2(intention)	0.80			

Fit indices: χ^2=48.47, p<0.051, TLI=0.97, CFI=0.98, Normedχ^2=1.468, GFI=0.95, RMSEA=0.05

Discussion and Conclusions

Discussion

This research proposed an extended version of technology acceptance model in the context of an e-learning implementation. Prior research on e-learning acceptance by faculty in higher education institutions focused mainly on identifying the list of motivational factors, and providing the relative importance of these factors (Betts, 1998; Ertmer, 1999; Schifter 2002; Fredericksen et al., 2000, Rockwell et al. 2000). This study examined the causal relationships among determinants of e-learning acceptance. Moreover, the sample of faculty has more diversity in their background than the subjects used in most prior studies, mainly because the subjects in this research were selected from several institutions. This might increase the generalizability of the results from this study.

As expected, our findings supported the appropriateness of using TAM to understand the intention of faculty to develop and implement e-learning courses. Both perceived usefulness and perceived ease of use on behavior intention appeared to be significant determinants, with perceived usefulness exerting a stronger influence than perceived ease of use, similar to the results from a majority of previous research comparing the relative explanatory power of perceived usefulness and perceived ease of use (Davis, 1993; Venkatesh and Davis, 1996).

Consistent with our hypothesis, faculty with more experience with e-learning will find it more useful and easier to offer e-learning. Faculty in higher institutions, in general, enjoy complete autonomy in choosing instructional methods, and thus feel independent in decision-making about using e-learning. But as they gain additional knowledge and experiences in e-learning, perceived level of usefulness and ease of use might improve and indirectly exert a strong influence on the intention to use. In the early stages of adopting the e-learning technology, perceived ease of use can be a major determinant of technology use for mainstream faculty. Once they gain experience through comprehensive support and robust technology, perceived level of usefulness and ease of use would improve, enabling them to have high levels of success in e-learning courses. However, when faculty have accumulated more experience with developing and offering e-learning courses, the significance of perceived ease of use may decrease while the significance of perceived usefulness may increase.

Facilitating conditions, another determinant of perceived ease of use, have been found to have a significant positive impact on ease of use, supporting the claims in prior research (Rockwell et al., 1999 and 2000; Fredericksen et al., 2000). This validates the importance of facilitating conditions in understanding user acceptance of e-learning technologies. Faculty who have higher levels of trust in supportiveness of institution, and having a higher level of self-efficacy, are more likely to find the e-learning technology easy to use. Various supporting strategies, such as on-line faculty resources, instructional design sessions for new faculty, a faculty help desk and an instructional design partner to support faculty development and course design, need to be developed to improve facilitating conditions. Contrary to our expectation, uneasiness did not have significant effects on perceived usefulness or on intention to offer e-learning courses, although the sign of the paths from uneasiness to both constructs was negative. By offering e-learning courses, faculty inevitably open their own lecture notes, exams, reference lists, and video clips from lectures to the public, sharing their teaching know-how and substantive knowledge with fellow faculty, most of whom are totally unknown to them. These findings suggest that e-learning is another way of creating a community of knowledge that will benefit not only the students but also the faculty teaching throughout all higher institutions.

Conclusions and Future Research

Information and communication technology is dramatically affecting the way faculty teaches in higher education institutions. The introduction of e-learning technology designed to help students facilitate learning processes is removing distance constraints and changing interpersonal communication dynamics. As new information technologies infiltrate classrooms, research on user acceptance of e-learning systems has started to receive much attention from professionals as well as academic researchers.

In summary, this study successfully uses TAM to examine the decision-making processes for faculty. General findings of this study were similar to findings of prior research to the extent that while both perceived usefulness and perceived ease of use exerted a direct influence on behavior intention, perceived ease of use also had an indirect effect on behavior intention through perceived usefulness. This research also revealed that experiences are important determinants of perceived ease of use and usefulness, with facilitating conditions significant in determining perceived ease of use. In addition, it has been found that feelings of uneasiness have no significant impact on the perceived level of usefulness or behavior intention.

The findings of this study have several implications for e-learning administrators in higher institutions. First, to motivate the participation of mainstream faculty, it is important for them to perceive that developing and offering e-learning courses can improve the quality and the effectiveness of teaching and learning, enhancing their performance and productivity. Providing reluctant faculty with pedagogical principles, including principles of developing and packaging e-learning content, through frequent workshops and faculty development sessions, can be helpful to achieve this goal, also improving their perceived level of ease of use. Second, experience is a salient factor affecting both perceived usefulness and perceived ease of use. Administrators may need to develop comprehensive supporting systems so that inexperienced faculty can take advantage of opportunities for conducting e-learning courses without any hesitation. Flexible support systems and faculty development sessions gradually increase the level of familiarity with e-learning technologies, helping faculty to more easily develop positive beliefs about the usefulness and ease of use of relatively new information and communication technology.

Results should be treated with caution for several reasons. First, the findings presented here were obtained from a single study that targeted mainstream faculty in research-oriented higher institutions in Korea. Caution needs to be taken when generalizing our findings to distance-learning institutions or teaching-oriented institutions. Second, responses to this study were voluntary and thus subject to self-selection biases. Faculty who were interested in, or were currently offering e-learning courses may have been more likely to respond to the survey. Third, this research examined only a limited set of determinants of behavior intention. Additional research is needed to evaluate more fully the e-learning acceptance model. Longitudinal evidence may also enhance understanding of causal relationships among factors.

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Editor's Note: There is, in teaching and learning, considerable difference between "interactive" and "immediate" feedback. Skillful use of technology can compensate for loss of direct personal contact in the web-based world.

