CONTRADICTIONS, DISTURBANCES AND TRANSFORMATIONS: AN ACTIVITY THEORETICAL ANALYSIS OF THREE FACULTY MEMBERS' EXPERIENCE WITH DESIGNING AND TEACHING ONLINE COURSES

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ABSTRACT

Contradictions, Disturbances and Transformations: An Activity Theoretical Analysis of Three Faculty Members' Experience With Designing and Teaching Online Courses

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The activities of course design and teaching in higher education settings is a long established work activity for many faculty members. With the advent of the World Wide Web and online education, the context for these activities is changing. Many institutions of higher education are implementing distance education programs and charging faculty members with the task of developing and teaching online courses for the first time. This presents a challenge to faculty members' established ways of thinking about course design and teaching. It requires new course design procedures to represent and teach content in new contexts, and it requires the use of new tools as well as the creation and transformation of artifacts. It also requires new kinds of support and collaboration.

In this study, I used an activity theoretical framework to analyze three faculty members' experiences with designing and teaching online courses for the first time. The analysis is presented in three case studies (one devoted to each faculty member) as well as a cross case analysis. Although the analyses focused primarily on the faculty members' experiences and outcomes, activity theory offered a framework to study goal-oriented individual and group actions that took place within wider contexts or activity systems. Individuals from different activity systems within the university united in a new activity

system to work collaboratively to achieve a common objective. Thus, the participants were concurrently members of other systems with distinct developmental histories emphasizing different goals, tools, divisions of labor and rules. The analysis revealed contradictions within and between systems that manifested themselves in disturbances and breakdowns in individuals' work processes. Some of these disturbances and breakdowns forced individuals to reflect on the ongoing activity, which led to innovations, transformations in thinking, work processes and systemic change.

The analysis was also extended to a search for continuities in individuals' thinking and activity across contexts. It was revealed that continuities, in addition to contradictions and disturbances, were springboards for reflection, contradictions, disturbances, transformations, and sometimes, no change at all.

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Chapter 1

Introduction

Course planning and teaching in higher education involves balancing multiple objectives. Through years of experience in this work, faculty members have generated a great deal of knowledge and skill in this area. Most of their experience and skill, however, is in the context of conventional face-to-face classrooms. The advent of the World Wide Web and the growing online education industry is transforming this context. Increasingly, courses are being offered online. This has many higher education institutions rushing to develop and offer such courses and faculty members often are assigned these tasks.

Course design and teaching in a face-to-face environment is a long established work activity for most faculty members. Firmly established work activities are often characterized by automatic routines and tacit knowledge and practices. The introduction of a new context for course design and teaching, such as the World Wide Web, presents a challenge to established ways of thinking about these activities. It requires new course design procedures to represent and teach content in new contexts, it requires the use of new tools, the creation and transformation of different pedagogical artifacts, and it poses new problems. Old conceptual tools may be inadequate for solving them (Bruce, 1993). These changes may force participants to bring to a conscious level their often tacit thinking about larger issues of course design and teaching.

Shulman (1986) coined the phrase "pedagogical content knowledge" to characterize the complex ways in which teachers think about the subjects they teach. These include representation and formulation of concepts, pedagogical techniques,

knowledge of what makes concepts difficult or easy to learn, knowledge of students' prior knowledge, and theories of epistemology. Researchers (Foshay & Bergeron, 2000; Harasim, Hiltz, Teles & Turoff, 1995; Kimball, 1998) have argued that the differences between face-to-face and online courses may force faculty members to fundamentally rethink such knowledge as courses are moved to an online environment. For example, faculty members may need to rethink (a) the nature of the content to be taught and how to represent it (Koehler, Mishra, Hershey, Peruski, in press) (b) their role as teachers (Gibson, 1998; Picciano, 2001); and (c) the needs and requirements of students (Ben-Jacob, Levin & Ben-Jacob, 2000; Daniel, 1998; Keating and Hargitai, 1999).

Teaching online courses also requires a level of familiarity and comfort with technology that many faculty members may lack. Although they often are the "content experts," they may not be experts in technology who know how to design courses for an online environment. Their lack of experience with online courses may lead individual faculty members to entertain overly optimistic or naïve ideas of what is possible with the available technology or they may not be aware of the technological tools available today. Consequently, developing and teaching an online course usually requires collaboration with individuals who are experts in technology. This implies that the activity of designing and teaching an online course is situated within a larger web of institutional, individual and technological contexts that may be different from those required to design and teach face-to-face courses. These new stakeholders and participants may entertain different goals, intentions and motivations for the online course than those held by faculty members designing and teaching the course.

Collaboration to achieve the new object usually requires individuals from different contexts or activity systems within an institution to unite and form new activity systems to achieve a common object. This means that the individuals are concurrently members of multiple communities that may have unique, historically formed tools, divisions of labor and rules. There may be differences in how objects are seen as well as differences in responsibilities and accountabilities. Consequently, collaborative work between people from different contexts or systems within an institution may reveal conflicts or contradictions within or between systems. Contradictions may lead to tensions, disturbances or breakdowns in work processes, which may force individuals to adopt a more deliberative stance toward their work or to create innovations to reduce tensions. They may also lead to changes in work practice, transformations in individuals' thinking and transformations in systems. Thus, contradictions are opportunities for change and growth within both individuals and systems (Engestrom, 2000a, 2000b).

In this study, I followed three faculty members who were designing and teaching online courses for the first time. I interviewed the faculty members as well as some of their technical assistants during both the course design and online teaching activities. I was particularly interested in understanding the activity of designing and teaching an online class from the faculty members' perspectives as well as their interactions with others during their activities. This focus was derived in part from my previous work on a similar study (Mishra, Koehler, Hershey & Peruski, 2001). In that research, I interviewed six faculty members who were in the process of developing an online course for the first time. I used this work to get a perspective on faculty thinking as they designed online

courses, to pilot test interview questions, and to identify unanticipated issues for future research.

The findings of the previous study helped me to design the current research project. For example, the interviews revealed that the activities of course design and teaching appeared to be reciprocally related in interesting and complex ways. I found that during course design activities, faculty members thought a lot about teaching and it seemed likely that during teaching they would think about course design. This was evidenced by the fact that five out of six faculty members predicted that they would change their course while they were teaching it, or, at the very least, they would keep careful records to help them redesign the course for next time. Additionally, the same five faculty members easily imagined how their thinking about course design and teaching might change as they taught, but all six suggested that I conduct post teaching interviews to identify actual changes in their thinking. Consequently, I designed the current study to include the online course design and teaching activities, as well as follow-up interviews after the teaching activity.

The pilot study also indicated to me that the activity of designing an online course is situated within a larger web of institutional, individual and technological contexts that may be different from those required to design and teach face-to-face courses. I concluded that focusing only on the faculty members' stories was limiting. Moreover, I realized that studying such a rich web of connections required a theoretical framework that valued the richness of the contexts even while valuing the role of the individuals in the process. With those issues in mind, I chose to frame this study within the parameters of activity theory. Activity theory, broadly defined, "Is a philosophical and cross-

disciplinary framework for studying different forms of human practices as development processes, with both individual and social levels interlinked at the same time" (Kuutti, 1996; p. 25). An activity framework acknowledges that changes in work activities implies a history of established practices and that change is likely to involve meshing new ideas, artifacts and contexts with well-established beliefs and practices (Bruce, 1993; Engestrom, 1999; 2000a; 2000b).

According to Bruce (1993), change often reflects situation-specific compromises between the old and the new ways of doing things. The participants interpret and then re-create the activity as they adapt it to fit with institutional and physical constraints, and with their own goals and practices. Thus, innovation is a layered process where the effect of previous decisions, institutional context and personal histories shape what comes next. A new activity does not emerge from a vacuum, and neither does it exist in a vacuum. As the new activity comes into being, it is re-created to conform to the real or perceived goals, accountabilities, responsibilities and norms of the people who implement it within their contexts.

Developing a better understanding of this process was one of the goals of this dissertation. Adapting an activity framework allowed for both the analysis of individual transformations in thinking embedded within collective activities, as well as analysis of collective activities where various stakeholders in the process had distinct developmental histories emphasizing different goals, tools, divisions of labor and rules. These differences sometimes led to tensions or disturbances within or between individuals, which could be traced to systemic contradictions. In turn, contradictions and disturbances were sometimes a springboard for innovation, and individual and systemic

transformations (Engestrom, 1994; 2000b). An activity framework also allowed me to expand upon the existing research base in distance education, teacher thinking, teacher change, faculty development and technology infusion. At the same time, this research provided the opportunity to expand upon the literature that assesses the usefulness of activity theory as a framework for this kind of research. A more detailed explanation of activity theory and how it was adapted for use in this research is provided in later chapters, but first I describe the importance of and context for this study followed by some of the key questions that prompted this research.

Importance of the Study

Much of the existing research on online teaching focuses on issues such as how the course is implemented, the nature of the interaction between faculty and students and evaluation of learner outcomes (Bolanger & Jordan, 2000; Mehrotra, Hallister & McGahey, 2001; Williams, Paprock & Covington, 1999). Specifically, a lot of the research (particularly in the area of Computer Mediated Communication) tends to focus on particular technologies such as different kinds of discussion or chat software, and how these are instantiated within an online class. Less emphasis has been given to the experiences of faculty members working collaboratively with others to develop and teach online courses and whether these activities change their thinking about larger issues of teaching, learning and technology. Consequently, we have little knowledge of how the interactions between various stakeholders may lead to changes in work processes and thinking across groups and individuals.

This is a particularly opportune moment to conduct this research for several reasons. First, technology changes at an ever-faster rate. Thus, focusing research attention on a particular instantiation of a technology would not have offered guidelines on what to do when the technology changes. For example, research on text chat may become irrelevant once video chat or avatar (graphic representations of real people in cyberspace) based chats become prevalent. In contrast, by focusing on transformations in individuals' thinking and work processes during online course design and teaching activities, I have gained insights that apply across different technologies. Also, focusing on the broader context of change brought about by the incorporation of new technologies through the intentions and actions of a range of stakeholders' experiences provided a richer and more nuanced contextual view of how systems interact and change or remain stable in the face of coordination and conflict.

Finally, this research is timely because we are currently at an interesting moment in the diffusion and spread of a new pedagogical technology. Educational historians have pointed out that schools have changed very little over time (Cuban, 1986; Papert, 1993). The advent of online courses may be the single biggest change in education that we have seen in years. These changes are ongoing though online courses are not yet the norm. However, once online courses become more accepted they will also become more scripted, formulaic and characterized by automatic routines, tacit knowledge and unquestioned practices. Hence, it will be more difficult to capture participants' thinking about the process. As things stand now, research on this new technological medium of instruction is something that can inform our understanding of how technological innovation is accepted and extended in pedagogical settings. Such an understanding may

not be possible a few years from today as these approaches become mainstream. By offering a fine-grained analysis and understanding of how technical innovation can lead to changes in practice, this research can help offer suggestions for better course development as well as contextual and technological changes that could support faculty in online course development and teaching.

Questions That Prompted This Study

A major premise in this study is that faculty members' course design and teaching activities in a face-to-face environment are often characterized by automatic routines and tacit knowledge and practices. Furthermore, the introduction of a new context for these activities presents a challenge to established ways of thinking and may force faculty members to bring to a conscious level their tacit knowledge. Consequently, such a period of transition provides an opportunity to explore the experiences of individuals and collaborative groups involved in a new work activity. Based on this, several questions of interest arose around this topic. For example, what is the process by which faculty members develop and teach online courses? Do these activities force them to confront tacit thinking as well as transform their thinking about larger issues of teaching such as their understanding and representation of content, their beliefs about students and learning, methods of course design and their attitudes toward technology? In addition, how do various individuals from different systems within the university that may have different goals, responsibilities and accountability come together to work collaboratively on a project? Did their work together result in newer procedures or changes in their thinking, either individually or as a group?

With these broad questions in mind, I used activity theory, which is explained in chapter two, as a framework for this study. Before moving on to the explanation of activity theory, I conclude this chapter by describing the context for this study.

The Context for the Study

The advent of the World Wide Web, the growing online education industry and competition for a share of this market impelled a college within a large Midwestern university to create a new online master's degree program. The three faculty members (Jim, Juliet and Mikala)[1] that are the focus of this study were all developing and teaching courses for this new master's program. The dean of the college met with faculty members to announce the new program and explain how it would work. In order to support faculty members in the creation of courses for the new degree program the college offered a range of incentives. All faculty members who developed an online course would receive 10,000 dollars and a laptop computer to keep once the course was over. Faculty members also could attend informal seminars on a voluntary basis. In the seminars, they met with technical experts and others who already had taught online courses. The seminars were an open forum where participants could discuss their experiences, concerns, and offer advice to each other.

Since the administration was aware that their faculty members (including the three that are the focus of this research) had well-developed skills in and philosophies surrounding pedagogy, learning and course design, there was a concern that faculty would question the integrity and pedagogical soundness of a course if they were not

[1] All names are pseudonyms

intimately involved in creating it. In addition, the college wanted to stand out from online programs at some other universities whose courses were designed by hired professionals as opposed to the professors who would teach them. In response to these concerns, the college asked two of its faculty members who were also experts in technology to create a course to teach faculty how to develop their own online courses. [2]

The Faculty Development Class

Two professors who were employed by the college that was developing the online program were assigned the task of creating and implementing the faculty development course.[3] The design for the course, referred to here as FAC-DEV 101, grew out of their philosophy and ongoing research on integrating technological innovations into teaching. They called it "The Design Team Approach." Their goal in this approach was to help faculty members integrate content, pedagogy and technology. In their view,

> Quality teaching requires developing a nuanced understanding of the complex relationships between technology, content and pedagogy and utilizing this understanding to develop appropriate, context specific strategies and representations. Productive faculty development needs to consider all three issues not in isolation but rather taken together (Mishra, Koehler, Hershey & Peruski, 2002a, 2002b; Koehler, Mishra, Hershey & Peruski, in press).

Instead of just handing over course content to a web designer to place online, the "learning by design" approach advocates that expert teachers take a hand in the design of

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[2] There was a perception by some interested parties in this process that some faculty members were unhappy about the online program due to several factors such as resistance to change, a perception that the college might be too focused on financial gain as opposed to academics, the degree of control faculty members would have over the creation of the classes they might have to teach and a resistance to adding more to faculty members' workloads. Based on these perceived tensions the college responded with the incentives described here. Although these contradictions between systems could prove interesting for additional analyses, they were not the focus of this study and therefore very little data were collected that would permit further analysis of these contradictions. However, these ripe issues will be considered as the focus for future studies.

[3] One of the professors was also the director for this dissertation project.

the technology to support their pedagogical purposes. This approach relies on the process of design to develop the necessary skills and fluency for understanding the nuances of integrating technology and pedagogy.

In their work with students, the FAC-DEV 101 instructors had been looking for ways to include authentic projects and they came up with the idea to include master's students and faculty together in the course. Master's students enrolled to learn how to design technology to help solve a problem of educational practice while faculty members enrolled as "students" to learn about online learning and teaching and to develop the online course they would teach the following year.

Within the faculty development class, teams consisting of one faculty member and three or four master's students worked on designing an online course. The major activities of the course consisted of readings, explorations with technology, prototyping of the online course, online and in-class discussions, and peer review and feedback. A typical class period consisted of a whole group component (to discuss readings and issues that applied to all groups), and a small group component for the design teams to work on their prototypes (Mishra, Koehler, Hershey & Peruski, 2002b).

Only two of the three faculty members in this study, Jim and Juliet, enrolled in the FAC-DEV 101 class. They worked with their design teams to develop a mock up of their course web site. The third professor in this study, Mikala, was unable to fit the faculty development class into her schedule; therefore, she used her 10,000-dollar stipend from the college to form her own design team. The team was comprised of graduate students who were former professionals in a field related to the content of the online course. Mikala's design team developed the content and structure for her online course as well as

decided what software programs the online students would have to learn. However, unlike Jim and Juliet, Mikala's team did not work directly with the technology to create a mock up of her course web site. Instead, they left the web site to technology experts at the university's Virtual University (VU), a new unit that had been created to support faculty members in offering online courses.

The Virtual University

The course development model used by the VU made the faculty members responsible for developing the content of the course while the VU staff designers and programmers developed the technology. The VU staff also developed a series of software modules (called "widgets") that could be integrated into different courses based on faculty members' needs, requests, and course designs. The widgets include a discussion board, chat rooms, file uploading facilities, etc. Interaction between the faculty members and the designers and programmers was through a "producer," also an employee of the VU. The producer was the key person in this equation who was responsible for taking the content and design ideas developed by the faculty member and instantiating them using the tools made available by the VU technical staff (Mishra, Koehler, Hershey & Peruski, 2001).

In the next chapter, I provide an overview of activity theory and an explanation of how I adapted it for use in this study. I also provide definitions of terms commonly associated with activity theory and explain their relevance to this study. Following that, I explain the "systems" concept in activity theory and define the systems of interest in this

research. Finally, I frame the research questions asked in this study in the language of activity theory.

Chapter 2

Theoretical Framework

Overview of Activity Theory

After Vygotsky's death in 1934, his colleague, A. N. Leont'ev and others in Khar'ov reworked elements of Vygotsky's theory. The results came to be known as activity theory (Axel, 1997). Activity theory focuses on the activities in which people are engaged, the nature of the tools they use in those activities, the social and contextual relationships among the collaborators in those activities, the goals and intentions of those activities, and the objects or outcomes of those activities (Engestrom, 1994).

The unit of analysis is activity and the goal is to analyze the activity systems for their components and the dynamic reciprocal relations among them. Kuutti (1996) defined activity as, "A form of doing directed to an object, and activities are distinguished from each other according to their objects" (p. 27). Activities include goals, means, the process of molding the object, and the results. Subjects transform objects and the subjects change and develop themselves (Davydov, 1999).

Activity theory stresses that thinking is embedded in historically mediated object-oriented and artifact-mediated collective activities (Engestrom, 1994). The theory is useful for studying different forms of human and social/institutional learning as interlinked developmental processes where the problem or object drives the learning (Jonassen & Rohrer-Murphy, 1999). According to this view, knowledge and learning are situated and contextually bound (Jonassen, 2000).

The theory also adopts Marx's dialectic materialist view of activity and consciousness as dynamically interrelated (Leont'ev, 1981), which provides an alternative perspective to the mentalistic and idealist views of human knowledge that claim that learning must precede activity. In contrast to other theories, a key assumption in activity theory is that conscious learning emerges from activity not as a precursor to it. The fact that the problems under consideration are often ill structured and framed within larger individual and social contexts make the process and the solutions unpredictable and emergent in nature (Jonassen, 2000).

Applying Activity Theory to this Study

Contradictions and Disturbances

The approach to understanding phenomena in this study was inspired by the work of Engestrom (2000a; 2000b). When looking at learning and transformations in organizational settings, Engestrom based his analysis on contradictions that occurred within activities and between surrounding activities. Contradictions may occur between systems that have different goals, responsibilities and accountabilities or there may be contradictions in how tools, objects and subjects are perceived and understood. Contradictions also may arise because individuals working collaboratively to create an object are concurrently members of multiple communities. The communities may be overlapping or independent activity groups that have different objects, tools and social relations. People must adjust roles, beliefs and actions to resolve conflicts that may exist within and between systems (Jonassen, 2000).

According to Hasu & Engestrom (2000), "Contradictions manifest themselves in disturbances and breakdowns in work processes as well as workers' innovative attempts to solve them" (p. 65). Disturbances and breakdowns refer to a disruption in the normal functioning of things forcing individuals to adopt a more reflective or deliberative stance toward ongoing activity (Winograd & Flores, 1986; Bodker & Gronbaek, 1998). Studying the various systems that individuals are a part of and identifying disturbances, everyday troubles and breakdowns in work processes is a way to highlight the systemic contradictions. The importance of contradictions is that, although learning can be deliberate, contradictions can also be openings for learning, and transformations in thinking, work processes and systemic change.

Definition of Terms

Intersubjectivity and the ZPD

Two concepts associated with activity theory, intersubjective understanding and the zone of proximal development (ZPD), emerged during data analysis as explanatory vehicles in this study because of a focus on participants' transformations in thinking while working cooperatively with others to create an object.

Intersubjective understanding is a constructed, shared understanding of a situation (Hutchins & Klausen, 1998). Such understanding is constructed in the course of participants' interaction with one another around a common goal. In the course of their interaction, participants not only construct a shared understanding of their particular situation, but each person also gains new knowledge in the process. For example, in this study, the participants in the online course design teams and the VU producer entered the

situation with little shared prior understanding of how each other's systems worked. They only had knowledge of discrete pieces of the puzzle that they had to integrate. During their interaction, they constructed a shared understanding of their particular situation and each person gained new knowledge in the process.

Vygotsky's (1978) notion of the ZPD was that aside from a person's present skills and understanding there is a zone within which the person is capable of or motivated to learn. In activity theory terms, this concept is expanded to include collaborative groups and contexts because contradictions in everyday work activities can be a springboard to learning and change in both individuals and systems. Hence, contradictions create a space within which learning can take place, i.e. a ZPD at the group and system level (Bodker & Gronbaek, 1998).

Analysis of the design activity in this study presented opportunities to uncover such zones of proximal development, that is, where contradictions arose in the work activities and led to transformations in thinking and work activities for both individuals and systems.

In the next section of this chapter, I attempt to more clearly define the concept of "activity system" and describe the different "activity systems" that were analyzed in this study. Finally, I revisit the initial questions that prompted the study and state them within the framework and language of activity theory.

Activity Systems

According to Hasu & Engestrom (2000), "Activity is driven by a collective object and motive, but it is realized in goal-oriented individual and group actions" (p. 63).

Furthermore, the components of any activity are organized into activity systems that have complex mediational structures (Engestrom, 1994). They are systems that produce events and actions and evolve over relatively extended periods. An activity system includes a subject, an object, an outcome, mediating artifacts, community, division of labor and rules. In this study the activity was "designing and teaching a course for an online environment." These activities took place within organized activity systems, the components of which are described below.

Subject

A subject is an individual or sub-group whose agency is chosen as the point of view in the analysis (Engestrom, 1996). Even when the focus is on an individual, such as the faculty members in this study, the context must be included in the unit of analysis since people function within social systems. This implies that research within the framework of activity theory is always essentially collective. Consequently, a minimal meaningful context for individual actions must be included in the basic unit of analysis (Kuutti, 1996).

Although I primarily focused on faculty members' transformations in thinking during the online class design and teaching activities, I also collected data from and provided the frame of reference of other individuals and systems with whom the faculty members were associated as they worked to achieve the object. These other individuals and systems included the faculty development class, the faculty members' course design teams, the VU system and the producer, and the faculty members' online class in progress, which included the students in the online class. Thus, in this study, the subject

was "the faculty member" but also included the points of views and perspectives of other individuals and systems with whom they were associated while they created and taught the online class.

Object

The object refers to the object of the activity. "An *object* (in the sense of 'objective') is held by the subject and motivates activity, giving it a specific direction" (Nardi, 1997, p. 73). An object also is what connects individuals' actions to the collective activity because it is believed that generally, peoples' ability to perform is predicated on groups of people (Jonassen & Rohrer-Murphy, 1999). In this study, the object was to design and deliver an online class. The object was a material thing (the online course as represented in a web site, print materials, syllabi, course activities and so on) but it also had less tangible qualities. It was also a plan, an idea, and a design that was being manipulated and transformed by the actions of individuals and groups (i.e. by the participants in the activity). For example, while the course was being developed, it was being shaped and transformed by the faculty members and technical assistants, the course content, the technology tools and the institutional context.

Outcome

The outcome is the result of the transformation process. In other words, the object (the design and delivery of an online course) is transformed into an outcome (the completed course design and the delivered online course). The outcome is what motivates the existence of the activity. There are other less tangible outcomes as well, such as

transformations in individuals' thinking, changes in work processes and institutional changes that may have been prompted by the activity. The transformations are described in more detail in the analysis sections of the dissertation.

Mediation

An activity always contains various artifacts or tools and signs (e.g., procedures, heuristics, computer hardware and software, etc.). These artifacts mediate the activity within the cultural context in which the activity is situated (Bellamy, 1996). Engestrom (1999) considers mediation one of the most important concepts in activity theory in terms of its relationship to the notion of "control" and human agency. "The idea is that humans can control their behavior - 'not from the inside,' on the basis of biological urges, but 'from the outside,' using and creating artifacts" (p. 29). Thus, activity theory argues that psychological processes are conditioned by mediating artifacts as well as cultural, institutional and historical contexts (Wertsch, 1998). Tools mediate or alter the nature of human activity and when internalized, influence peoples' mental development. In turn, humans alter tools and subsequently the broader social context as well (Jonassen, 2000).

Mediation is multi-layered in that artifacts, such as tools and heuristics, mediate between individuals (subjects) and their purpose (object), but subjects are part of communities and participation in the community also mediates the activity. Thus, the community's rules and tools mediate individuals' activities. In turn, the division of labor or the role that each community member plays in transforming the object mediates the community's relationship to the object. Roles can encompass the power that each member wields and the tasks that each member is held responsible for. Consequently,

individuals' actions toward an object are mediated by the tools used, as well as community membership, which include rules and the division of labor within the community. These aspects of an activity system, community, rules and division of labor are described next.

Community

Communities consist of the individuals and subgroups that focus at least some of their effort on the object. Subjects are concurrently members of multiple communities and knowledge is distributed among members, other communities, tools and the object that is created (Jonassen, 2000). Thus, communities are systems of social relations that affect individuals' cognition. Communities mediate motives, tools, artifacts and actions.

Although the data collection in this study was focused on the faculty members, they were concurrently members of multiple communities. Consequently, in data analysis these communities and the individuals within them also were of interest. For example, two of the faculty members' participated in the faculty development class where they worked with design teams that functioned both within the faculty development class, as well as outside the class when the design teams worked with the VU producer. The VU producer was of interest due to his collaboration with the faculty members, but he also was part of the Virtual University system. The faculty member who did not take the faculty development class created her own design team and then went on to work with a VU producer. Once the faculty members' online courses were up and running, they became part of a classroom community that included their online students. At the same time, the faculty members still had ties to the VU community. All of these community

members were also part of other independent or overlapping communities. For example, the faculty members were part of a department within a college within a university, as well as part of a wider community outside the university that teaches subject matter in a particular discipline, and so on.

The point is that subjects have to contend with different motives, tools and artifacts associated with various communities. These all become mediators of their actions within the communities creating the object. For example, faculty members who took the faculty development class had exposure to technologies that were not available within the VU system. The faculty members also acquired knowledge of design options that were not compatible with VU technologies. Subsequently, the faculty members had to work with a VU producer who did not have the same tools and heuristics at his disposal. This contradiction led to disturbances in their work processes as they created the object.

Rules and Division of Labor

Communities have rules (both tacit and explicit) and divisions of labor, both of which are the less visible social mediators of activity (Engestrom, 1994). Rules refer to explicit regulations, laws, policies and conventions that constrain activity, as well as the implicit social norms, standards and relationships among members of the community. Rules guide, in part, the actions or activities acceptable by the community.

The division of labor is the horizontal division of tasks between community members and may encompass perceived expertise. Division of labor also encompasses vertical divisions of power based upon actual or perceived status of the various members

in the community or role-based divisions of labor. For example, in this study the faculty members said that they tried not to be in control of their design teams, but they had the status of "professor," while their design teams consisted of students. In addition, both students and faculty members knew that the faculty had the final say in how the site looked and what its content would be. This set up a tacit power relationship within the design teams that also may have affected the division of labor within the teams.

On the other hand, the relationship between the VU producer and the faculty members had a different and more complicated division of power. Although the faculty members had control over the content of their course, they often had to cede control over the design of the course to the VU producer who knew more about the technology (particularly the technology supported by the VU).

Tools

Tools are anything used in the transformation process such as physical tools (computers, software), or mental tools, such as models, theories or heuristics. The use of culture-specific tools shapes the way people act and think; that is, they mediate the relationship between the subject and the object. In turn, tools are also altered by the activity. Tools are both enabling and limiting: "It empowers the subject in the transformation process with the historically collected experience and skill 'crystallized' to it, but it also restricts the interaction to be from the perspective of that particular tool or instrument" (Kuutti, 1996, p. 27).

In the context of this study, different communities had various tools at their disposal to create the object. Faculty members used past experiences in designing face-to-

face classes as a model to begin designing their online classes. The faculty members that took the faculty development class also were introduced to new heuristics as well as technical tools. On the other hand, the VU producer had a different set of technical tools and heuristics he used to create other similar objects. When the two communities came together to create a common object, they had to mesh their different tools to create the object and sometimes transformed existing tools or created new ones to achieve the outcome.

Technical tools played an important role in this process for all of the faculty members. Tikhomirov (1999) concluded that technology is a means of influencing human activity and consequently the human psyche. However, the specific character is not defined by the technology, but first by the organizational and social conditions of its use and by the characteristics of the activity. The data analysis in this study revealed how computer technology aided in the creation of the object but also created disturbances within and between systems, as well as generated new forms of creative work that would have been impossible without computer technology.

Contradictions, Disturbances and Transformations

Seeing the world of designing and teaching online courses through the lens of activity theory led me to three key concepts central to this research. They are contradictions, disturbances and transformations. Although these terms have been mentioned before, they are discussed in detail below.

Contradictions and Disturbances

The various communities involved in the creation of the object (e.g., the college that created the online degree program, the faculty development class, the design teams, the VU and the VU producer) seemed to have a common goal or object of action. However, the individuals involved were simultaneously members of other overlapping or independent activity groups that had different tools, social relations, responsibilities and accountabilities.

When individuals from these different activity groups meet and interact to create an object, the differences can highlight systemic contradictions. Contradictions are a misfit within elements, between them, between different activities, or between different developmental phases of a single activity (Kuutti, 1996). Contradictions are manifested as problems, clashes, disturbances or breakdowns within individuals, between individuals and within and between systems. Contradictions are seen as sources of development in that they can lead to new forms of work activity as well as transformations in thinking and in systems. Contradictions and disturbances are not assumed to have a negative connotation although in some cases conflict may arise from them. Contradictions may simply be a disruption that results in reflection and coordination among participants.

In some way, contradictions and disturbances are an "essential tension" (Kuhn, 1977) that leads to transformations and changes. Though these tensions may lead to contradictions and disturbances in the short term, these are *essential* for the evolution and development of practices in the domain. In the Kuhnian sense of the word, "essential tension" represents the idea that no new knowledge or learning (paradigm shift) can occur without this tension between normal and revolutionary science. I have taken

liberties with Kuhn's original meaning and application to convey two ideas: (a) the idea that such tensions are inevitable given the different backgrounds, interests, goals, intentions and accountabilities of individuals and groups; and more importantly, (b) the fact that whether or not participants interpret disturbances as positive, negative or relatively neutral, these tensions can lead to changes and transformations in work process, in systems and in individuals' thinking and learning. These transformations are what keep systems alive and vibrant. The notion of transformation is discussed in greater detail below.

Transformations

In activity theory, transformation is a key notion that is understood as changing the object (Davydov, 1999). Davydov noted that not every change is a transformation and that "Transformation means changing an object internally, making evident its essence and altering it" (p. 42). However, it is not clear what "essence" actually means. Consequently, "transformation" is a notion that is continuing to be studied by activity theorists.

Vygotsky (1978) referred to transformation at the individual level where he emphasized the internalization of culturally given higher psychological functions. A common example of this is children learning skills and knowledge in interaction with adults and peers that are more experienced. However, Vygotsky's early studies examined not only the role of given artifacts as mediators of cognition, but also how children transformed and created artifacts of their own in order to facilitate their performance (Engestrom, 1999).

Engestrom (1999) also argued that individual transformation is not the only type of transformation that must be understood and mastered. He took the notion of transformation to the level of the system because, "People face not only the challenge of acquiring established culture; they also face situations in which they must formulate desirable culture" (p. 35).

For the purposes of this study, I adapted the term "transformation" to refer to changes in individuals, systems and tools. For example, if an individual changed his or her thinking or work activities, this constituted a transformation. If a system, such as a department within the university was changed in some way due to the activities of individuals or other systems, that also constituted a transformation, and so on.

Summary

The creation of a new object requires multiple actors associated with different communities that work collaboratively to create the object. Community members are associated with various systems, each having a distinct perspective on the developing object. From an activity-theoretical perspective, tracking the process of creating a new object from its earliest phases through completion provides a concise example or "laboratory" to examine the multiple historical layers, perspectives and viewpoints in and around the developing activity and object. In the creation process, separate historical layers and perspectives meet and interact (Engestrom, 1999). Such encounters are realized through different perspectives that the parties construct during the process, which is mediated by community norms, rules, division of labor, tools and signs (Jonassen, 2000). Such encounters also may highlight systemic contradictions that can lead to

disturbances in work process. In turn, contradictions and disturbances can be springboards for change in individuals and systems. In this study, these theoretical concepts were applied in the analysis of three faculty members as they worked collaboratively with others from various systems to create and deliver an online course.

Research Questions

Seeing the research from the point of view of activity theory enabled me to tighten and focus the original questions that drove me to conduct this study. The key idea to understanding phenomena in this study is based on the notion of systemic contradictions that could lead to disturbances within and between participants that are working collaboratively to achieve the outcome. Contradictions are historically formed within systems that have their own goals, intentions, accountability, divisions of labor and rules. Additionally, contradictions at the system level can lead to disturbances within and between the participants and systems engaged in collaborative activity because the participants are concurrently members of other systems. Contradictions that manifest themselves in disturbances can be a springboard for transformations in thinking and work processes. With these issues in mind, I focused and reframed my initial questions as follows:

Question 1: What contradictions and disturbances emerge during the activities of designing and teaching an online class?

Question 2: Does participating in these activities transform the thinking of the participants or the systems on issues such as course design, teaching, learning, technology and face-to-face teaching?

Chapter 3

Methodology

Overview of the Study Design

This was a qualitative research study where the primary focus was three faculty members' activity of designing and teaching an online class for the first time. Using an activity theoretical framework, I attended to faculty members' experiences as they worked within various systems to achieve the objects. The systems included the college of education and the faculty development class; the faculty members' design teams; the VU producer and the VU system. I identified contradictions within and between systems that manifested themselves in disturbances and breakdowns in individuals' thinking and work processes. Disturbances and breakdowns were linked to transformations in individuals' thinking and work processes, as well as transformations in systems and tools (Engestrom, 1999).

The analysis resulted in the presentation of three cases (one devoted to each faculty member) as well as a cross case analysis. As suggested by Miles and Huberman (1994), analysis of three cases is well suited to understanding more varied phenomena such as where certain events are likely to occur or not occur, identification of negative cases, and the formation of general categories of how certain conditions may be related. By analyzing three cases, I was able to take the analysis beyond a simple single case study, evaluation study, or comparison study and deepen understanding and explanation of the activity. Analyzing three cases allowed me to focus on understanding the

uniqueness within each case and similarities and differences across cases while avoiding simple "either-or" dichotomous conclusions of "better than" and "worse than."

Participants

Selection of the Participants

The three faculty participants of the research were all faculty members at a college within a large Midwestern university, which had recently (as of the time of data collection) instituted a Master of Arts degree that was to be offered online. I acquired a list of potential participants from the coordinator of the online master's program and from one of the professors who had taught the faculty development class. I narrowed that list down to faculty members who were teaching online for the first time. From that shorter list, I derived a sample of convenience and attempted to ensure some variability by seeking faculty members from different departments within the college. I narrowed my list down to three faculty members and met with them to seek their consent. All three agreed to participate in the study. The faculty members included two women and one man, all tenured faculty members with nine to twenty years of higher education teaching experience.

The three faculty members who agreed to participate provided me with the names and contact information of their VU producers. One of the producers, who worked with two of the professors in this study agreed to participate. The two professors who shared the same VU producer also were enrolled in the faculty development class. The third faculty member in this study did not take the faculty development class. She had used her stipend from the college to assemble a group of graduate students to function as her

design team. This faculty member was assigned to a different VU producer but he declined to participate in this study. Because of this, the faculty member provided me with the name and contact information of the student assistant (also a member of the design team) who worked most closely with her and the VU producer throughout the design and teaching activities. This student assistant agreed to participate in the study.

Once the study was approved by the University Committee on Research Involving Human Subjects (UCRIHS), the three faculty members and their technical assistants who agreed to participate read and signed consent forms. In addition, once the faculty members began teaching their online classes, I asked for and received permission from their online students to observe the class throughout the semester (see Appendix A for the informed consent forms).

One of the professors who taught the faculty development course was also the director for this dissertation. He provided verbal consent and read and agreed to any comments that he made that were included in this study.

Description of the Participants

The key participants in this study were three tenured faculty members employed by a college within a large Midwestern university that was instituting a new distance delivery system for a Master of Arts degree to begin in the fall of 2001. It was these three faculty members, whom I called "Jim," "Mikala" and "Juliet," whose perspectives were the primary concerns in this study. A description of and background information on each faculty member is provided in their case analyses beginning with chapter five.

Three other participants also provided data for this study. They included one VU producer, one student assistant/technical advisor, and one of the professors who taught the faculty development class.

The VU producer whom I called "Sam" worked with two of the faculty members in this study (Jim and Juliet, who also took the faculty development class). Sam came to the university as a student several years before our interview. He had graduated with a bachelor's degree in an area not closely related to technology. However, during his undergraduate studies he began working with technology as a hobby and took a couple of classes in design and computing. After receiving his bachelor's degree, he took a position as a graphic design director for a small city's web site. He came back to the university and worked for six months in another position when he saw an opening for a producer at the VU. Since he was interested in web-based education and technology, he took the position and had been employed for one and a half years at the time of our interview.

The fifth participant, whom I called "Bonnie," was one of the graduate student members of Mikala's design team. As a member of the design team, Bonnie took part in the development of the content and course structure for the online class and made suggestions as to which software programs the online students should learn, such as PowerPoint, Word Perfect and spreadsheets. Before starting her Ph.D., Bonnie had obtained both an undergraduate and a master's degree in a field related to the one that Mikala was teaching in. Bonnie had worked for several years in her field before coming to the university to start her Ph.D. She had developed technological knowledge over the years out of both necessity and job opportunity. She also became certified at a different university in the use of technology. Through that certification, she learned how to use

correct terminology, work with hardware and software, use different types of computers, and she learned about technology applications in her field (the same field that Mikala's course was designed for). At the time of our interview, Bonnie was doing web design of images using Photo Shop, creating web pages, and she had worked with databases, both implementing commercial software and creating custom databases.

Once Mikala's design team disbanded, Bonnie was responsible for transferring everything to the VU producer. Once the course was up and running, Bonnie monitored it throughout the semester, however she did not have direct contact with students. Her role was to provide support and to "maintain contact with the VU producer to make sure that students were finding all the links that they needed, that there was a thread to be followed that was clear and that they were comfortable in that environment" (Bonnie, interview, April 18, 2001). In addition, she did some research to find new web pages related to the online students' interests and needs.

The sixth participant was one of the two professors who had taught the faculty development course[4]. At the time this study was conducted, he had been an assistant professor with the college for three years. He had expertise with educational technology and design, though had not personally taught an online course (at the time the study was conducted). He (and another faculty member with an expertise in educational technology) had been asked by the college's administration to create the faculty development course to help faculty design their online courses. This course was the third offering of the faculty development course and he had been involved in all three of the courses that had been taught so far. The structure of the faculty development course was strongly

[4] This professor was also the director of the dissertation.

determined by his interest in learning technology through design, which was explained above in the section that described the context for this study.

Data Sources

Participant Interviews

Each of the three faculty members participated in a series of three in-depth interviews. The interviews took place during the online course design activity, about midterm during the teaching activity, and after each faculty member's online course had ended. Since my goal in the interviews was to understand the faculty member's point of view on their experience in online course design and teaching, the interviews were a mix of semi-structured and open-ended questions. (See appendix B for the interview protocol). The first interview gathered professional and technical background, data on how the faculty members carried out the course design activity, their perceptions about it, what they learned, and data regarding their interactions with others and with the technology during the activity. The second interview focused on the faculty members' experience teaching the online class, their interactions with others (e.g., the online students, the VU producer and the VU system, etc.), their interactions with the technology and the course content and what they had learned from their activity so far. The final interview was a reflection on their experience designing and teaching the online course, their interactions with people, systems and technology during these activities, and what they had learned. In addition, I watched for clues to changes in their thinking about online course design, technology, teaching, learning, etc.

The faculty interviews took place over a period of three to eight months. They were conducted in the faculty members' on-campus offices and lasted between one and one half and two and one half hours each. Each interview was tape-recorded. I also took hand written notes to supplement the interviews. After the interviews, I made notes on any follow-up that was required. In some instances, I contacted the faculty members via email to get clarification on certain items. In other instances, I waited until subsequent interviews to get clarification and to ask follow-up questions. Subsequently, I transcribed each tape-recorded interview and printed out a paper copy for review.

The VU producer, Sam was interviewed four times over an eight-month period. I interviewed him at about the same intervals as the faculty members-- during the online course design activity, during teaching and after teaching. The interview questions were similar to the ones I asked faculty members (see appendix B for technology assistant interviews). The interviews focused on understanding the VU producer's role, goals, intentions and motivations, the tools he employed, the VU system where he worked, his interactions with other people and systems, and whether and how he may have influenced faculty members' thinking about course design, teaching and technology. I also watched for clues to changes in his thinking about online course design, technology, learning and teaching. Based on these goals, the interviews were a combination of semi structured and open-ended questions. The interviews took place in the producer's office on the university campus and lasted between one and two hours each. I tape recorded, transcribed each interview, and printed out a paper copy for review.

The student assistant, Bonnie was interviewed one time after the online course had ended. The interview was a condensed version of the interviews I did with the VU

producer. The goal in this interview was to understand Bonnie's role in the activity and whether and how she may have influenced the faculty member's thinking about course design, teaching and technology. I also gained insights into the course design activity and her subsequent interactions with the VU system and producer. The interview took place over the phone and lasted about one and one half hours. It was tape-recorded and transcribed for later analysis.

Although I did not conduct any formal interviews with the professor who taught the faculty development class, I had informal verbal contact with him throughout data collection and analysis. He was the director for this dissertation and I had worked with him on a related research project that involved the faculty development course. This work resulted in several conference presentations and a paper. Some of the information about the faculty development course, the intentions of the professors who taught it, and the activities of the design groups were taken from these other publications (Mishra, Koehler, Hershey & Peruski, 2001, 2002a, 2002b; Koehler, Mishra, Hershey & Peruski, in press).

Observations

On two separate occasions, I observed two of the faculty members in the faculty development class. I took notes during the observations, which served as supplementary data in three areas. First was the supplement to faculty members' reports of their experience in the class such as how the class was organized, classroom activities, the content of the class and the technology that they learned about and interacted with. Second, the observations provided supplementary data on the faculty members' interactions within their design teams during the class, such as how the team worked

together and determined their respective roles, rules and divisions of labor, as well as the technology that the team interacted with for their specific course designs. Third, during these observations I viewed chronological iterations of the faculty members' course websites and listened to their discussions about how they had arrived at each iteration, what their next steps would be to change it, and what factors they considered when making changes.

From time to time, I also observed all three of the faculty members' online courses while they were teaching. I took notes during the observations, which served as supplementary data to the faculty members' verbal accounts in interviews about their experiences. Specifically, the observations were focused on faculty members' interactions with the technology, the VU producer and the VU system, and interactions with students and students' interactions with each other.

Artifacts

I obtained a CD-ROM copy of each faculty member's final version of his or her online course. These artifacts provided supporting data and a broader perspective concerning what technology was employed, navigational structures, graphic designs and aesthetics.

Data Analysis

The Process of Data Analysis

While all sources of data were reviewed and analyzed together, the interviews were the primary focus of analysis with the other sources of data (observational notes,

CD-ROMs of the courses, etc.) serving a supportive role (i.e., corroboration or refutation of interview data). I reviewed the transcribed interviews multiple times to get a more holistic conception of the content, to find instances that related to my study questions, to uncover unanticipated side issues and to identify themes (contradictions and disturbances). This technique facilitated decisions about which data chunks to pull out, which patterns best summarized a number of chunks and which stories were emerging (Miles & Huberman, 1994).

Subsequently I used a word processing program to create a chart for each faculty member. The charts were organized according to themes and interview questions. I plugged data into the chart, which I had summarized from the faculty member and assistant interviews and supporting data sources. I also created a cross case chart to look across faculty members employing the same process used for the individual charts. I printed out paper copies of each chart so that they could be viewed side by side. To get another visual display of the data, I cut up the paper copy of each chart and organized them by themes, interview questions and faculty member. I arranged them on a large board according to the themes and interview questions, as well as the time-period of the interview (design activity, teaching activity, after teaching activity) so that I could look within and across each faculty member. I also placed the chart pieces in a three-ring binder according to the themes, interview questions and time-periods of the interviews.

As suggested by several qualitative researchers (Erickson, 1986; Fetterman, 1991; Miles and Huberman, 1994) I looked for key linkages among the data that supported and refuted the major themes I had identified as well as patterns of generalization within and between cases. I also attempted to link the themes to each other and looked for negative

instances to disconfirm the links or that suggested new connections that needed to be made.

In data analysis, I focused on the activities of online course creation and teaching as ongoing activities and used the interviews and supporting data to construct a chronology of each faculty member's activities. From this chronology, I wrote a chronological narrative on each faculty member paying particular attention to identifying contradictions, disturbances and transformations in individuals and systems. I used the narrative to develop a chronological profile on each of the faculty members, which was written in each person's own voice. I used the narratives and the profiles to identify additional contradictions, disturbances and transformations.

The analysis revealed disturbances within and between the participants. The disturbances were then traced back to systemic contradictions. These shed light on the participants' transformations in thinking, on artifacts, and on systems, as well as on the creation of innovations and changes in work processes.

Data Presentation

Faculty Member Profiles and Case Studies

I used the interview data to produce a profile on each faculty member, which was written in the first person. In some instances, I included supporting data from the faculty members' technical advisors, also written in the first person. The profiles are located in Appendix C and are intended to serve as supporting data for readers who wish to gain more insight into the faculty members' perspectives and their thinking as they engaged in the activities. They are presented as a chronology of the activities. The profiles and the

supplementary data described above provided the basis for the case analyses on the faculty members that begin in chapter five. The profiles are also provided as a reference so that readers can get a better understanding of the context surrounding the quotes provided in the case analyses. In the next chapter, I provide a more detailed explanation of why I chose to write a profile for each faculty member and how the profiles were constructed. Following that I have provided a case analysis on each faculty member and then a cross case analysis in order to answer the research questions raised in chapter two.

CHAPTER 4

Faculty Members' Profiles

Crafting A Profile

I wrote a profile (located in appendix C) for each faculty member in his or her own words that chronicles their experiences in creating and teaching the online class. The profiles are a condensation of raw data that interested readers can refer to in order to get a better sense of the participants' experiences. They also provide readers with a sense of the context surrounding the quotes in the case analyses that begin in chapter five.

Crafting a profile of a participant's experience is one way of sharing interview data and opening up one's interview material to analysis and interpretations (Seidman, 1998). It is a way to transform data into a story, which is one way that people make sense of themselves and their social world (Mishler, 1986). Profiles have a beginning, middle and an end, as well as some sense of conflict and resolution. According to Seidman, a profile is most consistent with the process of interviewing because it allows the researcher to present the participant in context, to clarify his or her intentions, and to convey a sense of process and time, all central components of qualitative analysis. According to Seidman,

> We interview in order to come to know the experience of the participants through their stories. We learn from hearing and studying what the participants say. Although the interviewer can never be absent from the process, by crafting a profile in the participant's own words, the interviewer allows those words to reflect the person's consciousness (p. 102).

To craft the profiles I read through each interview multiple times and selected all the passages that related to the interview questions and the themes that I had created

based on earlier readings and the preliminary analysis I briefly described in chapter three (see "Data Analysis" in chapter three). The themes or categories included participants' backgrounds, their experiences in designing and teaching their online course, and others that related to my study goals and research questions. Once I had made these selections from each participant's interview, I put them together as a single transcript for each participant. This resulted in a transcript that was about one half the length of the original three-interview transcript for each participant.

Next, I read the new versions multiple times and again selected the most relevant passages (those that related to the participants' backgrounds, experiences and those that addressed my original research goals and study questions). The remaining data formed the profile in the participants' words rather than a third-person transformation of that voice. Seidman (1998) and Kvale (1996) argue that this method avoids distancing the reader from the participant and keeps researcher intrusions to a minimum because he or she is limited to selecting compelling material and weaving it together into a first-person narrative. The final versions of the profiles represent about one third of the length of the original three interview transcripts for each participant.

The profiles presented in appendix C are faithful to the participants' words but at times, it was necessary to add my own words to make transitions between passages or to clarify a passage. When I inserted myself into the profile, I placed my words in brackets. In addition, I deleted from the transcripts certain characteristics of oral speech that a participant would not use in writing, for example, repetitious "uhms," "ahs," "you knows," and other such idiosyncrasies that do not do the participant justice in a written version of what he or she has said (Seidman, 1998). I believe that this liberty was

justified since the transcripts were not the basis of discourse analysis or semantic analysis, for example.

As much as possible the profiles are presented in the order in which it came in the interviews. It was important to me that I try to remain true to that order since material that means something in one context may not mean the same thing when transposed to another context. However, I took the liberty of doing just that if I determined that the material from one interview fit with a part of the narrative based on another interview. When this was the case, I thought about it carefully and did so after deciding that it did not distort the meaning to take something out of its context and transpose it onto another context (Seidman, 1998).

I have located the profiles in the appendix since they seemed to detract from the flow of the manuscript. However, I believed it was important to keep them in the dissertation so that any reader seeking further explication of my interpretations (either supportive or interrogative) could view the profiles on their own. I am also sensitive to the fact that not many people would read these profiles in detail. For that reason I have tried to provide enough background information in the individual case analyses to make them understandable to someone who has not read the profiles in detail.

Finally, in crafting both the profiles and the case analyses, I did my best to protect the identities of the participants. I used pseudonyms that did justice to each participant by taking into account issues of ethnicity and gender. I also deleted details that easily identified the participants such as what department in the university they work in, who they work with and the title and description of the online class that they taught.

Chapter 5

Analysis and Interpretation

"Jim"

"I Think There Is A Tremendously Creative Aspect To This Work"

Introduction to the Case

This analysis is mainly related to the professor "Jim." However, since he was part of various interacting systems, the analysis also reveals contradictions, disturbances and transformations in other individuals and systems. For example, there was a contradiction between the faculty development class and the Virtual University, which led to disturbances in Jim's work with the VU producer. These disturbances led to transformations in Jim, and the VU producer as well as to system transformations.

The analysis is chronological in nature in that it closely follows Jim's activity from the beginning of online course design through the teaching activity to his reflections on the activities after he taught his online class. The case analysis is drawn from the profile in Appendix C that readers can access to understand more of the context surrounding each quote in the case analysis. Woven throughout the case analysis are the contradictions and disturbances that arose or revealed themselves during the activities. The analysis culminates with an explanation of the individual and system transformations that occurred during the activities.

Background on Jim

Jim has been a professor in higher education since 1988 and has been a tenured faculty member at this university since 1996. In order to develop his online course, he enrolled in the faculty development class where he worked with four graduate students to create a mock up for his class. His team was unique because he had brought them to the class instead of being assigned a team when he arrived. He had worked with these students on other projects in the past and they had all expressed an interest in this project.

Jim had taught the content he planned to use in the online class previously in the face-to-face context but he was changing the curricular framework and teaching methods for the online course by implementing Problem Based Learning. Jim supplied most of the course content but the students on his team also contributed content and took the lead role in the integration of the technology. Once the faculty development class ended, Jim and several of his team members worked with Sam, the VU producer to refine and ready the course for online delivery.

Description of the Online Course

Jim's course was a master's level course and one of the core courses in the program required for all master's students. It was also a course that doctoral students as well as students outside of the program sometimes took.

The content was to be studied through the analysis of a set of problems that had widespread application and currency for people working in practice settings. The problems would be "messy problems" where there was not one right answer. They would

be representative composites from actual practice settings and students would work in teams to solve them.

Collective Activity Systems: the Design Activity

A New Context for Teaching

Normally in face-to-face course design, Jim worked alone to develop a class. Once he had developed his content and a basic structure for the course, he would leave room open for spontaneous changes during the course. Usually, he would not prepare a lecture for each course but he often presented an overview or a short lecture to students using an outline. Subsequently, he used a variety of experiential activities to engage students with the content, such as group work, case work and problem solving exercises.

Developing an online course was a deviation from Jim's usual script of designing a course for a face-to-face environment. Although he still wanted students to engage in experiential learning, he felt that he had to plan all of those activities and frontload all of his content in advance. Moreover, in face-to-face course planning, his thinking about class management was tacit and he could be creative and spontaneous to suit the mood of the class on any given day. In contrast, in the online context, issues of class management had to be explicitly thought through and dealt with before teaching the class.

> I am more nervous than I have been about my teaching in a long time.... So just figuring out for yourself what you have to do to manage that is a tough one until you are into it sometimes.... And then of course just not being skilled in that kind of pedagogical environment; not knowing for sure how to be helpful (Jim, interview, July 11, 2001).

The deviation from Jim's usual script of face-to-face course design created a disturbance that made him question his role as a teacher. Although he was excited by the

prospect of considering these questions, they also created lingering anxieties about managing the process.

> You can create a design that's really dynamic and Cracker Jack and then it's like well, ok, does this mean there is no need for a teacher? If there isn't, then what does that mean to be present to the students in that kind of environment? I don't know the answer to that. I'm not nervous about that part. I'm excited and interested in what that means. The nervous part has to do with classroom management... managing the whole thing, managing the enterprise and making sure that it's going to be helpful. I think in theory it makes a lot of sense and I'm absolutely convinced that it's the right thing to do but in practice things can turn out a little different (Jim, interview, July 11, 2001).

This initial disturbance, created by moving his course online, was confounded by the fact that Jim planned to try out a new curricular framework in the online class called Problem Based Learning (PBL). The PBL framework was also one of the major factors that motivated him to create the online class. For a number of years he was becoming increasingly dissatisfied with the topical orientations to courses in his discipline. He viewed his discipline as a professional practice and believed that the curriculum should reflect that. "One of the ways in which we can change that is get off a high theoretical topical focus in our courses and we can begin to make our courses more directly linked to practice" (Jim, interview, May 7, 2001). He found his solution in PBL, which he described as both a teaching methodology and a curricular framework.

Because of his goal to integrate PBL and online learning, he faced several challenges beyond that of merely creating an online class with existing content. He had to learn about PBL, online learning, teaching, and course design and marry them with his content and the technology to create a coherent course that fit into the overall online masters program being offered by the college. This combination of factors mediated his

thinking about online course design and teaching, and affected his confidence in his teaching skills and his thinking about his role as a teacher.

> It creates a whole host of questions and issues, which I can think about and wonder about.... I think the surprising thing for me was how it tested and questions my own confidence as a teacher and really what teaching is all about anyway. What are you really doing when you are teaching? What is the value of your contribution in the whole thing? I don't know that (Jim, interview December 18, 2001).

The College System

A contradiction at the college system level also created a disturbance in Jim's work and mediated his thinking and actions. Although the college offered several supports to faculty members (e.g., financial support, laptop computer, the faculty development class, etc.), the college's administrators had decided not to provide a course buyout or overload pay to faculty members for this work. This became an important mediator in Jim's experience and ultimately affected his feelings of success.

> My responsibilities as a professor make the time commitment and the idea of setting some kind of a schedule for this course difficult. It's hard to do when you've got a schedule that requires you to be flexible and meetings here and there and all over the place so that part of it makes it hard. This gets done on top of everything else. There wasn't space created in my life to do this interesting project. It was like life is full already and let's just make it more full (Jim, interview, 12-18-01).

The Faculty Development Class

Jim was one of two professors in this study that enrolled in the faculty development class (the other one was Juliet, whose case is described in chapter seven). In the faculty development class, Jim and his design team worked closely with the technological tools to develop a mock up of their course web site that they would later take to a producer at the VU to put it online.

The professors who taught the faculty development class viewed the Virtual University as technologically limited with little expertise in curriculum design. One of their goals for the faculty development class was for faculty members to gain more understanding and control over the online course design activity including both the technology and curriculum design. To this end they helped the design teams to explore a wide range of aesthetic and technological options available outside VU and discussed the affordances and constraints offered by various technologies both within and outside the VU.

One of the differences between the VU and the faculty development class was that in the latter, the design teams were introduced to Blackboard (a commercial course management system) to use in the construction of their online course web sites. It is one option for online course development that came with an extensive suite of additional tools for student tracking, assessments and so on. Unlike Blackboard, the VU system was not an integrated system and had only a limited set of widgets for use in their courses.

One of the professors who taught the faculty development class revealed in a personal communication (August 29, 2002) that he was aware that this philosophy and the use of tools (such as Blackboard) that were not available to VU set up a potential contradiction between the faculty development class and the VU. He knew that this could lead to disturbances between faculty members and the VU producer, but he also understood that contradiction could be a springboard for change. The instructors for the faculty development class hoped to encourage the VU, indirectly through the faculty members, to update and expand their available tools in order to create more pedagogically sound course designs and hand over more control to faculty members. I

will return to this contradiction later in this analysis, but first I will describe the activities of Jim's design team within the faculty development class.

The Design Team

When Jim designed face-to-face classes, he usually worked alone to develop the content and structure of his course. He also did not feel the need to finalize all of the course content before the class started. He usually had a general structure in mind for the course but he liked the freedom to make small changes from week to week based on students' needs and interests and on his own continuing investigations into relevant literature. In contrast, designing an online course in a new technological context seemed to require extensive preplanning and frontloading of content into the web site, something that he was not used to doing. It also required collaboration with technology experts since Jim lacked the technological skills required to create an online class. Consequently, working collaboratively within an activity system in a technology-laden context was a deviation from Jim's usual course design script.

The object of the activity (creating an online class) united the design team or activity system. Although the team had a common goal or object, how they would achieve it was not at all clear. Even the object was not well defined because the team members did not have a clear, shared vision of what the final product would be or should be. Thus, the final state of the object was itself a starting point to be developed into a plan and an object through the collaboration of all of the members.

To achieve the new object, the team members had to use new procedures and tools. Their thinking was not only distributed socially between participants, it also was

distributed between the participants, the technological tools, and the heuristics that they employed to create the new object. Unlike the other teams in the faculty development course however, Jim's team had a history. They had worked together on other projects and they had developed a good working relationship and a sense of trust among them. They also had loosely defined roles before beginning the activity. Jim was the content expert and provided the initial aesthetic vision for the course. He also had the final say on the outcome. Two other members were viewed as the technology experts, although all the graduate students had some technological skills. Another student was interested in cooperative learning online, while the last student was interested in course structure and navigation within the site.

The team also had a common starting point. None of the members was an expert in PBL or online course design so they began on a level playing field in these respects. Because none of the members was an expert in PBL, much of their initial activity was directed toward understanding PBL, as well as Jim's vision for the course. As the group moved toward a shared understanding of these features, they began developing a structure and aesthetic for the course. It was only then that they tried to implement these ideas through technology. As they worked to integrate the pieces of the course, the design team members naturally gravitated towards different roles.

> What happened very shortly was there was a kind of natural division of labor... one of the most interesting things is that what was actually produced was largely their work... but it reproduced the very vision that I had so there had to be a kind of understanding and incorporation of their vision (Jim, interview, May 7, 2001).

As the activity progressed, the divisions of labor blurred because the members' activities overlapped as they began to integrate the different pieces of the course (aesthetics, content, structure, navigation, etc.). Jim maintained his role as the content

expert and overall visionary, but he relied heavily on the team for their technological expertise, which also influenced the design and the content.

> They influenced a lot the ways in which we thought about (the content), laid it out and approach to the study of the content.... How to lay out the problems and how they could be navigated, interlaced and interconnected.... The orientation, for example, became a whole lot more than what I thought it was gonna be. It went from a few paragraphs to set of structured learning experiences to nudge them into this way of learning. I didn't have that in mind but as we talked, thought about what was needed, because of the nature of the course, we might need this. (Jim, interview, May 7, 2001).

Jim characterized the teams' activity as conflict free throughout the design process. Initially, the teams' activity progressed in a linear manner beginning with a common focus on learning about PBL and understanding Jim's vision for the course. After that, however, the process became more iterative where the team went back and forth between working on discrete pieces, presenting their ideas to the group, discussing the pros and cons until they reached agreement, and finally integrating the pieces.

> Decision-making was very informal, very fluid. Surprisingly I didn't have to tell them to do things. They knew what to do. I didn't give anybody any tasks or jobs to do. They figured those things out for themselves. Towards the end, I became a person who said well, now what's left (Jim, interview, May 7, 2001)?

The Virtual University

The usual script in this university for working with the VU was that faculty members brought raw content to the VU producer who worked one on one with faculty members to develop the web site, course structure and navigation through the site. Once the faculty member approved the final design, the producer loaded the content into the site and made it functional using the tools available through the VU. When the producer got a full rough draft of the site up onto the VU system, he made the needed revisions and added images that fit with the topic of the class. Thus, there was a particular division of

labor wherein the faculty member and the VU producer had little knowledge of each other's area of specialization.

The VU system was inherently contradictory because in order to complete this work the VU producer had to use idiosyncratic tools that were not compatible with outside systems such as Blackboard, which Jim had used in the faculty development course. In addition, the producer had been trained in a graphic design tradition as opposed to curriculum design and typically, he created lecture online classes as opposed to highly interactive ones. Thus, the VU was a "closed system" whose tools and sometimes philosophies were not compatible with the needs and philosophies of their clients, the faculty members. Jim's course design team, on the other hand, came from a curriculum design tradition and created a highly interactive course structure by utilizing a wide range of tools that were compatible with Blackboard but were not compatible with the VU system. The VU producer explained how the VU system worked.

> The problem is we're a very centralized programming and server administration unit that everything has to go through them and because of that, I can't use one thing for one class and use another thing for another class. I have to use one thing for all of them so that does cause some problems (Sam, interview, December 20, 2001).

From the start, Jim's work with the VU producer was characterized by deviations from the usual script. That coupled with the inherent contradictions within VU led to disturbances in their work together. Jim arrived at the VU with an almost complete mock up of a highly interactive online course, which his design team had created in the faculty development class. And, even though the design team had particular divisions of labor, the members also worked in coordination with each other so that they all had knowledge of each other's specializations. In addition, Jim brought some of his design team

members to the VU to work with the producer instead of working with him one on one. Thus a new member, the VU producer, was introduced into an already cohesive team.

Initially the VU producer viewed these deviations as beneficial because it would allow him more time to devote to refining and improving the design. He suggested changing the navigation, the course structure and the aesthetic appearance of the site. However, Jim's design team was happy with their design and resisted the producer's suggestions. The producer was unable to persuade Jim and his team members and since one of the producer's main goals was to satisfy the client, he acquiesced. Nevertheless, this created some conflict between the producer and Jim's design team.

> He had two people working with him throughout the whole thing who had an idea of how they thought it should be and I always got the picture from them that they didn't trust, they didn't think that I knew what I was doing and Jim was more willing to trust them than he was to trust me and so I think it was just that lack of trust (Sam, interview, December 20, 2001).

As previously indicated, these disturbances can also be attributed to the contradiction between the faculty development class and the VU system. In the faculty development class, the design team had exposure to technologies and design options (Blackboard) that were not available at or compatible with the VU system's technical tools or design philosophies, as the producer noted in the following quote.

> Working with his graduate assistants that had different ideas on how things should be done (was a problem). The design is one, they're used to working outside the VU system. There's a certain amount of tools that we use at VU and people who are outside VU don't have access to those tools so they've become accustomed to working within other systems and it was really hard to get them to see that we need to mold things into our system (Sam, interview, December 20, 2001).

Moreover, since the design group was a client of the VU, one of the producer's goals was to satisfy them. In the past, the producer had been able to handle such disturbances but in this case, his usual methods did not work.

> Normally it works to just accept what the faculty is thinking in the beginning and then as things go on, they come to realize on their own that this doesn't work and that doesn't work but... in this case, that never came to realization (Sam, interview, November 20, 2001).

Finally, the divisions of labor were also upset when the group went to the VU. The producer was no longer the sole technology expert. He had to share that role with Jim's team members. Hence, disturbances stemmed from at least four sources: (1) differing philosophies on design and implementation, (2) the contradictions within the VU, and (3) the contradiction created by the differences between the VU and the faculty development class, which included the differences in tools, design rules, and divisions of labor.

Informal Support Systems

Aside from the technical support that Jim received from his design team members and the VU, he also had a son who was skilled with technology. His son helped him learn how to upload data to the web page and use the editing function so that he could edit his own web page. His son also helped with other technological functions.

> I tried to do the audio on my computer at home and my son showed me how to turn the microphone on. I never knew to turn the microphone on. You gotta click on it.... I would've never known to double click on the volume thing (Jim, interview May 7, 2001).

The Online Teaching Activity

The VU System and the Professor

The disturbances between Jim and the VU system kept piling up during the teaching activity. In Jim's view, the VU was not responsive to his needs evidenced by their slow response time when he reported a problem to them. In his opinion, the VU did

not understand faculty and student needs or the type of learning that they were doing. He believed that the VU did not understand how an interactive course was run and what the needs were for students. There were three key examples of this. First, the online system went down one time and knocked out the web chat function.

> There was one critical period where the whole system went down and I got a clear picture that the programmers didn't really understand the way in which this course was structured because it was no big deal to them (Jim, interview, December 18, 2001).

Because Jim's course was highly interactive and required students and the professor to communicate with each other frequently, they lost time when the system was not fixed in a timely manner.

The second example was when Jim asked the VU producer to design something that would provide him with a count of which students were online and when. Although the producer was able to create an innovation that was compatible with the VU tools, the VU administrators would not let him implement it. The VU producer explained the problem in the following quote.

> When Jim wanted to track students we don't have anything set up to do that right now. It could be set up... but then it brought up issues with my bosses about human subject clearance and stuff like that. Was it okay to do this and was it ethical to collect data about students using these pages and things (Sam, interview, September 11, 2001)?

The VU could not resolve the issue in time to implement the innovation, which further reinforced Jim's frustrations with them and his opinion that it was an antiquated and unresponsive system.

The third example that Jim offered was related to the chat system designed by the VU for each course. At one point there was a glitch in the system that caused it to place "new" flags on old postings that students had already read. Because of this, students spent

time rereading "old" postings. Although it was eventually fixed, Jim thought that it was not done in a timely manner. These three examples led him to the following conclusion,

> The technology piece was just an irritant and that was a constant.... The VU technology seems antiquated and cumbersome... I think there are a number of areas where VU needs to be much more supportive to make this online thing go (Jim, interview, December 18, 2001).

Assessing Student Learning

Although Jim thought that the online context provided a better view into students' learning and thinking about the content, it also created a disturbance in his thinking about student assessment. He thought that some students deserved higher grades than they received but were penalized if their team members were not as committed as they were.

> In some instances when I was computing the final grade, I could tell when I wanted to give this person a 3.5 because I could tell from individual work that it wasn't a 4.0. It would come up with a 4.0 based on the team product which carried them. I had a couple where it was the other way around so I've got to build in some component of individual grading within that team product. I'm not happy and I don't think they're happy either 'cause I think some of the students felt that they were carrying the weight of the other people and they didn't like that (Jim, interview, December 18, 2001).

Although many professors also encounter this problem in face-to-face courses, Jim did not say that this was true for him, therefore it remains unclear as to whether, for Jim, this was something that was unique to the online context.

The Teacher's Role

The teaching activities in the new online context also led to some disturbances in Jim's thinking about his role as a teacher. The disturbances seemed to stem from several sources. For one thing, unlike his face-to-face teaching activity, Jim had trouble in his

online class discerning when and how to intervene in team chats and deciding where the pedagogical moments were.

> The team chats... knowing when and how to intervene in those conversations, when to make a comment or to say something that needs to be said. That was hard. Sometimes it was real obvious like oh god I have to get in there and correct that misunderstanding. That was every once in a while but most of the time, it's just sort of gray as to whether you should say something or need to say something. I guess a way to think about that is to just not to know for sure where the pedagogical moment is in that conversation not recognizing always or not being able to clearly tell (Jim, interview, December 18, 2001).

Second, was the fact that he found the class-wide chats stressful because they were too fast-paced, which made it hard for him to keep up with conversations.

Third, in our initial interview, Jim had talked about how important it was to him to help students integrate the affective/emotional dimension of their thinking with the content/cognitive aspects of a course. Although he believed that he achieved this in his face-to-face teaching, by the end of the online teaching activity, he was still uncertain about how to help students make that connection online.

> I am deeply committed as a teacher to what I would consider the affective/emotional dimension of learning. I really believe that's where the most significant learning takes place and particularly if you are able to integrate content or cognitive stuff in with the emotional. But I have no idea how to connect with that online I mean it just seems like an ephemeral, like a black hole and so the consequence of that is that we spend time in kind of intellectual conversation and supporting and upholding content. There are a lot of emotional issues around each of these problems and I just was not able to figure out how to get at that in this particular environment (Jim, interview, December 18, 2001).

By the end of the course, Jim's questions about his role as a teacher online were still unanswered. "Even still, I mean I don't really know for sure what my role is in this medium or what it should be. I think I raised more questions about that than I did get answers" (Jim, interview, December 18, 2001).

Teacher Identity Online

Questions about his identity as a teacher also emerged for Jim during the teaching activity. For example, he was surprised at how few questions there were from students about content or requests for clarification compared to what he would typically get in a face-to-face class. "Students rely on you as content expert which is tied to one's identity. I didn't get that online and simply not having a good handle on whether they're really learning the content." (Jim, interview, December 18, 2001). This was also related to Jim's uncertainty about whether or not his guiding questions for the cases helped students structure their inquiry.

> Some people were using the guiding questions very explicitly to structure their inquiry and others it seemed to be a distraction, almost like another assignment they had to do. Those are hard things to do too those guiding questions to write that are not so specific that they are going to narrow the focus but are not too broad that they are completely meaningless. Those seem to be hard to write (Jim, interview, December 18, 2001).

Both of these issues may also have been related Jim's use of the PBL format, which encourages students to be more self-directed in their learning. However, Jim remained unsure of whether it was the PBL format or the online context, or a combination of both factors that led to the disturbances.

Tools

The Technology

The technology outside the VU also created disturbances, which Jim viewed as another source of frustration. For example, people were bumped off line a lot and there were times when Jim was unable to connect when he was out of town. There were also issues with students' limitations in technology. Some students had trouble downloading and uploading data, there were problems for those with limited bandwidths and Jim believed that the time delay in their synchronous chats caused fragmentation in their conversations.

Another source of Jim's frustration with the technology was his own lack of skill in using it. In Jim's view, this disturbance could be traced to the college administration who had not provided faculty members with extra time to engage in this activity. Because of a lack of time, Jim was unable to learn to use some of the technology to the level he felt was required. For example, he had difficulty using the editing software in the way it was intended. Consequently, he had to invent new and less efficient ways to edit the content in the site during the teaching activity. That resulted in additional loss of time that he could have devoted to the class. He also believed that this inhibited his ability to be spontaneous and creative during the class.

> I want to make the announcements on our home page for example and I don't do it in Dream Weaver. I just do it right on the page because I don't know any of the commands so that limits what I can do. I need to learn the language or I need to get more facile at editing and the whole web page you know? I want to be able to go in and easily and freely make changes in my web pages. So, I didn't learn a lot about the sort of technical parts of the technology (Jim, interview, December 18, 2001).

As a result, Jim experienced a continuing sense of a lack of control over the technology, which he thought if he could master would save him time when designing the course, as well as allow him to be more creative and spontaneous during both the design and teaching activities. The disturbance also stemmed in part from his frustration at having to rely on the VU whom he saw as unresponsive and as having antiquated technological tools.

> Learning more about the technology would make it easier for me to do some of these things. My idea would be that ultimately I would be able to do this entirely myself because it allows me to play more. I don't have to create something for a producer or an artist and see what they do with it. I'm at my computer. I have the idea. I can go to the software and I can begin to work with it to see whether it's possible or to what extent it's possible. The other thing is that it's much more creative that way. I think there is a tremendously creative aspect to this work. That's really the exciting part (Jim, interview, May 7, 2001).

PBL as a Mediator in Students' Learning

Jim thought that the use of a PBL format was his best decision, even though it had created some disturbances in his activities. Based on the feedback from his students, he identified two main issues of importance related to student learning in a PBL format. First, he believed that there was a deep sense of collaborative learning among students that seemed to be a new experience for most of them. It was more than working in teams in a class; it was that the entire experience was grounded in being part of a team. From the first day of class, the students saw themselves as part of a team and a collaborative effort. In Jim's opinion, the result was that students began to appreciate collaborative learning in a way in which they had never experienced it before.

Second, Jim reasoned that PBL facilitated self-directed learning. He believed that students began to see themselves as capable of inquiry in a way that they had not

understood about themselves before. They learned content as they saw appropriate to their interests and needs; however, this scenario also highlighted an inherent contradiction. On the one hand, Jim was pleased that students were not spending a lot of time trying to second-guess what it was that he thought they should know. Instead, students focused on what they needed to know to solve the problems before them. Since the problems did not have one right answer, they weeded through a lot of content that they did not want or need and made their own decisions about what was important. As a result, the students became more self-directed in their learning. On the other hand, Jim was concerned about whether he fulfilled his responsibility to familiarize students with the literature in the field. "They have to know their way around the literature, they have to know about studies and certain theorists and certain scholars, whether they like the person's ideas or not they just have to have some awareness of it" (Jim, interview, December 18, 2001).

Jim also noticed that some students took this individualization too seriously and just pursued what they wanted. Consequently, he found himself bringing students back to the task at hand virtually all semester long. He realized that a PBL format was inherently contradictory in that sense.

> There was a lot of that, this is what I want to do or it has implications for this and they would spend a lot of time on what I would call the methods piece and I had to continually nudge them back to theory of (the subject matter) and say this is our job here this semester primarily (Jim, interview, December 18, 2001).

Some students complained that Jim was being too prescriptive and that drawing the boundary made them feel like he was not letting them do what they really wanted to do. Jim agreed with his students and noted that this was one of the inherent contradictions created by using a PBL format. According to Jim, when PBL is constrained within the

context of a course, it creates a major limitation. However, he still thought it was better than teaching a topical course, but he could see that in the future it would be beneficial to design a series of courses that would take into account the directions that students were pushing.

> They were pushing in directions, which were quite natural in the PBL approach... and I think ideally that's the way the curriculum should be. It should be a series of graded problems that stretch out in increasing complexity. But, when the students start working on them and they raise questions like that you don't say well that's not exactly in our scope, which is sometimes exactly what I had to say. So, they were pushing in directions which were natural to PBL but I was pushing back in a kind of unnatural way, which was subject matter based so that was a tension that had everything to do with teaching PBL in a course-based or a subject matter-based format (Jim, interview, December 18, 2001).

Disturbances also arose during the teaching activity that resulted from the original course design, including the curricular and navigational structures. Jim had deliberately tried to create a course design that he (and his design team) thought would encourage students to create a community of learners both within their small groups and class-wide. Although Jim was satisfied that the small groups formed learning communities, he was disappointed that a class-wide learning community never materialized.

He thought that the class-wide discussion board would be a forum for ideas, questions, conversation, sharing of ideas, and students pressing one another about their statements and beliefs. Jim hoped that the students would share with one another exciting and interesting ideas, observations and findings. That never happened and Jim attributed that to three main things. First, he believed that students were putting all of their time and energy into their teamwork, which were so intense and focused that it detracted from their forming a class-wide community. Second, Jim had not structured the class wide chats in a particular way, which could have confused students about their purpose and

importance. Finally, Jim had initially set up six class wide chats per week. However, he quickly realized that that was too many and he cut it back to three chats in order to ease the workload for students. Despite his reflections, Jim was still uncertain about how to remedy these problems for the next time. "(The discussion board is) a great place to continue your reflection and your learning but that by and large did not take place and that was disappointing and I don't know what to do to make that different" (Jim, interview, December 18, 2001).

Transformations

Once Jim had finished teaching the online course he reflected on the activity, as did the VU producer. Data from these interviews revealed that both participants experienced transformations in their own thinking, as well as the potential for transformation in both the VU system and the faculty development class.

The Online Teaching Activity

When Jim first began the online course design activity, he had reservations about whether or not he would be able to "see" students' learning in that context.

> In face-to-face I know the students are there. I know they're thinking and engaged. I can see their faces. I don't know how that's gonna play out online. Those are scary issues. This whole thing could fall completely flat (Jim, interview, May 5, 2001).

However, by the end of the course he was convinced that the online context might actually facilitate students' learning especially if it is writing intensive such as his course was. He believed that because his course was writing intensive, students' work and thinking was more visible to him than it was in the face-to-face context. He was also

surprised at how well he got to know his students online due to the visibility of their work. In addition, the online environment made students' contributions in teams more visible than in face-to-face classes.

> Learning can be more real in online environments than in face-to-face classes. I think there is a distinct possibility that students are learning more and learning more that's real in online environments. You can hide in face-to-face teams. You can loaf and get by and learn very little because the teacher often times does not have a clear sense of what you are learning, doesn't have clear evidence of your individual standing and performance. In the online environments you've got, well not a pathway to their soul but it's pretty close and so it's kind of hard to hide. I know when people are loafing. I know when people are not doing the reading. I can tell whether they are thinking carefully about stuff. I can tell when they're not online. Those are all things which become much more transparent online (Jim, interview, December 18, 2001).

The Face-to-Face Teaching Activity

Because of his online teaching activity, Jim experienced transformations in his thinking about student learning in the face-to-face context. He realized that having students write more in the online class had been valuable to their learning and to his getting to know them better than he ever had in his face-to-face classes.

> Because more of their thinking (was) in writing I thought that I was more in touch with the students' levels of inquiry and that was a good feeling to see that develop and grow. I've seen them begin to check their assumptions and see evidence that they're doing that. I didn't realize what I didn't know about students until I started doing this. I thought I relate to students and I get to know them. The truth is that there are weeks that go by and there are some students that I don't remember their name in class. They come up to me in the hall and I don't know who they are. I recognize them as part of my class but, let alone know anything about them or how they're thinking about the course or what they're thinking about it so that was pretty cool. I was aware of how much I was getting to know them and know about them, about their thinking, what they think about, how they think about this content in relation to their work and other classes. I was really surprised. I didn't think that I was that ignorant. That will have repercussions now in my face-to-face classes. I will be much more conscious of trying to get to know who the students are and more about them so that will have direct implication for that (Jim, interview, December 18, 2001).

His thinking about this issue also extended to students' teamwork in face-to-face classes.

> A person will come together in a team chat (online) and say this is what I'm thinking about doing what do you think and someone else will say well that's going to take us in a whole different direction and that's not really dealing with the thrust of the problem, etc and when you assign teams like that in the (face-to-face) classroom you're never privy to that kind of conversation so having the opportunity to see that inquiry process unfold is really quite delightful and to watch it mature. I miss that in my face-to-face teaching. I think it's important and I'm gonna have to find some way to deal with that in face-to-face (Jim, interview, December 18, 2001).

Technology

Although the disturbances between the VU and Jim were never resolved, he concluded that he needed to learn more about how to operate the technology so that he did not have to rely on others. He also set a goal to learn more about the technology so that he could be more spontaneous in both his course design and teaching activities.

> The other part is mastering the technology to the point where I'm comfortable with it and can use it in a creative way. I think the more I know the better I can be at creating. I think there is a relationship between those two things. I need to learn the language. I need to get more facile at editing the whole web page. I want to be able to go in and easily and freely make changes in my web pages.... I want to be able to create video, to use video (and) audio. I don't want to have to ship it off to producers (Jim, interview, July 11, 2001).

Jim reported that what he did learn about technology was more abstract and related to students' learning.

> Students brought in resources from god knows where. I didn't give them those links, I didn't tell them to go there but they found all sorts of stuff well beyond the curriculum, well beyond the bibliography that I gave them. Once they got familiar with the environment, they began to see what it was capable of doing. They got access to national databases and were able to pull those down and look at them and think about them in ways that they hadn't thought about before so the online environment facilitates that inquiry. It's like; It's right there. If you're thinking and you're inquiring at the same time when you are online like that it is just a

> click away and it takes you right there and it's just, I'm impressed by the power of that process (Jim, interview, December 18, 2001).

With regard to the role of technology and the online context in this activity, Jim concluded,

> It's not just like finding a way to get this stuff delivered. You're actually creating a new way, your instructional deliveries; you're actually creating fundamentally different ways of understanding (Jim, interview, May 7, 2001).

Jim's statements indicated that he was coming to appreciate another inherent contradiction; there is a dynamic and complex relationship between content, pedagogy and technology (Mishra, Koehler, Hershey & Peruski, 2001). Creating such disturbances within faculty members was one of the primary goals of the faculty development class since such contradictions can, and did in this case lead to the formation of new goals in this faculty member (P. Mishra, personal communication, August 29, 2002).

Problem Based Learning

While Jim recognized the inherent contradictions in implementing the PBL framework, he also believed that he confirmed his initial contention that a PBL format and the online context were made for each other. He believed that learning online was inherently problem oriented, and good for solving problems, doing inquiry, getting students to confront content more often throughout week, and working collaboratively with others.