Redesigning Online Instruction:
Theory and Application

Catherine Gouge

USA

Keywords: distance learning, online courses, online course design, online program administration, online instructors, pedagogy, web-based course technology, editing, online writing, course redesign, adult learners

Introduction

Many colleges and universities have been engaged in the process of redesigning on-site, or "traditional," course offerings and developing web-based courses for nearly a decade now. In fact, until fairly recently, if a web-course designer spoke of "re-designing" a course, he or she was probably referring to this process of transforming an on-site class into a fully or partially online course. In 2003, the National Center for Academic Transformation at Rensselaer Polytechnic Institute concluded a four year study called the "Pew Grant Program in Course Redesign" which followed ten different post-secondary institutions in a variety of disciplines through three "rounds" of "redesigning" traditional courses to make significant use of the web.[4] The results of these kinds of redesign processes have been dramatic: according to the last report on distance education prepared by the Sloan Consortium, approximately 3.2 million students were enrolled in at least one online course in 2005. This study also reports that the online enrollment growth rate (including both 100% online and hybrid courses) was over ten times that projected by the National Center for Education Statistics for the entire post-secondary population.

As a result of the remarkable growth and popularity of online course offerings, many institutions have also begun the substantial and strategically different challenge of re-designing already existing online courses. This essay is concerned with this more recent process of redesigning, one which requires careful reflection both on the original course design and on the philosophy motivating past and future design choices. In many instances, the primary goal for early web-based course design was simply to get courses online. However, course designers and program coordinators now have the benefit of an established history of reflecting on web-based delivery (Conti, 2004; Hammond & Trapp, 2002; Salemi, 2006; Wily & Schooler, 2000) and, consequently, the advantage of thinking more critically and focusing not just on the mode of delivery but on the logical structure of the content of individual online courses.

Because many of the people responsible for current redesign processes are faculty members who may or may not be working with technical support from another department on campus[5], contemporary redesigners, I argue, ought to prioritize program integrity over other interests like

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[4] Under the prevue of this project, the Center awarded $6 million in grants to ten different institutions in three rounds (so a total of 30 projects). For more on these, visit http://www.center.rpi.edu/PCR.

[5] At West Virginia University, we currently have such support from two departments: One is called the Instructional Technology Resource Center (ITRC) and the other is called the Office of Information Technology (OIT). The ITRC will work with faculty on specific course design or redesign projects, while OIT is primarily in the business of providing training sessions on new programs and technology and managing a dedicated 24/7tech support hotline.

cost efficiency and technological experimentation. This is not to say that those interests are not important, but I do mean to assert that they should be balanced by an explicit emphasis on intellectual course and program content. Program integrity, furthermore, ought to be defined primarily in terms of student learning and faculty satisfaction. If we let these qualitative measures motivate our decision-making and use success in these areas as the primary indicators of programmatic integrity, we can help create the conditions under which cost efficiency and technology work in the service of student learning and faculty satisfaction and not the other was around. Pressures from others at our home institutions whose job it is to maximize revenue will obviously help define the parameters within which we must work, but it is our job, as the program subject matter experts, to foreground the program content and the involved students and faculty in the redesign process.

Let us say that if one does want to approach the redesign process in this way, where would we begin, practically speaking, and what would that process look like? Once we decide to approach the redesign process with the overarching goal of "program integrity" as I have defined it, we then need to formulate a practical and specific design approach to begin our revision of the course(s). To illustrate how this might unfold, I will describe my most recent redesign experience with an online editing course which helped me to realize the benefits of deriving my redesign approach from the course specific content and program goals. Doing so has the potential to allow the resulting courses to lead by example, using the course structure and conduct (not just its content) to reinforce goals for student learning. For example, if analyzing rhetorical contexts and revision strategies are important skills for students to learn in the course(s) we are working with, doing so ourselves is more likely to result in a course which reflects our attention to those goals and is, therefore, a model of those processes. If this is accomplished, I argue, the resulting course will be one that more effectively motivates student learning, faculty satisfaction, and, therefore, program integrity.

The Context for My Redesign Process

At West Virginia University for the past five years, I have designed, piloted, and coordinated six 100% online sections of the required writing courses part-time adult students can take to fulfill university general education requirements or to complete a Professional Writing and Editing (PWE) Concentration/ Minor/ Certificate. With those courses now fairly established and with the benefit of being able to look at the history of those courses and what has worked and not worked, I have begun the process of doing some major refiguring of the course structures and technological infrastructures.

The PWE requirements include the standard freshman composition course (English 101), a research writing course (English 102), an advanced rhetoric course (English 201), the editing course (English 302), professional writing (English 304), technical writing (English 305), and an internship (English 491A). The editing course was the fourth course in the series I designed over a two year period beginning in 2001. The design approach I used for each of the courses was intentionally pretty low-tech. Courses made extensive use of variety of the most simple communication components of WebCT Campus Edition, our original course management system (CMS): WebCT's internal email, bulletin board, and chat rooms were used for weekly whole class and small group discussion; and assignments were put on the web as simple html text files for students to read, download, and print. The original goal in designing the sequence was to make it easy for adult learners, primarily in the state of West Virginia, to be able to take the courses without needing super expensive, high-end technology or tech know-how. In other words, accessibility was of primary importance.

The Existing Course Design

The existing structure of the editing class included weekly reading, practice, and discussion. Assessment in the first half of the term consisted primarily of short online quizzes covering the weekly reading through the CMS. Students completed four of these quizzes before midterm, at which point they would take an online midterm exam which asked them to complete short answer analysis of editing concepts and to choose among some multiple choice answers covering all they have read so far about editing, grammar, and mechanics. Assessment in the second half of the term consisted primarily of a series of four editing projects, beginning with simple copy or line editing and progressing to more complex comprehensive editing or professional texts. These editing projects were printed by the students through WebCT, completed in hard copy with pens, and submitted to me via the postal service.