The VU Producer

The contradiction between the faculty development class and the VU system led to disturbances between Jim's design team and the VU producer, but they also were a

springboard for change in the producer's thinking about how to work with faculty members. He thought seriously about how to change his style of interaction with faculty members in the future to mitigate such disturbances. In addition, he began to think about other software that he might use to better suit the needs of different courses.

> I think I would make it clearer in the beginning that they were working through VU for a reason and that if it wasn't going to work with VU than maybe we should explore some other options such as Blackboard that would maybe suit their needs and wants better than working with the VU system (Sam, interview, December 20, 2001).

Furthermore, the VU producer decided to enroll in a graduate degree program in education to learn more about teaching and course design. "That's why I'm dong this Ph.D. degree now is hopefully to get a lot more of the methods for thinking about that" (Sam, interview, December 20, 2001). It would be simplistic to argue that it was just Sam's experience with Jim's class that encouraged him to pursue a doctoral degree program. Sam was also the producer for many other faculty members (across different departments and colleges across the campus including one who was part of this research, Juliet). However, his experiences with being a producer and seeing which courses worked and which did not, encouraged him to take this step.

The VU System

The VU producer had created an innovation for Jim's class that would allow Jim to get a record of which students visited the site and when. Although the VU producer was not able to implement it at the time, it now exists and can be used in the future in other courses and thus is a change in the VU system.

The contradiction between the faculty development class and the VU system may also have spurred some transformation in the VU system. However, these claims are based upon reports by the VU producer since no data were collected directly from the VU administrators. First, the VU producer reported that he had been having discussions with the administrators about their role in online teaching.

> I think the interesting thing is that we're beginning to think about here within our department is how we change the pedagogy from a face-to-face class synchronous to an online. How do we change that, how do we change the teaching (Sam, interview, December 20, 2001)?

Second, the VU producer said that the VU was acutely aware of the need to update their technology in order to meet new requirements by professors for interactive courses, for example.

> In a corporation, we would hire one person to maintain the current system and another to continually develop new versions of the software. I don't think we will do that but we had a meeting about it and the administrators are now seeing the changes needed as more urgent so I think it will happen very soon (Sam, interview, December 20, 2001).

The Faculty Development Class

After reading the data from this study, one of the instructors from the faculty development class became concerned about having created contradictions between the VU and the faculty development class. The contradictions included, introducing faculty members to a wide variety of technological tools not available through the VU as well as encouraging faculty members to take more control over the course design process than was usually the case when working with the VU. These contradictions led to disturbances between the faculty members and the VU, and consequently, the FAC DEV-101 instructor was compelled to think about how he might help the faculty members to adjust

their roles, beliefs and actions in the future to resolve disturbances that might arise between systems (P. Mishra, personal communication, August 29, 2002). The FAC DEV-101 instructor's reflections indicated that once contradictions and disturbances are identified and reveled to the participants, this may lead to transformations in thinking and in systems.

Summary of the Case

This analysis shed light on many of the issues that people designing and teaching online courses may face, as well as the inherent contradictions within and between systems that manifest themselves in disturbances in work processes. For example, a contradiction (lack of time) existed between Jim's existing responsibilities and the new task of creating an online class. He was left with little time to deal with the complexities of developing and teaching a course that integrated content, technology and pedagogy in powerful ways. Although he was unable to reconcile all of these complexities in his first experience, he began thinking carefully about them and looking for ways to resolve these conflicts in future online courses.

This analysis also revealed the ramifications of certain contradictions within and between systems that led to disturbances between participants. The object of the activity (designing an online course) may have been a uniting force but the disturbances between the VU producer and Jim's design team highlighted the idea that all systems contain a variety of different voices, as well as layers of historically accumulated artifacts, rules and patterns of division of labor. In this example, these factors were clearly a source of

conflict, nonetheless, the participants still were able to achieve the object and ultimately there were transformations in both individuals and systems.

Finally, Jim's case was a striking example of how deviations from one's normal script can force participants to bring to a conscious level their often tacit thinking about larger issues of course design, teaching and technology. Because of his activity, Jim thought about teaching and learning in new ways, not only online but also in his face-to-face teaching. Furthermore, he began questioning his role and identity as a teacher. Although he had not resolved all of these questions at the time of the study, he was not left with a sense of despair, but rather a sense of wonder and curiosity, which motivated him to continue to delve into these questions and improve his teaching in any context.

Chapter 6

Analysis and Interpretation

"Mikala"

"I'm Trying To Find My Virtual Nature"

Introduction to the Case

Like the previous analysis, this analysis is specifically related to the faculty member Mikala who worked within various interacting activity systems to design and teach an online course. This analysis reveals systemic contradictions and disturbances that led to transformations in Mikala's thinking. Mikala's case differs from the other two cases in that data were not available from the VU producer that worked with Mikala, therefore his perspective is not represented. However, data were available from Mikala's student assistant who was part of the course design team and who worked closely with the VU producer once the design team disbanded.

As in the previous case, Mikala's case is presented chronologically and contradictions and disturbances that arose or revealed themselves are woven throughout the analysis. The analysis culminates with the transformations that Mikala experienced because of these activities. In addition, the analysis is drawn from the profile of Mikala located in appendix C, which the reader can access to better understand the context from which the quotes included in the analysis were taken.

Background on Mikala

Mikala has been an adjunct university professor and lecturer since the late 1980s and a professor at this university since the early 1990s. Mikala was the only faculty member in this study who did not enroll in the faculty development class. Instead, she utilized her stipend from the college to hire several graduate students, who were former professionals in the field in which she was teaching, to help her develop the online class. The course content that the design group developed was not content that Mikala had previously taught face-to-face.

Unlike Jim and Juliet, Mikala's focus in her course development meetings was on content. Mikala and her design team did not use technology to create a mock up of the web site or address other technological issues aside from determining what software programs the online students would learn during the semester.

Description of the Online Course

Mikala's online course was geared at helping students to develop ways of thinking, planning, implementing and assessing technology in the practice setting. Students would learn about employing computer technology as a tool in their work, professional development, problem solving, management, and strategic planning. The course would also address the tensions that technology brings to a practice setting such as, pressures by both external and internal advocates for computer technology use in professional settings, versus the appropriateness of its use in other work related activities. The students would also examine emerging research in the field, as well as share their own experiences with technology in their work settings.

The course would be designed around cases that were based on real situations in practice settings. It was to be highly interactive with the students working in teams but also doing individual activities. In addition, all of the activities required students to use a variety of computer programs to do things like literature reviews on line, search for web-based resources, participate in synchronous and asynchronous conversations, and create power point presentations and spreadsheets.

Collective Activity Systems: The Design Activity

A New Context for Teaching

Like the other two faculty members in this study, Mikala had no previous experience teaching online. She was motivated to create an online class for several reasons, including the decision of the college to create a new master's degree program, their incentives for faculty members, the growth of technology, and the necessity of its use in professional life for herself and her students.

Typically in a face-to-face course design activity, Mikala worked alone to develop the content and structure for her courses. In contrast, for an online class in a topic that she had not taught face-to-face, she desired the input from disciplinary and technological experts. According to Mikala, what was similar about designing a course in the two different contexts was her level of organization and preparedness going into the activities. Thus, the initial disturbances faced were two-fold: a new context for course design and teaching new course content.

The College System

Mikala lacked the technological skills to create an online class and unlike the other two faculty members in this study, she was unable to enroll in the faculty development class. However, since the college had offered a range of support to the faculty members, she was able to create her own design team using the 10,000-dollar stipend from the college. Thus, by offering incentives besides the faculty development class, the college provided additional means for faculty members to find technological and pedagogical support for this activity. "I think some things affected my motivation like getting the support that we got, the 10,000 dollars, the laptop computer, the (VU) producer, I mean that certainly motivated me" (Mikala, interview, August 21, 2001).

The Design Team

Although Mikala did not participate in the faculty development class, she thought it was necessary to work with others who were both technologically literate and content experts in the disciplinary area in which she was teaching.

> I put together a team of professional people... now full time Ph.D. students. All the people on the advisory team are quite adept on computers. So, integrating the use of different programs as well as the important questions that (the online students) had to deal with was explicitly woven into every activity (Mikala, interview, August 21, 2001).

Mikala's design team met regularly in brainstorming sessions where the members offered ideas from different perspectives within their fields of expertise to develop realistic case scenarios or problems that would form the basis of the course. In an iterative process that took place over several months, Mikala collected the information from their meetings and wrote the syllabus, classroom activities and cases. She took them

back to the team to discuss and made additional changes based on their input. Unlike Jim and Juliet, Mikala's team focused almost exclusively on developing the content. Mikala's team did not work with the technology to create a mock up of the course web site. Their only interaction with technology was to determine what software programs the online students would learn during the class. In addition, once the group disbanded, Mikala and her student assistant Bonnie practiced using the synchronous web chat function provided by the VU in order to familiarize themselves with it before using it with students in the online class.

The creation of the object was dependent upon the personal knowledge of the members and their collaborative activity. The cognitive responsibilities were distributed among participants, and artifacts and knowledge were distributed among the members, other communities, tools and the product created (Jonassen, 2000). Bonnie captured the groups' process in her description of the construction of the cases, "It was very collaborative. I don't think you could detect where our contributions were in that process because it's all lumped together in the case" (Bonnie, interview, April 18, 2002). In other words, each team member brought unique, as well as shared knowledge about the course content, which they combined to create the cases. The group members also brought knowledge, or heuristics from previous, face-to-face course design experiences, knowledge from their previous work experience, as well as knowledge about software programs that were appropriate for the online students to learn.

The Virtual University

Once the design team created the content for the online class and decided what software programs the online students would be required to learn, Mikala met with a producer from the VU to determine the course structure, aesthetics and navigation. Since Mikala's VU producer was unwilling to participate in this study, the data related to this system and the collaboration between Mikala and the VU producer were gleaned from both Mikala and Bonnie, her student assistant.

Once the design team disbanded, Bonnie became Mikala's assistant and was responsible for transferring everything to the VU producer. Once the course was up and running, Bonnie monitored it throughout the semester but had no direct contact with students. Her role was to provide support and to "Maintain contact with the VU producer to make sure that students were finding all the links that they needed, that there was a thread to be followed that was clear, and that they were comfortable in that environment" (Bonnie, interview, April 18, 2001). In addition, Bonnie conducted some online searches during the course to find new web pages related to the student's interests and needs.

In her work with the VU producer, Mikala did not deviate from the traditional VU script for working with faculty members. Mikala developed the course content and the VU producer developed the web site. Mikala felt comfortable with this approach and was happy with her VU producer and the VU system in general. She characterized her work with the VU as smooth and productive.

> I went to the Virtual University with a fairly solid plan – I just needed them to put it up and to help me further think through what technology might be added to facilitate the learning, the communication, the experience of community on line. Because I work effectively in a collaborative fashion, VU was able to enhance the work I had arrived with. I think that (the VU producer) and I did a very good job of setting up this class (Mikala, interview, August 21, 2001).

Because of the VU producer's technological expertise, Mikala had him take the lead role in that capacity.

> I had seen many, many examples and I shared ideas with (the VU producer) but in the end, he's the expert and I said to him to do his thing. He gave me options on design features and we went from there. You know, trusting the people on your team and respecting their work is extremely important. I trusted Norman (Mikala, interview, August 21, 2001).

Since Mikala did not take the faculty development class, she may not have been exposed to the variety of technological tools and design options available outside the VU. In addition, she did not have an interest in learning more than was necessary to learn about the technology. She accepted the VU's technological capacity and course design features without much question or challenge.

> I approached this with a good deal of passion to learn what I could do so, I didn't encounter any problems – or what I considered problematic. I often said – I'd like this or this to happen – can you make it happen? Or I'd say, I saw this on another online class that I liked; do you think it makes sense to use it here? Or I'd say, okay, we can't do it right now, but let's think about it and maybe try it next time. Perhaps the challenge I faced is that I don't know very much about what all one can do – but that's not a challenge in a negative way, but a challenge in a very positive way (Mikala, interview, August 21, 2001).

The Online Teaching Activity

The VU System and the Faculty Member

In Mikala's opinion, her collaboration with the VU during the online teaching activity was disturbance free.

> I think that (the VU producer) and I did a very good job of setting up this class. Even when he left for (vacation) and we had a couple glitches (Sam) got on and there was always someone there that could help. I didn't experience as many technical problems as other people have had and I think it had to do with how organized we were going into this and how quickly (the VU producer) responded to what I needed (Mikala, interview, December 7, 2001).

Mikala attributed the noticeable lack of disturbances with the VU, compared to others that she was aware of, to her attitude toward problems in general and the technical support of her VU producer.

> How quickly I could let things go it was like well okay this didn't work that's fine we'll just do it differently later you know why fret about it 'cause there is nothing you can do (but) you know if we didn't have (the VU producer's) technical support I could have never done it. It would just worry me too much and I just knew that.... Whatever I asked him to give me he gave me which is very interesting because I know of a couple of faculty who are creating classes right now and they don't appear to be getting as much technical support as I've gotten... I don't know why that is. I don't know if it's because the faculty member isn't being precise and organized about it or if the producer is unfamiliar with the platform in the capacity... it's always been just very good. I can't say enough about him (Mikala, interview, December 7, 2001).

Informal Support Systems

During the teaching activity, Mikala also sought information and support from colleagues with whom she could discuss various issues as they arose. This was not atypical however, because even when teaching face-to-face classes she found that she communicated regularly with other professors in her area of expertise to exchange ideas and concerns over their classes. Her propensity for seeking support and interaction with like-minded professionals carried over into her online work.

> Jim is teaching an online class and he and I have been talking a lot about it this term. So, having colleagues that I know are doing it or have done it and just being in close proximity so that we can talk about these things I think affected the way I was thinking about doing it or about what I was doing. It affirmed many times, what I was doing. If I had a problem with a student, I had feedback immediately. So, having colleagues I think helped me out a lot. It's not unusual.... We talk a lot... about our (face-to-face) classes and any problems that we may have so it's not unusual (Mikala, interview, December 7, 2001).

Tools

The Design Team

According to Mikala and Bonnie, the primary tools used during the course design activity were collaboration and discourse among the design team members. The design team members also drew upon their prior experience and heuristics from face-to-face teaching activities. Although Mikala was the team leader and had the final say on the design, she also viewed others (her student design team and the VU producer) as experts based both on their professional experience and their technological capabilities. She described the team process as time consuming, iterative, smooth, productive and rewarding.

> After our conversations, I went away and thought hard about what they said, then I came back to them with a proposal of what a class might look like, what it would feel like, and what questions we would address and how. We talked more – taking apart my proposal, enhancing it in many ways. Then I went away, thought, and planned more. We had decided on casework, so, I began with this. This process of going to the team then working something up, sharing it, taking it apart, reworking it went on for about four months (Mikala, interview, August 21, 2001).

Technology

Mikala had been interested in the use of technology as a tool to enhance learning and teaching in the face-to-face context for some time. Her husband was involved with technology in his work and she was interested in learning more about it and how it could benefit her in her work. She also noticed that many of her students were talking about the use of technology in her classes. They wanted to know how they could use it to become more efficient in their own work. These factors were in part what motivated Mikala to

develop the online course, but her thinking about technology was more philosophical as opposed to having a to learn how to use it.

> I have this zone of comfort around technology that I need to know only what I need to know and when people teach me new things I keep saying well this is new information that I really don't want to know because I don't want to be accountable and responsible for it. I just want to give it to you to do (Mikala, interview, December 7, 2001).

Thus, Mikala was willing to learn about the technology that was necessary, but her focus on the technology was more philosophical in nature such as, what was its role in teaching and learning, how could it help one become more efficient in one's professional life, etc.

Technology as a Mediator in Teaching

Mikala often remarked that she did not learn much about technology and indeed her goal was not to learn too much. However, data analysis revealed that she continually thought about the mediating role of technology in her life, in her interactions with students and in students' learning. For example, she noted that she spent much more time online than she would typically spend attending to a face-to-face class. "It's a lot more 'cause you're in contact with your students everyday and it's not like that in (face-to-face) classes (Mikala, interview, October 11, 2001). She compared the online class to the most intense face-to-face class she had taught that required spending a lot of individual time with students. The online context seems to create these opportunities between faculty and students. Mikala believed that in an online class, there was more a feeling of talking with students one on one as opposed to a face-to-face class where the communication was generally one to many.

> I put more hours into this online class than I would normally put into a face-to-face class except for the dissertation prep classes. That is about just as much time 'cause if you have twelve to fifteen students in your class you're meeting with all of them a lot individually and so that's what this reminded me of that kind of intensity and that kind of availability (Mikala, interview, October 11, 2001).

She realized that the online context, as well as the way her course was designed (highly interactive), created the potential for open lines of communication twenty-four hours a day, seven days a week. This had both benefits and drawbacks and may have been an inherent contradiction in the online context. The result for Mikala was frustration and having to set up clearer boundaries between herself and her students in order to protect her time.

> Sometimes I got really frustrated and angry because it always appeared that people expected me to be there when they were discussing (synchronous chats). I got a couple of emails that said well you haven't responded to our discussion thread and I thought well I was on it all day and so there was this kind of a tone regarding my availability online and I would get a little perturbed. It was like I just cannot get on this everyday. It's like teaching a class every day even Saturdays and Sundays and I had to tell them that I'm only getting on once a day at this time to read the discussions and spend an hour or hour and a half and I did it every day at the same time. I would never do this for a face-to-face class but they are doing a very active communication with each other, a very active process as opposed to reading something and then writing about it. They are actively engaged in an experiential activity, which means that the instructor must be present in that process. Because almost all of my activities were engagement in a process meant that I had to put more time into it than I would in an embodied situation (Mikala, interview, December 7, 2001).

Aside from that, Mikala liked the informal tone in her students' personal communications because it facilitated the formation of a community of learners that she had hoped would develop in the course. "In their emails and what they write it's much more comfortable and informal. It is what you would expect in a face-to-face class and so it was good. I think (it) has created a really nice community" (Mikala, interview, October 11, 2001).

However, there was a down side to their informality. Mikala was a little troubled when students' first papers came in because the tone seemed too informal to her- not like scholarly writing. She wondered if she needed to make her expectations for students clearer.

> They did their first overview paper and it's like reading an email message. It's like an abbreviated, it's not the kind of paper that I would expect to get in a face-to-face class and I'm wondering if that's okay. It doesn't feel okay. I just have to figure it out. I'm wondering if I have to give more parameters (Mikala, interview, October 11, 2001)?

On the other hand, she appreciated what the technology could offer to students in terms of their learning and professional growth. "(Students) wouldn't normally have gone to the internet and done research and take a look at what other (professionals in their field) are doing and find resources on the internet" (Mikala, interview, December 7, 2001).

Mikala pushed the envelope in that regard by using the web as her primary text for the course. She was intrigued by this idea, which was a departure from what she and others considered "normal" in a graduate class, but she also realized that she needed to flesh out this idea a bit further for future courses.

> One of the things that's been interesting is that everybody is so astounded that I don't have texts. My text is the web and I think I need to play with it this year because I want to use the web more as a text but because I haven't really played with it I don't know really what more to do with it so next year I'll do better (Mikala, interview, October 11, 2001).

Technology as a Mediator of Communications

During the teaching activity, Mikala thought a lot about communication online, how it was different from face-to-face, and how it could affect relationships with

students. However, communicating with students online also highlighted inherent contradictions in the medium. She realized that she needed to work on this aspect of her online teaching in response to several incidents. For example, in one incident she described how a student became angry with her due to a miscommunication that Mikala believed was the result of the online context.

> I had a student who got really angry with me. That made me think about how I was talking about something... and I think I offended her and so I had to think about that. I don't even know what I said actually but I had to think about that. That highlighted that it was important to think about (my online communication skills). I think that there are other factors that students bring to the venue that you don't know about that I think affected me along the way. It would in a face-to-face class as well but it affected me a little bit more here because (of the distance). (In face-to-face) I'm physically closer and I could apologize. I could see your reaction but online, it's like that delayed kind of thing so I think that affected me just understanding that delay (Mikala, interview, December 7, 2001).

In her course, Mikala had students work in teams throughout the semester to analyze the cases that the design team had developed. Her students' interactions around the course content also provoked Mikala's thinking about how she might use the technology to solve problems and benefit her students. She found that she had to develop new monitoring techniques and new ways to intervene in the team process.

> There is a lot of that teaming thing where you get one person who sends you emails or calls you up whining and stuff and it's harder to deal with that in this kind of a venue than it is in person.... In person, you can watch the team working and intervene and even though I was trying my best to watch it, (initially) I didn't have the different threads. I couldn't see the progress on a daily basis with the first case. I couldn't intervene fast enough (Mikala, interview, December 7, 2001).

This problem arose because neither Mikala nor the VU producer had experience with highly interactive online courses and therefore they did not know enough to provide each group with their own space or thread for discussion. Without prior experience with this activity, Mikala could not have been expected to think of this in advance. However,

this incident highlighted a contradiction in the VU system; producers are rarely instructional design experts. This creates a gap in the division of labor between the VU producer and the faculty member. In face-to-face classrooms, the groups can create their own spaces by simply turning their backs to one another (and away from other groups), or they can move around the room to generate a somewhat "private group space." However, in an online context, the instructor has to designate specific spaces for groups. It is not surprising that Mikala did not think of this in advance, given this was her first experience teaching online.

Once she recognized the problem, she had the VU producer provide each group with their own space, which made it easier for her to follow each groups' progress and manage it if needed.

> The second case, because I got onto every one of the discussion threads, I could see the progress, I could see what they were posting, I could see what they were saying to one another, I could go into their chat logs and see what they were chatting about and get onto their discussion thread and make clarifications, make suggestions. I could immediately intervene. Or I noticed that one person wasn't getting on so I would email that person and I would say that I've noticed in the discussion board in the chat room I'm not seeing you is something wrong with your computer or blah, blah, blah. I think that's really important in doing these kind of team projects is setting up these communication systems so that you can see the progress on a daily or every other day basis. You can intervene immediately 'cause a lot of times, the students won't say anything until the very end and then they get their grade and they complain because they got a bad grade and they say stuff like well you know my contribution was blah, blah, blah. So I shouldn't be penalized for a team grade you know it's a toughie (Mikala, interview, December 7, 2001).

Transformations

Once her online course had ended, Mikala reflected on the activity, what she learned and what she still needed to work on. Because of her activities, she experienced

transformations in her thinking about technology, teaching online and her face-to-face teaching.

The Online Teaching Activity

Mikala found that having her students work in teams online was one of the most challenging things that she faced in this class. It was clear that she had to think about it more in order to make it work the way she wanted it to in future classes.

> The whole team process (was challenging). I think I need to do this one more time to figure it out but doing team work in this venue is a challenge-- guiding it.... and no one really knows how to do it in person let alone here so just trying to figure out how to prepare people to do team work and then to do it online is something I need to think through. In embodied situations I can actually teach people how to work in teams I just haven't figured out how to do that online. I don't expect people to know how to work in teams and so I usually do a couple of exercises in sequential order to build them up to working in their teams (in my face-to-face classes). There's a lot of communication strategies and opportunities to deal with conflict and conflict resolution in these little activities that we do but it wasn't in this online class so I just have to figure it out (Mikala, interview, December 7, 2001).

However, she learned at least one method for managing groups in an online context when she realized after the first case that she needed to create private spaces for each group. By creating separate group spaces, she was able to better monitor and manage their interactions and intervene when needed. Thus, she was confronted with the concept of virtual space and how to use it to one's own, as well as students' advantage in the online context.

Through this activity, Mikala also gained new confidence as a teacher. When she began this activity, she had some reservations about her ability to do it well. However, she was able to build her confidence as a teacher in the online context and imagined herself teaching other online courses.

> I learned a lot about myself as an instructor/facilitator in this venue in terms of I questioned my capacity to do this and to enjoy it as much because I enjoy the physicalness of (face-to-face teaching) and that's one of the reasons why I did it. It's different. I remember when we first talked I had this fear it was like fear factor of doing this and now I'm not afraid of doing this at all. I know other things that I can do I mean I got so excited about some of the things that we were doing and the discussions that we were having I thought oh I could think of doing another class online. I could actually see teaching another subject and doing it a little differently and having some individual and collectively engaged activities, having a reading and then discussion threads around the reading. I began to have all these different ideas so I learned a lot about my own capacity to be effective in this venue. I honestly, I hoped that I would be effective in this venue but I didn't know (Mikala, interview, December 7, 2001).

The technology mediated Mikala's thinking about teaching in other ways too, for example, in deciding how to grade papers and how to make her expectations for her students clear to them. In addition, she began to think about how her students' writing was public in a way that was different from face-to-face classes.

> The other thing, which is real interesting, is making the writing so public. Everyone can read it. I think that it has helped me understand the necessity of having my students write for a broader audience and not just for me and making it public.... I think just creating that publicness of writing is an excellent learning tool and makes people understand that they're not writing for the professor. They are writing for a disciplinary area so I think I'm getting much clearer about that and it's changing the way I think about how papers are presented and I'm thinking about how grading can be different too (Mikala, interview, October 11, 2001).

The issue of making the writing public also made her think about how technology mediates student learning.

> The anxiety of having to write for others is a tough thing to get through and I think it's good that they try. I have to figure out ways; I do it in the doctoral program where little by little their writing becomes more and more public and they get better and better at critiquing and scrutinizing each other's writing in a positive and constructive manner. But how to figure out how to do that online with a class like this I haven't yet figured it out (Mikala, interview, October 11, 2001).

Finally, although she had experienced several disturbances around issues of communication in the online context; in time she became clearer about what the communication issues were. In addition, she thought of ways to transform her online teaching activities in order to make up for the lack of immediacy, timing, and visual cues that she had taken for granted in the face-to-face context.

> I am beginning to learn how to better communicate online. It's a different language... the tenor of what you write. I'm much more careful and cautious now... because how you string words together can mean different things for different people.... It's tone; it's word choice. For different people you communicate differently. (In face-to-face classes) I don't communicate the same way with each student. It's very different and unique to that person and so I'm learning how to read the other person in their talk so that I can communicate with them effectively. I think it's how you see yourself in relationship to other people and how you see yourself as a teacher. It's important for me to make sure that I can communicate with an individual to help them help themselves. I try to do that in person and so I'm trying to do that online. It's very different; it's just sort of a nature of who you are and how you communicate. I'm trying to find my virtual nature so to speak (Mikala, interview, December 7, 2001).

Face-To-Face Teaching

Mikala also believed that the online teaching activity would have a transformational effect on her face-to-face teaching.

> How it really has affected my teaching I think is that I am using more technology in my face-to-face teaching... so technology has helped me a lot in terms of expanding the realm of teaching. I gathered a good deal of information about what's available on the Internet about different sites, what they offer, how to locate things so that was something that I was forced to do. I wouldn't have normally done that myself and that's good for me 'cause when I teach other classes I can refer my students to these sites (Mikala, interview, December 7, 2001).

Technology

Because of Mikala's online teaching activity, she acquired more knowledge about, and awareness of the technology, as well as a belief in the value of such

knowledge. "I'm figuring out how to navigate the web much better and with (the VU producer's) help with all these glitches, I'm beginning to understand the technical pieces a bit better and the potential of it, which is really important" (Mikala, interview, December 7, 2001).

Overall, this experience resulted in changed activity for Mikala. She learned new things about technology, and about herself as a teacher in a technological environment.

> It's almost an iterative process. When I get on line it gives me some limitations like time limitations, how quickly I can write, you know there are some disembodied limitations... but I found that I could do more with it as well. I had different channels of communication so... it also was somewhat liberating. So it was a real reciprocal process and to give an inanimate thing a life is so unusual to do but for example we had the chat rooms, discussion threads, email, telephone, fax mail, hard copy and face-to-face 'cause a lot of them live very close and I have actually seen a handful of the students.... So, what happened here is that I had many different avenues of communication and so that was for me a potential and so I interacted with that. How can I use all these different threads of communication to do different things? I like that a lot (Mikala, interview, December 7, 2001).

Summary of the Case

This analysis highlighted the importance of faculty support by the administration. For example, because the college offered a variety of incentives, Mikala was able to form a collaborative team of technical and content experts to help her develop the course in lieu of taking the faculty development class. The collaboration helped her bring together the pedagogy with the content and the technology, something she admitted she would not have been able to do on her own.

This analysis also shed light on some of the issues that faculty members who are designing and teaching online courses may face. For example, initially neither Mikala nor the VU producer thought about the need for separate virtual spaces or chat rooms for the

student teams. The result was that Mikala's students bombarded her with emails about their progress and they were annoyed that she did not respond to their conversations quickly enough. Mikala used the technology to solve this problem by having the VU producer create separate chat spaces for the teams, and by communicating with students about their expectations of her and what she could reasonably provide for them. The incident also highlighted a contradiction within the VU system; the fact that the VU producers generally do not have knowledge of instructional design created a gap that led to a disturbance during the course.

Communication was an issue that pervaded Mikala's consciousness during the teaching activity. She became aware of what powerful mediators technology and the online context are. Disturbances arose that provoked her thinking about her communication skills in the online context. As a result, she thought hard about how she could improve her communication skills in order to avoid problems and to help her students learn the content.

One of the interesting things in Mikala's case was her remark that she did not learn much about technology. However, the analysis revealed that she frequently thought about the mediating role of technology in her teaching, in her communications with students, and in students' learning. This led to transformations in her thinking about how technology works, its potential, how it mediates communications, and how she could use technology in her face-to-face teaching. The activity also raised new pedagogical questions for her to consider in future online classes such as how to help her students learn to work in teams online and ways for her students' writing to become gradually more public.

Chapter 7

Analysis and Interpretation

"Juliet"

"I Got To Hear Everybody's Voice"

Introduction to the Case

Like the two previous cases, this analysis is mainly focused on one professor, "Juliet," while she worked within various interacting systems to design and teach her online course. The analysis reveals contradictions at the system level and disturbances specific to Juliet's case. The analysis also reveals transformations in Juliet's and the VU producer's thinking that resulted from the contradictions and disturbances. Furthermore, the VU producer also created a technological innovation for Juliet's course, which may have transformational ramifications for the VU system.

As in the other two cases, this analysis is chronological in nature and the contradictions and disturbances that arose during the activities are woven throughout the analysis. The analysis is drawn from the profile located in appendix C. Readers may refer to the profile in order to get more of the context surrounding the quotes in the analysis. The analysis culminates with the transformations that both Juliet and the VU producer experienced, as well as speculation on transformations that may occur in the VU system because of their activities.

Background on Juliet

At the time of our interview, Juliet had been a professor for about nine years total and in her current position as a tenured Associate Professor for about two years. Her primary motivations for taking on this project were that she saw it as a fun and intellectually challenging project, a convenience for herself and her students, and a way to encourage her students to recognize online learning as a viable option for continuing education.

Juliet was familiar with the content she planned to teach online, having taught pieces of the content in several different face-to-face courses in the past. The difference online was that she had to condense the content into one six-week course. Juliet enrolled in the faculty development class where she worked with three students to develop a mock up of her course web site. When the faculty development class ended, the team disbanded and Juliet began working with Sam, the VU producer. Sam made some refinements and additions and got the class up and running. He also provided support during the course and met with Juliet to discuss revisions when the course was over.

Description of the Online Course

Juliet planned to teach a six-week summer course (condensed from an original fifteen-week face-to-face course) that was designed to meet the needs of both students who planned to become scholars, as well as those that were already working professionals. The course would be set up so that each week of the class, the students would have three units to work on (or three days in the class). The first day would be content and information dissemination where students would have reading assignments in

texts that they would have to purchase for the class, as well as reading from online sites that they would be required to visit.

The second unit (or day) in each week would be comprised of students working together in small groups where they would be applying the information they had learned about in unit one. The groups would work on cases and have structured exercises that would culminate in a group product.

The third unit (or day) would consist of each group posting their products back to the course web site so that the entire class could view each groups' work. Each individual student would then be required to reflect in writing on the products of each group and to post their reflections to the course web site. The week would culminate in Juliet providing group feedback via voiceover to the whole group. The last requirement for unit three was for each student to send Juliet a one to three page personal reflection paper about the week's activities and the products that were produced. In addition, each student had to send Juliet a feedback about how the group work went that week.

Collective Activity Systems: The Design Activity

A New Context for Teaching

Although Juliet had no prior experience designing or teaching online courses, she had some exposure to online courses through her spouse. Her spouse taught online and she had talked with him about some of his struggles while he was learning to do it. However, she had never thought seriously about what it would be like to teach online or how she might design a class. Consequently, the first disturbance that Juliet faced was the new online context.

Typically in a face-to-face course design activity, Juliet worked alone to develop the content and structure for the course. She usually prepared for each class just before each class meeting. She had brief notes about the content that she wanted to cover and never wrote out a lecture in its entirety. She would provide some content to students, and then they usually would work in small groups doing problem solving and analysis. In contrast, Juliet realized that in the online context, her students would need the full extent of the content, therefore she had to write out most of the content and load it onto the course web site.

In the online class, she found that in order to design the course she not only had to prepare all of the content in advance, she also had to prepare to teach a different kind of student than she was used to in her face-to-face classes. In the past, she had taught students that planned to become scholars as opposed to practitioners. Because of the new online masters program, she found that a new audience of students was slated to take her course- practitioners. She had to consider what would keep them interested in the content, which mediated her thinking about what content to include and how to teach it.

> .... That's forced my thinking... pushed me to think about the practical aspects of this because I can have half my course drop out, saying it's boring. (Practitioners) get bored, they start looking ahead.... We have to get to the good stuff. So I'm gonna be a lot more pragmatic, a lot earlier than I had intended (Juliet, interview, May 2, 2001).

There were three other primary concerns that also mediated Juliet's thinking during the course design activity. One was the concern that she would not have relationships with her online students in the way that she did in face-to-face classes. The second concern was how to get students to participate at deep levels in the class. Her third concern was how to create a learning community online.

> ... How to make the applications happen in this environment, that's where I've really been pushing because I would do so much of this in role play and simulation in the classroom, how to do that, assimilate to that online is where I've been a little more worried what might happen. How do you do that, transform what I might do in a face-to-face class to an online environment? I tried to think about what would I want the students to be involved in in any format. I want them to have best practice ideas, theories, concepts, and some reflection about their own practice so I tried to build that in. I tried to think about things that would be interesting and how to engage them and how to coerce them to do that. In a classroom, you coerce them by your social persuasion skills. In an online format, your grades are tied to this because they won't do it unless you provide some sort of incentive to do it because there is more anonymity etc. so I've tried to think that through (Juliet, interview, May 2, 2001).

The Faculty Development Class

Juliet was one of two professors in this study who enrolled in the faculty development class. Unlike the other two faculty members in this study, Juliet did not know her student design team members before entering the faculty development class. Juliet was assigned to a group of graduate students after she entered the faculty development class. Once she began working with her design team, they worked closely with the technology to develop a mock up of Juliet's course web site that she would later take to a VU producer to put it online.

According to Juliet, she learned several things in the faculty development course that mediated many of the decisions she made about course design. She also thought that the faculty development class had been crucial to her ultimate success in teaching her online class. For example, although she already believed in the value of forming a learning community in the classroom and in active participation among students, she did not have a clear idea about how to realize that vision in an online context until after she took the faculty development class.

> I would not have understood this medium without the faculty development class. I would not have done the reading that I did in instructional design. We had such good discussions about both the technology and the learning and teaching online that the product would have looked quite different. I probably would not have used the web to the extent that I did. I would have probably done more of a closed model where I supply all the content. It would have probably looked a lot more correspondence like. I would have tried to do teams but I'm not sure I would have done it with any level of sophistication. I really thought about what is it gonna take to make this work online because I had that luxury to do that. I know I wouldn't have done as well without the course. It really jump-started my thinking in that respect (Juliet, interview, September, 26, 2001).

The faculty development class also helped Juliet to think more explicitly about instructional design, aligning her philosophy on learning with her instruction in a technological environment, as well as the role of a teacher in an online class.

> It requires a completely different way of interacting with students and I hadn't really thought explicitly about instructional design before (the faculty development class)... because you had to lay it all out in advance. I guess I count on when I walk into a classroom and something doesn't work well I can fix it. I can use the force of my personality to make something happen. There is that immediacy. You can't do that online. You have to trust that the instructional design that you've developed will hold, will work, and will do what you need it to do. It was one step removed from my immediate presence so (the faculty development class) helped me think more about the role of the instructor and the role of good instructional design. It helped me to think about... do we need to have real people, is this the best use of my time as a faculty member, do I need to be in the classroom with those students (Juliet, interview, September 26, 2001)?

Furthermore, the faculty development class broadened Juliet's knowledge about how to use the web as a resource for her online instruction. "Instead of me typing up what is intrinsic motivation, I sent them out to a site to read about that, then they came back, and I liked that. I thought that was a good use of the technology" (Juliet, interview, September, 26, 2001).

The Design Team

Like most faculty members used to designing face-to-face classes, Juliet usually worked alone. Thus working with the design team within the faculty development class was another deviation from her normal script. "That was something that was new for me in teaching. I had worked with teaching assistants but I've never seen them as co-creators of the course" (Juliet, interview, September 26, 2001).

The design team members had never worked together or had any experience designing an online class. They had no idea how or where to begin. The cycle of development of the course fluctuated between the horizon goal (Engestrom, 2000a)-- creating an online class-- and more intermediate goals such as how to work together as a team to create the object-- defining team roles and rules.

The design team spent the first few weeks together working on intermediate goals, which included establishing a collective system that recognized a division of labor, as well as defining roles and rules. Since the team comprised one faculty member and three students, this immediately set up a vertical division of labor and power. The students seemed to have a tacit expectation that Juliet would take the lead and provide direction by assigning roles and tasks, for example. However, Juliet believed that she was incapable of this role because of her lack of technical knowledge. By not assuming that role, it created a disturbance that resulted in the team spending about five weeks trying to figure out how to proceed.

> I didn't have a clue of what was possible so I felt like I lost about 5 weeks at the beginning of the semester. These guys know so much about how to do stuff that they were kind of waiting for me to give them direction and this is where I said I tried very hard not to control the team because I didn't feel like I could provide direction early on in the course. I was clueless (Juliet, interview, May 2, 2001).

Finally, the students stepped up and began probing Juliet for ideas about how she wanted the site to look and how she might teach the content in a face-to-face classroom.

> They were really instrumental in going; well let's try this. Let's play with this idea and see how it works. They pulled up to the table and contributed in a really powerful way. The site started to develop, the technical stuff, with really very little input from me. They'd say how would you teach, what would you wanta do with this in a face-to-face class? And I would go here's what I would do. Then they'd go, oh, we could do streaming video. They knew this techno stuff and I'd write it down. I didn't know what they were talking about. So, they translated for me and that was really helpful (Juliet, interview, May 2, 2001).

Once the team members began to understand Juliet's goals for the class, one of the students took the lead role by creating the first mock up of a web page. Once he presented it to the team, a concrete artifact was directly linked to the object horizon. The student became the technology leader, which was the impetus that shifted the teams' focus back to the object horizon. As a result, the other team members began to define their roles.

> (He) has been very instrumental in making the site happen and building the site. He's been the primary one. As it's evolved, we've shifted, we've sort of fallen out into roles and he has clearly been the onsite developer of the course (Juliet, interview, May 2, 2001).

Another student began developing activities and exercises that would create a sense of community among the students in the online class, which addressed one of Juliet's main concerns when she began thinking about the course design.

> He's very interested in communities of students and how you build communities and had been doing a lot of reading about development of community. He had a lot of really good ideas about activities you could do to do that (and) structures you could put in place to do that. He was instrumental in pushing that aspect of the course (Juliet, interview, May 2, 2001).

A different student brought an international student perspective to the team. She asked questions along the way about things that the rest of the team had not thought

about. Interestingly, from Juliet's perspective the team members did not affect the content of the course. "...Although they didn't do any content, they did all this making it happen which was fun. It just worked" (Juliet, interview, September 26, 2001). However, the data suggest that the students clearly went beyond translating the technology. They affected the structure of the course, the aesthetics, and they developed team exercises for the online students to participate in.

The faculty development class and Juliet's design team scaffolded her into the process of integrating technology into online and face-to-face course design. In addition, the faculty development course and the design team members helped Juliet to think about issues of content representation and structures that could create an online learning community. The teams' activity can be characterized as an iterative process, in which the members went back and forth between the activities of developing the content, structure, web site aesthetic, and integration of the technology. Analysis of this team's activities revealed the formation and resolution of internal contradictions as well as clear distinctions between individual and goal-directed action and collective object-oriented activity.

The Virtual University

Once Juliet's design team had developed a mock up of the course web site, the design team disbanded and Juliet took the course to the VU producer. Disturbances arose in their work together but the producer mainly absorbed them. For example, the producer was not experienced with creating highly interactive courses and he believed that Juliet's course design violated several graphic design principles. Furthermore, Juliet arrived at

VU with a complete mock up of her course, which, in her view, only required a few adjustments to be put online.

Initially, the VU producer suggested changing the design and structure of the course but Juliet liked her original product. Due to time constraints and his desire to please Juliet, the VU producer agreed to work with her original course design despite his reservations about the soundness of the graphic design and navigational structure.

> It wasn't the prettiest site. Most people that look at it say that (compared to) some other courses; they're a lot more streamlined design.... There were some things in the graphics that didn't need to be there. There's a rule in design that if you can take it out of the design and everything still looks good then you don't need to have it in there and I think there were things that we could have taken out of that design or compressed more, maybe we didn't need as much yellow space in certain areas or things like that. That's where the streamlined, like the packaging (courses) I think we've taken all of that off that design, it's lean and it's ready to go. In (Juliet's) design there's still some stuff on it that maybe could get trimmed but it didn't (VU producer, interview, September 11, 2001).

The producer did make some changes to the course, however since he had not developed the original design, and because the course structure was unfamiliar to him, he encountered some disturbances.

> I changed around a few things. I added those icons.... Building the course was very confusing to me and it's my fault. I made it too confusing. It was wonderful for the students because it was really easy for them to get places but the way that I structured it; how we built it... it was an organizational nightmare.... It's not linear.... You're going back to some of these links like hypertext whereas (other courses) you're going straight through it (VU producer, interview September 11, 2001).

Although the producer blamed himself for the problems, the disturbances also could be linked to two other sources. First was the contradiction between the faculty development class and the VU. In the faculty development course, Juliet had learned about a wide variety of tools that were not available within VU, as well as course designs and navigational structures that were not within the VU producer's repertoire. The second

contradiction developed as a result of the idiosyncratic tools used by the VU and the lack of training for producers in curriculum design of highly interactive courses. The VU producer also believed that his lack of knowledge in the specific subject matter was partly to blame for his confusion.

> At times, it's hard to understand what exactly she wants. She's got infinite knowledge more than me in the subject.... maybe if I had a little bit more knowledge on (her topic) or just how to teach something, teaching methods or something, I may have been able to help prompt her a little bit more for something that was maybe a little bit more interactive, maybe something that would have been a little bit more special for the students to look at.... (It's) that gap of, I know how to do web stuff and you know how to teach so let's get together and pool both of our stuff because if you know how to do web stuff and teach then you can put together a much better class then I think we could collaborating together (VU producer, interview, July 25, 2001).

Informal Support Systems

Like Jim and Mikala, Juliet also had an informal support system that mediated her thinking and actions.

> My husband does this professionally.... So, I've seen that and we've talked at length about his struggles.... There is a lot of technology in my house and a lot of appreciation for the medium and online stuff. He's quite knowledgeable... so we had those conversations. We didn't do much fiddling with the course but I asked his opinion a lot. We talked about more global sort of issues (Juliet, interview, September 26, 2001).

The Online Teaching Activity

Teaching Philosophy

In our first interview, Juliet described her teaching philosophy by saying,

> I'm very respectful that everybody learns in a very different way. I try to accommodate that in my instruction so that I give people choices about ways that they can interact with the ideas. Very often, I'll have multiple options for how to complete an assignment (Juliet, interview, May 2, 2001).

During the course, however, her students tested her conviction. For example, one student wanted to move through the course at her own pace and interact only with Juliet around the content. Juliet refused and was surprised by the student's request because it was something she had never encountered in her face-to-face classes. Juliet wondered if the situation arose due to the online context because she believed that in a face-to-face class, students were less likely to ask to complete the course at their own pace.

> I don't think I hear that from students in a face-to-face class. I've never had anyone come up to me and say I don't like what you are doing. I typically do survey students at mid term to see how they are doing and what is the pace like for them so I may make some adjustments based on that feedback but I don't think I've ever had someone say do it differently next time (Juliet, interview, September, 26, 2001).

Context as a Mediator in Student Assessment

One of Juliet's main goals in designing any course was for students to work collaboratively to learn the content. She maintained that philosophy in the online course but she believed that the online context made a difference in her assessment of her students' learning. In the online context, students' conversations were public (in writing or chat logs). Consequently, Juliet could literally see their process, their thinking and their participation. Because of this, she could continuously assess their understanding of the content unlike her experience with face-to-face teaching.

> Some of it is the formal structure of this online course.... I had to structure in accountability because it's a different format. But I can go in and look at all their web talks and I just get such a rich feeling for what they're thinking about. That's a surprise and the satisfaction.... I've seen that people are really engaged. I just feel like I'm getting a richer picture of them (Juliet, interview, September, 26, 2001).

In addition, Juliet delighted in seeing certain students participate online that she believed she never would have heard from in a face-to-face class. In the online format, all students were accountable.

> The other thing about this format that worked better than face-to-face is the fact that the playing field is pretty even. In a face-to-face course, I could tell you who the three or four students were in this course that would have dominated the class discussions and because of this format they didn't get to do that. I got to hear everybody's voice and I don't hear that in face-to-face. I try to structure that (in face-to-face classes) with a lot of small teamwork so that people are really engaged but I don't get to see or hear all their contributions. This format made it happen. Nobody could slack off (online) well, they could have and one person tried to and her team landed on her, but it just worked so that everybody had an equal voice and that was really nice 'cause I can also tell you who the three or four students were in this course I never would have heard a peep from in a face-to-face course but here I heard from them every week (Juliet, interview, September, 26, 2001).

Tools

The Technology

When Juliet began the course design process, she had limited technical ability. Her philosophy on learning to operate the technology was captured in the following quote.

> I don't know a lot about the technical stuff of the computer. I don't feel like I want to know that, or need to know that. I don't need to know how to compress stuff and, you know, other people can do that. That's not what I wanta do. I don't know how the telephone works either. Nor do I care (Juliet, interview, May 2, 2001).

Juliet's concerns during the course design and teaching activities centered on issues such as motivating students to participate at deep levels in a learning community, fitting a fifteen-week class into a six-week time frame, and teaching practitioners, a new audience that she saw as potentially challenging. In terms of the technology, Juliet was more

interested in the philosophical issues surrounding technology in education rather than mastering the technical tools.

However, it was clear from her design teams' course design activities, and later from Juliet's teaching activities, that the technology mediated the course design, content representations, pedagogy, students' learning, and Juliet's thinking about their learning. In addition, Juliet learned more about how to operate the technology than she had anticipated.

Transformations

Once Juliet had finished teaching the online course she reflected on her activity, as did the VU producer. Data from these interviews revealed that both participants experienced transformations in their thinking and may have effected transformations in the VU system.

The Online Teaching Activity

The following quote from Juliet captures her thinking about online teaching after she completed the activity.

> I learned that you can do good teaching on the web. I don't think I would have said that with as much sincerity or belief before I did it. I had a lot of skepticism about this format and to be able to really do the kind of teaching I want to do. What I thought about web-based teaching before I started this was that it was more like correspondence courses. There was a lot of content and I didn't really see how material could be really active that you could engage in constructivist learning on line but I saw some activities work in the way that I wanted them to. People were engaged in activities together, building and refuting arguments, doing some high level thinking about what I wanted them to be thinking about in this format. So I guess my big lesson in my teaching was that it was possible to use this medium to really do that well (Juliet, interview, September 26, 2001).

The Face-to-Face Teaching Activity

Because of her online teaching activity, Juliet realized that in her face-to-face classes, students were not as accountable for participation as they were in the online context.

> That is something that I would never see in (a face-to-face) class and in a team situation. The people that are not going to participate are not going to participate and I watched these people in (face-to-face) classes picking the split ends off their hair and they can't do that (online) because they are accountable...(Juliet, interview, September, 26, 2001).

This provoked her thinking about how to transform her face-to-face teaching to solicit more participation, accountability and to see evidence of students' thinking.

> It really helped me think about how to do this differently in my face-to-face classes because I never, although I typically put in a 10% participation grade I'm not very explicit about what I mean by that. I don't go around with my little point counter when they're in small teams and look at who's really participating. That's I think again part of the accessibility issue that I don't have access to what's going on in the small teams in (face-to-face classes) the same way that I did (online). The accountability was so high here and it was unexpected and I think I got them to think really well so again it helped me to think about the idea that maybe I can do more of that in (face-to-face) courses (Juliet, interview, September, 26, 2001).

Juliet also learned more about the World Wide Web than she had expected to and as a result, she began to integrate the web into her face-to-face classes.

> I learned a lot about the web. I bumped into some really cool resources that I'm continuing to use in my teaching. I'll bring it up in class... integrate it right into the classroom.... I can do that and I don't think I would have been so fluid in doing that before so (the faculty development class) really helped me think about using the web as a resource for my teaching.... this course really helped me to feel much more comfortable with technology more broadly speaking. I used technology and the web before like for shopping, I'm not afraid of it in any way but I think to be more comfortable with it as a teaching tool is one thing and also to be more comfortable with the stuff you need to do to get it to work like I was recording and uploading my own audio files in this course. (The VU producer) taught me how to do that, I screwed it up a couple times and then I got it to work and then it was fine so I feel like my competency has really grown. I didn't know how to FTP something over to somebody, I didn't even know what that was before but now, I know how to do that for my course so that's a cool thing so I

> feel much more comfortable in my technology skills (Juliet, interview, September, 26, 2001).

Technology

Although Juliet's goal was not to learn how to operate the technology as much as to think about it philosophically, as a result of the scaffolding provided to her in the faculty development class and by the VU producer, she learned more about technology than she had expected. For example, she referred to the discussions they had in the faculty development class and how they increased her knowledge of what was possible with technology.

> There were applications I hadn't seen before. I'd seen streaming video but I'd not seen how it could be linked... used in a course so I kinda thought about them concretely for the first time. We spent some time almost every week talking about something technical and those were very interesting to me. What's a server... what's HTML.... So all that stuff I learned.... That was a nice byproduct of getting to think about teaching (Juliet, interview, May 2, 2001).

Juliet continued to learn how to operate various technologies during the teaching activity through her interactions with the VU producer. She was modest about her accomplishments but the VU producer was impressed by what she had learned as indicated by the following comments from the VU producer.

> Juliet's been changing with that stuff all semester and it's great, it's been nice to watch. When she first started she just changed text, now she puts in links, she adds papers up to the server and then links to them, she changes different html things.... she records her weekly feedback to the students and then converts that to a real audio and puts it on the server. A lot of times we do that and since she can do it herself now that makes it a lot easier for both her and I 'cause she doesn't have to bother about sending it to me and then worrying whether I did it right or not and she can also do it while she's on vacation or what ever.... So that's kind of a good thing is for her to be at the end of the semester 'cause now when she teaches it again she'll have no problem if she gonna change something she knows how to do it and she can do it whenever she wants (VU producer, interview, July 25, 2001).

Instructional Design

During the online course design activity, Juliet realized that she had not thought very explicitly about course design or instructional design in the face-to-face context. She had always prepared for each face-to-face class but not as much as she had to prepare for each online class meeting. In her experience in face-to-face classes, if her methods were not working, she always knew that through her physical presence and the force of her personality, she could keep students engaged with the content and keep them on task. In contrast, in the online context, she believed that the lack of her physical presence would not allow her to be as spontaneous as she could be in the face-to-face context. Juliet found that in the online context each class period had to be stipulated before the course started. This forced her to think about how important it was to use the course design, in lieu of her physical presence, to engage students with the content and to get them to participate.

> It requires a whole different way of interacting with students and I guess I hadn't really thought explicitly about instructional design before I did this course, as I had to do (with) this course because you had to lay it all out in advance (Juliet, interview, September 26, 2001).

Content

For the first time in her teaching activity, Juliet was faced with teaching practitioners. Initially she was concerned that the content would not be engaging enough for them since they already had practical experience in the field. However, after a short time in the class she came to realize that having experienced practitioners in the class helped her think about the content in new ways.

> Experienced (practitioners) coming back to this course and being very reflective about their practice helped me think about the content in really different ways

> because my (regular) students don't interact with this content in the same depth. They just don't have the experience to do it but boy these (practitioners) sure do. They can enliven it with stories (from their experience), they can talk about their philosophy... and whether it does or doesn't support practice. They did all that for me so it really helped me think about it (Juliet, interview, September 26, 2001).

Two other issues also arose for Juliet due to the new population. One was that she began thinking about the online program more globally, in terms of how it might serve these new constituents in valuable ways. Second was how their presence in the course benefited her more traditional students.

> This course has taught me that the stuff we do is pretty important and meaningful to (practitioners) so we might be able to be of some benefit in that regard both for the college who is trying to develop this program and for practitioners in the field. I really liked the interdisciplinary nature of this course. This allowed my (regular) students to interact with (practitioners) in a really significant way and I thought that was of use to them in their professional development (Juliet, interview, September 26, 2001).

Teaching Philosophy

Before teaching online, Juliet's philosophy on learning was that students learn in different ways. Based on this, she believed that she offered her students a variety of ways to learn the content. However, when one of her students asked to complete the course at her own pace instead of being part of a small group, Juliet began to question her own beliefs about student learning and her teaching practice.

> It was highlighted for me in this course... I guess I give lip service to the fact that we have individual differences in learning and everyone has a unique learning style and so on but I'm aware that I just teach in one way so if you want to do a correspondence course with me I don't offer that (Juliet, interview, September, 26, 2001).

The VU Producer

Although the VU producer initially had reservations about the soundness of the graphic design and navigational structure of Juliet's course, ultimately his thinking was transformed through this activity and it piqued his interest in researching such matters in graduate school.

> This course wasn't designed by a professional graphic designer but it brings up a whole question of can graphic designers design good interfaces 'cause I know the packaging department interface doesn't work well for classes (in Juliet's discipline). I know that because we used a variation on that in a course (in this discipline) and I don't think it fits. This design worked really well for these people and that's actually one of the things that's propelling my interest in research is why the design worked well for these people. It worked perfectly. People didn't have problems navigating and there were very few posts saying I can't find this and I need to find it (VU producer, interview, September 11, 2001).

The producer's thinking about this issue also spilled over into his thinking about how people learn in the online context.

> One of the things I learned from it about how people learn is, I was under the impression before that the more graphically streamlined something was people are gonna learn better (because) they've got less choices to make on each screen. But, then I learned from this that giving them a lot of choices on one screen actually was easier for them. Some of the questions it brought up is why did these people learn so much better when there was choices on the left side, choices on the top, choices (imbedded in the text) going all the way down and choices on the bottom? It prompted me to learn more about interface design; why certain interfaces work better than others in certain situations (VU producer, interview, September 11, 2001).

Finally, the VU producer had said that some of his difficulty in course design was due to his lack of knowledge about teaching methods and course content. However, it also derived from a contradiction within the VU. The VU's usual script for working with faculty members set up a particular division of labor where faculty were the pedagogical experts and developed the course content, while the VU producer tried to integrate the idiosyncratic technology tools created by the VU programmers. Thus, the pieces of the

course were designed without any knowledge of the other piece. Because Sam believed that the VU would not address that contradiction, he was inspired to develop new options to transform his learning. He had recently enrolled in a graduate program where he hoped to gain new knowledge and skills in pedagogy and course design. "That's why I'm doing this degree now is hopefully to get a lot more of the methods for thinking about that" (Sam, interview, July 25, 2001). The contradiction within the VU system created an inner disturbance in the VU producer that led him to take serious action to transform his knowledge and skills. Although the VU producer worked on many other courses that created such disturbances, the disturbance mainly derived from the courses that the producer had worked on within Juliet's discipline.

The VU System

The VU producer created a technological innovation for use in Juliet's class. The innovation was a module that allowed Juliet's students to view and rearrange a virtual floor plan. It provided a model for Juliet and her online students to refer to in discussions about how physical space and furniture configurations can influence people's activity and interactions with one another. Subsequently, that innovation became part of the VU's available tools to be used in other courses where the same or a similar tool might be desired. Hence, the VU producer's innovation effected a change in the VU system.

Summary of the Case

Juliet's online course design and teaching activities were characterized by a number of disturbances that led to changes in course design activities, and changes in her

thinking about teaching, technological capabilities and the use of technology in other contexts. Facing a new context for teaching meant that Juliet had to participate in various collective activity systems (the design team, the faculty development class, the VU) to develop a course. As a result, she was scaffolded in technology and philosophies of online course design.

In addition, Juliet confronted her tacit thinking about course design, teaching and learning. She thought more explicitly than she had in a long time about her role as a teacher, learners in her face-to-face classrooms, and the role of technology in learning and teaching. She also made changes in her face-to-face teaching because of her activity.

Furthermore, Juliet's VU producer experienced transformations in his thinking about course design and teaching, as well as effecting changes within the VU system by creating innovations.

Chapter 8

Cross Case Analysis

Introduction

In the previous chapters, I presented and analyzed three cases of faculty members (and their corresponding activity systems) who developed and taught online courses for the first time. These three cases were presented relatively independent of each other. In contrast, the focus of this section is on identifying similarities and differences across the three cases. As in the individual cases, this cross case analysis pays particular attention to contradictions and disturbances and how they led to individual and/or system transformations. I also use the cross case analysis to develop answers to the research questions that motivated this study.

The cross case analysis is provided to help enhance generalizability and to deepen understanding and explanation of the phenomena studied in this research (Miles & Huberman, 1994). In conducting the analysis, I drew upon Yin's (1994) replication strategy. In this strategy, a theoretical framework is used to study one case in depth and then successive cases are examined to see whether the pattern found matches that in other cases. I adapted this strategy by studying three cases in depth and looking across cases to see whether the patterns found in each case were similar or different. I also used a strategy similar to a variable-oriented strategy described by Miles and Huberman. That strategy uses inductive coding to locate recurring themes. In my analysis, I created tables and matrices of the data from the three cases and compared across cases to see if similar themes were present based on predetermined categories while also leaving room open for

emergent themes and categories. Subsequently, I used the tables and matrices to produce a narrative account of the cross case analysis.

The structure of this chapter is similar to the one that was used to develop the individual cases. I begin by looking broadly at what each individual brought to this new context for teaching. Following that, I look across the cases at the collective activity systems that the faculty members worked with (the college system, the faculty development class, the design teams and the Virtual University). This is followed by comparing the faculty members' experiences with the online teaching activity, other contextual factors, tools, and technology as a mediator for the activity. The next section looks at the nature of individual and/or system transformations brought about by the contradictions and disturbances identified earlier. This chapter concludes with a summary and an attempt to address the research questions posed at the beginning of the dissertation.

A New Context for Teaching

This was the first experience in designing and teaching an online course for all three of the faculty members. In other words, they were deviating from their usual scripts of face-to-face course design. Although Mikala and Juliet had looked at some examples of other online courses, upon entering this project all three of the faculty members mainly had only their face-to-face teaching experiences to build on and transfer to the online context. Not surprisingly, they used their previous experiences from the face-to-face context as a heuristic for thinking about online course design. For example, Juliet began

her online course design activity by thinking about what she would do in a face-to-face class, but initially she had no idea how to transfer that to the online context.

> I said things like in my (face to face) class I would do this. But, how to, because I would do so much of this in role-play and simulation in the classroom, how to do that, assimilate those experiences online.... How do you do that, take whatever I do in the classroom and just put it into electronic format (Juliet, interview, May 2, 2001)?

Juliet's activity was also complicated by having to condense a fifteen-week class down to a six-week class. She struggled with how much content the students should have, how to break it up across the weeks of the course but also how to interact with the students and manage her time online. She had not had to consider these issues for some time in her face-to-face teaching activities.

> I didn't know how much work to give them.... I wasn't sure how to chunk the information... I wasn't sure what the content flow should be.... It was a real intellectual challenge for me to develop the course and then to teach it and to figure out how to manage my time, manage my interactions with students... that was really very intellectually engaging to think about my teaching in a different way.... I hadn't really thought explicitly about instructional design before, as I had to do this course (Juliet, interview, September 26,2001).

Mikala also drew upon techniques she used in the face-to-face context but found that they were more easily transported to the online context than Juliet and Jim did.

> Building a sense of community (is) important to me period no matter what setting I am in. It is just my nature to want to build a space that's precious, that is about learning and respect for our learning. I am also big on the reflective practitioner – so, I started with a self-portrait type of activity and on top of that built more team-oriented projects. I wanted people to get to know one another – so my first two activities are really built on "getting to know you" (Mikala, interview, August 21, 2001).

The differences in Mikala's experience may have been due to the fact that her activity was less complex than that of Jim and Juliet. Since Mikala did not take the faculty development class, she only had to deal with content development and the

structure for the course. She was not trying to simultaneously learn about the technology used to put the class online as in the cases of Jim and Juliet. Mikala developed the content, and then took it to the VU producer who handled all of the technological aspects of integrating the course with the technology. In that sense then, Mikala's course design activity deviated less from her usual script than that of Jim and Juliet. In addition, Mikala's activity with the VU producer also followed the VU's usual script and the predetermined division of labor.

However, a similarity among all three of the faculty members was that the new activity forced them to bring to a conscious level their often tacit thinking about larger issues of course design and teaching as in this example from Jim.

> It occupies my consciousness a lot.... I'm always thinking about what I should do, could do, should have done, need to do, that kind of thing. All the time, all the time it doesn't, I don't think I was that preoccupied with face to face.... It's like starting to teach all over again (Jim, interview, October 23, 2001).

Another similarity among the faculty members was their anxiety about their ability to teach in the new context. They were concerned about whether they would like teaching online and whether they would be able to do it well. Mikala said, "I questioned my capacity to do this and to enjoy it... because I enjoy the physicalness of (face-to-face).... I had this fear of doing this..." (Mikala, interview, December 7, 2001). Jim said, "This whole thing could fall completely flat... I think it's a possibility with this online environment" (Jim, interview, May 7, 2001).

They also had concerns about classroom management and the amount of time they would have to devote to the class. "How much time it's gonna take is a real concern" (Jim, interview, May 7, 2001). Jim and Juliet were both uncertain about how well they would get to know their students online versus face-to-face, whether the context would

facilitate the formation of a learning community, and whether they would be able to engage their students deeply with the content. For instance, Juliet said, "One of the concerns I had was that people don't really participate and it's hard to get them talking to each other..." (Juliet, interview, July 12, 2001).

Collective Activity Systems

The College System

The college that developed the online program offered several supports to faculty members such as financial support, a lap top computer and the faculty development class. In particular, the example of the faculty members' course design teams highlighted the importance of offering a variety of institutional support structures for faculty members. All of the faculty members were experts in the course content and in designing face-to-face classes. In the new activity, they resorted to historically formed mediating tools such as heuristics, previous experience with certain types of students and their philosophies on learning and teaching. However, their lack of knowledge in technology and pedagogy of online instruction meant that key knowledge gaps existed, which required a deviation from the normal scripts of course design and teaching. To create the new object, the faculty members' existing resources were combined, used and transformed in novel ways in collaborative activity within their design teams.

Invariably, the faculty members emphasized the design teams as one of the most important factors in their design activity. Jim and Juliet benefited from an institutional structure that explicitly provided design teams (the faculty development class), but

having additional structures in place (the 10, 000 dollar stipend) allowed Mikala to create her own design team, something she may not have been able to do without that support.

On the other hand, the college administration had not provided a course buy out or overload pay to faculty members for this work. This became an important mediator in Jim's activity and ultimately affected his feelings of success. In contrast, although both Juliet and Mikala mentioned that the course design and teaching activities were more time consuming than face-to face activities, they attributed it to the online context and did not suggest that the college needed to provide them with more time for the activity. However, it seems likely that they too could have benefited from additional time to work on the project.

The Faculty Development Class

The faculty development class was designed as an alternative to the VU model, the latter of which created a division of labor where the faculty member was responsible for the content and the VU staff developed the technology and the course design. In the VU model, the technology is treated as separate from the pedagogy. Mikala's case provided an example of this in that unlike Jim and Juliet, who deviated from VU's usual script because of their experience in the faculty development class, Mikala did not have as much opportunity to develop a deep understanding of the integration of technology, course design, content and pedagogy. Furthermore, the VU is a "closed system" with idiosyncratic technologies that often limits course design options for faculty members. Many faculty members, such as Mikala, may not even realize that the VU tools are idiosyncratic since faculty members generally do not get to experience the integration of

the technology with the pedagogy and content in the same way that the faculty development class allowed.

The faculty development class was designed to help faculty members learn how to integrate technology, course design, content and pedagogy and take more control over these activities. The design teams were also introduced to a variety of technologies and design options not available to the VU. This encouraged faculty members to design unique courses that fit with their personal and pedagogical goals and styles, as opposed to a course designed by the VU that tends to replicate those that came before (Koehler, Mishra, Hershey & Peruski, in press). The instructors for the faculty development class also hoped that their approach would encourage the VU to update their technology by virtue of having faculty members make more demands on the VU to create unique courses.

Although this approach to faculty development was designed with the best of intentions, it had some unintended consequences. When the participants from the two different systems (the VU and the faculty development class) met and interacted, they faced disturbances that stemmed from the differences in tools, course designs, producers' lack of knowledge of course design and pedagogy, and divisions of labor between the two systems.

From Juliet's perspective, the faculty development course itself played a large mediating role in her thinking about instructional design, teaching methods, student learning and technology integration. She also gained a new understanding of and skills in the use of technology. In contrast, Jim viewed the faculty development class with less regard. He thought that he learned very little about technology and course design, which

he also attributed to his lack of time to invest in it. Instead, he believed that he learned more by actually teaching the online class. "I learned a lot about the technology by just doing this... taking the (faculty development) course helped but there's nothing like being on the front lines (Jim, interview, December 18, 2001).

The Design Teams

Given their lack of experience in teaching in this new medium, the faculty members had to collaborate with others who were more knowledgeable about technology applications. The task was too complex for an individual faculty member and therefore was dependent on the personal knowledge of members of various activity systems, and the coordination among individuals and artifacts (Jonassen, 2000). The collaborative activity led to the development of new tools, artifacts and procedures.

The design team members were interconnected by virtue of their work on a common object but each individual was also a member of other social systems. When different people from different social systems work together to achieve a new object, the outcome or object is likely to be influenced by the individuals' memberships in different communities (Jonassen & Rohrer-Murphy, 1999).

Rules, community and division of labor represent the social aspect of the activity (Engestrom, 1994). When a new team comes together to create an object, their work is often characterized in the beginning by establishing rules, community and division of labor. This held true for all of the faculty members' teams but was manifested in different ways depending on the faculty member, their online course content and the students on their team (Koehler, Mishra, Hershey & Peruski, in press).

Unlike Jim and Mikala, Juliet did not have preexisting relationships with her design team members. She also did not initially assume a leadership role in the team because of her lack of expertise with technology. Her team floundered for about five weeks until a technology leader emerged by developing the first mock up of a web page.

> I felt like I lost about 5 weeks at the beginning of the semester because I was clueless and clearly, my team was miles ahead of me (technologically). These guys know so much about how to do stuff that they were kind of waiting for me to give them direction and this is where I tried very hard not to control the team because I didn't feel like I could provide direction early on in the course. I was clueless (Juliet, interview, May 2, 2001).

Although Jim also had little knowledge of the technical pieces, unlike Juliet, he had worked with his design team members on other projects. Their role definition and division of labor did not appear to be a struggle. Instead, the team began by focusing on a common task, learning about problem-based learning, which united them. They also met on their own time outside the faculty development class. During this time, Jim was also developing the problems that the online students would work on in his class. As the design team members gained an understanding of the concept of problem-based learning, as well as Jim's vision for the course, they began to shift their focus to refining the content and working with the technology to develop the online class. At that point, the divisions of labor became pertinent and they began to gravitate toward their respective roles. "There was a kind of natural division of labor" (Jim, interview, May 7, 2001). One reason for this was that the group members knew each other before they started this activity and they already had a sense of what each other's skills and preferences were. A couple people focused on the technology, one person focused on structuring the lessons and the navigation through the course site, and another person focused on developing an

extensive orientation designed to teach the online students about learning in a PBL course.

> Surprisingly I didn't have to tell them to do things. They knew what to do. I didn't give anybody any tasks or any jobs to do. They figured those things out for themselves. Towards the end, I became a person who said well, now what's left (Jim, interview, May 7, 2001)?

Mikala's design team did not seem to struggle to define roles and division of labor either; however, it seemed that Mikala was always the de-facto leader due to her position of authority. Although Mikala's position as professor and content expert placed her in a leadership position, she also viewed her students as knowledgeable professionals who had more technical ability than she did. Mikala's student assistant described their interaction this way, "It was very collaborative. I don't think you could detect where our contributions were in that process because it's all lumped together in the cases" (Bonnie, interview, April 18, 2002).

Mikala's team worked only on developing the content of the course and on deciding which software programs the online students would need to learn. They did not work directly with the technology needed to get the course online nor did they develop a mock up of the course web site. With this narrower focus (compared to Jim and Juliet's activities), there was less need for divisions of labor among the members and therefore no one, other than Mikala, assumed leadership positions such as "technology leader" until Mikala began working with the VU producer.

The roles and division of labor became more sharply defined and followed the usual VU script when Mikala took her content to the producer. Like Jim and Juliet, Mikala had little technical knowledge and like Juliet, she had little desire to learn it. Consequently, at this stage in the activity, Mikala relinquished much of the control to the

VU producer based on his expertise in technology. "He's the expert and I said to him to do his thing. You know, trusting the people on your team and respecting their work is extremely important. I trusted (the VU producer)" (Mikala, interview, August 21, 2001).

Thus, Mikala's design team was comprised of content experts who, from the beginning of the activity, were focused on the common goal of developing the content. Mikala described the work as iterative but separate from integrating the technology used to put it online. Jim's team was similar in some ways in that the team was initially focused on a common task where no one was considered the expert and there was no need for divisions of labor. However, once the team had a shared understanding of PBL, they began to work at integrating the online technology with the content and course design. At that stage, Jim was clearly the content expert and the students were the technology experts. Therefore, according to Jim, the roles and divisions of labor fell out "naturally" around these tasks.

In contrast, Juliet's team did not have a clearly defined jumping off point. Although Juliet was clearly the content expert, she had little or no technological expertise. According to Juliet, this prevented her from taking the lead role in the group. This left the group floundering for the first few weeks because they clearly did not know whether to start with the technology or the content or both. Hence, in the beginning stages of their activity, the teams' focus shifted between the technologies, the content and the course structure with no clearly defined roles or divisions of labor (other than Juliet as content expert). However, during this time period, the team used discussion to gradually develop a shared understanding of things like the "look" and "feel" that Juliet wanted her course to have, the types of activities she wanted students to engage in, and a sense of the

types of methods she would use in a face to face class. With this somewhat tentative understanding, a technology expert emerged when one of the students used his understanding to create the first mock up of the course. Juliet felt that the mock up was a good representation of her vision for the course (aesthetically and structurally) even though it had no content. This provided the team with a common artifact, something concrete that they could focus on and the teams' design activity took off from there. Juliet had something to attach her content to and the other members' roles began to crystallize as well (Koehler, Mishra, Hershey & Peruski, in press).

Juliet's case may beg the question of whether or not the instructors in the faculty development class could have done more preplanning to help her team progress more quickly. It seems unlikely that this would have helped because of the inherently unpredictable nature of such design sessions. On the other hand, a closer examination of each team (beyond the scope of this study) may result in an improved understanding of the variety of situations that may occur in the design activity. This understanding could be used in the preparation of design sessions, not to impose tighter controls on them but to prepare them to better handle the most common and important types of situations that occur (Bodker and Gronbaek, 1998).

Jim and Juliet viewed their design team members primarily as technology experts that did not affect the content. However, the data indicate that the team members went beyond translating the technology. They influenced both the structure and content of the courses. Thus, in that respect, all three of the teams had a common element, but there was greater emphasis in Jim and Mikala's teams on the students' role in developing the content compared to that of Juliet. Juliet was more focused on the content while members

of her team worked on technology and some pedagogy (mapping out the structure of the weeks and assignments and suggesting activities that could create a sense of community among the online learners).

Despite the differences among the teams, all three of them operated on an iterative basis where they went back and forth with ideas and products. They made decisions informally by discussing their options, the pros and cons of each option, and their different perspectives on them. When they eventually would settle on something that all the team members liked, they deferred the final decision to the faculty members. Furthermore, their work was not a reproduction of previously held knowledge or activity. Instead, they drew upon previous knowledge, but they also were innovative and their activities represented new work processes and led to new knowledge and artifacts.

All of the faculty members reported that because of their participation in collective activity systems, they successfully reconciled differences between past teaching experiences and the challenges posed by the new online environment. The participants in the three design teams entered the situation with little shared prior understanding of how the process was to work. They had to learn new things about technology, content and pedagogy, but they also drew upon prior knowledge, which they modified and integrated into the new context of online learning. However, in the course of their interaction around achieving a common goal, the design teams constructed a shared understanding or intersubjectivity around their particular situation and each person gained new knowledge in the process (Hutchins & Klausen, 1998).

Analysis of the design teams' activities also uncovered zones of proximal development on the individual, small group, and institutional levels. The ZPD was

defined earlier as the distance between one's present skills or understanding and the zone within which one is capable of or motivated to learn (Vygotsky, 1978). In this study, the ZPD concept was expanded to include small groups and the contexts in which they functioned within the institution (Bodker & Gronbaek, 1998). In other words, by engaging in collective activity teams comprised of actors with varying skills and skill levels, the individual team members were able to go beyond their existing skills when confronted with new technological possibilities in course design and teaching. At the team level, the cooperative activity among the individuals within the teams, created new forms of social and work activity that were collectively generated by the team members in order to solve the problem of creating the new object, the online class. The team members' collective activity also provided a new form of work activity that could become a model at the institutional level for other faculty members charged with the task of creating an online class. Thus, the idea of students and faculty working collaboratively to create a new object was a powerful one on an individual, small group, and perhaps on an institutional level.

Furthermore, the collaborative activity reflected robust reciprocal relationships where faculty members and students "scaffolded" one another into course design and pedagogy in a real world application. Students "scaffolded" faculty into the use of technology as well as providing faculty with multiple perspectives on course structure and content. They helped faculty navigate the complexities of integrating content, pedagogy and technology. Moreover, students in the design teams got to work with a faculty member and design a "real" course, something that they would not have had a chance to do in most of their other course-related experiences. This activity provided

students with the opportunity to apply some of the knowledge they gained in graduate school to an authentic context, and to work with tenured faculty on a real world problem. This activity also provided students with a view into the process that a faculty member engages in to complete a project from start to finish, instead of just seeing the final product of a faculty member's thinking. They got to see first hand how faculty think about curriculum design, teaching methods and student learning, and they had the opportunity to significantly influence the faculty members' ideas in a team project where they sometimes had more expertise in an area than the faculty member did (Koehler, Mishra, Hershey & Peruski, in press).

The Virtual University

All three of the faculty members talked extensively in their interviews about the role of the VU in their activities. Mikala and Juliet both were satisfied with the support from the VU and believed that, without the VU, they never would have succeeded. In contrast, Jim was less enamored with the VU. The VU's rules and tools often frustrated him and both he and the VU producer encountered several disturbances in their work together.

Mikala followed the usual script for interactions between the VU producer and faculty members. As a result, she experienced few disturbances and breakdowns. Jim deviated the most from the usual script and both he and the VU producer experienced numerous disturbances and breakdowns. Juliet fell somewhere between Jim and Mikala in deviations and correspondingly, she and the VU producer experienced relatively few disturbances and breakdowns. Thus, it appeared that the higher the number of deviations

from the usual script, the more disturbances surfaced and the more the systemic contradictions were revealed.

The disturbances that occurred in each case could be traced in large part to the historically constructed division of labor and rules that guided the activity of putting a course online at this university. The VU programmers developed technological tools, which were to be used in teaching the online course. The faculty members were responsible for developing the content for their course and rarely had the technological knowledge to understand what was possible. The VU producer mediated by using the VU tools to put the faculty member's course online. The VU producer had training in graphic design but not necessarily in curriculum design, instructional design or pedagogy. Yet, they were charged with the task of helping faculty member to re-configure their ideas to match the available tools.

In general, there are both benefits and drawbacks to these divisions of labor and rules. There are pragmatic reasons for specialization at both the institutional and individual levels such as financial and time limitations. Furthermore, not all faculty members are intrinsically interested in learning about technology, and some may see it as not worth the time that it takes (a limited resource) away from thinking about pedagogy and the other responsibilities they have (Koehler, Mishra, Hershey & Peruski, in press).

However, such divisions of labor, rules and idiosyncratic technology limit options for faculty members, course quality may suffer, producers may make decisions that have unintended pedagogical consequences, and VU courses may end up looking like clones of each other instead of reflecting faculty members' unique visions and styles of course design and implementation (Koehler, Mishra, Hershey & Peruski, in press).

If faculty members do not deviate from the usual VU script, the system is maintained and institutional practices get stabilized as producers present incoming faculty members with existing online course designs as exemplars (Koehler, Mishra, Hershey & Peruski, in press). This scenario was most evident in Mikala's case. She did not take the faculty development course and she had little interest in learning about the technology used to instantiate her course online. She saw this as one of the main benefits in having a VU producer; hence, the VU producer took the lead role in this activity. However, one deviation on Mikala's part, a highly interactive course with several different teams, highlighted a systemic contradiction that resulted in a disturbance during her course. Because of the producer's lack of training in pedagogy and curriculum design and Mikala's lack of experience with online contexts and technology tools, neither of them had thought to provide a separate space or thread for the online teams to conduct their own interactions. This led to Mikala's being overwhelmed by emails and unable to monitor each teams' interactions. On one hand, this disturbance may have been avoided if Mikala had taken the faculty development class because they discussed issues such as this. In a face-to-face classroom, faculty do not have to separate out the conversations since the way space is configured, people can easily form their own groups and there is a tacit understanding that they can physically configure their own spaces for conversation. However, in an online space, the responsibility for that falls on the faculty member, something that Mikala (not surprisingly) did not realize. On the other hand, the producer was a technology expert with some design, but not instructional design skills; therefore (not surprisingly), he did not realize it either. This disturbance highlighted a systemic contradiction, the divisions of labor set up by the VU system's method of online course

design, and in addition, this scenario strengthens the argument against such divisions of labor.

Juliet had much the same attitude as Mikala did about learning the technology. She did not have a desire to learn how to operate it nor did she see the need to since she had the VU producer for that. However, she took the faculty development class where the instructors for the course had a responsibility for helping faculty members develop their online course, but their goals were somewhat broader-- helping faculty to understand the relationships and integration of the technology with course design, content and teaching. The faculty members also had the advantage of getting several weeks to play with various technologies and course designs. Consequently, Juliet had more knowledge about online instructional design and technological options in an online environment than Mikala did. Greater knowledge of design and technology seemed to be factors that contradicted the VU system. The VU's goal was to get the course online with the minimum of problems using whatever tools they had, but Juliet presented her own mock up of her course and was resistant to changes that the VU producer suggested. She co-opted more of the control over the design activity than was typical in the producer's experience. As a result, Juliet's producer encountered several disturbances that could be traced to the systemic contradictions. However, he also experienced transformations in his thinking and created an innovation, which most likely effected change in the VU system. The producer's outcome supports the notion that disturbances are not necessarily bad, and that they can spur positive transformations in both individuals and systems.

Compared to Mikala and Juliet, Jim deviated the most from the usual script and both he and the VU producer encountered several disturbances. Like Juliet, Jim had taken

the faculty development course and therefore had more knowledge and experience with instructional design and technological options than many faculty members do. Jim also brought his own mock up of his course but in addition brought along several of his design team members to work with the VU producer. This further muddied the waters in terms of the divisions of labor. All of this was complicated by Jim's incorporation of the PBL framework, which was unfamiliar to both the design team members as well as the VU producer. This latter variable interacted with both the course structure and navigation, further complicating the activity. In the end, however, the disturbances also led to some transformations in the VU producer's thinking and to an innovation. For Jim, the disturbances just seemed to lead to frustration with the VU system and with himself for not having had the time to learn how to operate the technology, thus making him more dependent on the VU system. He was convinced that the VU system needed to change and that he needed to explore other systems and to become more facile with the technology to achieve his goals.

Thus, due to the historically constructed (i.e., constructed separately and differently within each system) tools, divisions of labor and rules that governed these activities, deviations from the usual script highlighted systemic contradictions that manifested themselves in disturbances within and between the participants. However, the disturbances led to some individual transformations in thinking and actions as well as some innovations. There may also have been some system changes but that is a more complex and time consuming process that would require more time and varied kinds of data collection to track and confirm.

The Online Teaching Activity

All three of the faculty members' goals were to create a community of learners in their online classes. In all of the classes, the students worked in groups to complete assignments and their grades were partly contingent upon their participation. In order to track participation, the students had to communicate in writing online. As a result, the faculty members noticed an increased level of contact and interaction beyond face-to-face. The online medium also afforded the opportunity for more frequent and sustained interaction as opposed to a face-to-face class that meets one-day a week for three hours.