The entire term was organized into sixteen "Weekly Modules"—one for each week of the term—which told students what to read, write/post, practice, and send/email. Their deadline each week was always on the same day and time: Monday at 10 p.m.[6]

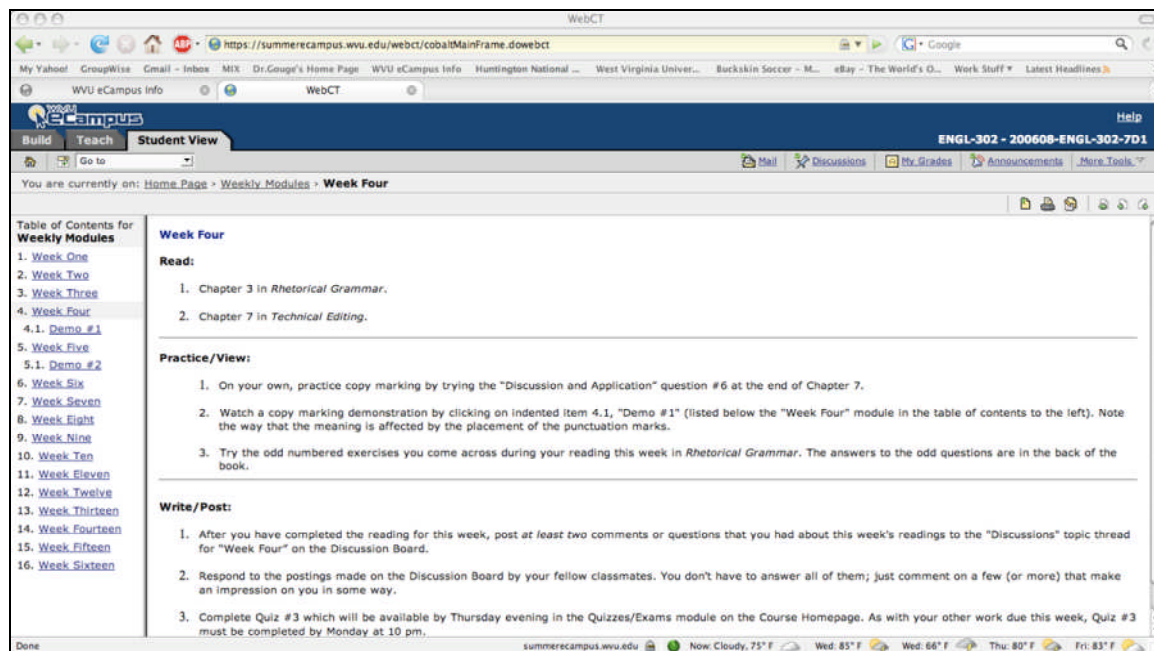Figure 1 shows what a typical "Weekly Module" looks like:

Figure 1. A Typical Weekly Module.

Redesign of "Technical Editing"

I began the process of redesigning our online writing courses, not with the first and lower-level writing course I designed and piloted but with one of the last: "Technical Editing." The first version of the course was launched in 2002. The reason I began with this course is that it has historically attracted advanced students with web-course experience since it has as its prerequisites two of our other, lower-level web-based writing courses (English 101 and 102). It is

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[6] I emphasize here that this deadline is for "Technical Editing" because the other writing online classes in the sequence share the fact of a consistent weekly deadline, though the day differs depending on the course so that students taking multiple courses in the sequence will not have all of their weekly deadlines fall on the same day.

also a course that, due to its content involving copy-marking symbols, was still dependent on snail mail as a method of submitting some editing assignments and receiving feedback. There is not yet to my knowledge any commercial instructional product which can electronically record student-generated copy-marking symbols. My task, then, was to revisit the course structure and work on revising the course so that it could be 100% electronic if possible.

To support the over-arching, flexible logic of prioritizing program integrity, I believe it is important for the course structure to support and parallel that which the course is meant to teach. In other words, course structure should reinforce and even parallel course content. Because the editing class that was the focus of my redesign process is a part of a Professional Writing and Editing program housed in the English Department at WVU, our goals for the class are rooted in the importance of the rhetorical context to effective writing and editing. All of the courses in the PWE sequence are meant to teach students about the importance of recognizing and analyzing different professional rhetorical contexts. According to my proposed logic of course redesign, then, the course structure should be such that rhetorical context is valued and foregrounded in the course pedagogy.[7]

Not accidentally, therefore, my process for revising the editing course was driven by one of the processes the course is meant to teach students: the editing process. This was particularly helpful since, whereas the first time around I had no existing course/text to work from, however, during the re-design process I had an existing on-line course/text to work with much like an editor who has an existing text to help shape. The textbook I use for the on-site version of the course is Carolyn Rude's *Technical Editing* (2005). In her discussion of the "comprehensive" editing process, she suggests that students work through the following steps: 1) Analyze the readers, uses, and purposes; 2) Evaluate the text according to content, style, visual design, and other criteria; and 3) Translate that evaluation into goals or objectives for the revision process. Because this process is essential to what I wanted my students to learn, I invoked it from the beginning of my process, explicitly using it to shape my process of redesigning the course and, therefore, the resulting structure of the course itself.

The Analysis

Readers

The first step in my process was to analyze the student population who would be the primary audience for the course. I had, of course, done an analysis of our target student population when the course was first designed, but I now had more experience with the student population and more survey information on which to base my analysis. From these sources, I found out that nearly 90% of my students are now accessing the course via broadband access. Five years ago when the course was first designed, the percentage of students with access to a high-speed Internet connection was roughly 40%. My student population has not changed a great deal in terms of age (95% are between 25-50 yrs. old) and gender (approximately 80% are women) and work responsibility (roughly 90% work full-time). As many have noted (Brookfield, 2000; Conti, 2004; Knowles, 1970; Rhoda, 2005), adult learners can have specific motivation, access issues, and anxieties which influence their learning in online courses, so I needed to continue to keep that in mind. However, where students are and why they are taking the course has changed. We have recently had students enrolled in our online writing courses who are military personnel stationed

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[7] Assessment processes, for example, should not have as their goals anonymity (of student or evaluators) or objectivity. Cf. Texas Tech article(s). I don't mean by this that assessment shouldn't be "consistent," but that we should not claim or strive to be anonymous or indifferent to the specific rhetorical details of student work. In my article(s) on this topic, I explain this in more detail.

in Iraq and others as far away as France and Lebanon. Many of them are returning to school after many years. The majority are adults who have been taking courses over a period of many years while working and tending to family responsibilities.

Perhaps the most significant difference between now and then is that this editing course will not be the first online course for most of our current student population, as it was likely to have been four years ago. Many of our students have taken multiple online courses, most of them using the same course management system: WebCT (now Blackboard). This is significant because I can assume a slightly higher level of technological savvy and, in particular, familiarity with our licenced CMS. This has the potential to free us from having to teach both the writing course content and how to perform basic skills for discussion and assessment in the course. It also means that we might consider adding more sophisticated tech elements without making the tech aspects of such course elements too distracting.