Jim and Juliet believed that the methods of communication afforded them the opportunity to get to know their online students as well as, and in some cases better than they had in their face-to-face classes. They were able to get a better sense of what and how their students were thinking about the content, and they saw students participate that they never would have heard from in face-to-face classes. As a result, they believed that the online context provided them with a better assessment of their students' learning than the face-to-face context.

Initially, all three of the faculty members thought that they would miss the face-to-face contact with their students. Instead, they were surprised to find that there was increased visibility of their students and their work. It is possible that with the online medium there is a lack of visual and other contextual cues that faculty may take for granted in face-to-face classes. Because face-to-face has more of a visual context available, faculty members may not pay as much attention to the individuals and the teams that the students belong to. In addition, the online students produced more writing than they would have in a face-to-face class, which may have helped the faculty members

to better contextualize their students. The students' writing may have helped the faculty members to create images of their students, what they were like and it located the students within their teams. The faculty members could identify each student's role in the team in a way that was not as easy to do in a face-to-face class. Thus, in many ways, their online students became more visible to them. As Jim said,

> I have a general sense of every person. I can visualize (them). I've read their writing. I can visualize and I can understand the ways in which they are thinking about problems. I would never be able to say that about twenty-six face-to-face members. I think it is a cool thing. I would not have anticipated that (Jim, interview, October 23, 2001).

Juliet's interpretation was pretty close to Jim's but Mikala differed in her view of managing students' team work online until she made some changes in the teams' communication paths. Once she dedicated a "space" or thread for each team to work in separately, she had little trouble monitoring them.

> In person, you can watch the team working, you can intervene, and even though I was trying my best to watch it in the first case, because I didn't have the different threads, I couldn't see the progress on a daily basis. I couldn't intervene fast enough. I think that's really important in doing these kind of team projects is setting up these communication systems so that as the instructor you can see the progress on a daily or on an every other day basis and you can intervene immediately (Mikala, interview, December 7, 2001).

Contextual Mediators

All three of the faculty members mentioned similar contextual mediators that affected their activities. The primary one was the support of the college, both the financial support and the college's commitment to making the program happen. Also notable was that each faculty member created personal support systems above and beyond what the institution provided. For example, Jim's son helped him with technical information and Jim continued to work closely with his design team members throughout

the design and teaching activities. He also used the activity as a research topic for himself and his students.

Juliet interacted with her husband around the issues facing online teachers and Mikala sought support and advice from colleagues in the college. In addition, she said that she had to learn how to use some of the technology because her husband, who normally would handle that for her, was out of town. That forced her to have to learn some new things.

Tools

Often, software and hardware tools are thought of as being neutral and value free. However, tools have different affordances and constraints and they guide our actions in different ways. One of the differences between systems in this study was in the available tools used to create the objects (i.e., between the faculty development class and the VU system). The differences in the tools used in each system were a source of contradiction that led to disturbances between individuals' work activities. For instance, the faculty development course introduced the design teams to Blackboard (a commercial course management system) for use in developing the mock-ups of their online course web sites. However, Blackboard is only one instantiation of what an online course website could look like. Blackboard is a highly integrated environment that allows only for certain ways of doing things. It also comes with an extensive suite of additional tools for student tracking, creating assessments and so on. It is likely that the use of Blackboard in the faculty development course resulted in contradictions between the systems that led to disturbances for Jim and Juliet. This was because the VU had a different system that

allowed for different instantiations of what an online course website could look like and how it could function.

The VU system was not an integrated system like Blackboard. The VU had a limited set of widgets that could be mixed and matched based on the requirements of the course. This was a very different design approach than that espoused by Blackboard. Moreover, some of the tools that were integrated within Blackboard were not available from the VU. Having used Blackboard in the faculty development course, the faculty members may have assumed that such tools and add-ons would be available on any online teaching platform and thus they based their vision of their course on the availability of these tools.

For instance, in Jim's case, the lack of availability of a student-tracking tool among VU's widgets became a problem. His request for such a tool led his producer to develop one but the producer was prevented from using it by his superiors at the VU due to concerns around human subjects' clearance. In some fundamental sense, differing views of what tools should be available created this entire disturbance. Jim felt that as an instructor, he had the right to know which students were online and when. That was one way to assess participation. The producer saw his role as being one of helping the faculty member achieve his goals and thus created a widget to do that. However, the VU management saw looming ethical and legal issues regarding student privacy.

Juliet faced some similar issues but they were related to the kind of design, both the graphic and navigational structures, she envisioned for her course. The VU producer initially did not like her site because it did not fit his vision or the traditional VU philosophy about how online courses should be designed. However, since one of his

goals was to satisfy the client (Juliet), he worked with her original design but faced many difficulties with organizing the navigation through the site. Because of his willingness to meet the faculty member's needs and goals, he learned about new design options and, according to the VU producer, what he was learning was one of the factors that pushed him toward doctoral research in this area. In addition, as in Jim's case, the VU producer designed a new widget for Juliet's students, which facilitated their understanding of how physical room arrangements can affect interaction, learning, conflict, management, etc.

The differences in tool availability between the faculty development class and the VU systems also were a source of two other contradictions-- one within the faculty development course and one between the course and the VU system. First, the contradiction within the faculty development course stemmed from the instructors' philosophies about how people learn about technology. One of their goals was to develop in the faculty a flexible approach towards technology. They were sensitive to the fact that technology users often made essentialist attributions to the particular technologies they were used to, rather than seeing a particular technology as being one instantiation of a broader set of tools. For instance, users of Eudora for email may see Eudora as being representative of all email packages. The instructors of the faculty development class wanted to discourage such essentialist thinking by having faculty members work and play with a range of technologies so that they would develop a more complex and nuanced way of thinking about technology. However, there is an inherent paradox in this technique since the first technology introduced to faculty members had the potential of becoming the paradigmatic software. The students (which included the faculty members) could essentialize the attributes of *that* software or tool and see all of online learning

through its lens. To avoid that outcome, the class had to strike a balance between talking about tools (email programs, file transfer protocols or the Web) in broad generalities (which can result in students not learning how to use the tools), versus having students learn to use particular tools and not see the broader issues, but rather see *that* tool as being representative of all available tools. This fundamental contradiction was resolved by introducing students to a variety of tools to discourage essentialist thinking. However, that also created a contradiction between the faculty development class and the VU, which led to disturbances in the faculty members' work with the VU producer. Since faculty members were used to having access to a wider array of tools to meet their goals than the options available at the VU, they were dissatisfied with the limitations imposed by the VU tools.

Technology as a Mediator in Learning and Teaching

All three of the faculty members spent more time developing their online classes than they typically would spend developing a face-to-face class. This was in part attributable to having to frontload their content for each class meeting before the first class. They also found that they had to devote more time to online teaching than face-to-face because the online students produced more writing, and because of the opportunity for more frequent and sustained interaction compared to a face-to-face class. Furthermore, they found that they had to attend to their student groups individually on their discussion threads as opposed to face-to-face classes where they either watched from a distance while all groups interacted simultaneously or sat in on each group for a limited period. The benefits to teaching online were that the faculty members got to "see" individuals and groups processing information, doing inquiry and grappling with the

content issues. Thus, although online teaching took more faculty member time, they all agreed that it was worth it to "see" more of their students' thinking and learning.

All of the faculty members found that providing each group with their own space or thread for communications, in addition to a class wide space, helped the faculty members to monitor each groups' progress and interactions. It also helped the faculty members to assess each student's contributions to their group and thus served as an accountability tool.

The faculty members noticed that the medium also afforded an increased level of contact and interaction beyond face-to-face. In addition, the fact that students had to communicate in writing meant that students' thinking was more visible than the faculty members had experienced in face-to-face teaching. The medium also afforded students easy access to course-related content on the Internet, which they often shared with their classmates during the semester. For instance, Mikala explicitly set out to use the web as her "textbook" but students exceeded that by finding other pertinent sites and sharing them with the rest of the class. Juliet used the web as her text to a lesser extent but realized the convenience and virtue of sending students to sites that provided some of the course content, such as explanations of theories and concepts. Jim also came to realize the value of the Internet for this purpose as his students brought web-based resources to the discussions and problem solving sessions.

While Mikala always seemed clear about her role as teacher, the online context raised such questions for both Jim and Juliet. For Jim, the questions may have arisen in large part because of the PBL framework. That framework pushed students to become more independent in their learning and less reliant on Jim. Consequently, Jim began to

question what his role was. Alternatively, for Juliet, the issue was centered on instructional design. In the online context, she had to frontload the instructional design, which she believed made her interact with students in a different way than she had in face-to-face classes. Online, she felt that she had less of an opportunity to be spontaneous and change strategies in the moment compared to her face-to-face classes.

Jim also talked about how the online context impeded his spontaneous nature because of frontloading of instructional design and content. In contrast, since Mikala tended to do a lot of preplanning in her face-to-face classes, and carried those procedures over to her online course design activity, she never grappled with what her role was in the online context.

Transformations

The preceding analyses revealed that for all three of the faculty members, their activities led to deeper thinking about often-tacit issues in course design, teaching, pedagogy, learning and the mediating role of technology in these activities. As a result, they all experienced transformations in thinking and work processes. In addition, the VU producer created innovations and experienced transformations in thinking in response to disturbances.

The Online Teaching Activity

All three of the faculty members gained new confidence as teachers in the new context. When they started the activity, they were uncertain about their ability to do well online. Furthermore, they questioned whether they would enjoy teaching online. In the

end, their actual experience online was contrary to what they thought that they would find. For example, Mikala said,

> I learned a lot about myself as an instructor/facilitator on this venue in terms of I questioned my capacity to do this and to enjoy it as much because I enjoy the physicalness of (face-to-face).... I remember when we first talked I had this fear of doing this and now I'm not afraid of doing this at all (Mikala, interview, December 7, 2001).

Juliet also thought that she would miss the face-to-face contact with students and she was concerned that she would not be able to form relationships with them. However, after teaching online she said, "I don't miss the face to face as much as I thought I would because I feel like I've got relationships with these people and that's the part that surprises me because I wasn't sure I'd have that" (Juliet, interview July 12, 2001).

Jim was initially concerned that he would not have a good sense of what the online students were learning because he would not be able to see their faces. However, he found that in the online context, he had a better sense of their learning and thinking than he had in the face-to-face context.

> ...You can hide in face-to-face teams. You can loaf and get by and learn very little because the teacher often times does not have a clear sense of what you are learning... clear evidence of your individual standing and performance. In the online environments you've got, well not a pathway to their soul but it's pretty close and so it's kind of hard to hide. I know when people are loafing. I know when people are not doing the reading. I can tell whether they are thinking carefully about stuff.... Those are all things which become much more transparent online (Jim, interview, December 18, 2001).

The Face-to-Face Teaching Activity

Participating in designing and teaching an online course for the first time led to transformations in thinking about face-to-face teaching for all three of the faculty members. For Jim, the experience of getting to know his students through their writing

was powerful. Because of that, he believed that subsequently he would require his students to write more frequently in his face-to-face classes.

Juliet had a similar experience. She found that online, her students were more accountable for their thinking about the content compared to her face-to-face classes. As a result, she hoped to figure out ways to change her face-to-face teaching to get similar results. In contrast, Mikala mainly experienced transformations related to the use of technology and her comfort level using it in her face-to-face classes.

There are several possible explanations for these transformations. First, the new context for teaching forced faculty members to confront their previously tacit thinking about course design, teaching and student learning. Second, in the new context, faculty was introduced to new and unfamiliar tools. They had to figure out how to integrate new tools with content, pedagogy and course design. Third, they had to work collaboratively with others to accomplish this, and they had to work with unfamiliar systems that had developed their own tools, divisions of labor, rules, goals and accountability. These factors also forced the faculty members to think about their activities in a new way.

Tools

All of the faculty members gained more knowledge about what goes on inside the black box of technology. Although Mikala's course design process differed from that of Jim and Juliet, she also gained several new insights into technology. For example, Mikala thought extensively about the role of technology in communications and student learning. However, all faculty members began to see the bigger picture of how technology works in this context and they developed new design options for future courses. Mikala and

Juliet specifically discussed their increased comfort level with technology and their plans to use it more in their face-to-face classes.

In terms of the design teams, because Jim and Juliet's teams were in the faculty development class, they were exposed to a wide range of technologies, assessed their usefulness, and integrated some of them in the design of the course web sites. The teams interacted around ideas such as the relationships between content, technology and pedagogy, which played out in a number of ways during the activity of designing their online classes. For example, they learned about graphic design and how graphic design gets integrated into course design with the available technology. They also learned about what affordances and constraints various technologies provided, as well as the impact of the technology on content representation. In contrast, Mikala's team focused strictly on content and only dealt with technology in terms of what existing software programs the online students should learn. Mikala's team was not exposed to technologies and options available outside the VU and therefore may not have developed the same kind of understanding as Jim and Juliet's teams did.

The Virtual University

Because Jim and Juliet learned about technology available outside the VU and made more demands on that system to provide variety and options in their final course designs, they may have experienced more disturbances in their work with the VU compared to Mikala. However, their knowledge of the technology also allowed them greater control over course design, led to transformations both in their thinking and the VU producer's, as well as a couple of innovations that will become part of the VU

system. The innovations represent a change at the system level because they will be available for other producers and faculty members to use in their courses.

The VU producer also acknowledged that the VU system administrators were beginning to discuss issues such as how they change the pedagogy when they put courses online. Furthermore, the VU administrators realized that their system tools had become outdated and they were actively looking at ways to change the system to keep up with increased demand for their services.

Summary and Original Research Questions

In this section, I will revisit the two original research questions while summarizing the cross case analysis. The original research questions were:

- What contradictions and disturbances emerge during the activities of designing and teaching an online class?
- Does participating in these activities transform the thinking of the participants or the systems on issues such as course design, teaching, learning, technology and face-to-face teaching?

Contradictions and Disturbances

All of the faculty members were experts in the course content and in designing and teaching face-to-face classes. The new context represented a deviation from their normal script, which means that they were a disturbance. The faculty members used as a point of reference their historically formed mediating tools such as heuristics, previous experience with certain types of students, and their philosophies on learning and teaching.

However, their lack of knowledge in technology and pedagogy of online instruction meant that their existing resources had to be combined, used and transformed in novel ways in collaborative activity to create the new object, the online class.

According to Jim and Juliet, the disturbances led them to question their role as teachers and in Jim's case, his teacher identity. All three of the faculty members also had fears about their ability to teach in the new context and two of them wondered if they would enjoy it as much as their face-to-face teaching. These revelations were significant given the fact that all three of the faculty members had had extensive experience in teaching face-to-face. It indicated that merely participating in designing and teaching in the new online context led them to rethink and reevaluate issues that they had long since put to rest in the face-to-face context. It also supports one of the main propositions in this study that a new context for teaching may force faculty members to bring to a conscious level issues that they had not considered in a long time.

Furthermore, the online context as well as the mediating tools was a disruption to normal teaching routines and modes of communication for the faculty members. For example, Mikala believed that the context was the primary reason for a conflict with one of her students. Since she could not see the student's reactions, it was more difficult for her to resolve the conflict than if she had been face-to-face. This incident forced her to learn new communication skills in the new context. On the other hand, the context also allowed faculty members to gain insight into their students' thinking about the content that they thought was missing in the face-to-face context.

In addition, during their activities, systemic contradictions arose and led to disturbances in faculty members' work. One disturbance was Jim's increased anxiety due

to a lack of time in his schedule to complete this work. This may have been in part due to the fact that the college failed to provide faculty members with extra time in their schedules. Although the other two faculty members did not mention this as a disturbance in their activities, they commented on the extra time that both designing and teaching the online course took.

Other contradictions stemmed from the VU system. The system had idiosyncratic tools that limited design options for faculty members. In addition, the producers generally were not trained in instructional design, and the division of labor set up by the system (faculty provide content and VU provides the technology) led to disturbances in the faculty members' work with the VU producers. For instance, in Mikala's case, neither Mikala nor her VU producer had the knowledge to realize that they needed to create separate threads for Mikala's online students to work in their groups. In Juliet's case, her course design presented a challenge to the producer's usual script and led to difficulties configuring the navigation through the site. Jim's case represented the highest level of deviation from the VU's usual script and resulted in disturbances and frustrations for both Jim and the producer.

However, these disturbances were also traced to contradictions between the faculty development course and the VU system. The faculty development course, among other things, gave more control for the course design process to faculty members, which was in conflict with the traditional division of labor, rules and tools at the VU. When the faculty arrived at the VU with complete mockups of their unique and highly interactive online courses, it resulted in disturbances for both faculty members and the VU producer (although more so for Jim than for Juliet).

Many of the contradictions and disturbances appeared to lead to transformations in thinking about technology, course design, teaching and learning. These transformations are summarized in the next section.

Transformations

The interactions between individuals from different systems led to disturbances, which highlighted the systemic contradictions. Often this led to transformations in individuals' thinking and innovations to alleviate tensions and disturbances. These outcomes lend credence to the "essential tension" (Kuhn, 1977) argument that, although these tensions or contradictions may lead to disturbances in the short term, these are *essential* for the evolution and development of practices in the domain. Therefore, it could be argued that transformations are what keep systems alive and vibrant.

The Mediating Role of the Online Context

The new context created a disturbance that led to new work processes that often took place in collaborative activity across and within systems. For instance, the faculty development class transformed the online course design activity by combining faculty development and student learning for the purpose of designing an online course. Furthermore, since the college offered a range of supports to faculty members, Mikala was able to create her own design group instead of enrolling in the faculty development class. Thus, the college's support structures made another transformation in work processes possible that also can be used as a model for future design activity.

The case analyses also showed that faculty members experienced a range of transformations in their thinking about technology such as its role in mediating communications, student learning, teaching and course design. In addition, the online context had transformational ramifications for their face-to-face teaching. The transformations included the faculty members' plans to infuse more technology into their face-to-face classes, changing their face-to-face teaching in order to gain more insight into their students' learning, and finding ways to increase their students' participation within small and whole group activities.

Perhaps one of the most interesting and important transformations that occurred was in the individual faculty members themselves. These faculty members had been teaching for many years, they were comfortable with and confident in their practice, but much of their thinking and knowledge about it was tacit in the face-to-face context. However, once they faced the new context with its contradictions and disturbances, their transformations went beyond their thinking about teaching, learning, course design and technology. They faced anxieties about their ability to teach that they had not experienced in many years and they reflected in a new way about their role as teachers. In Jim's case, these anxieties touched the core of his thinking about his identity as a teacher.

The VU producer also experienced a range of transformations such as finding new ways to communicate with faculty members during the design activity. He also had exposure to new curriculum designs and new navigational structures within a site. What is more, the producer referred to this activity as one of the factors that encouraged him to enroll in a doctoral program.

System level change is a more complex and time-consuming process, but there were indications that changes may occur in the faculty development class and the VU system. The instructor for the faculty development class noted that the results from this study encouraged him to think about ways to transform the class to make the transition to the VU easier for faculty members.

Furthermore, it is likely that the VU producer changed the VU system by creating and infusing innovations into the system that will be available for future classes. In addition, the producer had discussions with VU administrators regarding how they change pedagogy when it goes online.

Continuities

Adopting the notion of contradictions and disturbances as springboards for transformation has been a useful analytical tool in this study. However, this approach could imply that there is a "causal" pathway to transformation (i.e., contradictions and disturbances necessarily lead to transformation), which may be too simple of an explanation. Moreover, an emphasis on contradictions and disturbances emphasizes the problems and transformations, but it ignores some things that do not change. Therefore, it may be useful to also examine issues such as, what was continuous for the participants between the old and new contexts for teaching and what were the ramifications of the continuities.

Data analysis revealed that there were continuities between the faculty members' face-to-face and online course design and teaching activities. For example, in both their face-to-face and online teaching, all three of the faculty members displayed a

commitment to teaching and to providing core content for students, a concern for quality education and student learning, and a high level of self-reflection on their teaching. Perhaps what is most interesting is that if these continuities had not existed, faculty members may not have faced the contradictions and disturbances that they did. The fact that they were reflective and continually questioning their practice, often led to contradictions and disturbances, as well as transformations.

For example, there were continuities in the faculty members' thinking that led to transformations in their face-to-face teaching. In their face-to-face teaching, all three of the faculty members had their students engage in small group work to complete projects. This practice came out of the faculty members' experiences and beliefs about how people learn in face-to-face classrooms. The faculty members implemented this practice in their online course designs, however they discovered that online, since their students' group activity was documented in writing, students' group participation and information processing was more visible than in the face-to-face context. As a result, the faculty members began to think about how they might transform their face-to-face teaching to replicate their experience in the online context.

Not all continuities led to positive transformations, however. Continuities, like contradictions and disturbances, can lead to frustrations. An example of this from Jim's case was his discovery that he had difficulty managing whole class discussions online, which was something that he had not experienced in the face-to-face context. Online, he had trouble discerning when, where and how to intervene in whole class discussions.

Juliet's case provided an example of how continuity can lead to a disturbance and a transformation in one's thinking. In her first interview, Juliet said that one of her

philosophies about how people learn was that students were all different, they learned in different ways, and she believed that she accommodated students by providing a variety of avenues for students to learn. Although Juliet approached her online teaching with the same philosophy, she began to question her belief when one of her online students asked to move through the course content at her own pace, instead of being part of a group. Juliet refused the student's request and the result was that Juliet questioned whether her own philosophy was realistic and implementable. Hence, that continuity in Juliet's philosophy became a springboard for her to reexamine her belief and ultimately to realize that maybe she did not hold that philosophy after all.

The preceding examples show that identifying continuities, in addition to contradictions and disturbances, broadened the scope of the findings in this study in several ways. First, the analysis showed that continuity, not just contradictions and disturbances, led to reflection, disturbances, transformations, and sometimes no change at all. Second, the analysis showed that identifying the continuities can highlight the recursive nature of development, as in the example of the faculty members' rethinking their students' group work in face-to-face classes after having "seen" their students' group work online. In contrast, contradictions and disturbances can imply linearity and could mask the recursive nature of development. Finally, the example of Juliet reexamining her philosophy on learning strengthened the argument that a change in venue could force faculty members to be explicit about their tacit beliefs and practices.

Chapter 9

Discussion

Summary of the Study

In this study, I used an activity theoretical framework to analyze three faculty members' experiences with designing and teaching online courses for the first time. I presented the analysis in the form of three case studies (one for each faculty member), as well as a cross case analysis. There were two main research questions addressed in this study. The first question was: what contradictions and disturbances emerge during the activities of designing and teaching an online class? The second question was: does participating in these activities transform the thinking of the participants or the systems on issues such as course design, teaching, learning, technology and face-to-face teaching?

Although the analyses focused primarily on the faculty members' experiences and outcomes, activity theory offered a framework to study goal-oriented individual and group actions that took place within wider contexts or activity systems. An activity system integrates the subject, the object of the activity, and tools into a unified whole. The activity theory framework employed in this study was inspired by the work of Engestrom (2000a; 2000b) who based his analysis on contradictions that occurred at the system level within activities and between surrounding activities. Contradictions at the system level tend to manifest themselves in disturbances and breakdowns in individuals' work processes. Disturbances and breakdowns may force individuals to adopt a more reflective or deliberative stance toward ongoing activity (Hasu & Engestrom, 2000) and lead to transformations in thinking, work processes and systems.

Analysis of the data from this study revealed various systemic contradictions that emerged and became visible in interactional situations within and between the activity systems involved in achieving the object (i.e., the online course). The contradictions manifested themselves in disturbances within and between the participants and in some instances led to transformations in thinking, work processes and systems. In addition to contradictions and disturbances, the analysis also revealed that there were continuities in faculty members' beliefs and actions, which sometimes led to reflection, frustrations, contradictions, disturbances, and transformations. At other times, the continuities were simply continuities, or things that did not change regardless of the context.

Based on the results of this study, there are a variety of implications for individuals, groups, institutions, and theory. The following section elaborates on the implications in these four areas.

Implications

Implications for Faculty Members

This study broadened the scope of the literature on online course design and teaching with its focus on faculty members as they worked within various activity systems to develop and teach their first online courses. In turn, the results from this study may have implications for faculty members in other institutions. For example, during the activity of creating and teaching online classes, the faculty members had to determine how to structure and represent their content online, manage the "classroom" and orchestrate the learning environment, establish relationships with students, communicate effectively with students, create a learning community, organize teams, and appropriately

respond to and intervene in the group process online. Although these are teaching dilemmas that good teachers often grapple with, this study revealed that these issues are often tacit in the face-to-face context after years of experience. Alternatively, the online context provided a valuable laboratory in which to consider these issues once again. Thus, although teaching online is time consuming and sometimes creates anxiety, it can be an important activity because it may magnify some of the critical problems that very good teachers think about in any context.

This study also showed that teaching online could provide faculty members with new insights into their face-to-face teaching. For example, all three of the faculty members that participated in this study, planned to change their face-to-face teaching in various ways because of their online teaching experience. Two of the faculty members gained new insights into their students' learning and thinking because more of their students' thinking was visible in writing in the online context as compared to their face-to-face classrooms. Because of this, the faculty members planned to have their face-to-face students engage in more writing about the course content in their face-to-face classes. The faculty members also saw increased student participation in small group activities online. As a result, two of the faculty members hoped to find ways to increase, as well as track the participation of individual students working in teams in their face-to-face classes.

Designing and teaching an online class also led all three of the faculty members in this study to acquire new knowledge about technology, such as how it operates in the online setting, various uses for technology online and face-to-face, and how technology mediates teaching, students' learning, and relationships and communication with

students. Because of their new understanding of how to incorporate technology into their classrooms, the faculty members planned to incorporate more technology into their face-to-face classrooms. They were also motivated to gain a better understanding of and skill with the technology used to create and teach online courses.

This study also revealed the potential pitfalls in designing a class for and teaching in an online environment. These activities were time consuming and raised challenging questions for faculty members, some of which were different than the questions they wrestled with in face-to-face classrooms. For example, a key question that kept emerging for the faculty members in this study was, what is the role of the technology in mediating learning, teaching, and communications with students online. One faculty member wrestled with how to identify the "teachable moments" during online discussions. That faculty member also struggled with how to get students to participate in whole class discussions.

The new online context also forced the faculty members to face their anxieties about their ability to teach in a new context. They also raised questions about their own role and identity as teachers. The new context represented a disturbance to established practices that provided the opportunity to face previously tacit thinking about issues such as, course design, teaching methods, and philosophies on teaching and learning. The new context was also a place to explore how continuities in thinking and actions, brought from the face-to-face context, could result in frustrations, disturbances, and transformations. Alternatively, some things did not change even in the face of contradictions and disturbances such as, faculty members' commitment to teaching, learning, and providing certain core content for students. Perhaps without these

continuities, the data would not have been as rich as it was. For example, had the faculty members' lacked a strong commitment to teaching and high levels of reflection on their practice, they may not have faced the contradictions and disturbances that they did.

This study also showed that, on one hand, contradictions, disturbances, and continuities could lead to positive transformations. On the other hand, contradictions, disturbances, and continuities could also lead to anxieties and frustrations. Therefore, it is important to note that not all contradictions and disturbances are positive and lead to growth and change. For example, the faculty member Jim, successfully grappled with several disturbances throughout his activities. However, at times, he also felt overwhelmed due to a lack of time in his schedule. Jim's case raised the question: to what extent are disturbances growthful, healthy, and beneficial to faculty members, and to what extent or under what circumstances are disturbances not growthful, healthy, and beneficial? Although the results from this study indicated that some disturbances enabled thoughtful teachers to get insights that they may not have had previously, it is also important to recognize that some disturbances could be too great a burden to overcome. Thus, in any analysis of contradictions and disturbances, there should be recognition that disturbances can be valuable, but for some people in certain contexts, they could be too overwhelming. In light of these findings, teaching online should not be entered into lightly because, depending on the faculty member, the context, and the support provided by the institution, the disturbances could be too great for some people to handle.

Implications for Other Participants

In addition to faculty members, there were also implications for other individuals that may work with faculty members to achieve a new object. For example, in this study, the VU producer's thinking was transformed in several ways because of the contradictions and disturbances that arose during the activity. The contradictions and disturbances, such as differences in design orientation, background, divisions of labor, and the technological tools available from the VU, resulted in some anxiety and frustration for the VU producer. However, the producer not only created new widgets to satisfy faculty requests, he also began to think about new ways to interact with faculty members in order to avoid disturbances in the future. Furthermore, this experience was one of the factors in his decision to join a doctoral program to learn more about the psychology of online course design and teaching.

The students in the faculty members' design teams also benefited from the opportunity to work with faculty members on an authentic project. The students learned about online course design, technological tools, and influenced the ideas of faculty members on technology, course design and content (see Koehler, Mishra, Hershey & Peruski, in press for complete data). This study indicated that students and faculty working together was a powerful mediator in both students' and faculty members' learning and feelings of success.

Implications for Institutions

This study also raised questions that other colleges may benefit from exploring such as, what type of supports are important for faculty members undertaking the design

and teaching of an online class? The college system in this study provided a variety of supports from which faculty members could choose to suit their particular needs. For example, all three of the faculty members said that they benefited from the informal seminars where participants could discuss their experiences, concerns, and offer advice to each other. The monetary support provided by the college also was an incentive for faculty members to undertake the project, but more importantly, it provided Mikala, who was unable to take the faculty development class, with the means to hire her own graduate student design team to help her develop her online course. Without the monetary support, she may not have had that opportunity.

The faculty development course was another important support provided by the college in this study. The course provided the opportunity for the faculty members to learn more about the technology and to take more control over the online course design process than was typical for most faculty members who worked with the VU system at this institution. In addition, the faculty development course provided a new model for faculty development that other institutions could investigate further to determine if a similar course would be beneficial to their faculty members.

One of the values of the faculty development course was that it was not specific to particular technologies. This was important because technology can quickly become irrelevant when replaced by newer technologies. Opening up technological possibilities provided faculty members with more knowledge of technology, greater control over their own course designs, and it led to transformations in thinking, and technological innovations. However, the faculty development model also raised questions about whether it was a good idea to have a course that, by design opened up technological and

design possibilities for faculty members as opposed to more narrowly constraining them to fit within the model already established by the VU. This faculty development model led to some disturbances and frustrations for the participants that might have been avoided with a different faculty development model, or one that was more sensitive to the potential disturbances the class could create between faculty members and VU producers.

The example of the contradictions between the faculty development course and the VU also indicated that it could be beneficial to faculty members if the activities and services provided by different departments within a university were coordinated more carefully. Other institutions could use this data to anticipate some of the contradictions and disturbances that might arise, thereby benefiting both faculty members and their students. However, not all contradictions and disturbances can be anticipated and this study also showed that they are not necessarily bad, since steps that individuals and organizations take to minimize them, often lead to transformations in thinking, work processes, and technological innovations, as well as new contradictions and disturbances.

Finally, this study indicated that it might be necessary for institutions to provide faculty members with extra time in their schedules to complete this work. Although the college system in this study offered several important support structures, they failed to provide extra time in faculty members' schedules, which led to disturbances in at least one faculty member's activities. This study showed that it takes a tremendous amount of time, as well as physical and emotional energy for faculty members to create their first online course. Creating an online course was not a simple matter of transferring face-to-face courses to the online context. Teachers who care about teaching think deeply about issues such as their ability to teach, their role as teachers, classroom management,

engaging students deeply with the content and, in some cases, their teacher identity. Participating in this process led faculty members to rethink and reevaluate issues that they had long since put to rest in the face-to-face context. Administrators should recognize that these are significant issues that require a lot time and energy from faculty members. Thus, an awareness of how to support faculty members in this process is important.

Implications for Theory

This study provided the opportunity to consider the usefulness of activity theory in this kind of research. Recognition of the history of systems and how they developed separately in terms of their tools, rules, and divisions of labor, for example, was a useful analytic framework. The analysis highlighted how participants' collaborative work activities can reveal systemic contradictions that manifest themselves in disturbances in individuals' work activities. Activity theory also provided a way to view conflicts as not so much rooted in the personalities of individuals, which is sometimes the case, but as rooted in the systems in which individuals are a part. Thus, conflicts between individuals can be the result of different perspectives, tools, and incompatible divisions of labor and rules that are inherent in the systems in which individuals must function. Activity theory also provided a framework within which I could identify what mediates activity, as well as how certain tools or artifacts are used and changed during activities. This is important because I was able to see how individuals change or learn, and in turn, how individuals can effect systemic and institutional change.

Beyond being a test of the usefulness of activity theory, the results from this study strengthened the argument in favor of using it. Activity theory not only provided a framework to guide data collection, analysis and interpretations, it also provided a way to show analytic generalization in that multiple cases supported the same theory (Yin, 1994). The fact that the theory could be applied to three cases means that there are some overarching issues and concepts that go beyond the immediate cases. In addition to analytic generalization, the study may also be of value for case-to-case transfer because of the level of detail provided in each case (Firestone, 1993). With this level of detail, readers may be able to draw implications from this study for their own settings by examining both similarities and differences between the cases presented here and their own situations.

Activity theory looks at the dynamics, contradictions, and dialogical interactions within the activity systems of each participant of a network (Engestrom & Escalante, 1996). However, it may not always be possible to identify and to study all of the relevant activity systems for each participant. Each participant is presumably a member of many different activity systems, all of which may influence the creation of the object. For example, the participants in this study referred to activity systems outside the university that influenced their thinking, such as family members, but they may also have been influenced by systems that they did not mention, such as interactions with colleagues at a conference, personal reflection while they exercised, and so on. This begs the question of whether activity systems actually exist in such a clear sense as they were portrayed in this study, while in fact, a lot of thinking and activity may have been taken place outside the particular systems focused on in this study. The participants' activities may have been

influenced in settings that were not accessible by the researcher, or the participants may not have mentioned all of the relevant systems during interviews. Furthermore, even if all of the activity systems could be identified, it may not be practical to study all of them.

Consequently, the validity of the concept of "activity systems" could be questioned. Are researchers oversimplifying and overlooking the fact that activity systems are much more dynamic, and fluid, and hard to draw boundaries around than what is apparent at first glance? Are researchers looking more narrowly at learning and change for pragmatic reasons resulting in oversimplifying a case? These questions should remind researchers that, while the theory is useful in many ways, it also might restrict one's view if analyses of important systems have been omitted.

Finally, while identifying the contradictions and disturbances in the activities was useful, the analysis also raised questions about whether focusing exclusively on those two concepts may have implied that there is a "causal pathway" leading to transformation. Might other analytic tools provide additional insights? For example, this study revealed that some of the continuities in faculty members' thinking and activities also led to reflections, contradictions, disturbances, frustrations and transformations. Furthermore, identifying the continuities provided data on what did not change for these faculty members regardless of the context, contradictions, and disturbances.

Limitations

Methods

Methodologically, Engestrom (1990) argued that the ideal data for an application of activity theory consists of historical analysis of the organization, longitudinal

participant observation, interviews and discussion in real life settings. Compared to these requirements, the data presented in this study are less than ideal since interviews were the primary data source. In addition, one of the VU producers did not participate in the study therefore his perspective was absent from one of the cases. Since the other VU producer's perspective was an integral part of identifying and understanding contradictions and disturbances, the data from the case without the VU producer's perspective may have been thinner than desired. Furthermore, no data were collected from the college or the VU administrators. Again, such data could have provided triangulation and additional insight into contradictions and disturbances as well as transformations.

Validity

This was a qualitative study, which evokes issues of limitations such as internal validity and the generalizability of the findings. Miles and Huberman (1994) refer to internal validity in qualitative research as "truth value" or whether the findings of the study make sense, are credible to the participants and readers of the study, and whether the researcher has presented an authentic portrait of the phenomena under study. Maxwell (1992) provided a more extensive model for validity in qualitative research that distinguishes among four types of "understanding" that may emerge from a qualitative study: descriptive- what happened in specific situations; interpretive- what it meant to the people involved; theoretical- concepts and their relationships used to explain actions and meanings; and evaluative, which refers to judgments of the work or value of the participants' actions and meanings. Below I address each form of validity in relation to this study.

In this study, descriptive validity was addressed by providing a profile on each faculty member (Appendix C), which also included the voices of their technical assistants. The profiles were constructed using the words of the participants and thus provided their own account of what happened. Therefore, readers can refer to "raw data" to get an understanding of the context, events and experiences from the participants' perspectives. In this sense, the profiles also provided support for the interpretations in the case studies since readers can use the profiles as a means for checking my interpretations.

According to Maxwell (1992), interpretive validity can be enhanced by having participants review the accounts for accuracy. I chose not to do that in this study for a couple of reasons. First, each case was comprised primarily from interview data, which included interviews from more than just the faculty members. In addition, there were data from other sources, such as observations and artifacts. These data sources were used in combination to produce the interpretations. The faculty members may not have been aware of the other data sources and providing them with the data from other sources may have violated other participants' privacy. Second, the use of multiple data sources for each case provided me with a side-by-side comparison between multiple cases, which could mean that my interpretations would differ from the participants' interpretations.

I addressed theoretical validity in this study in part by employing activity theory as a framework to guide the development of the research questions, data collection and interpretation. I used the theory as a tool to go beyond description and interpretation to explicitly addressing the theoretical constructions of activity theory during data analysis (Maxwell, 1992; Miles and Huberman, 1994). In addition, I brought my own theoretical constructions to the study. For instance, I wondered whether changes in contexts might

force individuals to confront their tacit thinking and lead to changes in similar activity in their old context. In addition, I found that continuities also led to reflection, contradictions, and disturbances and transformations for the participants.

According to Maxwell (1992), evaluative validity is not as important as the other types of validity because all research is open to such questions and most researchers do not claim to evaluate that which they study. It was not my goal or intention to make judgments about the value of the participants' actions or meanings. My goal was to describe and interpret their actions and provide explanation via the use of particular theoretical constructions.

A study of this nature also raises questions about generalizability (Maxwell, 1992; Firestone, 1993; Miles & Huberman, 1994; Yin, 1994). Researchers readily acknowledge that the small number of cases, programs or individuals in a qualitative study limits the generalizability of the findings to other settings or populations. Maxwell argued that, "Generalization in qualitative research usually takes place through the development of a theory that not only makes sense of the particular persons or situations studied, but also shows how the same process, in different situations, can lead to different results" (p. 293). For example, in this study, I wondered whether being confronted with a new context for course design and teaching would force faculty members to confront their previously tacit thinking about course design and teaching developed in the face-to-face context. The analysis indicated that this was the case for the three faculty members in this study. Although I cannot claim that this finding can be generalized to other cases, additional studies in different contexts could look at the same phenomena to test the theory. In addition, several other constructs from this study could be applied to other

cases to test their generalizability, such as what type of supports colleges should provide to faculty members undertaking a project like this.

Miles & Huberman (1994) suggest doing a cross-case analysis in order to enhance generalizability. In this study, I presented three cases and a cross case analysis to highlight both similarities and differences across cases. Consequently, the analysis addresses the question; do these findings make sense beyond one specific case? I think that the analysis shows that they do because there were commonalities between cases. Moreover, the findings may have applicability in other institutions that are developing online programs. For example, the findings in this study may help faculty members to see what issues they may face when designing and teaching online classes, and institutions can see what types of supports they could offer to faculty members, as well as use the faculty development class described in this study as a model for faculty development.

Furthermore, analyzing three cases took the analysis beyond a simple single case study or evaluation study and it prevented the development of dichotomies (Miles & Huberman, 1994). It allowed me to focus on understanding the uniqueness within each case and similarities and differences across cases while avoiding simple conclusions of "better than" and "worse than." For example, if I had analyzed only two cases such as Jim and Juliet, the value and importance of the design groups and how they could vary would not have been revealed (e.g., Jim and Juliet's groups were initiated by the college whereas Mikala formed her own design group). If I had only Mikala and Juliet's cases, I may not have understood as well the systemic contradictions that stemmed from the VU systems' tools, rules and divisions of labor that were highlighted in Jim's case.

Suggestions for Future Research

The data in this study provided a useful beginning to understanding the issues that faculty members and institutions may face when designing and teaching online classes, as well as a springboard for future research. For instance, as suggested by Engestrom (2000a), a closer examination of the history of the various systems within an organization could reveal additional inherent systemic contradictions that could lead to disturbances. Such analyses could lead to additional suggestions for changes in systems that could alleviate the contradictions. Engestrom also suggested conducting interventionist research, which means engaging key participants in the identification and analysis of systemic contradictions. This could be useful because if participants recognized recurring patterns and types of trouble as manifestations of systemic contradictions, rather than personal failures it could facilitate a conscious focus on resolving those contradictions.