Uses

Though some students do take the editing course to fulfill a 300-level course requirement and to have the opportunity to review the rules of grammar and mechanics again, increasingly, many of them are interested in taking an editing course as a part of the Professional Writing and Editing Certificate. This means that they are interested in learning the language of copy-marking and proofreading symbols, the vocabulary of the editing process, and the increasingly more common practice of electronic editing.

A number of the students who enroll in the online editing are currently working in jobs that require editing, though it was not initially part of the job description. These students don't consider themselves "editors," per se, but they have tried on their own to figure out how to be one for their current place of employment none the less. These students are anxious to see if the editing work they have been doing was sufficient and to learn new skills that will make them more adept at this aspect of their jobs. Other students have not had the opportunity to explicitly study grammar or punctuation in for many years and are anxious to revisit basic rules they are expected to remember from middle school so that they can do well in their upper-level classes.

Purposes

The entire sequence of online PWE courses was originally and still is intended to provide students, who might not otherwise have access to coursework, the opportunity and flexibility to take solid and sound writing courses, not versions of the courses that are less-than or watered-down on-site clones but courses which helped students achieve the learning outcomes we had determined were important to each of the courses regardless of their delivery method. Our program's specific goals for "Technical Editing" are to help students build a solid foundation in and learn to analyze the basic principles, processes, and vocabulary of technical editing. These are rhetorical skills which can be applied to many areas of their professional and academic activities, but the specific focus in this course is to work with the other courses that constitute a Professional Writing and Editing concentration, minor, or certificate in the English Department. As our current provost has said to me, we want our adult learners and traditional students alike to have a rewarding experience going *to* college, not just getting *through* college. This means that we want to provide them with a variety of learning opportunities that motivate them to really engage with the course material, not just pass by it with a passing grade.

Evaluation

Once I had revisited and reflected on our student population, their ways of interacting with the course, and our goals for student learning in the course, I was prepared to evaluate my existing course. What I found in my analysis was that too much of the course relied on the postal service, or "snail mail," for the exchange of student work. This is ineffective and undesirable for a number of reasons connected to my analysis of our audience, uses, and purposes.

First of all, as my analysis determined, **where** our students are had changed in such a way that the relatively slow postal service would severely limit access to timely feedback for those students in the military stationed overseas and for those in other countries wanting to take full advantage of the internet as delivery method. It is possible with students taking online courses from inside the state of West Virginia for them to mail me a copyediting project and receive it back from me before their next is due two weeks later. For students outside the state or country, this would be nearly impossible and would impose an unfair disadvantage on their learning process.

Secondly, **why** students are taking the course had also changed in a way that might make the "snail mail" method of exchange less effective. Many students enrolling in the course are currently working and are required informally to perform both hardcopy and electronic editing. Especially as electronic editing and collaboration in the writing process become more common, these students need more experience of working with electronic editing techniques and technologies than those in the early years of the course.

Thirdly, because many of our current students will have taken multiple online courses by the time they get to "Technical Editing" and we can, therefore, assume a slightly higher level of technological savvy, I can safely raise the bar on the minimum level of tech skills required to take the course. Perhaps more importantly, I can reconsider making use of more complex technologies if doing so would help facilitate the course goals. The level of tech savvy and access needn't be quite as constraining as it was when the courses were first designed and I could safely assume only proficiency with email and some experience surfing the web.

Finally, because more and more of our student population (and cf. Sloan Consortium Study) is taking the class to learn skills which are relevant to work-related tasks—in this case involving the course-specific skills of editing—I need to revisit the course requirements and methods to see that they are emphasizing current editing-specific work-place skills sets. This could mean, perhaps, more of an emphasis on electronic editing and primary communication with authors via email.

Goals for Redesign

My goals for the redesign process followed explicitly from the results of the evaluation. They included:

1. Improving accessibility of instructor feedback by moving assessments, including editing project, 100% online.

2. Increasing the number of opportunities for students to practice editing in electronic environments.

3. Drawing on a wider range of technologies and tech skills for course interaction and assessment.

4. Emphasizing more current editing-specific work place skills.

The Results of the Redesign

Working with a design team from the Instructional Technology Resource Center at West Virginia University, I set out to think creatively about the technical options for the course that would target my four basic goals. Here's what we came up with:

1. **New versions of five standard copyediting assignments** like those I had used in my on-site classes and those I had previously had the on-site students print, copyedit, and mail to me. With these new assignments authored in Flash, students see a page of text when they click on the assignment with an integrated, simple one-line form for them to complete which asks for their name, the assignment title, and their instructor's name and email. There are three buttons at the bottom of the page: "Draw," "Submit," and "Erase." The

default setting is "Draw" when the assignment is opened, and with this setting, students can hold down the left click button and move the cursor to create copy marks in red on the electronic page (Figure 2).
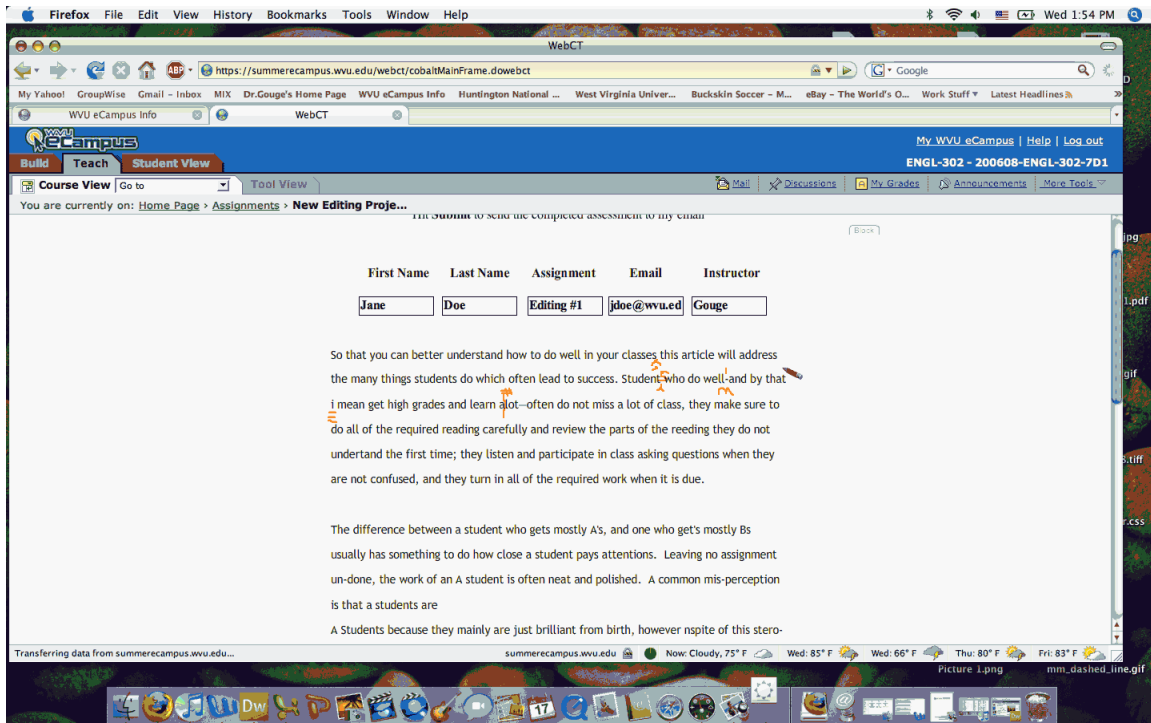
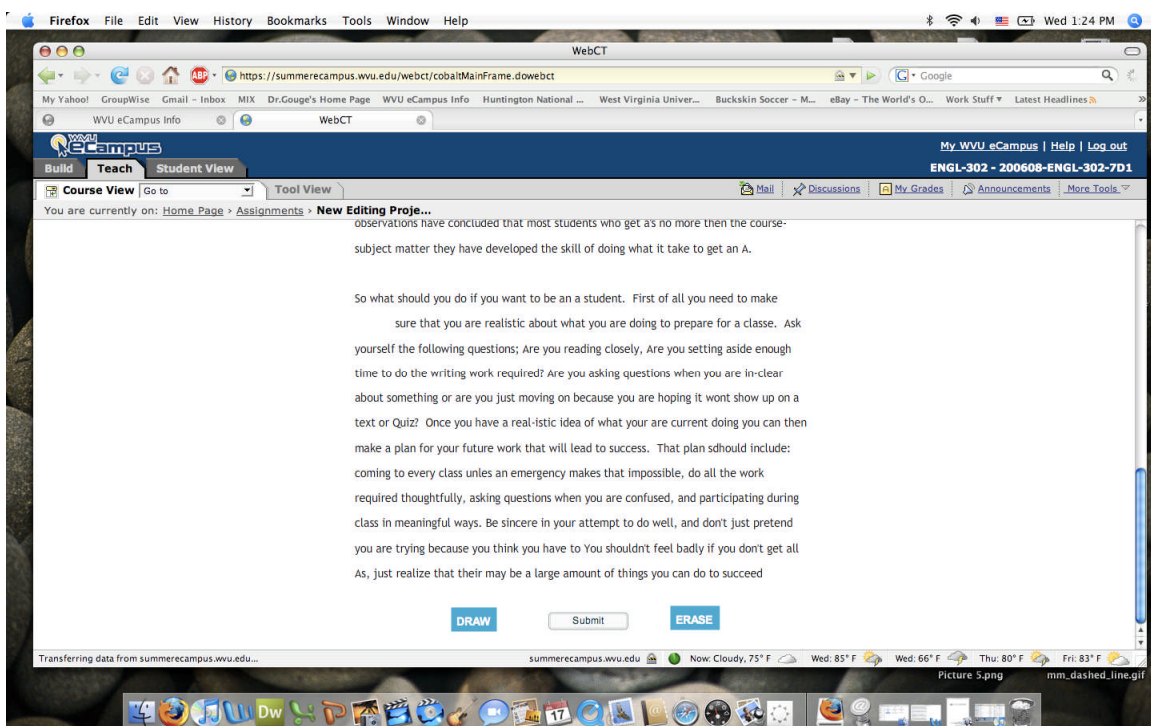

Figure 2. Using Draw function to create Red Copy Marks.

Figure 3. Click *Submit* to send page as a .pdf file.

If they make a mistake, they can click the "Erase" button and use the same process to erase any marks or portions of marks on the electronic page before them. When they are done, they simply click submit and the assignment is sent to me as a .pdf file (Figure 3). To assess these assignments, I can then open the file into a "draw" program on my computer, add my corrections or marks, attach the file to an email, type a personalized response for the student, and mail it back to him or her as a .pdf.