Future studies could also use the online course design activity as a way to explore and support the actual learning activity necessary for the participants and the systems within which they work. The focus could be on illuminating the examples of openings for learning to occur in the design and teaching activities. This would require more closely following the design groups by video taping them and doing conversation analysis, for example. This type of analysis could help to identify specific contradictions and breakdowns to see if and how these were opportunities for learning. The results could then be extended to determine what that might mean for faculty development or systemic remediation.

This type of analysis could also lead to suggestions for how groups can work effectively together to create a course design. Being too prescriptive about how groups

should work together may be difficult due to the inherently unpredictable character of such work, however, a contribution to the research in this area could be an improved understanding of the variety of situations that may occur in the design activity. Such an understanding could be used in the preparation of group sessions, not to impose tighter steering on the session but to prepare to better handle the most common and important types of situations that occur (Bodker & Gronbaek, 1998).

Conclusion

This study revealed that designing and teaching online courses presents a challenge to faculty members' established ways of thinking about course design and teaching. An activity theory framework provided a lens through which faculty members' experiences could be analyzed as they worked within various groups, who had different goals, tools, divisions of labor and rules, to achieve a new object. The study showed how continuities, as well as contradictions and disturbances between participants and systems could be springboards for change in thinking and work processes.

As a result, readers can understand the process by which different groups of people in an institution work together to create and teach online classes, as well as the potential pitfalls of the activity. Furthermore, the participants' activities were captured at a particularly opportune moment in the diffusion of a new pedagogical technology, before it becomes the norm in higher education. Consequently, this study provided a fine-grained analysis and understanding of how technical innovation can lead to changes in practice, thereby offering suggestions for better course development, as well as

contextual and technological changes that could support faculty in online course development and teaching.

APPENDIX A

Participant Informed Consent

Written Consent Form – Faculty

Teaching Online and Faculty Transformation

This study attempts to better understand the process of online course design and teaching. In particular, we are interested in looking at how faculty members (such as yourself) change in their thinking about technology and pedagogy as they design and teach online courses. The issues of interest include beliefs about teaching, learning, technology and course design.

By agreeing to help with this research study you agree to participate in a series of interviews (one before the class starts; two or three during the semester, and a final interview at the end of the course). The first and last interviews will be around two hours, while the other ones will be shorter. These interviews will be tape recorded and later transcribed. We may use direct quotes from the interviews in the report of the research study. I would also ask you to set me up with a "guest account" for your course. I will be an observer and will not participate in the course (through emails or other postings) in any way.

All data will be treated with strict confidence and your name will **not** be used in any report of the research findings. Your privacy will be protected to the maximum extent allowable by law. If you want to know the results of the study (within these restrictions), you should leave your name with me.

Participation is voluntary. You have complete freedom to discontinue the study at any time without penalty. You have the freedom to not respond to certain items. If at any point you feel any discomfort with the questions, please do not hesitate to stop me.

I voluntarily agree to participate in this study.

Name: (printed) _____

Signature: _____

Date: _____

If you have any questions about this study feel free to contact me, Lisa Peruski, or my MSU supervising faculty member, Dr. Punya Mishra:

Lisa Peruski

Doctoral Student, Learning Technology & Culture

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351 Erickson Hall, East Lansing MI 48824

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Email: punya@msu.edu

If you have questions about your rights as a subject of research, please contact:

Dr. David Wright,

University Committee on Research involving human subjects

Ph: 517. 355.2180

Email: dewrite@msu.edu

Written Consent Form – technical advisors

Teaching Online and Faculty Transformation

This study attempts to better understand the process of online course design and teaching. In particular, we are interested in looking at how faculty members (such as the faculty members you work with) change in their thinking about technology and pedagogy as they design and teach an online course. The issues of interest include the faculty member's beliefs about teaching, learning, technology and course design.

If you agree to participate in this study, you will be interviewed once while you are in the process of designing the course, one time while the course is in progress and once at the completion of the class. The preliminary and final interviews will take approximately an hour and a half while the other ones will be shorter. These interviews will be tape recorded and later transcribed. We may use direct quotes from the interviews in the report of the research study.

All data will be treated with strict confidence and your name will **not** be used in any report of the research findings. Your privacy will be protected to the maximum extent allowable by law. If you want to know the results of the study (within these restrictions), you should leave your name with me.

Participation is voluntary. You have complete freedom to discontinue the study at any time without penalty. You have the freedom to not respond to certain items. If at any point you feel any discomfort with the questions, please do not hesitate to stop me.

I voluntarily agree to participate in this study.

Name: (printed) _____

Signature: _____

Date: _____

If you have any questions about this study feel free to contact me, Lisa Peruski, or my MSU supervising faculty member, Dr. Punya Mishra:

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University Committee on Research involving human subjects

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Email: dewrite@msu.edu

Email Consent Form - Students (sent by email to the online students).

Hello,

My name is Lisa Peruski. I am a doctoral student in Educational Psychology at Michigan State University. As part of the requirements to complete my degree, I am conducting research on faculty members who are teaching online courses. The faculty member teaching the online course that you have enrolled in this semester at Michigan State University has agreed to participate in this study. This research is wholly focused on the faculty member, not on students, and is designed to determine if faculty members experience changes in their thinking about technology and pedagogy as they teach an online course. The issues of interest include the faculty member's beliefs about teaching, learning, technology and course design. Although the focus of this study will be on faculty members' thinking, I will want to view communications between students and faculty and use it as part of my data collection, analysis and reporting. This would include communication (email, online discussions etc.) that occurs as part the communication between faculty and students.

My role is purely that of an observer. I will NOT participate in any class discussions or activities. In fact, it is most probable that this is the last message you will receive from me.

All data will be treated with strict confidence and your name will **not** be used in any report of the research findings. Your privacy will be protected to the maximum extent

allowable by law. If you want to know the results of the study (within these restrictions), you should leave your name with me.

Participation is voluntary and is in no way connected to your progress in this class. You have complete freedom to discontinue the study at any time without penalty. If you agree to participate in this study, please hit the "reply" button on your email and fill in your name and the date below. If you do not "reply" to this email, **none** of your communications during this course will be used in any part of the data collection, data analysis or reporting in this study.

By "replying" to this email, I voluntarily agree to participate in this study:

Name:

Date:

If you have any questions about this study or wish to discontinue participation in this study at any time, feel free to contact me, Lisa Peruski, or my supervising faculty member at Michigan State University, Dr. Punya Mishra.

Lisa Peruski

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APPENDIX B

Interview Protocols

COURSE DESIGN ACTIVITY

Faculty Interview #1

BACKGROUND QUESTIONS

1. Can you tell me a little about yourself? <Name, department, courses taught, research interests>
2. What online course will you be teaching and when will you be teaching it?
3. What motivated you to teach an online course?

TECHNOLOGY BACKGROUND

1. Can you tell me about your previous experience with using computers? <General experience. 2. What do you use computers for in your everyday life? >
2. Can you tell me a little bit about how you have used computers in your teaching?
3. How much experience do you have with the specific technology you will be using to develop this online course?

BACKGROUND WITH ONLINE COURSES

1. Do you have any experience with online courses <have you taken any? Have you taught any? Have you observed any online course? >

BELIEFS ABOUT ONLINE COURSES

1. What are the advantages and disadvantages of online courses for teachers?
2. What are the advantages and disadvantages of online courses for students?
3. Is there ever a time when one mode is better than another is?

PERSPECTIVES/UNDERSTANDING OF THE DESIGN PROCESS

1. What factors do you take into consideration when designing a course? <Students, content, goals/educational purpose (knowledge, skills, and attitudes to be learned), sequence or arrangement of content. >
2. Can you briefly describe how you would go about designing a face-to-face course?
3. Will designing an online course be different from designing a face-to-face course?
4. What is your image of what this course will look like when it is finished?
5. Will the technology affect the online course design process? <How? >
6. What excites you most about developing an online course?
7. What are your main concerns about developing an online course?

BELIEFS ABOUT LEARNERS AND LEARNING:

1. What do you think your students will be like? <To get at how teachers construct learners and how this construction is being made: who their students are, their background, life situation, abilities, background knowledge, etc.)
2. How do you think people learn? <What is your philosophy of learning? >
3. Will the technology affect the learning process for your students compared to face-to-face teaching? <How>

BELIEFS ABOUT TEACHING

1. What will be your role as teacher in an online course? <Director, facilitator>
2. Do you imagine that your role as teacher in an online course will be different from your role as teacher in a face-to-face class?
3. In what ways will the technology affect your teaching online compared to face-to-face teaching?
4. What are your objectives in teaching this course for yourself and for your students? <Are there any other objectives you have in teaching this course such as meeting the needs of the university, college of Ed, and your department? >
5. What are your expectations in teaching this online course?
6. What excites you most about teaching an online course?
7. What are your greatest concerns about teaching online?
8. Do you think your teaching methods online will differ substantially from your methods face-to-face? <Explain. >

BELIEFS ABOUT CONTENT AND HOW IT CHANGES AS IT GOES ONLINE

1. What content will you be teaching online?
2. What should your students now about the content?
3. Compare how you represent the content face-to-face to how you will represent it online.
4. How will teaching the content be different face-to-face versus online?

TOOLS USED TO DESIGN THE COURSE

1. What will be your sources of information while you are designing this course? <People, books, journals, and technology that have informed your work on this project? > <Why will you seek out these sources? > <How do you think you will use these sources? >

COURSE DESIGN ACTIVITY

Faculty Interview #2

BELIEFS ABOUT ONLINE COURSES

1. Have your beliefs/attitudes about online courses changed since you have been working on this project? <How? > <Why? > Prompt: < advantages and disadvantages of online courses for teachers & students. >
2. What have you learned about online courses since beginning this project?

PERSPECTIVES/UNDERSTANDING OF THE DESIGN PROCESS

1. Can you describe how you have gone about designing this online course? Follow up: What factors have you taken into consideration when designing this course? <Students, content, goals/educational purpose (knowledge, skills, and attitudes to be learned), sequence or arrangement of content. > <Your role in course design. >
2. How did this compare to designing a face-to-face course?
3. In our first interview, you described your image of what this course would look like when it was completed (repeat what they said). Was your image realized? <Why/why not? >
4. What role did the technology play in the course design process?
5. Can you describe the structure of the social interactions surrounding this process? <How was this structure established? > <Were you happy with this structure? > <Why/Why not? > <Can/will you change it next time. >
6. Has this social structure had any affect on your thinking about teaching, course design, technology, content, and students? <Explain>
7. Has the social structure had any affect on your objectives for designing this course?
8. What has been the division of labor among the people working with you on this project? <How did it come out this way? >
9. Has the institutional context (university, college, and department) had any affect on your objectives for designing this course? For the way the course came out?

10. How much did you feel in control of this project?
11. What did you learn about course design while doing this project?
12. Can you give a specific example of something that you have had to redo because you have found it to be cumbersome, unsuited to your task, or it limited your options? <How did you conclude that you had to change it? >

BELIEFS ABOUT LEARNERS AND LEARNING:

1. In our first interview you described what you thought your students would be like (provide information) has this image of your students changed since you began work on this project? <How? > <What changed it? >
2. Has your thinking about how people learn in an online context changed since starting this project?
3. Do you think the technology will affect **HOW** your students learn online compared to face-to-face? <How? > <Why? >
4. Do you think the technology will affect **WHAT** your students learn online compared to face-to-face? <How? > <Why? >

BELIEFS ABOUT TEACHING

1. What will be your role as teacher in this online course? <Director, facilitator>
2. Do you imagine that your role as teacher in an online course will be different from your role as teacher in a face-to-face class?
3. Will the technology affect your teaching online compared to face-to-face teaching? <How? > <Why? >

4. Have any of your goals and objectives for yourself and for your students changed since completing the design? <Are there any other objectives you have in teaching this course such as meeting the needs of the university, college of Ed, and your department? >
5. Will your methods online differ from your methods face to face?
6. Have you learned anything new about teaching since you started this project?

BELIEFS ABOUT CONTENT AND HOW IT CHANGES AS IT GOES ONLINE

1. Has your understanding of the content you are to teach changed because of developing this online course? <Has developing this course changed the way you think about key concepts, changing emphasis due to change in medium, changes in organization of content?
2. Have your goals and objectives about content changed over time? <How? > <Why?

BELIEFS ABOUT TECHNOLOGY

1. What have you learned about technology since you began this project?
2. Has your attitude toward technology changed since you began this project? <How? > <Why? >
3. Did the technology affect the design of the course? <Your knowledge and skill with technology? > <Others' knowledge and skill with technology? >
4. Did the technology affect what content to include?

5. Did the technology affect your thinking about how to represent the content?
6. Did the technology affect what activities you have your students doing <Methods you are using>?

TOOLS USED TO DESIGN THE COURSE

1. What have been your sources of information while you have been working on this project? <People, books, journals, technology that have informed your work on this project? >
2. Why did you seek out these sources?
3. How have you used these sources?

COURSE DESIGN ACTIVITY

Technical Assistant Interview #1

BROAD BACKGROUND

1. Can you tell me a little about yourself? < Name, department, job title, and courses designed previously? >
2. What motivated you to take on this project?

TECHNOLOGY BACKGROUND

1. Can you tell me about your previous background with using computers? <General experience. What do you use computers for in your everyday life? >
2. How much experience do you have with the specific technology you will be using to develop this online course?

BACKGROUND WITH ONLINE COURSES

1. Have you designed courses for both online and face-to-face environments?
2. Do you have any experience with online courses <Have you taken any? Have you designed any? Have you observed any online course? >

BELIEFS ABOUT LEARNERS:

1. How do you think people learn? <What is your philosophy of learning? >
2. What do you think the students will be like in this online course? (To get at how designers construct learners and how this construction is being made: who the students are, their background, life situation etc.)

BELIEFS ABOUT TECHNOLOGY:

1. What affordances does the technology provide for learners, teachers, and the course design process, as compared to face-to-face in all these areas?
2. What constraints does the technology provide for learners, teachers, and the course design process, as compared to face-to-face in all these areas?

PERSPECTIVES/UNDERSTANDING OF THE DESIGN PROCESS

1. What will your role be in this process?
2. What are your expectations for this process?
3. What excites you most about this process?
4. What are your greatest concerns?

5. What factors do you take into consideration when designing a course? <Students, faculty goals, etc>
6. What helps the design process?
7. What hinders the design process?
8. How is the design process different for face-to-face versus online environments?
9. Is it more or less work designing for online versus face-to-face environments?

BELIEFS ABOUT CONTENT AND HOW IT CHANGES AS IT GOES ONLINE

1. How does the course content affect how you design in an online versus a face-to-face environment?

COURSE DESIGN ACTIVITY

Technical Assistant Interview #2

BELIEFS ABOUT LEARNERS:

2. Have your beliefs about how people learn changed since you began this project?
3. What do you think the students will be like? (To get at how designers construct learners and how this construction is being made: who the students are, their background, life situation etc.)

BELIEFS ABOUT TECHNOLOGY

1. How has the technology affected the course design process so far?
2. What affordances has the technology provided for learners, teachers, and the course design process, as compared to face-to-face teaching in all these areas?
3. What constraint has the technology provided for learners, teachers, and the course design process, as compared to face-to-face teaching in all these areas?

PERSPECTIVES/UNDERSTANDING OF THE DESIGN PROCESS

1. How is the design process different for face-to-face versus online environments?
2. What have you learned about the course design process?

BELIEFS ABOUT CONTENT AND HOW IT CHANGES AS IT GOES ONLINE

1. How did the course content affect how you designed this course?

TOOLS USED TO DESIGN THE COURSE

2. What have been your sources of information while you have been working on this project? <People, books, journals, technology that have informed your work on this project? > <Why did you seek out these sources? > <How have you used these sources? >

THE TEACHING ACTIVITY& POST TEACHING REFLECTIONS

Faculty Interview & Technical Assistant Interview

TECHNOLOGY

2. Has the technology performed to your satisfaction so far?
3. Are you getting technical support throughout the course?
4. Have you learned anything new about technology so far?
5. Has the technology had any effect on your teaching?
6. Has the technology had any effect on students' learning?
7. Do you feel in control of what is happening in the course?

TEACHING & CONTENT

1. Describe what happened this week in class?
2. How do you think the course is going so far? <The best and worst thing so far in class. >
3. What methods/activities are working best so far? <Why? >
4. What methods/activities are not working so well? <Why? >
5. So far, are you satisfied with how you have chosen to represent the various contents you require for the course? <Give examples. > <What would you do differently in the future, why? >
6. What would you change about your teaching if you were to teach this class again? <Why? >
7. What would you change about the content if you were to teach this class again? <What to include, how to represent it. > <Why? >

STUDENTS

1. Are the students you have about what you expected?
2. How have the students responded so far to the course?
3. Have your interactions with students made you think differently about online or face-to-face course design, teaching, learning, technology?

EPISTEMOLOGY

1. Based on your experience in this class so far, have you changed your thinking about how students learn online compared with face-to-face classes? <How/> <Why? >

COURSE DESIGN

1. What would you do differently if you had to design this course again? <What made you think this? >

THE TEACHING ACTIVITY& POST TEACHING REFLECTIONS

Technology Assistant Interview

TECHNOLOGY

1. Has the technology performed to your satisfaction so far?
2. How much technical support are you providing so far for the course? <What has been your role throughout the course? >
3. Has the technology had any effect on the teaching?

4. Has the technology had any effect on students' learning?

GENERAL QUESTIONS

1. How do you think the course is going so far? <Why do you say this? >

COURSE DESIGN

1. What would you do differently if you had to design this course again? <What made you think this? >

APPENDIX C

Faculty Member Profiles

Introduction

The following profiles represent a chronology of each faculty members' experience in designing and teaching an online class for the first time. The profiles are presented in the faculty members' own words but at times, it was necessary to add my words for purposes of transition and clarity. When I added my words, I place them in brackets to signify that they were my words.

Each of the faculty member profiles presented in this appendix is preceded by a description of the people involved with the faculty member during the activities of online course design and teaching. Following these introductions is the profile on the faculty member, which begins with some background information such as, professional background, technological expertise and their philosophies on learning and teaching. This is followed by a recount of their experiences of designing and teaching an online class for the first time.

"Jim"

Introduction -The Cast of Characters

Jim

Jim was the faculty member on whom this case profile was based. He was one of two faculty members who took the faculty development class (FAC DEV- 101) to design his online course. He worked with four students in the faculty development class. His

group was unique because he formed it before entering the course with students that he had worked with on other projects and who showed an interest in online teaching and learning. The group's goals were not only to design the online class but also to collect data for their own research projects on online teaching and learning. Below I have provided brief descriptions of these students as well as the VU producer that worked with them to get the class online once FAC DEV- 101 was completed. Following the introductions to these participants, I have provided the extended case profile on Jim.

Lena

Lena was a Ph.D. student who was interested in content issues and her primary role was to create an extensive orientation to the online course. Lena was instrumental in convincing Jim that the orientation was necessary because students needed assistance in learning how to learn in an online format, in groups and using the particular pedagogical approach that Jim had chosen to introduce in the online class. Lena also participated in some of the meetings between Jim and Sam, the VU producer, after FAC DEV- 101 had ended.

Others

Three other students worked with Jim in FAC DEV- 101. I did not meet them or learn much about them but relied on Jim to supply information about them. According to Jim, two of the students worked primarily on the technology part of the class and the other student was interested in instructional design and gravitated towards laying out the lessons.

Sam

Sam was the VU producer that worked with Jim to refine and ready his class for online delivery. Sam had come to the university as a student several years before our interview. He began working with technology as a hobby while he was a student and took a class or two in design and computing. Upon graduation, he took a position as a web design director for a small city. He came back to the university and worked in University Relations for six months when he saw an opening for a producer at VU. Since he was interested in web-based education and design, he took the position. At the time of our interview, he had been employed for one and a half years as a VU producer. He had recently been accepted into a Ph.D. program at the university where he hoped to learn more about curriculum design and pedagogy.

Jim

A Profile In His Own Words

[Educational and Professional Background]

I have a [science] background as an undergraduate. I worked about five years [in that field] then I ended up teaching. I assumed responsibility for the curriculum so that's how I got into [my current field]. I became more interested in [teaching] than the laboratory. I got my doctorate in [the late 1980s]. I spent a number of years [working for the state and did some work for the university beyond... and worked for about a year as a consultant. My current position here is associate professor. This is my fifth academic year. Prior to that, I was a professor at [another university] since 1988.

I Enjoy Teaching

I like it a lot, because it's intellectually challenging and when things are going well, it feels really good. The qualifications that I have about it is teaching takes place within a broader context, which makes the teaching itself more difficult. It's difficult to spend a lot of time on one's teaching because it's drawing away from other things, which are considered to be important as well and so that creates a tension which is not very comfortable. I don't spend as much time preparing as I should, as I want to. The more I prepare, the more I learn from my own preparation and so I feel cheated myself that way and perhaps my students as well.

I don't think I'm as experimental in my teaching as I would like to be. There's lots of things I'd like to change if I had the time or the energy so all those things make it a little less attractive because I feel like I'm being pulled in multiple directions. But when things are going well, when I have really good students who are interested and I feel like I'm teaching material that I know really well, it feels good.

My Role As A Teacher...

Is to help people think more critically about their work. I want to foster people who are reflective in their practice. I want them to think about the bigger picture. I want them to think about not just what it is that they're trying to accomplish within the practice setting but what the broader issues are for the field and how that contributes to the betterment of society. I'm hoping that they're developing a more thoughtful, critical and reflective stance towards their work. I want them to understand literature in their research and theory on which their practice is grounded but that's not the primary thing

for me. The primary thing is the content is a means to an end and the ends being for them to develop this sort of critical, thoughtful stance.

I think I'm more successful at the critical, thoughtful and reflective piece and not so successful at the self-knowledge piece. I really would like my teaching to be more of a place where people experience the opportunity to wonder about themselves and to think more deeply about who they are and what they stand for. A place to do inner work perhaps that they aren't able to do elsewhere to encounter images and symbols that are provocative in their lives. I try but again, because of the time constraints, that takes a lot of work, a lot of planning, that's not always there so I think I'm less successful at that piece.

[Teaching Methods/Philosophy]

I do that primarily by putting in front of people interesting work, by creating educative environments and experiences that crack open things for them, that help them see things they haven't seen before and think about things that they haven't thought about before. I use short lecture. There are some things that people need the presentation of information to develop a clear understanding and a more or less common understanding of the information they're talking about. I also try to augment the readings, on the average about 70% in some kind of experiential activity- small group work, and reflective exercises. We do case work, problem work. A lot of these things, I make up as I go along. I don't go to a resource book to look for an interesting experiential activity. I just think about what it is that I'm trying to do with the material, the ways in which I want the

learners to interact with the material, then I try to create some kind of experience that maximizes that.

I believe in driving the students back to the text. I think a lot of students, if they do read, that's the question, they don't understand it very well. They come to class with one reading, very cursory, and if you ask them simple questions, if they had a really deep understanding, they'd be able to answer quickly and many students struggle with these simple questions and so I know that they're not bringing to the class the kind of working understanding that they need to go further with that. So, often times, I will create exercises, case scenarios or problematic situations, which drives them back to the text. They have to use the text in the context, in the process of doing the exercise so that helps them develop a deeper understanding of the theory.

People Learn by Doing

That sounds a little cliché. There's lots of ways in which one can do that and also, learning happens within some kind of a social context. To really get people to learn effectively they have to be actively involved and they have to somehow be able to connect the content to their own life experiences. They have to be able to see how it fits in, how it relates to, how it builds on what it is that they're already bringing to class and presumably, the kinds of activities that I do help them do that. Learning is not just students mastering information. It's taking information and reconstructing it within their own contexts, whatever those contexts are. We can all use contexts to make sense of what it is that we're learning and that's what we try to do. Even students who think

they're learning on their own and wanta learn by themselves aren't doing that. The more social we can make that process; I think the more effective that becomes.

I've Used Computers for a Long Time.

I bought an Apple IIE when they first came out... so that was in the early '80s. At the time, I was using computers in my work because we did research projects and so we were entering [data]. The keyboard and the printer were all one piece and they were hardwired to the computer. The last part of my masters program we did a research project where we actually had to do the cards, they punched the cards and ran them through and found out where the mistake was. We were basically compiling statistical information.

I used computers a lot in my work, primarily for word processing but we also [produced] information in terms of booklets and things like that. This was before we had the high powered software that we have today so if we wanted italics for example, we had to get the codes. If we wanted something bold, the higher case or the lower b. The commands all had to be embedded. Software became more accessible, more powerful so I used word processing a lot and then I also used building a graphic database. I used statistical, SPSS stuff and then the last part of my stint at [another university] we started to do web based stuff.

I was using email since the early 90s and began to use list serves in classes the last year or so. I also was involved with distance learning, video. We didn't do much with computers but we used faxes and telephones to do small group work and that was roughly parallel to some of the stuff that's going on now.

[Mastering the Technology]

Learning more about the technology... would make it easier for me to do some of these things. I suppose I could take an idiots approach and say I'm just going to develop the content and someone else is going to be responsible for the technical design piece but that's never been my approach. My idea would be that ultimately I would be able to do this entirely myself... because it allows me to play more.... I've got the idea I'm at my computer... I can go to the software and begin to work with it to see whether it's possible or to what extent it's possible.... It's much more creative that way. I think there is a tremendously creative aspect to this work. That's really the exciting part. It's not just finding a way to get this stuff delivered but you're actually creating a new way, you're creating your instructional deliveries. You're actually creating fundamentally different ways of understanding, potentially, for the students and for yourself too. In the process of trying to take this information or this issue and trying to create a pedagogical unit online that would really facilitate an understanding and grasp of the issue I think is really cool stuff but you need the technology. You need to be very familiar and conversant with these things. I want to be able to create video... to use video to use audio. I don't want to have to ship it off to producers. I want to be able to say look I want to use this clip in this movie. I want to be able to download it. I want to be able to digitize it and I want to be able to insert it into my class like for next week. There is a huge learning curve. I'm thinking when am I going to learn to use this... but the way our lives are constructed it's hard for me to even imagine when this stuff gets done.... Mastering the technology to the point where I'm comfortable with it and can use it in a creative way. I think the more I know the better I can be at creating.

[Current Use Of Technology]

I use blackboard in my teaching for discussion groups, dissemination of class notes, distribution of assignments. Students in [another class] had to do work in groups and so we created project teams and they did a lot of discussion in the teams.... on line. I use PowerPoint a lot. I'm concerned about my reliance on PowerPoint. I think it can structure classrooms. It can create a mechanistic feel to the classroom that I don't like. It seems to squash my spontaneity. So, even though I think it communicates information in ways that are very effective, it sort of structures the sessions for both myself and my students and [it sometimes feels constraining].

Every once in a while, we'll use the web. The students were doing a lot of stuff on line, away from class, and so when we would meet I would go onto the website and pull some of the information like diagrams up so we'd look at them and talk about them or lists of ideas that people had generated rather than printing them off, disseminating them, 'cuz everybody had access to it. I used the computer to generate, whereas I would write on the blackboard, I now use the computer so it's not uncommon for me to create tables, to create matrices of information as people are reporting back their group work.

I liked blackboard because [I can] create a forum section and people could talk together. Blackboards are really a cool way to organize information. I think it's an even more powerful adjunct to teaching than PowerPoint. It's a way of helping organize the course. It provides an opportunity for students, if they so choose, of having the content confronting you the entire week not just sort of once a week for three hours. Through the creation of questions you are much more reflective and engaged with the material in a more consistent way throughout the week. It also provides a scrolling record. To some

degree, it generates outcome data. We can begin, as instructors, to see the kinds of things our students are thinking about, how they're thinking about it, etc. I could see what people were participating, what they're participating in.

[Experience with Online Teaching]

I've done a couple of experimental sessions using email when I couldn't be there. I basically scripted the session on line through the list serve. I created a very crude sort of online learning experience so they would have the whole week to do it but I scripted the content so what I might say in a given lecture, I wrote out and then I would build in individual exercises and then I assigned the students to small groups and then gave group assignments and then report back to the large group. I did three or four meetings like that. They're very labor intensive. I would spend probably more time creating that one session than I did for all the others combined. So I got less enamored with it. With blackboard, it's a lot easier.

[Exposure to Other Online Courses]

Not intensively. Typically, I'm not a person who learns like that but I looked on [a colleague's site] and I've perused a few of them just looking at them. I don't really like them. I don't know why. It's an interesting observation. I suppose it would be the thing to do but I like to create. I like to take the problem, take the text or the curriculum and then to come at it in a relatively fresh way. I do that for the same reason I don't use a resource book for experiential activities. It's basically using a canned approach or a canned structure and I don't like that at all. I oftentimes go on afterwards and just sort of

affirm what I've done so I'll create something and then I'll go look for ideas but I don't like spending a lot of time and energy trying to generate... I just go off and do it.

[Description of the Online Course]

I've been teaching that forever. It's a masters level course primarily one of the core courses in our masters program that's required for all masters students. It's also a course that doctoral students can take. It's a course that students outside of our program find helpful as well.

The content will be studied through the analysis of a set of problems that have widespread application and currency for people working in [field] settings. The problems are representative composites from actual practice settings. They're messy problems. There's not one right answer. I want students to become part of an online learning community and work in teams to solve the problems.

[New Teaching Methods Online]

I'm becoming increasingly dissatisfied with the sort of topical orientations to courses in [my field]. I think [we are] a professions based program and I think we oftentimes lose sight of the practice setting. One of the ways in which we can change that is get off a high theoretical topical focus in our courses and make our courses more directly linked to practice. When I teach a course, it's like why am I teaching [this]? I ask this question about [other courses] too.... I stopped teaching it because it wasn't at all clear to me what it had to do with anything in practice. Since coming here, I started to have the same feelings about [this course]. It's very theoretical learning. There's no

practice associated with [it]. We're studying the research, the theory, and the conceptualizations. It's like, so? So why does anybody have to know this? That led me to think about how we might teach this course in such a way as to make it more relevant to practice. And that's what... problem based learning is. This is the first time that I really have been able to implement it in any kind of way so reconceptualizing [this class] in this problem based format is very important to me.

[Problem Based Learning Online]

I think it's the online environment, which makes problem-based learning possible. The online environment provides students with the opportunities to realize fully problem based learning in ways that would be more difficult to do face to face. It's the presence of the computer which makes problem based learning so much more efficacious because part of what you're trying to do with problem based learning is to foster students' ability to learn. You're trying to teach inquiry to a large degree and so it's not so much that they're learning particular theories or concepts or ideas and the pursuit of those inquiry skills is really facilitated by the presence of the computer.

The computer allows you to access very rapidly large amounts of information, large databases from all over the place to bring into juxtaposition different perspectives.... For example, two very different sort of ways of thinking about [our field] sitting right next to each other and you may not even realize you did it. You stumbled on it. Then you say how can this make sense. How can [one person] say this way, [another person] says that way. So, it puts learners in front of the variegated nature of the field and the literature in the ways that are more difficult without computer based assistance.

Problem based learning online is intensively writing so it provides them with the means to think because I think writing is thinking. When my students write, they think, as I do, as all of us do. Ten or fifteen of us can sit around talking about a problem, but it's not like groups of 3 going off and writing on it all night, telling one another, talking back and forth with one another. The computer-based environment is very conducive to problem based learning so it's no accident that I chose to do this. I think the students have the potential of developing much richer, deeper understanding of the ways in which folks think about key problems.

[Imagining Teaching Online]

I think the most important thing for me as I'm beginning to understand this picture is control. I'm conscious of orchestrating a learning environment when I'm face to face. It's how I'm thinking about the use of material, what we should do first that day, how do we enter into this conversation, this topic, this material? How does it relate to what we did before and what can we do to make these connections? How do we move into it in a way which fosters the kind of self-awareness and reflection and the thoughtfulness that I'm trying to get at so that they master the information as well as developing a sort of critical stance.

In face-to-face, you have much more feedback and the students are there and generally speaking because they're compliant. They'll do what you ask them to do. You have very few people who say I don't wanta do that. It just doesn't happen but those are the very things which are gonna happen in online. They can choose not to do that or they can choose to enter it only partially. They can do that in class, too, but it's much more

difficult to hold back in class 'cuz you can do things as a teacher which invites people if [they are] reticent to participate.

In online environments, if people don't come online, they don't come online. Or if they come on line, they don't say anything, well, okay what do you do about that? So that whole issue of control and management. I envision myself having much less control over the learning environment; on the other hand, spending a whole lot more time managing the learning environment than I do now. I think I'm gonna spend a whole lot of time just simply figuring out where people are, why they're not participating, what I can do to get them online, to managing the flow of discussion and making sure I'm responding to people in an appropriate manner and time and all that sort of thing. A lot of it's sort of the problem-based format and the unknowingness of that and how that's gonna work.

My style of interaction is gonna be different online. I'm very spontaneous in a [face-to-face] classroom and I use a lot of humor sort of deadpanning which I exploit in the classroom. I have trouble understanding how I'm gonna do that online because I intend to be dead pan, dead panning doesn't go over, they can't tell if somebody's being dead pan on line very easily. I suspect I'm probably gonna be more serious, I don't know. I tend to be more formal in my writing and so I have to learn how to be more conversational.

This whole thing could fall completely flat. It's either gonna really work or it's gonna work not at all. I don't think I've ever really failed at a course and I think that's a possibility with this online environment especially with the problem-based aspect. I think I would feel more comfortable if it was a [face-to-face class]. I would feel more assured

that we could at least succeed at some minimal level. But because it's a completely different way of thinking about it, I think it does raise the prospect of having it completely fail. Which is okay I guess because that's the only way to learn. That part doesn't bother me. The part that bothers me is the frustrations that students might go through if it gets to be kind of really a frustrating situation. That does concern me.

The emotional affective dimension of teaching and learning is really important to me. It's probably the most important part of the learning setting. It's more important than the informational piece. I want information to have an emotional impact on people. I want them to respond affectively and emotionally. I want them to care about whether it pisses them off or whether they really like it. It's hard for me to understand how I'm gonna make that happen online. I think you can but I think it's harder to do than face-to-face.

[Imagining Students Online]

My implicit assumption is that they'll just sort of go off and do it. They'll figure it out but that may be naïve. They may need a lot more guidance about how to do this than what I think they'll need. If that's the case, it's gonna take a lot more work, a lot more vigilance.

I think there's going to be more participation online. [In a face-to-face class] when you have 25, you have like five or six that carry the weight and there's a group dynamic involved in it. People come to be spokespersons for the rest of the group. That's how groups work. I know they're there; I know they're thinking, I know they're engaged.

I don't have to hear them. I can see their faces, I can tell by their reactions. You know... I don't know how that's gonna play out online.

The extent to which [students] pick up on conversation threads that are going on I can tell just from the little bit that I've used both email and list serves and discussion boards whether people are writing for the sake of just writing or whether they're really engaged. That's [how I] get a sense of how well things are going for people by the kind of tone in which they're contributing. But I don't know. Those are scary questions. Those are scary issues.

[Designing the Course]

There's four problems that are assigned throughout the semester and they're in a sequence too but they're given a certain amount of time to work each problem. In retrospect I've been thinking about this since last week, I think I have to give them more guidance. I actually have to give them a week by week, not necessarily change the week allotments for the problem but problem one, I've just got a two week time table, I don't think those will change, but I think we need to create week by week expectations. I think I need to structure the expectations but I'm not sure exactly what that means. I think we have to build in reports that are due every so often sharing what did you find out, what did you look at, what databases did you use, what concepts did it offer, what theories?

[Working With the Faculty Development Class Design Group]

I brought a vision for the course. This is the way I wanted the curriculum to look. This is the kinds of learning experiences I wanta create for the students and how I'm

gonna go about studying the curriculum. I didn't have a very good understanding of what that would look like technically. Students have helped me realize that part of it so there's been a sort of interaction. I look to them for guidance and I suppose that I will look to VU for guidance, too, in that regard.

I think what happened very shortly, probably over a few weeks, there was a kind of natural division of labor. They naturally gravitated towards different pieces so this vision that was in my head became a vision that was in their head so actually most of them were pretty well versed. I think that was one of the most interesting things is that what was actually produced was largely their work. They actually did the design, the graphics and all that stuff but it reproduced the very vision that I had. I did what I could to develop the content so I revised the syllabus and wrote the problems, the introduction to the problems, the guiding questions. They also relied on me for the overall vision to make sure that they were adhering to what it was that I wanted and so they were looking to me for big pictures. Not that the big picture was cast in concrete because they did make suggestions.

They also looked to me for some direction and approval. Is this the way you want it? I'd give them feedback and then we'd go back and forth. Surprisingly, I didn't have to tell them to do things. They knew what to do. I didn't give anybody any tasks or any jobs to do. They figured those things out for themselves. Towards the end, I became a person who said well, now what's left? I became the coordinator.

[Decision Making within the Design Group]

It was very informal, very, very fluid. We'd say should we do this, should we do that. We'd talk about the pros and cons and have some different perspectives on it. Once we seemed to settle on something that everybody seemed to like, if I felt strongly about something but somebody else had another idea, they would defer to my decision. Decision-making wasn't tough.

[Considerations in Design]

We were mostly just interested in getting out a structure and then we began to look at the aesthetics of the structure and the way it was presented. You can look at it and you're not bowled over by it but on the other hand, you're not bored by it. Ease of navigation, we wanted people to be able to move easily and with minimal number of clicks so that if they're deep into the problem and they wanted to go back and read the original problem again, they're one click away from that. We wanted the navigation to be sensible and intuitive.

We were thinking of the curriculum, the pedagogy, and the nature of the curriculum. What does the curriculum require in terms of key buttons or key navigation points or key structures? Then in terms of the pedagogy, what does that require? I wanted to add the lecture piece. That's a reflection of the thinking of the pedagogy. I think it's like how does the pedagogy influence the design? What if a group of people wants clarification so we want to create some avenue or opportunity to do that online?

There's a number of decisions that emanated from probing and thinking about the kind of curriculum we were dealing with and the nature of the pedagogy we were trying

to foster. We wanted students to be able to interact a lot. We wanted it to be collaborative learning so that became an important piece of it.

We had to deal with and recognize [that] some people have limitations in technology and they couldn't upload and download documents and I might have used video more if I would have known that people had the technology. I'm not at all sure that they have the technology to support streaming video or audio so those are some things that influenced the decisions not to do certain things.

[Other Contextual Factors That Influenced the Design Activity]

I think by and large the college is supportive. The department is certainly supportive. I didn't get any resistance at all; nothing but encouragement I think and interest from the college and the program.

I think my responsibilities as a professor here make the time commitment and the idea of setting some kind of a schedule for this course difficult. This works well if you can set aside a certain amount of time every day and do it. It's hard to do when you've got a schedule that requires you to be flexible and meetings here and there and all over the place so that part of it makes it hard.

The thing that is probably more important to me than anything is that I'm a little nervous about this whole thing. I don't entirely understand those feelings. This gets back to the question of self and inner knowledge. It has to do with wanting to appear competent and I know that I know the material and I'm knowledgeable in the literature but this online problem-based format feels like it has a fairly high chance of failing. It's an anxiety that's partially rooted in reality and partially rooted in irrationality and I

understand that but I am more nervous than I have been about my teaching in a long time. I'm also nervous about the amount of time it's going to require and how I'm going to manage that, then just not being skilled in that kind of pedagogical environment; not knowing for sure how to be helpful.

[After the Faculty Development Class]

Design and Pedagogy

I can't just give them a problem, send them off for three weeks and let them work on it. We have to build in a week to week, I have to find that part of the calendar and I've got to go in and create weekly expectations. I wasn't even going to do this before but I'm thinking I need to do this; I need to give them suggested reading assignments. I was imagining that I would just give them the book and they would find what ever they needed to find in the book but that strikes me now as a little too loose, too unstructured. I probably need to tell them what chapters or what pages to pay particular attention to when they're working on this problem and I need to give them web sites that would be helpful to this problem at least in the beginning so they get used to that and then maybe by the time they get to the third problem I don't have to do that so much and they can do that on their own. So, those are some of the things that I have been thinking about since the faculty development class ended.

[Working With the VU]

We talked about editing the pages that are already there and [the VU producer has] set up, I'm a little bit uncertain about this part, a process whereby I can just go in to

the web site and edit or add so if I'm just adding an additional content or rewording some things I can just go in and edit. He put an edit function on all the pages. I'm not sure how it works yet I haven't used it. He seemed to think it would be a piece of cake but we'll see and then that would save him, of course, the time. Larger pieces however, I think we agreed that I would just send them to him and he would upload them to the site because there may be formatting things that don't get translated appropriately. I probably would use a fair amount of that. We talked about some other things like I want the opportunity to do short lectures on demand if the students want that and so we're going to build that in.