2. **Two non-graded, self-evaluating practice copyediting exercises**, also authored in Flash, which present students a paragraph with errors they need to identify and roll over with their mouse. This action will reveal to them three copyediting corrections: a, b, and c (Figure 4). One of these is the correct mark used correctly to fix the error in the text, and the other two are either the correct mark used incorrectly or the incorrect mark. The student chooses the one he or she thinks is correct and is immediately given a green "Correct" response or a red "Incorrect" response. If the correct response is chosen, then student will then see the copy mark incorporated into the text (Figure E) and can move on to the next error and proceed through the same actions.
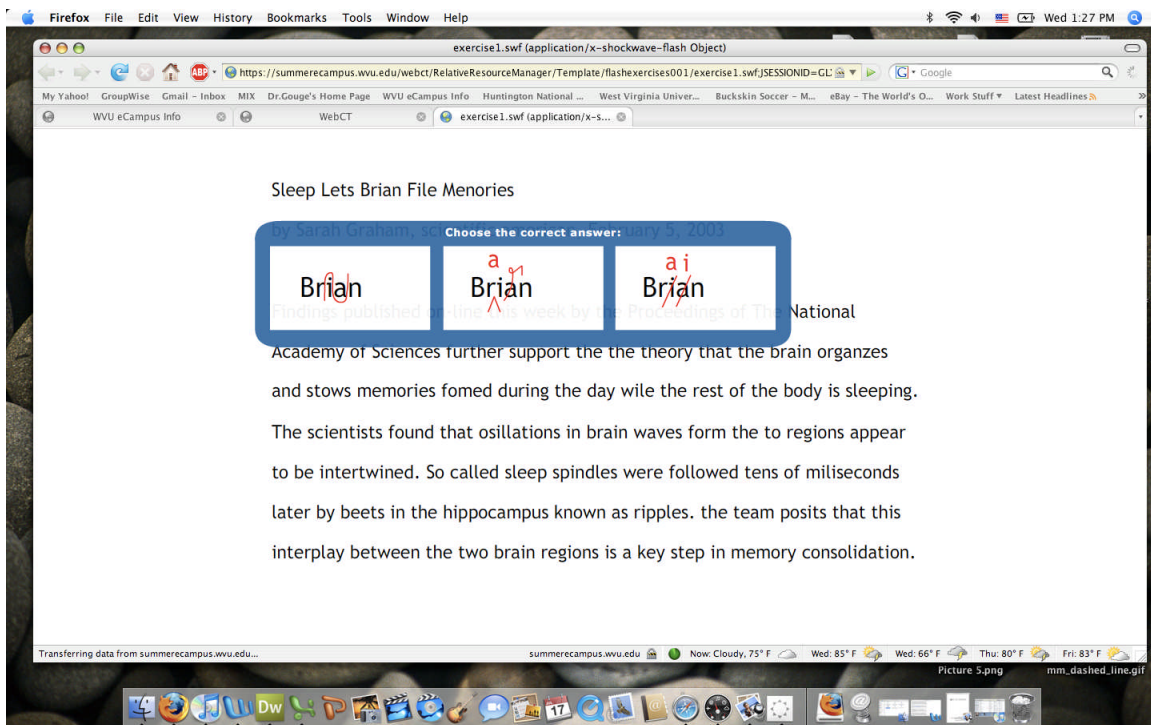

Figure 4. Choose from three copyediting corrections

3. **Two copy-marking demonstrations** authored in "Captivate" which show copy marks as they are drawn onto the page (Figures 5 and 6). Students have the capability to stop, pause, rewind, and play again each of the demonstrations using buttons at the bottom of the screen. Something we are planning to add to these in the near future are my voiceovers which explain how and why the marks are made as they are and how to avoid some common pitfalls in drawing each mark. For example, I will explain to them that they need to make sure each end of the "transpose" symbol fully extends above and below the letters or words intended to be transpose and to make sure that neither crosses through adjacent lettering or words or accidentally includes them in the instruction to transpose. The demonstrations run off of a streaming server at the university and will work for students with slower internet connections because we have kept the files small and the marks to a minimum.
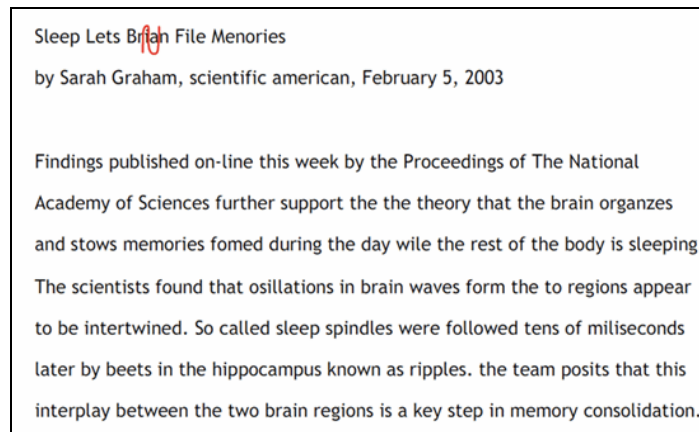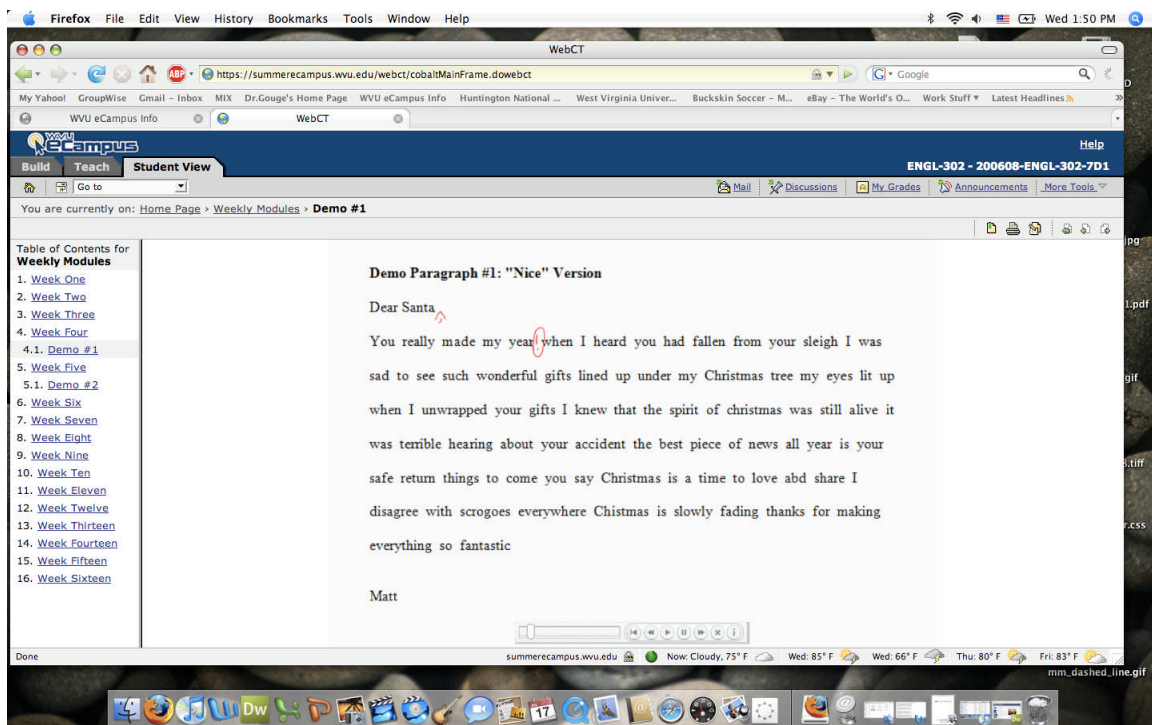
Figure 5. Copy editing and marking demonstration.
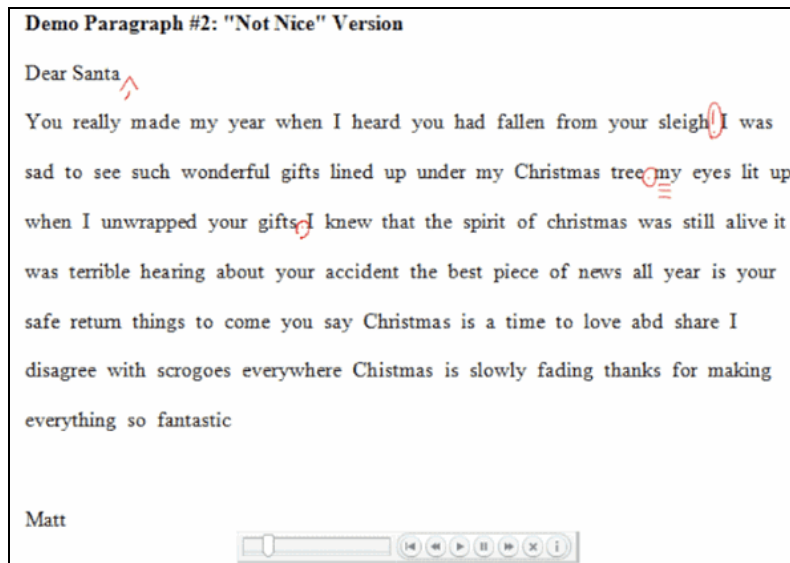

Figure 6. Copy marking demonstration.

Figure 7. Marking edits.

4. **New visual elements** were also added to the course. These carry the content of the course into the look and feel of the course by using the visual of the copy-mark as a "branding" image. For example, icons on the course home page incorporate copy-marks into the names of the items to which they link (Figure 8).
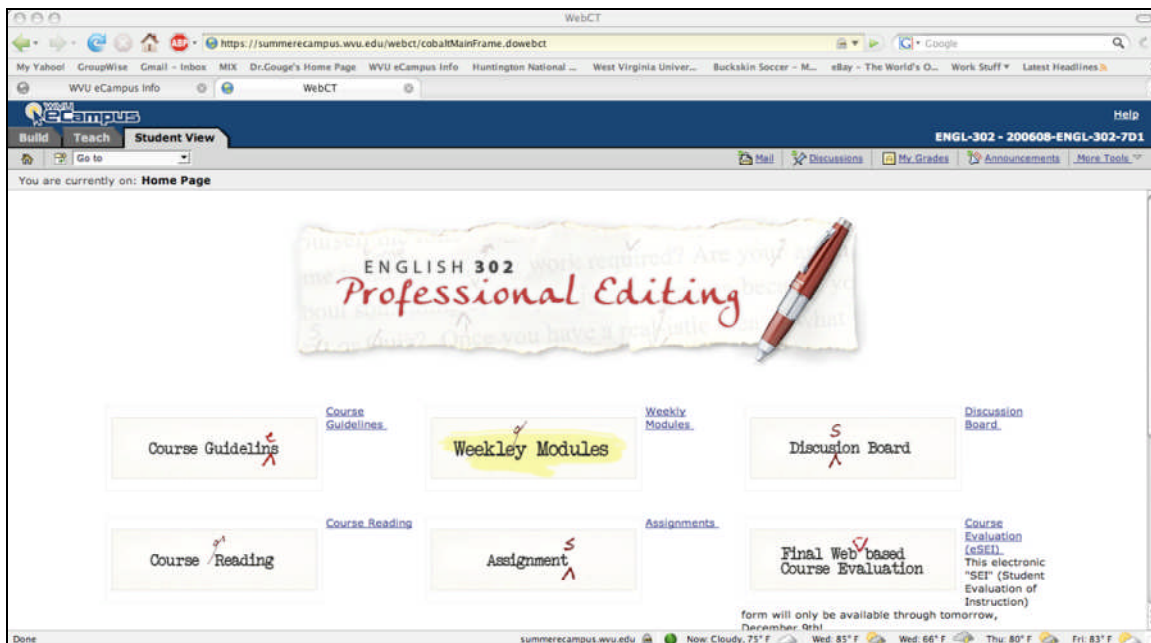

Figure 8. Copy marks on the course homepage.

Did the Redesigned Course Work in the Service of Program Integrity?

All of these new elements were created with the intention of helping the redesign achieve the four basic goals I outlined earlier: improving accessibility, increasing practice opportunities, drawing on appropriate technologies, and emphasizing current workplace skills. Each of the new elements will enable the class to be conducted 100% online and increase the speed with which instructor feedback can be provided to students. This will ensure that feedback is timely and allows students to learn from prior assignments before having to submit subsequent ones. Students should not be waiting for the postal service to hand-deliver their feedback days or weeks after the next assignment is due. Each of the new course elements also draws on a much wider range of technologies and tech skills for course interaction and assessment. Instead of just using Microsoft Word and WebCT/Blackboard to engage with the course, students are watching (and listening in future) to demonstrations, practicing identifying errors with low-stakes non-graded interactive multiple choice exercises, and practicing drawing copy-marks on the page using Flash coded assessments. In newly added assessments that are required later in the term students will practice more current editing-specific work place skills by using the "Track Changes" and "Comment" functions to compete an editor-writer project for which every student is a writer who works with another student editor online and an editor who provides editorial assistance to a student writer.