The VU Producer's Description Of The Design Process

Jim's course was done mostly by the other people. Jim's was a very different course than we normally do because he had it all done and had his way of doing it before hand. He had two people working with him throughout the whole thing who had an idea of how they thought it should be and I always got the picture from them that they didn't trust, they didn't think that I knew what I was doing and Jim was more willing to trust them than he was to trust me. I think it was just that lack of trust. Normally the people that I work with, I have worked with graduate students in the past, I've formed almost a friendship with them and that trust has come with that but with these people that didn't happen. They wanted to do it the way they thought it should be done. I suggested bringing the width of the design in so that we had one printable page, printable width. The design for the course graphic design wise was not a sound design. I suggested

changes; in fact, I made up a design but got a response from him that they had worked hard on that design and they wanted to keep it.

Sam's Changes For The Future

I would make it clearer in the beginning that they were working through VU for a reason and that if it wasn't going to work to work with VU than maybe we should explore some other options such as blackboard that would maybe suit their needs and wants better than working through the VU system. I think I maybe wasn't as vocal or open with them about things that I saw as potential problems in the beginning, which I'm normally not because normally it works easier to just accept what faculty are thinking in the beginning and then as things go on they come to realize that this doesn't work or that doesn't work but like I said in this case that never came to realization

The VU Producer's View of the VU System

There are some broader issues VU-wide with the technology we use. The equipment we use I think needs to be fixed. I think it's going to have to happen soon. I think if we're going to continue to function it's going to have to adapt to the change. We're working on widgets software. The stuff that's been built for these courses was built in 1997 or 1998 and so there's an interesting turnover rate with technology. On average Internet Explorer and Netscape Navigator have had a new version come out every three months from 1994 until 2000 and so when you think about how that changes so quickly and we're still using tools that were created in 1997. Most people would think that a university would be the most cutting edge but what you find out is that budgets and

such create a lot of limitations that are more than they are in a corporation. In a corporation, we would hire one person to maintain the current system and another to continually develop new versions of the software.

We use a very basic synchronous chat program and there's much more robust chats out there that we should be using. The problem is we're a very centralized programming and server administration unit that everything has to go through them and because of that, I can't use one thing for one class and use another thing for another class. I have to use one thing for all of them so that does cause some problems. [It] makes things limited in what you can do like when Jim wanted to track students. I was able to build a customized thing to work although it wouldn't work as well as something that we could have found to use or I'm not a programmer I just know a little bit about it so, just stuff like that but then it brought up issues about human subject clearance. Was it okay to do this and was it ethical to collect data about students using these pages and things?

[Jim- The Teaching Activity]

It was like first learning how to swim being self conscious of the fact that you are trying to stay afloat the whole semester.

[The Role of the VU]

Certainly the VU context and the technological support or lack of it [influenced the class]. It needs to be much more accessible and much more fluid in terms of their ability to respond. They were not nearly as responsive, it was the programming piece of it

and the technology piece that it was just the structure of the web site itself which seemed antiquated and cumbersome and much more imbedded than it needed to be and then having to rely on VU to do things that I should have been able to do myself like my group assignments you know having to go to them and rely on them and then waiting for that to be done.

[Content]

I think there is a tension between, and this is not in the online environment per say but it is the subject matter more [in my topic]. There is this tension all the time between doing what I really wanted to do, which is teach [my topic] in the context of [a certain setting] and what I perceive to be the needs of most of the students and the program. That's an issue that I deal with all the time but it became more of an issue I think because students were accessing materials online that were [related] materials and we never really talked about [them]. I never brought it up. They brought it up. I never used the [topic] in my own writing and my interactions with them. It was something that they picked up in their reading in the text and literature that they were getting online. It's a field of study and an area of preparation just like [my area] is but it's philosophically different. It's historically and socioculturally different than [my area of study].

[Reflections After Teaching]

Overall I Think It Went Pretty Well...

Considering that I thought that it could collapse the first three weeks. There is a lot of work to do to improve it but it's the first time out for me and the first time for PBL

so given the fact that it was so new, I think it went well. It was new for a lot of students too.... There does seem to be appreciation among a lot of the students for the PBL piece of it at least and the online they got use to. I think they learned a lot.... I would say the majority of the students really did get quite a bit given the fact that I didn't really teach content there's two things I picked up... a theme that came up again and again and one is that the deep sense of collaborative learning was really a new experience for a lot of them and it's not just spending time in a class working in a group but the whole experience was grounded in being a part of a group so they saw themselves from day one as part of a team and a collaborative effort so a lot of them I think did begin to appreciate collaborative learning in a way in which they've never really experienced before and the other part is the self-directedness that they begin to see themselves as capable of inquiry in a way that they hadn't understood about themselves before so that's pretty cool.

I think the content areas they learned as they saw appropriate to their interests and their needs and I suppose that's the way it should be. The advantage of this situation is that they aren't spending a lot of time trying to second-guess what it is that I think they should know they're just [learning] what they need to know so they are weeding through a lot of stuff that they don't need. There is a down side to that though because there is a part of me which believes that I have a responsibility and students have a responsibility to the literature so they have to know their way around the literature... they just have to have some awareness of it so the downside is that they may take this individualization too seriously and just pursue what they want and my job as a facilitator or teacher in this kind of environment is to bring them back which I thought I was doing virtually all semester long 'cause one of the things they really wanted to do was they wanted to make this a

[different] course... and that's the tension in [my field] 'cause you teach it in the context of a task and the reason why you want to know more about [the subject] is because it helps you do something else better and it was that something else which kept on pulling them... there was a lot of that, this is what I want to do or it has implications for this and they would spend a lot of time on [that] and I had to continually nudge them back to theory of [this topic] and say this is our job here this semester primarily.... and some of them felt I was being too prescriptive and so I got feedback from some people that drawing the boundary, drawing the scope like that made them feel like I wasn't letting them do what they really wanted to do which was true, I wasn't but you know you can't but that's a problem with PBL within the context of a course and that's one of the major limitations. I think it's better that just teaching a topical course but ideally what you want, they were pushing in directions which were quite natural in the PBL approach and if this were a course or a series of courses... then all those directions would be relevant and I think ideally that's the way the curriculum should be. It should be a series of graded problems that stretch out like that in increasing complexity but you don't, when the students start working on them and they raise questions like that you don't say well that's not exactly in our scope which is sometimes exactly what I had to say so they were pushing in directions which were natural to PBL but I was pushing back in a kind of unnatural way which was subject matter based 'cause I was saying that my course is on [this topic] and I realize this is all interesting these are quite helpful questions but they're going to take us in a direction which in the time we have will keep us from spending time with the material that we do need to spend time with so that was a tension having nothing

to do with the online nature of it. It had everything to do with teaching PBL in a course-based or a subject matter-based format.

The Chat Rooms At First Were Unmanageable...

Because... I just had them open to everybody and we had ten or twelve people signing on it was too much so after we figured out how to do that but that required me to be online several times a week in order to meet the needs of all twenty six if they wanted to sign on. I was grading all the time. I don't think there was ever a time the rest of the semester that I wasn't grading something from the class so I was just moving from one thing to another all semester long. That had it's down side too because I don't think I was able to give feedback to them sometimes as quickly as timely I wanted to so the twenty-six had the down side for them in terms of what I consider to be a critical piece of the PBL model which is getting feedback to the students as soon as you can so that was the downside.

I gave them a grade based on the level of participation in the chats and the discussion boards. They had their choice of spending their time primarily either class wide or in their teams now in retrospect that was probably a mistake because the chats and the discussion board at the team level are required, I mean you can't do the work without, although some didn't really spend very much time in those either but I think in retrospect what I should have done was graded the discussion and the chats in terms of the class wide participation.... This is an area where VU could have helped a great deal but unfortunately, they are not able to give me counts, postings.... it was a big deal and after Sam explained to me everything that they would have to do and it was fairly limited

what they would give me anyway I just said it was probably not worth the bother.... I don't know why they just can't keep track like blackboard does.... That's one thing that VU needs to do quickly is, I think there are a number of areas where VU needs to be much more supportive to make this whole online thing go.... I was talking about needing the dialogue and the interaction and that was a big deal for them.

Challenges

Keeping up with all the reading online is a major challenge in two ways one in terms of just the sheer time that it requires, not so much the class wide postings because that was pretty nominal but the team postings and the team chats just reading them was one challenge keeping up with them. The second challenge was knowing when and how to intervene in those conversations when to make a comment or to say something that needs to be said. That was hard. That wasn't always really easy for me sometimes it was real obvious like oh god I have to get in there and correct that misunderstanding, that was every once in a while but most of the time it was one of those, it's just sort of gray as to whether you should say something or you need to say something. I guess a way to think about that is to just not to know for sure where the pedagogical moment is in that conversation not recognizing always or not being able to clearly tell.... [Face to face] just feels much more natural. I stay quiet in discussions a lot. That's my modus operandi is to remain quiet for long periods of time but I have a clear sense of when I need to and should say something and generally I know what it is I should say. That's not always clear to me online and I don't know for sure why that is. I think it has to do partly with the text is more fragmented. It's not as continuous in time so you don't have this kind of

a history with conversation that you do in a face to face and of course you don't have the visual cues going on either so I don't know for sure why that's difficult for me I just know that was not easy for me at all.... The class-wide chats were challenging. I always felt tense.... Everything is happening so quickly especially if you have several people in the room.... [The time delay] makes it even more fragmented.... I sort of got used to that the idea of keeping multiple conversations in your head at the same time. It took me a couple of times but I was able to get with the flow and learn how to send my messages so that I could let people know that I was still in the middle of a sentence without staying off line for long periods of time. So, keeping up with the conversations in the chats was stressful but the problem of again, what to do in these chats, what are these chats for? I don't know if I thought that through enough. I felt often times like I was pulling teeth in the chats.... [To get people to say something] to participate.... It's like they're sitting there waiting for me to pontificate so that was uncomfortable. I just didn't like it at all. Every once in a while I had a good conversation with a couple students that were really dedicated. I had a great conversation with one student one night and another on another night with students who both are seasoned practitioners. Those were fun. Those were great. You get these knowledgeable people who are talking about their work and I'm interacting with them from a theoretical perspective. That was neat but there were only a couple people in the chat room at that time. In retrospect what I will do next fall if I teach online is to I think I will probably use the chats to do topical conversations. I will designate conversation topics for chats.

The last challenge is more abstract... a kind of existential concern on two levels one is I am deeply committed as a teacher to what I would consider the affective

emotional dimension of learning and I'm really interested in that as a teacher and a scholar and I really believe that's where the most significant learning takes place and particularly if you are able to integrate content or cognitive stuff in with the emotional but that's what really stimulates and fosters meaning in our lives. I have no idea how to connect with that online. It just seems like an ephemeral, like a black hole and so the consequence of that is that we spend time in kind of intellectual conversation and supporting and upholding content. There are a lot of emotional issues around each of these problems that are just, the grouping was sort of emotional affective concerns and issues and things like that and I just was not able to figure out how to get at that in this particular environment so that's one part of the content piece then the other part is just simply not having a good handle on whether they're really learning the content. I got glimpses of that I think in the team products less so in the integrative essays. I think the capstone was more helpful in that regard then the prior two integrative essays.

The Technology Piece Was Just An Irritant...

And that was a constant. It was an on again off again kind of a thing. It was more difficult in the beginning.... but it evened out after a while. There was that one critical period that we talked about when the whole system went down and that's where I got a clear picture that the programmers [at VU] didn't really understand the way in which this course was structured because it was no big deal to them that there were new flags on all the discussion boards and new messages and like you don't want to spend your time checking things out that you've already read so that was really a major barrier and then the fact that it wasn't chronologically ordered, that was a nightmare but they got that

squared away but I thought they clearly do not understand the importance of some things that are necessary to make an interactive online course go. The other technical challenge, which I mentioned to you before is when you are out of town and they, the [VU] support is not there.

I Learned A Lot About The Technology

I'm still not very knowledgeable about stuff but I think I learned a lot about the technology by just doing this.... Taking the [faculty development class] helped but there's nothing like being on the front lines.... I want to [edit] for example and I don't do it in DREAM WEAVER I just do it right on the page because I don't know any of the commands so that limits what I can do so I just cut and past from the previous week.... I learned how to edit a little bit. There is still a lot that's just a complete mystery to me.... So, I need to learn the language or I need to get more facile at editing and the whole web page I want to be able to go in and easily and freely make changes in my web pages.

So, I didn't learn a lot about the sort of technical parts of the technology but the parts of the technology that I learned about were abstract. The fact that learning can be more real in online environments than in face to face, I think that's a very real possibility. I think there is a distinct possibility that students are learning more and learning more that's real in online environments than they are in face to face. You can hide in face-to-face groups. You can loaf in face to face groups and get by and learn very little because the teacher often times does not have a clear sense of what you are learning, doesn't have clear evidence of your individual standing and performance. In these online environments if they are set the way mine was you've got, well not a pathway to their sole but it's

pretty close and so it's kind of hard to hide. I know when people are loafing; I know when people are not doing the reading. I can tell that. I can tell whether they are thinking carefully about stuff. I can tell when they're not online the big gaps when their groups have not met weeks sometimes, and they would suffer as a result of that you try to tell them but they don't so those are all things which become much more transparent online so that was something that I didn't expect to learn but I really think that that's true.

Then trying PBL for the first time and wondering about that so it creates a whole host of questions and issues which I can think about and wonder about which I like to do and it provides a substrate for my own teaching and my own consulting. I can draw upon this experience and talk about things, which I wasn't able to talk about before as examples of different kinds of things.

I Learned About the Power of The Medium to Support Mode of Inquiry

I think more than any course I've ever taught before I was really teaching inquiry in this course. Most of the time I'm teaching, I'm self conscious about content. I'm teaching content but this I was really self-conscious about the inquiry the process of thinking about a problem, the ways to think about and approach a problem, how to go about thinking about it.

The problem based learning format forces that but I think the online environment facilitates it because students brought in resources from god knows where I mean I didn't give them those links, I didn't tell them to go there but they found all sorts of stuff well beyond the curriculum, well beyond the bibliography that I gave them. Once they got familiar with the environment, they began to see what it was capable of doing. They got

accesses to national databases... and were able to pull those down and look at them and think about them in ways that they hadn't thought about before so the online environment facilitates that inquiry I think there is no question about that it's right there. If you're thinking and you're inquiring at the same time when you are online like that it is just a click away and it takes you right there and it's just, I'm impressed by the power of that process. I became a fan of the Internet this semester because of that.

I Thought I Was More In Touch With the Students'...

Level of inquiry in this course and that was kind of a good feeling to be able to see that develop and grow. I've seen them begin to check their assumptions and just seeing, actually being able to see evidence that they're doing that [because] more of it is in writing and more of it is public because it's collaborative so... a person will come together in a team chat or a group discussion board and say this is what I'm thinking about doing what do you think and someone else will say well that's going to take us in a whole different direction and that's not really dealing with the thrust of the problem, etc and when you assign groups like that in the classroom you're never privy to that kind of conversation so seeing that inquiry process unfold is really quite delightful and to watch it mature. Students struggle with their interpersonal problems and gradually overcome that, struggle with the nature of inquiry and learning and what it means to ask questions and not find solutions, so that was pretty cool.... Also I think I got to know the students better than I would have even though I didn't see most of them I think I know them in a way that I never get to know face to face students simply because I have more data on

them. They are providing me with information about themselves constantly so I can't help but know more about them.

I became aware pretty early on that that was happening. I didn't realize what I didn't know about students until I started doing this. I thought I relate to students and I get to know them. The truth of the matter is that there are weeks that go by and there are some students that I don't remember their name in class... they come up to me in the hall and I don't know who they are. I recognize them as part of my class but let alone know anything about them or how they're thinking about the course or what they're thinking about it so that was pretty cool to realize that and that happened the third or fourth week that I was aware of how much I was getting to know them and know about them, what they think about, how they think about this content in relation to their work and other classes. I was really surprised. I didn't think that I was that ignorant.

That Will Have Repercussions in My Face-to-Face Classes

I will be much more conscious of trying to get to know who the students are and more about them so that will have direct implication for that. I will probably be more self-conscious about creating tasks that allow them to generate information that they will give to me. I probably will spend more time in the beginning collecting information that I think is more pertinent although I do that already. I did profiling and stuff like that for years before it just doesn't do the same thing that this class did. I've come to believe in more frequent assignments as a result of this course even though it's murder for us because it's more to grade I think the quality of our instruction can be directly improved by increasing the number of assignments for two reasons one is that it forces students to

deal seriously with the material sooner and then deal with it in an integrative and ongoing way and then it gives us feedback as faculty sooner about what they're struggling with, what they're getting and what they're not getting and we can provide that feedback before it gets to be the eighth or ninth week in a semester that's like they're lost or something. So, I think smaller but more frequent assignments. I've become a firm believer in that even though it's more work I think it just directly improves the quality of the experience for the students.

I Learned About Myself As A Teacher...

But that's a little bit more ephemeral because I think I was operating in a way in which I haven't operated before in a domain, in a medium that I haven't dealt with before and so it tested me, it pushed me to the limits in terms of what I thought I knew as a teacher. It raised lots of questions for me, lots of doubts about whether I was doing the right thing or what it is I should be doing here in the first place.... even still, I mean I don't really know for sure what my role is in this medium or what it should be. I think I raised more questions about that than I did get answers.... I think the surprising thing for me was how it tested and questions my own confidence as a teacher and really what teaching is all about anyway. What are you really doing when you are teaching? What is the value of your contribution in the whole thing? I don't know that.... Because students are not relying on me for content. In face to face I will get; one of the things that surprised me about this experience was how few questions I got about content. People not writing to me and asking for clarification on this or that, or I don't understand what [some theorist] was saying about this, what did he mean by that anyway? Those are the

questions that you would typically get in a face to face discussion and you answer them or turn them back to the class but at least you're getting those kind of questions and people are relying on you as a content expert and they see you as a content expert so you get that sense of identity derived from that. There is no sense, I didn't' get that sense at all from this online class. I don't doubt that people view me as a content expert but I didn't, that's not imbedded in the interactions, there is really not reinforcement of my sense of who I am. It was like first learning how to swim being self conscious of the fact that you are trying to stay afloat the whole semester. That's what it amounts to for me.

Grading, That's Another Problem...

'Cause in some instances when I was computing the final grade I could tell when I wanted to give this person a 3.5 because I could tell from individual work that it wasn't a 4.0 when I would compute the grade based on the weightings and everything it would come up with a 4.0 based on the group product which carried them so I had a couple where it was the other way around the people would do really well in the individual products but the group product was dragging them down a little bit and I might have made an error there I gave a guy a 3.5 and I think he should have gotten a 4.0 but he didn't do the journal and he didn't do the boards and chats and stuff so that brought it down and then the group products a couple of them were not quite up to you know so I've got to build in some component of individual grading within that team product. I'm not happy and I don't think they're happy either 'cause I think they felt some of the groups felt that they were carrying the weight of the other people and they didn't like that. Those are some of the issues I think that we need to address.

I Really Enjoyed It

I don't regret it a minute. Like I said I think the main thing is that I'm attracted to the novelty of trying new things and doing things differently. This was very different. It raises a lot of questions. I'm glad we have the research piece going with it 'cause there is a lot to learn from that so we'll see what happens.

Sam's (VU Producer) Description

During Teaching

I did have a bit of a problem getting all of them to do things the way that they needed to be done for VU and I think the course suffered a little because of that. There were navigation problems. The navigation wasn't super clear to the students. There's links that are broken or just weird navigational issues that never got resolved and the interesting thing about that is that [the FACULTY DEVELOPMENT CLASS group] worked on that with that in mind for several months and now students are having trouble. Some of what students are afraid of they're saying they're afraid that they're missing something [content] I guess because it's a non-linear format. It's not streamlined and easy to use.

Design Problems

We were not as organized in the beginning as we could have been. Things didn't run as smoothly for the first month. I think there were too many spots that things could be linked from. That was really the navigation issue. I think that students couldn't get around easily. It was a confusing navigation scheme. Since the navigation scheme was not as simple as I would have liked there were actually spots that I missed that maybe a link went to the wrong place because there were so many times there was a link I never knew. I would get an email from students saying that page three of week two, there is a link broken that doesn't go to communication or something like that.

We tried to bring out some more obvious links but I think the problem was in the interface as a whole. You didn't know what page you were on. You didn't know if you were on two of three or one of three or one of one and you didn't necessarily know, a lot of Jim's links, Jim was using hypertext in the way that it's meant to be used where words are links to the new pages but I think that serves as confusion for students who want to have a clear idea of where they are. Something that could have helped that would have been some sort of site map that had links that change colors once you've been there or something but you get into whole different problems with that. That becomes hard to create.

I think that students adjusted rather than things got fixed and because of that, it may be good to go over those things with Jim and to try to fix them. The other option would be he may want to consider using blackboard or web ct to redo the course in a manner that may fit better with the format that he's using.

Faculty Member Profile

Mikala

The Cast of Characters

The second profile is that of Mikala. Mikala was the only professor in this study who did not enroll in the faculty development class. Instead, she utilized the stipend that she received from the university to hire several graduate students to help her develop her online class. She met with her group regularly in brainstorming sessions where the members offered ideas from different perspectives within their fields of expertise. In an iterative process that took place over several months, Mikala collected the information from their meetings and wrote the syllabus, classroom activities and cases. She took them back to the group to discuss and made additional changes based on their input.

After the curriculum was created, the group disbanded. The group met one more time when they all participated in an online class meeting with Mikala's students. During that class session Mikala's group members took on the roles of characters in one of the case studies and interacted with the online students during a live chat. The students probed the characters about the case for details and clarification. That interaction was designed to help students understand and analyze the case.

One of the graduate students Mikala had worked with was Bonnie. Bonnie was one of the members of the original student advisory group who created the class. Once the student advisory group disbanded, Bonnie became Mikala's assistant. As a member of the original group, Bonnie took part in the brainstorming sessions described above to help develop the curriculum and subsequently was responsible for transferring everything to

the VU producer. According to Bonnie during the development phase she had stressed that students should learn to use different kinds of software programs such as PowerPoint, word perfect and spreadsheets. Once the course was up and running she monitored it throughout the semester but she did not have direct contact with students. Her role was to provide support and to "Maintain contact with the VU producer to make sure that students were finding all the links that they needed, that there was a thread to be followed that was clear and that they were comfortable in that environment" (Bonnie, interview, April 18, 2001). In addition, she did some research to find new web pages related to the student's interests and needs.

Before starting her Ph.D., Bonnie had obtained an undergraduate and a master's degree in a field related to the one in which Mikala was teaching her online class. She had worked. She had developed technological knowledge over the years out of necessity and job opportunity. She became certified at the local university in the use of technology where she learned how to use correct terminology, work with hardware, software, use different types of computers and types of educational environments where she could apply that technology to the curriculum. At the time of our interview, she was doing web design of images using photo shop, creating web pages and she had worked with databases, both implementing commercial software and creating custom databases.

Mikala's VU producer was Norman. Norman chose not to participate in the study and thus the only information on him that I have is that provided by Mikala and Bonnie. Both of them thought that he was very skilled in his job, attentive to their needs and easy to work with. Once the course curriculum was completed, he transferred it to the virtual space and managed the technology throughout the course.

Mikala

A Profile In Her Own Words

[Educational and Professional Background]

I became an adjunct university professor and lecturer in the late 1980s. I became a professor here in the early 1990s and I teach [graduate level] classes and I serve on many committees.

[My Role as a Teacher and Methods]

I see myself as a Facilitator. I use some short lectures to introduce students to the content and I also use a lot of discussions, casework and collaborative learning. I want students to learn to do inquiry so that they can be self directed in their learning particularly because when they become professionals they will need to continue their learning.

Everyone of the activities [in the online class] had learning objectives and what I would do is that when we were processing the activity I always had those objectives in front of me to make sure that in fact we're meeting those objectives and if not then they need to be changed or is there something that I'm not doing to facilitate the activity.

[Teaching Philosophy and Methods]

I lean toward Constructivism depending on the level and needs of students. Sometimes you have to deliver some content but I'm big on the reflective practitioner,

collaborative learning and inquiry. There are lectures, there is information giving but then there is an opportunity for me to guide a discussion and to take that information apart and let them massage it and pull it apart and become their own teachers. I like that part of it and I try to get there in all the classes so they are teaching each other.

[My Experience with Technology]

I started to use Blackboard in my [face to face] classes, list serves, and I have extensive email experience like sending and receiving attachments. I use software programs like word processing, spreadsheets and statistical programs. Because my husband, who is the technology person, has been [away for a while] doing research I've had to do all the technology stuff at our house so I've been forced to do stuff at home that he would normally do and one time when I couldn't get online I called the [university] help line and I learned how to get back on. We have [a internet service provider] at home... that went bankrupt and we just got back on last night and so I was able to reboot and do all that stuff [so] I was put in a position where I had to do it for myself otherwise I can almost guarantee you that other people would be doing it for me.

I required of my doctoral students to develop professional websites. They presented their websites in their guidance committee meetings and this evolving website idea has helped me to evaluate their progress as we go. We are extending this as a requirement to all our Ph.D. candidates. Soon all our PhDs. who have been in the program for at least the last three years will have a professional portfolio online. We are even extending this requirement to our MA program on campus. This did mean that I needed a website, which I have been working on, but it certainly is not where I'd like it

totally to be. I am hoping that by the spring, I will have a pretty solid professional portfolio – it's getting there. As I've gotten better at locating effective ways to use technology in my own learning and teaching, I've gotten a bit braver – and so here I am, teaching this course.

I Have This Zone Of Comfort Around Technology…

That I need to know only what I need to know and when people teach me new things I keep saying well this is new information that I really don't want to know because I don't want to be accountable and responsible for it I just want to give it to you to do.

I've Always Thought that it is a Tool that Enhances the Learning and Teaching Process

It's not the venue where everything happens it's a tool. I've always thought that and so I've always been trying to figure out how to use this tool effectively. I think the other question I was asking as well as I was doing this is how is it that [practitioners] can think about the use of technology in their practice.

[Exposure to Online Teaching]

None really. I watched others do it. I looked at a lot of examples and I watched people – that's really the way I learn and I learned a lot from [the student advisory group]! Oh, the faculty discussion group was great! I learned a lot from [several professors].

[Experience With The Technology Used To Create The Online Course]

No, not really, not directly. I've watched my husband play around with it. I've surfed the Internet looking at examples of online classes. I have a colleague that teaches a class from [another university] – I looked at his stuff. My husband has a friend that teaches half his load via the Internet so I looked at his stuff. I don't have the technical capacity to set anything like this up. What I do have is a good sense for learning and teaching, how to make it challenging and how to make it fun.... I can handle the challenges of new learning styles. I had the good fortune to be a part of a yearlong faculty discussion around building the On-line MA program, so, I did learn a lot about online learning through reading, discussion, and the folklore shared by professors who had or were doing an online class.

[Motivation For Teaching The Online Class]

I have been interested in the use of technology as a tool to enhance learning and teaching for some time. In fact, my husband had been doing quite a bit of work and thinking on the use of technology with [a project at the university]. So, I watched and I asked questions, and I began to learn how I could use technology in my own work-communication, organizing ideas, searching for recourses via the Internet, creating and using databases, and so on. As I got better, I noticed that many of my students, primarily graduate students who are professional practitioners were talking about technology in our classes. How could they use it to become more efficient? What were some of the pitfalls? How could they begin to look at technology as a tool to help [in their practice]?

What were some policies that needed to be in place to assure the evenness of technology resource allocations? What were some policies that need to be in place to assure that it was a learning tool and not another slide projector or ditto sheet tool that does not engage or enhance the learning endeavor? There were many, many questions. Of course, none had the answer. We all had stories, anecdotal, of both successes and disasters but none of us could really call up any empirical evidence that might help [practitioners] think more holistically about the diverse uses of technology in the [practice] setting.

[Description Of The Online Course]

The course will be geared at developing ways of thinking, planning, implementing and assessing technology in [the practice setting]. Students will learn about employing computer technology as a tool [in their work], professional development, problem solving, management, and strategic planning. We'll also look at the tensions that technology brings like pressures by both external and internal advocates for computer technology use in [professional settings] versus the appropriateness of its use in [other work] related activities like how does technology enhance learning. We'll look at emerging research and what we know about actual experiences. We'll be doing cases that are based on real situations in [practice settings]. It will be highly interactive. The students will work in teams but they will also have individual activities. All the activities will require students to use a variety of computer programs to do things like literature reviews on line, search for web-based resources, participate in synchronous and asynchronous conversations, power point presentations, spreadsheets, etc.

The Design Process

I Was Very Prepared...

That's one thing you might hear from anyone you ask about their experience working with me on this course. I put together a team of professional people [a student advisory group] –now full time Ph.D. students. Together we talked about the issues today's [professionals] face when technology is thrown into the pot. After our conversations, I went away and thought hard about what they said, then I came back to them with a proposal of what a class might look like, what it would feel like, and what questions we would address and how. We talked more taking apart my proposal, enhancing it in many ways. Then I went away, thought, and planned more. We had decided on casework, so, I began with this. This process of going to the group then working something up, sharing it, taking it apart, reworking it went on for about four months. It is a very dynamic way to work – actually, it is the best way I work.

All the people I asked to be on the advisory team are quite adept on computers so integrating the use of different programs as well as the important questions that they had to deal with was explicitly woven into every activity. So, I went to Virtual University with a fairly solid plan. I just needed them to put it up and to help me further think through what technology might be added to facilitate the learning, the communication, and the experience of community on line. Because I work effectively in a collaborative fashion, VU was able to enhance the work I had arrived with.

I did hire my assistant, Bonnie to work with me on this project and to take a bit of a lead on the technology work for the course while I was away during the summer. She did a lot of stuff like provide web links for all the assignments, work with Norman [the

VU producer] on the finer details of the look and the way the site worked, developing sample assignments, and so on. I just monitored, got updates, from Norman and Bonnie throughout the summer. I reviewed some drafts and they finished it up. When I returned to campus we met, we reviewed the class, and we decided we were a "go."

I had seen many, many examples and I shared ideas with Norman, but in the end, he's the expert and said to him to do his thing. He gave me options on design features and we went from there. You know, trusting the people on your team and respecting their work is extremely important. I trusted Norman.

[Factors Considered During Design Process]

Distance, time, and access. I have students who are teaching in international schools across the globe. Deadlines are within a range of time, for example, between the 21st and the 23rd, or I provide a time deadline like Friday at 12noon EST. I have provided time for communication during the activity as well as before and after the activity. Instead of cramming my introductory activity into two weeks – which is ample time face-to-face – I ran it over a three-week period. It was perfect timing. Also, because students are from different settings the cases are a bit more generic.

I am also big on the reflective practitioner – so, I started off with a self-portrait type of activity and on top of that build more group/team oriented projects. I also wanted people to get to know one another – so my first two activities is really built on "getting to know you" "getting to know myself and technology and where I need to go" as well as learning how to do some very simple mechanical things via computers. So, I am aware of different technology capacities, so, every one of the assignments has tutorials attached

to it. On my front page, we even tell students where to go to get help – not to me that's for sure.

[Rewards In The Design Process]

Working with the [student advisory group] and working with Norman [the VU producer]. And, just seeing our ideas come to fruition on line. I approached this with a good deal of passion to learn what I could do so, I didn't encounter any problems – or what I considered to be problematic. I often said – I'd like this or this to happen – can you make it happen? Or I'd say, I saw this on another online class that I liked; do you think it makes sense to use it here? Or I'd say, okay, we can't do it right now, but let's think about it and maybe try it next time.

[Major Challenges In Online Course Design]

Perhaps the challenge I faced is that I don't know very much about what all one can do – but that's not a challenge in a negative way, but a challenge in a very positive way. What a wonderful journey it has been so far; I'm thinking I'd like to teach another course online like this.

[Working With VU]

I went to Virtual University with a fairly solid plan – I just needed them to put it up and to help me further think through what technology might be added to facilitate the learning, the communication, the experience of community on line. Because I work

effectively in a collaborative fashion, VU was able to enhance the work I had arrived with. I think that Norman and I did a very good job of setting up this class.

There was always someone [at VU] that could help out and I didn't experience as many technical problems as other people have had and I think it had to do with how organized we were going into this and how quickly Norman responded to what I needed to have and how quickly I could let things go. It was like well okay this didn't work that's fine we'll just do it differently later you know why fret about it 'cause there is nothing you can do.... If we didn't' have his technical support I could have never done it. It would just worry me too much and I just knew that, like the final class evaluations it was like okay lets do it and for this amount of time.

What ever I asked him to give me he gave me which is very interesting because I know of a couple of faculty who are creating classes right now and they don't appear to be getting as much technical support as I've gotten from Norman and from Sam which is really interesting. I don't know why that is. I don't know if it's because the faculty member isn't being precise and organized about it or if the producer is unfamiliar with the platform in the capacity. It's always been just very good. I can't say enough about him and even when my students had complaints about it and they had to use the help line I would say you need to call VU or you need to email and he was very good at directing them or helping them out or explaining why certain things were the way they were so some of our students were asking all these technical questions and I'd just forward it to Norman.

Bonnie's Role and Work With VU

[My role] was basic monitoring and managing.... First, we constructed the curriculum the content. It was a collaborative creation. Mikala called a group of us to discuss some ideas and that's how the class was constructed, the syllabus was constructed. The construction of cases would be the best example. There was a brainstorming on the table with the different members of the [student advisory] group coming from different [professional] perspectives. A lot of ideas were put together and Mikala would then collect that information, write a case, and bring it back to us so we could see if anything else was missing that could inform the case a little better. That's how the cases were created. It was very collaborative. I don't think you could detect where our contributions were in that process because it's all lumped together in the case.

[In] the actual design of the course like an actual web page [my role was] in making sure that all the available tools were there, the navigation. Not in the aesthetics. Mikala did have some preferences on that but basically making sure that as a student I could work in that environment, know where I was and what I had to do.

In the content area I [stressed] that it was important for the students to use different kinds of programs because the course was about becoming literate in technology so if they produced assignments they should do it using different software so PowerPoint, word perfect, spreadsheets so that was done.

We had the chance to talk to other people who had taught with that medium before and we heard a lot of impressions and a lot of conflicting ideas about the use of technology. [We also met with others] either independently or together to experience how

people were doing this. The VU specialist and the whole VU department had samples that we had access to and we talked to those people after we checked their web sites.

Professors see a lot more time added into their schedules, a lot more student contact, individual contact and also a lot of repetition in the information about the teachable moments that sometimes are not present or the opportunity is not collective. Sometimes it's individual and just the whole interpretation of how to reach out to students to make sure that they were learning in the environment.

After that, I was in charge of transferring everything to our specialist at VU. [He] had a lot more knowledge into transferring the syllabus to a virtual space so knowing how the audience for that class would work and the accessibility in remote areas. You get to choose colors and how you want the page to look but the VU specialist helped us create the pages and sent it back for approval so some things were rearranged like the order in the left bar so that the students would follow that comfortably and some logistical things like how the weeks would appear on the screen so we got a lot of help with that because it was a brand new idea for us. Also in providing a lot of links; Mikala already had links to different web pages for resources. I did some research on finding new pages depending on their interests and needs during the course so those were constructed along the way too.

I also monitored throughout the class, not in direct contact with the students but the support of it in checking that everything was always working, in touch with the VU staff to make sure that students were finding all the links that they needed, that there was a thread to be followed that was clear and that they were comfortable in that environment.

[The Major Challenges With The Course Design Process]

I don't know if Mikala was sure about how to address the division of workload for students. You know how they do it on paper but in accessing the web site and checking it constantly to check discussion threads and things like that we couldn't really measure it how much time or the right balance of hours the students would be spending but it seemed to all work out well as far as I can tell.

[Working With VU]

When we took it to VU, it was a work in progress. It was very collaborative. We depended on the VU specialist to tell us how to divide the work on the pages of the web site. The syllabus was very concrete. Mikala had many ideas about the different weeks but really; the real structure of the virtual design was done with the VU specialist.

The navigation part was only concrete after we saw what VU constructed for it based on the syllabus that we took so we had no idea but the needs were stressed by Mikala: making sure that people had tutorials to work with spreadsheets or power point. It was a continuous construction. We had pages available and ideas would pop up and so that went back to them and they constructed something else and we were adding and sharing ideas and discussing those ideas. It was a real iterative process where you would do some work, take it to VU, come back do more work and so on. I believe we spent about a 6-month period.

During The Class

[The Teaching Experience]

I've just been scaffolding one thing after the other and I'm really fortunate that the majority of people in this class are so adept at using technology.

It's Like Reading An Email Message

They did their first overview paper and it's like reading an email message. It's like an abbreviated, it's not the kind of paper that I would expect to get in a face-to-face class and I'm wondering if that's okay. It doesn't feel okay I just have to figure it out. I'm wondering if I have to give more perimeters. Some of them did a good job of taking a look at what was the same, what was different, what were some themes around management or uses, and some of them didn't. I guess that's the same thing you get in a face to face.

This one student, he actually completed his undergraduate degree online.... His paper is the worst. It wasn't graduate level work at all and so I wrote him back and said what you've done is just review a couple of the [other student's work] and you didn't do any synthesis work. The structure of your paper is not up to graduate level writing and I expect you to redo it otherwise you're gonna get a zero. I don't know if that's an outcome of his doing his last two years of work online as an undergraduate. I don't know. I think some people still think of online being a correspondence thing. I think some students don't really get it that there's work involved.

It's been interesting. I've actually taught this class on the road, which is also interesting 'cause I've been traveling a lot and I will travel a lot. I've got five trips coming up before the end of the semester. It's so great to be able to hook on but I find that I hook on every day for at least one to three hours. It's okay. It's email. A lot of people will email me with the different problems that they're having and I'm constantly getting on to see if they're putting up the assignments but the good part of it is it's just email, a lot of it is email because the way that I structured the class is week by week. I gave an amount of time you have to do everything and this time I gave very strict perimeters, which is very different than what a colleague is doing. He may have five weeks and in the five weeks the team has to do all this work and he doesn't have benchmarks and what I'm finding in his class is that the participation in the groups is very, in one group I noticed that one person hasn't even dropped in to help out. There are two people doing all the work so I guess having these benchmarks and giving them time parameters is because I don't have them in front of me to make sure that the assignments are going to be done on time. I'm glad that I did that. When we do the two case studies, we still have time parameters. There are things that are due as we go. I'm really glad that I did that. I like what [my colleague is] doing but you're so dependent on the student's initiative and they're committed to it. Not everybody is.

One of the things that have been interesting is that everybody is so astounded that I don't have texts. My text is the web so I don't have books that they have to purchase or articles that they have to read and I think I need to play with it this year because I want to use the web more as a text but because I haven't really played with it I don't know really what more to do with it so next year I'll do better.

The threaded discussions, I need to set it up, it's for the case study. It's an opportunity for us to dialogue back and forth and for me to give them directions and stuff in a synchronous sort of advisory kind of a thing and it gives them an opportunity to get in on the chat thing. I've never done this before, Bonnie, my assistant, and I played on it. She sat in one room and I sat in another but we've not really done it so we'll see what happens. I'll have a couple of teams on in one day and a couple teams on another date. There are five teams, there are three people in each team and I tried to break up the teams so there would be gender equity across all of them, there were some similarities in terms of [experience] yet there was always someone on the team who was a little bit more expert in technology. Sometimes it didn't work out but that's okay and so we have it set up where we have a chat room for everybody. Everybody can drop in when we have the synchronous conversation and then we have lobbies set up for each one of the teams when they can have their own synchronous conversations.

I'm gonna say to them that in preparation what you need to do is to set up at least two synchronous conversations between two or three of your group members and tell me when you do it so I can drop in. I'm gonna require them to set up at least twice this time. A lot of it they can do over email but I actually want them to get the experience with the synchronous thing because in the last case they are gonna be able to talk to the actors in a synchronous space so I want them to get better at it.

[The time delay in synchronous chats] it's just different. [Bonnie and I] kinda liked it because you know we think the same that we actually need a little time to think through before we respond so it gave us some time to think about what I just said and what she just said and there is time to write something so the delay is actually helpful to

me with her now other people who are on top of it might be frustrated by it but for me it was fine. It will be interesting when we get more people on it. I'm only keeping it to a small number of people because I've been warned about having too many people so I'll take it seriously.

[Challenges]

I'm really beginning to think about how to use the web as a text. I think it's more learning challenges, how to use this better the whole thing about setting up a web, how to make it more valuable experience, constantly challenging how I would do this better next time.

There's Been Some Interesting Technology Things That I Have Been Learning

One of them is that we have to limit the amount that people put up because we have people spread out so downloading little problems like that. One of the things we have to recognize is that, for example, [one student] said it took her fifteen minutes to download one [assignment]. It's because of the capacity they have. She's [overseas] and so he and I really needed to think about it and we put up an email saying you could only put up so many megabytes and so on and it's up there now so there are little glitches like that that we don't know about until you start doing it. When we get to the cases when they have to put up power point presentations and they have to turn in a research paper with that. It will be interesting but Norman is pretty good, he figures it out.