While we were able to complete and revise the basic content of the new elements, not all of them were able to be implemented in my pilot of the redesigned course in Fall 2006. After having students complete their first copy editing project the "old-fashioned way" (using the postal service), I released a Flash-coded version of the same text to students and asked them to try it and give me feedback about using the Flash assessments versus the print, mark, and send method. I also tried to complete the assessment as a "demo student" in our CMS. Sadly, all of us experienced some bugs that will make it impossible to use these assignments without further work. While I and others had tested the ease with which one could draw copy-marks in the assessment, this function proved to be too difficult to manipulate for many students and will need to be tweaked a bit to be less sensitive to the slightest motions. Perhaps the biggest problem we encountered, however, was the submission function. While it had worked in our trial period, when it went implemented and "live" in the class, it would not send me a copy of the submission as .pdf attachment to an email. The code will need to be reworked to fix this.

Once the obvious access issues created by these technical glitches are resolved, the most significant questions to reflect on with regard to the completed redesigned editing course is, "Does the redesigned course motivate and support student learning? Does is facilitate faculty satisfaction? And, therefore, does it help strengthen program integrity"?

Student Feedback

Students in the pilot of the newly redesigned course in Fall 2006 reported in anonymous course evaluations that they appreciated the variety of web-based interactive elements that the demonstrations and non-graded, self-evaluating exercises allowed for. Of course, none of them had taken the course any other way, so they could not compare the new elements to prior versions of the course. In response to the question, "Will you please make one suggestion that might help improve your experience of this course," a small percentage of students (18%) made the suggestion that more of the newly-added non-graded practice exercises be incorporated into the course. For the most part, however, evaluations showed that what students valued most about the structure of the course was not any one individual demonstration or other aspect of the course (no matter how sophisticated the technology used to support it); rather, students reported that they appreciated the variety of interactivity and opportunities to communicate with me and their classmates encouraged and made possible by the course structure. 90% of students cited the message board interaction with me and their peers as the most useful to their learning in the course because, as one student wrote, "Especially if you are in need of help—it puts it out there

for all to see and possibly offer advice." The other 10% cited the textbooks as the most helpful. One student explained that this was "how it had always been."

These student responses are, I believe, further evidence that no matter what the delivery method for a course—100% online, partially online, or on-site—students tend to value their personal, affective interaction with their instructors and other students over all else (texts, specific activities or assessments, etc.). This is a departure from some models of online writing program administration like that at Texas Tech University, where their hybrid writing program (ICON) separates "classroom instructors" from "document instructors" and students have the opportunity to never develop the affective relationship with those evaluating them ("The Benefits of Anonymous Grading," 2006). Across the board, students in my pilot section noted that new interactive elements incorporated in the redesign provided them with more and different opportunities to practice what they were learning, and they reported that this was helpful to their learning. However, more important to their learning from their perspective was the fact that they were able to get lots of personal, timely feedback from me and their peers. This is not a response that is unique to the online editing course. Similar to our on-site counterparts, students in all of the online courses we offer in the English Department report that they value the personal feedback they are able to get from their instructors who know them by name, something they do not report getting enough of from online and on-site courses offered by many other departments. For this reason, each of the web-based courses we offer at WVU will continue to place a strong emphasis on this kind of interpersonal engagement by keeping class size small (16 students max) and using a variety of communication tools—large and small group message board discussion, synchronous chats, and email exchange.

Once the major kinks are worked out in the Flash authored editing projects are worked out, I strongly believe that students will value more highly the new interactive elements embedded in the redesign. The new elements will allow students to view and practice the on-screen version of copyediting prior to their first graded attempt. This will give the instructors more of an opportunity to talk about the process with students and students will appreciate having the on-screen practice. This viewing and practice, I noticed in my pilot of the course, really served as learning tools for students since it raised common questions before the first graded copyediting assessment. This resulted in higher grades on that assessment than in prior terms. Perhaps more importantly—from a student learning perspective—the more advanced first assessment attempt allowed me to give personalized feedback to students that would help them complete and even more sophisticated response to their second assessment. This is incredibly positive since the faster students improve, the more they can learn over the term.

Faculty Feedback

Because I am the only faculty member to have taught both the original and redesigned version of the editing course, I can only offer reflections based on a sample of one at this point. However, because I design, pilot, and then train others to teach our web-based courses, it is in my best interest to be critical of and thoughtful about them and to do my best to imagine what the experience of teaching them is likely to be for instructors with less online—and on-site in may cases--teaching experience than I.. With this in mind, my assessment of the potential for "faculty satisfaction" in the redesigned course is a mixed bag.

On the positive side, student experiences viewing and actually trying to choose marks can be used as prompts for discussion preceding their first submission of a graded copyediting project, and this will be tremendously helpful to instructors. Prior to having the interactive element, students had to practice the placement and articulation of the marks with their first editing project submission. This meant that instructors needed to extrapolate from student errors and respond to common misunderstandings during the evaluation of the first project. However, having the student experiences with the on-screen demos and exercises prior to the first project submission

means that instructors can talk through common misunderstanding with small or large groups on the discussion board. On the first assessment, instructors can then respond to difficulty more specific to each student's response to the assignment than the common first-attempt issues.

Too much extra labor time and stress will quickly kill faculty satisfaction with a course. In a web-based course, technical difficulties are the easiest way to increase labor time and add stress because this means a lot more time must be invested in maintaining the course environment and keeping students engaged. In fact, in some cases, this may mean that less time can be spent actually teaching students about the course content—which will negatively influence both student learning and faculty satisfaction. Additionally, the stress created for instructors by having to talk their students through technical breakdowns in the course on top of their own technical difficulties can be supremely difficult and unsatisfying, to say the least.

Program Integrity

In order for the positive elements of the new course design to outweigh the negative for both students and faculty, clearly the technical wrinkles must be ironed out first. No matter how promising they are, there is no benefit to adding more sophisticated technical elements if they don't work. But once that is done, the resulting redesigned course will be one which more effectively accomplishes both the general and specific goals for the course. With the full integration of the new elements, the course will motivate and support student learning, facilitate faculty satisfaction, strengthen program integrity. It will, furthermore, improve accessibility of instructor feedback by moving assessments, including editing project, 100% online; increase the number of opportunities for students to practice editing in electronic environments; draw on a wider range of technologies and tech skills for course interaction and assessment; and emphasize more current editing-specific work place skills.

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