I'm figuring out how to navigate the web much better and with Norman's help with all these glitches I'm beginning to understand the technical pieces a bit better and the potential of it which is really important.

I Think We Have A Pretty Good Group

They've been communicating with one another on email so they copy it to me. When they post things they always put little comments in there so there is a real need for people to communicate.

It's A Lot Of Time...

I'd say 10-12 hours per week. I anticipate it's gonna be even more when we do the synchronous and asynchronous conversations like this week with the threaded discussion I know that I plan on getting on at least three or four times a day maybe add a comment here or there to push the discussion. It's a lot more [time than face to face teaching]. In my face to face class with the blackboard.com 'cause now I do that in every face to face class and so I have them do a lot with blackboard but it's still never as much as the VU class 'cause you're in contact with your students everyday and It's not like that in [face to face] classes.

[The Context and Technology Affects Teaching]

When I was grading their papers I started to think now how do I grade this? I'm gonna grade it the way I would grade any other scholarly piece of writing and I'm gonna

have to give them clear and succinct comments back so I can explain why they got the points that they did so that was an interesting challenge for me to think about.

The other thing which is real interesting which has to do with teaching is making the writing so public you know with all the papers everyone can read it. I think that what that has done is that it has helped me understand the necessity of having my students write for a broader audience and not just for me and making it public. That's what they do on blackboard.com. They put it in a drop box and I put it in a folder where everyone has to read everyone's papers and I think just creating that publicness of writing is an excellent learning tool and makes people understand that they're not writing for the professor, they are writing for a disciplinary area so I think I'm getting much clearer about that and it's changing the way I think about how papers are presented and I'm thinking about how grading can be different too.

It's almost an iterative process like when I get on line [the technology] gives me some limitations like time limitations, how quickly I can write, there are some disembodied limitations to that piece but I found that I could do more with it as well and I had different channels of communication with it as well so even though it might have been limiting for me it also was somewhat liberating for me too so it was a real reciprocal process and to give an inanimate thing a life is so unusual to do but for example we had the chat rooms, discussion threads, email, telephone, fax mail and hard copy and face to face 'cause a lot of them live very close and I have actually seen a handful of the students. Even an international student came here and I saw her so what happened here is that I had many different avenues of communication and so that was for me a potential

and so I interacted with that. How can I use all these different threads of communication to do different things and I like that a lot.

How it really has affected my teaching is that I am using more technology in my face-to-face teaching. Well, I started to with blackboard.com in all of my classes. Every class that I teach is a blackboard.com free site but I use it more and students like it so technology has helped me a lot in terms of expanding the realm of teaching. Instead of it being three hours one day a week it's now open for a lot of contact in between classes so it has I think impacted, it has enhanced.

[Also] it's an easy way out to do things because this has been a tremendous travel time for me. I've been here three weeks without getting on a plane. Prior to that the longest period of time that I ever was in town was about three or four days since August so it has been freeing that way 'cause I could get online from anywhere in the world and I have been traveling internationally as well as nationally so it's been liberating.

The Context Affects Student Learning...

Yeah it does, having to write for a broader audience. The anxiety of having to write for others is a tough thing to get through and I think It's good that they try to, I have to figure out ways where little by little there writing becomes more and more public and they get better and better at critiquing and scrutinizing each other's writing in a positive and constructive manner but how to figure out how to do that online with the class like this I haven't yet figured it out. I may ask a couple of questions during the threaded discussion regarding the style of writing and the clarity and stuff. I might throw that in to

get us to think about how one writes a paper for classes like this but I'll have to figure that one out.

They wouldn't normally have gone to the Internet and done research on the Internet and take a look at what other [professionals] are doing and find resources on the Internet. What was interesting with them between the [first] case project which we learned a lot about how to do the work and the [second] project which went much more smoothly team work wise than the first one did was when we did the [first] case we didn't have a real place for each of the teams to have a discussion and post stuff so we could actually track it. They were doing it all through email which was really quite frustrating for me 'cause my email and my attachments was just bulging and so I said to Norman what we need to do for the [second] case is each one of the teams needs to have their own discussion place and they need to have their own little chat rooms and I will tell them what the expectations are in terms of their participation in those two places and I also wanted a discussion thread for the class at large 'cause if there was any big time questions they would post it to the discussion thread or if I was talking to one group in their chat room or I read something in discussion thread that was important to everyone I can transfer it to the big discussion thread.

One of the things that I thought was an excellent design element for this class was that they had to learn a variety of different programs within the context of making decisions or proposing something like the power point the excel the word perfect, all that stuff. They were forced to learn those kinds of things for a particular goal and they could see how knowing these different programs could help produce something that was usable for them in [their jobs] and they all created wonderful PowerPoint presentations.

[Students] had to learn the technology to do the assignments and so I think for some people who have communicated with me already it has just brought them up to speed in terms of the current capacity of the programs and how they can use it in their own work. I do know that one student who was the technology director for her [job] was actually using a lot of what she was doing to put a plan together for her [organization] for next year so that's good [and] one student was saying to me on email how much she had learned in her chat room conversations about what she could do with the computer. She was one of the ones that this was a scary thing and she's not scared now she can actually do excel, she can do power point and other stuff.

The other question I was asking as I was doing this is how is it that [these students] can think about the use of technology in their practice and I've asked that question directly of my students to see okay now after you've gone through this process how are you beginning to think about [this]. People see technology as a venue or at least online learning and what not as a venue for professional development primarily because the [people] that they work with don't have time to take a regular course but creating professional development opportunities that they can go to at their convenience that's online that's rich and really engaging is an important way to think about the use of technology as a professional development tool so I've been getting to see from them how they are thinking about the use of technology in [their] practice.

I saw it in their locating information to make decisions. That was a big thing for me is that [these students] need to have a depth of understanding about a particular issue before they make decisions. They have to make informed decisions and when they were doing both the first and second cases I could see that they were gathering information

from the web, assessing information from the web and making decisions about what site, what parts of this information they were going to use that applied to a particular situation so data driven decision making is very important for [these students] and I began to see them doing that as well.

I also thought it was really important for [these students] to share their knowledge with other [like-minded professionals] and I think I began to see that building of community that they were learning to share what they know and to the whole giving and taking and communicating piece because a lot of [them], the only place that they come to where they can talk to other [like-minded professionals] is to a class so they were looking at this as a venue to massage ideas with other like-minded people so using technology as a tool to bring together like-minded people to learn something I think is a good tool.

[A Sense Of Community In The Class]

The first activity [was] perfunctory and introductory. We spent a lot of time on that and that was good because it gave people more of a sense of the way people talk to each other is much more of a comfortable tone. In their emails and what they write it's much more comfortable and informal. It is what you would expect in a face-to-face class and so it was good to spend that time doing that activity. I think any kind of activity that makes them have to talk with each other or share something about themselves or comment about someone else's work so far has created a really nice community.

It was very interesting in the discussion part they would say you need to go and check this out or somebody would talk to someone in another group and say thanks so much for sending me this information and then it was funny because in the [second] case

the [actor] says oh we saw this site and it was a really great site and in the discussion boards a couple of people said it's not a great site you know it's just like boards they get all hyped up so it was great.

[Managing The Students And The Class]

There is a lot of that teaming thing where you get the one person in the team who sends you emails or calls you up wining and stuff and it's harder to deal with [online] then it is in person because in person you can watch the team working and you can intervene and even though I was trying my best to watch it in the first case because I didn't have the different threads I couldn't see the progress on a daily basis with the first case I couldn't intervene fast enough. The second case, because I was on every day I got onto every one of the discussion threads so I could see the progress. I could see what they were posting, I could see what they were saying to one another, I could also go into their chat logs and see what they were chatting about and I would get onto their discussion thread and make clarifications [and] suggestions so I could immediately intervene or I noticed that one person wasn't getting on so I would email that person and I would say that I've noticed in the discussion board in the chat room I'm not seeing you there is something wrong with your computer or blah, blah, blah.

I think that's really important in doing these kind of team projects is setting up these communication systems so that as the instructor you can see the progress on a daily or on a every other day basis and you can intervene immediately 'cause a lot of times the students won't say anything until the very end and then they get their grade and they complain because they got a bad grade and they say stuff like well you know my

contribution was blah, blah, blah. So, I shouldn't be penalized for a team grade. It's a toughie even though half the projects that they did were individual and the other half is team.

[Challenges During The Class]

I think the team, the whole team process I think I need to do this one more time to figure it out but doing team work, group work in this venue I think it is a challenge and I just need to think about that more.... guiding it, not only how to do it but even in an embodied class just because, people don't know how to do team work no one ever teaches us about team work the whole idea of forming, norming, storming and performing. No one really teaches us how to do it but we're expected to know and then we get put in this venue and no one really knows how to do it in person let alone here so just trying to figure out how to prepare people to do team work and then to do it online is something I need to think through.

I do this in embodied situations. I can actually teach people how to work in teams I just haven't figured out how to do that online and I always do it. I don't expect people to know how to work in teams and so I usually do a couple of exercises in sequential order to build them up to working in their teams. There's a lot of communication strategies and opportunities to deal with conflict and conflict resolution in these little activities that we do but it wasn't in this online class so I just have to figure it out but I'm not the only one who is having that problem. Jim is doing it as well and he's having those kind of problems too so we just have to think about it more.... little different strategy. You can't just transfer what you do in a face-to-face class to an online class.

As the facilitator of the chat room I do type very fast and I do read very quickly and I think that's a blessing because I can get it very quickly and then I would tell people you want to make your statements very short and to the point and don't go on and on and then I'd get upset at people I'd say so and so just asked that question so go up.

With the last case, I swear I spent more time in class than I had with anything else. It was really heavy about a week before something was due and a couple days after. That was a heavy period and then I had a little down time while they were working on something but I put more hours into this online class than I would normally put into a face to face class expect for the dissertation prep classes that is about just as much time as I would spend with the online class well you know 'cause writing dissertations and then if you have twelve to fifteen students in your class you're meeting with all of them a lot individually and so that's what this reminded me of that kind of intensity and that kind of availability and sometimes I got really frustrated and angry because it always appeared that people expected me to be there when they were discussing and I got a couple of emails that said you haven't responded to our discussion thread and I thought I was on it all day and so there was this kind of a tone regarding my availability online and I would get a little perturbed it was like you know I just cannot get on this everyday. It's like teaching a class every day even Saturdays and Sundays and I'm not the only one who has said this others who have taught online have said this too and when I did the [last] case I had to tell then that I'm only getting on once a day at this time to read the discussions and spend an hour or hour and a half and I did it every day at the same time and then I said I would never do this for a face to face class.

It's Different From Face to Face Teaching

They are doing a very active communication with each other, a very active process as opposed to reading something and then writing about it they are actively engaged in an experiential activity which means that the instructor must be present in that process and because almost all of my activities were engagement in a process meant that I had to put more time into it as I would in an embodied situation. That sort of collaborative or collective engagement was the difference.

I Really Liked...

The chat rooms and the discussions. I enjoyed the communication. I enjoyed the talking. I enjoyed their discoveries.... When they found web sites or they clicked in and they found some really fascinating stuff online. I noticed that they were finding others that were just incredible. It was just amazing what they came up with so I enjoyed their discoveries very much.

[Problems With The Technology]

There were people who were hitting fire walls and they would come in and out and we could just see them going in and out. People kept saying I'm sorry, I'm back.

I Enjoyed Teaching It

I learned a tremendous amount and the students have emailed me or when they submitted their reports have said I really liked this project or I really learned a lot they thank each other and I've been talking about the necessity for them to learn from each

other. They are the experts. They are the people who know what's good and what's not good on the web what's gonna be applicable so I wanted to have them really learn from each other and take me pretty much out of the equation as the person who gives them knowledge and I think that happened. I think it happened that I was able to just guide the process, yes provide input but just guide the process. That's how I like to do stuff like this so I think that was good.

I Learned A Tremendous Amount

I gathered a good deal of information about what's available on the Internet. Almost everyone of their references or when they were sharing references I checked it out so I learned a lot about the internet and about different sites, what they offer, how to locate things so that was something that I was forced to do. I wouldn't have normally done that myself and that's good for me 'cause when I teach other classes I can refer my students to these sites.

I learned a lot about myself as an instructor/facilitator on this venue in terms of I questioned my capacity to do this and to enjoy it because I enjoy the physicalness of [teaching] and that's one of the reasons why I did it. It's different. I remember when we first talked I had this fear it was like fear factor of doing this and now I'm not afraid of doing this at all.

I know other things that I can do. I got so excited about some of the things that we were doing and the discussions that we were having I thought oh I could think of doing another class online but I stopped myself after that but I could actually see teaching another subject and doing it a little differently and having some individual and

collectively engaged activities, having a reading and then discussion threads around the reading I mean I began to have all these different ideas so I learned a lot about my own capacity to be effective in this venue. I honestly, I hoped that I would be effective in this venue but I didn't know.

I also am beginning to learn how to better communicate online. It's a different language you know the tenor of what you write. I'm much more careful and cautious now. I've been trying to be very cautious now because how you string words together can mean different things for different people and you know I'm not the best at it right now but I'm learning how to do that so that's kind of... It's tone; it's word choice.... For different people you communicate differently. I have to get better at it I just know I do. In the classes I teach on campus here I don't communicate the same way with each student. It's very different and unique to that person and so I'm learning how to read the other person in their talk so to say so that I can communicate with them effectively.

It's very different from [face to face communication]. I think it's just how you see yourself in relationship to other people and how you see yourself as a teacher. I think it's important for me to make sure that I can communicate with an individual to help them help themselves and so I try to do that one on one in person and so I'm trying to do that online. It's very different; it's a nature of who you are and how you communicate. I'm trying to find my virtual nature so to speak. Online identity has a lot to do with that.

I Think Some Things Affected My Motivation

Getting the support that we got, the 10,000.00 dollars, the lap top computer, the producer, that certainly motivated me to get off my butt and being on the initial

committee that talked through the masters online I had motivational factors that got me to this place to do it.

Having Colleagues Helped Me Out A Lot.

Having colleagues that I know are doing it or have done it and just being in close proximity so that we can talk about these things I think affected the way I was thinking about doing it or about what I was doing. It affirmed many times what I was doing, if I had a problem with a student how would you handle this online I had feedback immediately, so having colleagues I think helped me out a lot.

I Had A Student Who Got Really Angry With Me

That made me think about how I was talking. She was a fundamentalist Christian, I think I said something that offended her, and so I had to think about that. I don't even know what I said actually but I had to think about that. That highlighted that it was important to think about [my online communication skills] but I think that there are other factors that students bring to this venue that you don't know about that I think affected me along the way and it would in a face to face class as well but it affected me a little bit more here because if you told me right now that I feel that I'm physically closer and I could apologize and I could see your reaction and so on but online it's like that delayed kind of thing so I think that affected me just understanding that delay.

[What Mikala Needs to Change for Next Time]

I might have to do like a mini team project before the two cases. I don't know though, I don't know how I'm gonna construct it. I have some time to think about it so that they get sort of a flavor for teaming, chatting, and case analysis. I might have to put a one week nongraded exercise before they start the first case although I think we kind of set it up I just want to rethink that to make that transition a little easier. I need that activity where they can be doing chat, discussion thread, analysis, processing as a team. We did a discussion thread in another assignment we did a chat room in another assignment so they knew the rudiments of that but they were doing it as individuals they weren't doing it as a team so I need that activity where they can be doing chat, discussion thread, analysis, processing as a team.

I do like the chats and then I was thinking that I might add a chat just one where I would be available to students where they could just talk to me like office hours. I think I should do that because I don't see them in person.

Bonnie's Description Of The Class

[Challenges]

I don't know if Mikala was sure about how to address the division of workload for students. You know how they do it on paper but in accessing the web site and checking it constantly to check discussion threads and things like that, we couldn't really measure it how much time or the right balance of hours the students would be spending. I think that was a challenge for me to analyze at first sight and as assignments were due

they became a little intense for the students but I wasn't sure if they would face some frustrations because of the medium or chats.

Sometimes when you have a large number of students in a chat everybody needs to speak but sometimes they don't all have to speak or have the chance to so interpretation of what that means it was kind of nebulous to me too. For instance in a face to face class you might be able to determine via body language whether they are engaged in it whereas you can't always tell on-line if they're just reading and absorbing you can't really tell if they're there or they aren't- their level of engagement.

Also, there was some frustration because everybody thought that they had to speak and they were all speaking or typing at the same time so the line of ideas was not continuous. I don't know how much learning there is unless you have the chance to read it back when you're done with the chats and at the time, I'm not sure they had the chance to read what they wrote. It's so intense and so fast that you don't really absorb much during the chat so the learning is really after.

[Problems With The Technology]

Not that I'm aware of. It was so beautifully; I was really impressed. Week to week there were no problems. The VU specialist was always there giving the support needed. People had problems connecting even during the chat for instance if a person couldn't connect they would call and they were immediately connected. The problem was solved and they could connect to the chat before it was over so I feel that the support is so important. There is a lot of back stage work that goes with the virtual class I think that goes unnoticed.

[The Technology Affected The Course Design And The Class]

If you had some expectations that we couldn't do than I'm not aware of it. It was created from the start as a VU class. It wasn't an adaptation of a face-to-face class so you might see limitations if it were an adaptation but in this case I didn't see any limitations. On the contrary, I think new ideas were implemented because of the opportunity of having it on-line. New things came up that added to the class such as the interview with the live characters in one of the cases or the resources that were at our disposal on the web instantly. You don't have to go to the library to get them.

The Cast of Characters.

Juliet

Juliet was the faculty member on whom this profile was based. She was one of two faculty members who took the faculty development class to design her online course. She worked with three students in the faculty development class whom she met and was teamed up with after entering the course. Below I have provided brief descriptions of Juliet's group members as well as the VU producer that worked with her to get the class online once the faculty development class was completed. Following the introductions to these participants, I have provided the extended profile on Juliet using her words.

John

John was one of the graduate students that worked with Juliet in the faculty development class. Juliet considered John the most technologically skilled member in her group. She referred to him as "a god" with technology. She credited him with, "Being very instrumental in making the site happen and building the site. He's been the primary one. He has clearly been the onsite developer of the course" (Juliet, interview, May 2, 2001).

Ken

Ken was another student member in Juliet's FAC-DEV 101 group. According to Juliet, his primary interests were in leadership and student services. He was particularly

interested in Communities of students and how you build communities and had been doing a lot of reading about that topic. Consequently, this was one of his main contributions to the group. "He had a lot of good ideas about activities you could do to do that. Structures you could put in place to do that. So he was instrumental in kind of pushing that aspect of the course" (Juliet, interview, May 2, 2001).

Xu

Xu was another student member of the FAC-DEV 101 group but Juliet did not say much about her or her contributions to the group other than to include her in the following comment. "They were the technology guys and gal. They really pushed my thinking by questions they asked" (Juliet, interview, May 2, 2001). Juliet said that all the group members were all instrumental in offering ideas on activities that would create community in her class.

Sam – The VU Producer

Sam was the VU producer that also worked with the other faculty member in this study. He entered the story shortly after Juliet completed her work in the faculty development class. They stayed with the original course design that Juliet and her group had created in FAC-DEV 101, made some refinements, additions and got it up and running. Sam also provided support while Juliet's online course was running and met with her to discuss revisions when it was over.

Sam came to university as a student several years before our interview. He had graduated with a bachelor degree a couple years before our interview in an area not

closely related to technology. However, while he was getting his degree he began working with technology as a hobby and took a class or two in design and computing.

Upon graduation, he took a position as design director for a small city. He came back to the university and worked for six months in another position when he saw an opening for a producer at VU. Since he was interested in web-based education and technology he took the position and had been employed for one and a half years at the time of our interview.

Juliet

A Profile In Her Own Words

Background

I came here two years ago [but] I've been a professor for eight or nine years.

Teaching Is The Favorite Part Of My Job...

I mean, I love my research. The research I do is very interesting to me. I love the intellectual stimulation of being in a university environment. I love the colleagues in this department but both formal and informal aspects of teaching are sort of what keep me here. We have an apprenticeship model of doctoral training in this program, so we do a lot of informal teaching of doctoral students as well and I love that work as well as classroom teaching.

[Role as a Teacher and Methods]

[FAC-DEV 101] has forced me to think about this. I've always said I see myself as a facilitator of learning. I tend to be fairly student directed in my teaching. I try to involve a lot of choice and a lot of applied projects in which people have authentic materials on which they're working. I try to walk a fairly difficult line between theory and practice. We have a scientist, practitioner model of training in my professional area and in this program so we want people to have the scholarship base on which the work rests but we also want them to be able to go out tomorrow and apply this in a pragmatic way so I find it somewhat difficult sometimes, we have both doctoral students and folks who are gonna be practitioners and really aren't interested in that theory stuff.... But I try to do that in my courses, provide both applied based practice, practice of the concepts we're learning about and also enough theory so that it makes sense for people who are a little bit more theoretically oriented or who are going to be scholars in their future life. Given that, I tend to do some lecture but in the best of all worlds, I've got about a third information dissemination and about 2/3 application of some kind, where people are either doing small group projects, they're doing critiques, they're doing exploration of materials, they're doing something with the information. I tend to use a lot of authentic assessments of people who are actually trying to do something, bring the work back in, have it looked at, provided feedback, take it back out again. I'm not one of those lecturers, multiple-choice test kind of [professors] especially because what we do is professional preparation. We help people learn how to learn so that they can do that for the rest of their professional lives. I see that as a really

important part of what I do because our knowledge base is changing so quickly and you can't just impart information. It's not gonna carry them, even through the next five or ten years in practice. So, I try to be more a facilitator than instructor.

I'm Very Respectful That Everybody Learns In A Very Different Way

I think that's something that I've grown in my teaching over the eight, 9 years I've been doing this. I was trained to think in a fairly constructivist paradigm about people having to interact with knowledge and work with it and I've come to realize that some people don't learn that way. A lot of the folks that we get into this program are very good traditional learners. They learn through interaction with text so I've tried to be very respectful of the fact that people learn in very different ways. I try to accommodate that in my instruction.... Very often, I'll have multiple options for how to complete an assignment. But I do think people learn by being exposed to information in some way. For most of us, I think that's facilitated when there's some sort of authentic, meaningful interaction with the idea. Then I think they learn by working with it in some way, so making active, getting performance feedback, accuracy feedback of how we're working with those ideas or materials or whatever it is that we're doing being challenged, if it's conceptual and theoretical, to think about things more deeply or from a different perspective.

I think that I really value the interaction in teaching as well, so we tend to do a lot of group discussions. It's a little difficult because I've been teaching classes of students fairly young in their programs, first and second year students, and they don't challenge each other very well in group based discussion. They are a little too politically correct

and real nice to each other. But by the fourth year, we get away from that and they yell at each other and I like that I value that when people are really challenged to look at what are the paradigms I'm using in my thinking, where am I situating myself in this problem, what's the world view I bring to this problem, how do I conceptualize it from that respect? Those I think help people really stretch.

[Experience With Technology]

All of my work is done on a PC. I bet I spend 80% of my day right here [at the keyboard] and I have for years. We have computers at home. We use them; my children use them instructionally and recreationally. I don't tend to use them as recreationally as other people in my family do. I'm not on the net a lot, shopping or downloading things like other people do but I'm comfortable with those applications and do that.

[Philosophy on Technology]

I don't know a lot about the technical stuff of the computer. I don't feel like I want to know that, or need to know that. I don't need to know how to compress stuff other people can do that. That's not what I wanta do. I don't know how the telephone works either. Nor do I care.

I've done a little bit of [programming and setting up web pages]. My husband does this professionally. I don't think I've ever set up a web page all by myself but I'm familiar with that and would feel comfortable doing that.

[Technology in Face-To-Face Teaching]

[I used] Web CT [as] the online course support [at another university]. All of my courses have an online, I use blackboard as the online supplement to my courses. I've really used them as just support for the course. I haven't really used blackboard instructionally. [The faculty development class] has helped me think about how I might do that. I've mostly used them to post assignments, the syllabus, and form groups, to have email readily available for people, that kind of thing. And I use them for enrichment in my courses so I might say here's a new site. I want you to visit this because we'll talk about it in class on Monday.

I played with the chat discussion this semester for the first time. For one of my courses, I required a threaded discussion based on the class topics so people had responsibilities to post a reaction to the class and then they were supposed to visit and respond so many times during the semester. That was the first time I had done that. I wasn't very pleased with it because it wasn't a central part of the course. I didn't nurture it well and so we had some nice discussions but people didn't contribute as much as I had hoped they would so I have to think about that more as a central part of my course. I'll give it more emphasis in my own instruction, my own grading and I think people will use it. They had a very nice discussion after class one time that helped me understand they didn't get something. That was really valuable because I wouldn't have known based on the discussions we had in class that they didn't get it in the way I wanted them to get it so it was really helpful in that regard.

I've used blackboard when I do presentations for students, I always have the projector set up and some people use PowerPoint or they use a web based demonstration

kind of thing. They all had to do a presentation so they used that so I'm comfortable in that regard using the stuff in class.

[Exposure to Online Education]

I've had exposure to it because my husband teaches online courses so [certain] nights he's in the basement, teaching these courses. So I've seen that and we've talked at length about his struggles as he's been learning to do that himself but I've never done one before, never participated in one before so this was virgin territory.

[Motivation for Teaching Online]

This is a required part of our curriculum so in terms of why I would do this course online is purely for my benefit, for the fun of it. I was intrigued by this possibility, to allow flexibility in the summer and because it was a course that could go up readily. So there really wasn't a good sort of pedagogical reason to put this course online. It was really more a choice of convenience. I think this one works fine in an online environment but there really wasn't like oh, I need to put this online so it would be optimized. I could teach this face to face just as well.

[Another reason] we wanted to have a course online for our students is that increasingly, as in all professions, technology has become part of the accrediting standards so that people are supposed to have competencies in [technology] so we want them to have this as a tool for their own lifelong professional development experience as consumers of an online professional development seminar so that if they decide to do

this, they'll know what it's about. I'd like them to experience it but if they hate it, that's data for us to think about.

[Description of the Online Course]

It's a six week summer course so it's an intensive, accelerated kind of course to serve the needs of both [scholars] and [professionals]. It's set up so that each week of the class, they'll have three units, or three days in the class. The first day will be content, information based, so they'll have reading associated with that. They are gonna have to buy some texts. There'll be online sites that they'll be required to visit.

The whole first part of the week will be information dissemination. The second day will be a small group format. We'll put them into groups of three people and they'll have stuff they have to work on together, so it'll be applications of that information. Those will be predominantly case based. These will be very structured exercises and they'll have to develop a group product as a part of that. Then they'll post all those group products back to the whole class and the last part of the week, day three, involves individuals looking at what they did in groups and looking across groups at what the other groups developed and thinking about reflective learning. What did they think about this topic? What similarities and differences do they see across the product? That will come individually to me. I'll then provide a group feedback via voiceover to the whole group.

The last thing they do in the week is send me a personal reflection paper that's one to three pages about the week's activities and the products and all that. Then they send me a feedback about how the group work went this week.

In terms of how I make contact with them, that's all structured as the course content. Every week they get an audio slide show of me previewing the week. It's a little 3 or 4 minute hi, welcome back. Here's what we're gonna do this week. So, they've got at least my voice, if not pictures of me. I'm gonna try to have fun with the pictures. We're gonna superimpose me in different parts of the world. This is summer. We'll tell them I'm on vacation.

[The Faculty Development Class]

I don't know a lot about the technical stuff of the computer. I don't feel like I want to know that, or need to know that. I think that's been a real strength to this course, actually that we focused on the human elements of how to do this stuff a lot. We talked about HTML and some other stuff but we really spent a lot of time thinking about what's the human computer interface like and that's really more of what I'm interested in in terms of teaching online.

[The faculty development class] has been invaluable in helping me think through [the course design] ahead of time. Had I not had this course, I would've made so many mistakes and done this so badly that I might not want to do it again. I really think that because my thinking has changed so much about what's required to do this well. I would not have given myself the time that I got in FAC-DEV 101 to articulate, to map my philosophy [on teaching and learning] onto a web-based practice. I know what it looks like in a face-to-face class because I have a lot of experience with that but I've never done this before. I didn't even have a working model in my head of what this could look like.

In [the faculty development class] they purposely didn't show us models because they didn't want to foreclose our thinking in any way so I really had no idea what is web talk I didn't know what that was. I didn't know the possibilities for an online conversation. I didn't know what the traps were. We actually played around in class with some technologies. I'd never used a chat online so I might have tried to do a bunch of synchronous chats without knowing that that's a bad idea because of the time delay but that also helped me to think about what size group did I need. I wouldn't have limited it to three necessarily but I knew that I wanted them to do a little bit of synchronous chat and I knew I wanted it to work really well so I used my knowledge about what and how people learn really explicitly in this course whereas before in a face to face class I might have said, okay lets get into groups of four or five, whatever, so I think that I would not have understood this medium without the faculty development class. I would not have thought about it.

I would not have done the reading that I did in instructional design. We had such good discussions about both the technology aspects and the learning and teaching online that I would not have, the product would have looked quite different. I probably would not have used the web to the extent that I did. I would have probably done more of a closed model where I supply all the content. It would have probably have looked a lot more correspondence like I'm sure.

Well, I would have tried to do groups but I'm not sure I would have done it with any level of sophistication. I feel like I did sort of a good run through some group process because I really thought about what is it gonna take to make this work online because I had that luxury to do that. We spent about three or four weeks in 882 talking about those

very issues, so I know I wouldn't have done as well without the 882 course. It really jump-started my thinking in that respect.

In terms of my own process in the course, I started out as really a complete novice in what could an online course look like. Even though I'd kicked these ideas around with my husband, I never really thought seriously about how would I teach online. This was my first opportunity to really do that and I didn't have a clue, not a clue of what was possible. So, I felt like I lost about 5 weeks at the beginning of the semester because I was clueless.

I had very few expectations [going into the faculty development class] actually because I had so little knowledge going in. I really wanted what it gave me, which was an opportunity to think about the teaching components of this. I didn't wanta learn how to do any of [the technology] because I knew I had VU support so I knew I didn't have to know how to make a web page, how to compress video. I didn't do any of that and I didn't wanta learn any of that. It's a byproduct, that's fine, but that's not my goal. My goal was to really give myself, force myself the luxury of thinking critically about teaching in, in this format and in any other format. That was really a luxury of the course, that's what I wanted, and that's what I got. I made that happen for myself.

I would've benefited, I think, had I had some exemplars or models earlier in the course. We talked about this with [the course professors] and they made a design decision not to expose us to that because they didn't wanta limit us, our thinking, too early. But I didn't have a framework to think about it in so I would have, doing it again, and I'm an experiential learner, I need to look at something, need to muck around with it to have an

idea about what's possible sometimes. So that would, I would've done that, had I done that earlier, I think I could have been more active in the group early.

I Learned About Technology in the Faculty development class...

Oh, absolutely. There were applications I hadn't seen before. Again, I'm on the web a lot so I see stuff. I'd seen streaming video but I'd seen how it could be linked, used in a course so I kinda thought about them concretely for the first time. We spent some time almost every week talking about something technical and those were very interesting to me. What's a server? What's HTML, what's that stand for? So, all that stuff, I learned. That was pretty interesting and that was a nice byproduct of getting to think about teaching.

The Design Group

I have tried very hard not to be in control of that process because I know nothing about the web course development. I can step back and talk a little bit more broadly about that. I am blessed in my group. I have a wonderful, wonderful group, a very diverse group, including [John] who's been doing this forever and is a god at this and who just is at the end of his program but does a lot of the stuff anyway and has been very instrumental in making the site happen and building the site. He's been the primary one. As it's evolved, we've shifted; we've sort of fallen out into roles and [John] has clearly been the onsite developer of the course and that met his needs.

I felt badly at points because I thought he did all of that and other people weren't as involved in making the web pages but that's what he wanted from the course so I feel

okay about that. He was so good at it and I was so novice when we started that we sat down and I did some storyboarding one day in class and we kinda brainstormed some ideas about what it might look like and I said things like it should have a nice, light feel because it's a summer course and then he went away with it and did a mock up that was fabulous and it's just been... I think we showed you the sort of iterations of the course.

It's been evolving across the semester, under the aegis of [John's] creative genius. That's really what's been the driving force of the web site. Then what the group has really been instrumental in doing is... thinking about what should be in the site. So, the group's really worked to think about how to structure this, how to do community development, how the content should be structured across the week. I've tried to think about what does the content need to be across the six weeks and what exercises and things I want them to do. But they've been really wonderful in helping think about all the things we talked about in [the faculty development class]. How do we forge community in this class? All those things the group's really worked on this as a team. It's been terrific.

Clearly, my group was miles ahead of me. Especially two members of my group are finishing technology degrees. This is their last course. These guys know so much about how to do stuff that they were kind of waiting for me to give them direction and this is where I tried very hard not to control the group because I didn't feel like I could provide direction early on in the course. I was clueless and so they were really instrumental in going, well, let's try this. Let's play with this idea and see how it works. And so, they pulled up to the table and contributed in a really powerful way. And so the site started to develop, the technical stuff, with really very little input from me.

They'd say how would you teach this in a face-to-face class. And I would go here's what I would do. And then they'd go, oh, we could do streaming video. They knew this techno stuff and I'd write it down. I didn't know what they were talking about. Then we got to some of that throughout the [faculty development class]. We did a night on streaming video and we did a night on this, that, and the other thing. So, they translated for me and that was really helpful.

We had one person in particular in my group [Ken] who's very good, his area's leadership and he's very interested in communities of students and how you build communities and had been doing a lot of reading about development of community. So he had a lot of really good ideas about activities you could do to do that. Structures you could put in place to do that, etc. So, he was instrumental in pushing that aspect of the course. They all were, actually. That was a very dominant theme in [the faculty development class] and so we all took that very seriously. So, they really pushed my thinking by the questions they asked. I didn't feel like I controlled the group. They kept looking at me to do that. I looked around the room and I thought I saw my colleagues doing that. I thought how can they; do they know something I don't know? But I was very happy to have us be a real team and have it co-developed because I really didn't feel like I could contribute to that aspect of our group's function. I was the content deliverer. They were the technology guys and gal. So, I was very novice when I started.

[The Online Course Design Process]

One of the challenges is I've been developing this course as if the audience is slightly different than I've been used to teaching it. I've been teaching aspects of this

course for graduate students for years and years so teaching it for [professionals] is very different.

The course looks a little playful 'cuz it's summer. You've gotta look playful with [practitioners] in summer. The topics... they're shifting as we speak. I laid it all out and then realized I don't like that, so I'm reworking it a little bit now. When you've got a semester, you've got plenty of time to play around with concepts and applications. In six weeks, I'm not gonna have time to do as much conceptual stuff as I do in a regular course.

As I realized this, I looked at, I've laid out the first two and one half weeks pretty extensively and then I looked at what am I gonna be expecting these people to be able to do at the end of six weeks and I realized it was way too conceptual. So, I'm having to kind of rethink application and integration and that's why my timeframes are shifting a little bit. It may be that they get only the briefest cursory introduction to some of this stuff squashed into the first week and a half to two weeks and we spend four weeks on more applied stuff. So that's what I'm struggling with now is really how to make it a little bit more pragmatic because the [practitioners] don't wanta do concepts you know, show me something that I can use tomorrow in my [work setting]. So I'm a little concerned about the dual audience and trying to think about how do I really frame this so that I can provide enough conceptual background so the stuff we're doing makes sense, but not overwhelm these [practitioners] with theoretical stuff that they don't wanta get involved in. So, that's my current struggle.

I'm trying to think about how to manage the stuff so that I'm still involved in providing a lot of feedback but I don't have to grade 25 papers a week and turn them

back. So part of the challenge of my thinking about this course was how to really manage it from an instructor's perspective so that it doesn't turn into 25 tutorials.

The design decisions that I've made, I've had to think more carefully about how to build in the kind of collaborative community oriented aspects that are just a part of [my] face-to-face instruction and I'm not sure I needed to do that. I'm gonna play with that idea this summer. One of the things that I've been going back and forth with, I think it's inevitable because it's the way I think about teaching, I would do that in a (face-to-face) course, try to build in some group components, etc. But I'm not sure it's required for this format. If you don't do it, you do a lot of tutorials though. That's the downside of that but I'm not sure, I guess some people do this in face to face as well. You can go into a lecture hall and the professor will just talk at you for three hours as well. So I guess that works, that's the in-class equivalent to a tutorial but I tried to think about how do you provide instruction and provide directed practice and authentic experiences in an online format? That's been the design challenge for me.

I tried to think about what would I want the students to be involved in in any format. I want them to have best practice ideas and theories and concepts. I want them to have directed practice and I want them to have some reflection about their own practice. So, I tried to build that in. Then I tried to make it fit and I tried to think about things that would be interesting and how to engage them and how to coerce them to do that. In a classroom, you coerce them by your social persuasion skills. You say okay, now we're gonna introduce ourselves and they all go okay. In an online format, you say now we're gonna introduce yourselves and your grades are tied to this because they won't do it unless you provide some sort of incentive to do it because there's more anonymity so I've

tried to think that through. What do I use social processes in the classroom to do? What do I do instead to get them to do the same thing online? What I've done is imposed grades. I've attached grades to things. I would never think to do that... I mean, I do, I give them a little break for participation but they participate, they're graduate students. I know that's not a problem but it's a part of their course here. I've given them timelines that are inviolate. You don't meet this timeline, I'm docking you 20% of your grade. You can't get it back. So all of that, I've built in. I'd never do that in a face-to-face course, especially at the graduate level.

So, some of that has been a design issue that's different in this environment. So, I've tried to think about best practices. Tried to think about best practices and how to make them applicable and that's really pushed the way we designed the structure of the course because I knew I wanted some interactivity, or a high degree of interactivity. So we spent a lot of time in our small group kicking around some ideas about what might that look like.

I've listened to colleagues very carefully across the semester. The college has been having a series of seminars for faculty about teaching online. I've gone to a fair number of those and I've been trying to listen to what my colleagues who have done this before have told us. And [another faculty member] in our [faculty development class], taught [an online] course previously so she has some experience about what works and what doesn't work.

I'm Concerned About...

Student participation. [That] has been sort of a theme that I've heard emerge across issues that my colleagues have talked about, trying to get them to participate at deep levels. I'm concerned about cohesion and cohesiveness of the course because I'm teaching it in a six-week format and I'm sort of teaching it in chunks. There's a chunk of content here and then a chuck of content there. I'm a little concerned about it because of the compressed timeframe. I'm concerned about, whether the way I've arrayed topics is logical and whether it's efficient for a six-week period. I'm expecting a lot from them in six weeks and they're gonna get three graduate credits for this so they're gonna get the same kind of content but they'll get a lot of content.

I'm concerned about how I manage the workload. What I hear colleagues say is I'm online a lot. You know, you work more in this than you do in a face to face course so I want to monitor that and as we designed this course we tried very, very hard to think about that. We spent inordinate amounts of time trying to think about how to manage that and how to really do something that's pedagogically very sound and meets [student's needs].

Quality, whether or not this format works for students. They're paying consumers of this. They're the reason we're doing this and if it doesn't meet their needs, if it doesn't provide a really rich, worthwhile experience, it's not worth doing. So, I'm concerned about that, whether they learn something, whether they are satisfied with this.

[The Teaching Activity]

One of the things I've tried to do in my course was be very responsive to [student's email inquiries] and structure my feedback to them so that it was supportive and helpful. I paid a lot of attention to that part so I think that's one of the reasons my course is working as well as it is and I think it is just really going great guns because I paid a lot of attention to that early and didn't let them linger on email for two days. I was checking my email two and three times a day that first week just to make sure that they were comfortable.

I think they got over being scared [of the technology] because they didn't get punished when it didn't work. We tried to fix things pretty quickly. We tried to be very responsive and I tried to be pretty transparent. If I sent something over to [the VU producer] I always copied it to the student so they knew I was following up and Sam would often email them directly back so I think they got a sense that we were trying to be helpful and it wasn't too scary. By week two, they had really settled down. I just did the week three reflections and I got almost no comments about the technology, like this is a piece of cake now but in week two they all commented that this is so much easier this week, the technology wasn't so burdensome this week, I feel like I've got a better handle on this, so I'm seeing that change as well which allows them more time to focus on content which is what I'm more interested in.

Here's the other thing I do for them, this is kind of fun. If they find a glitch on the site, ok so here's one from a student from week two, "I just listened to your audio introduction and.... Where's activity two?" If they could find a glitch on the site, I'd send them a prize. So again, one of the things I was seeing in week one was "oh my god this

isn't working!" I was seeing that panicky thing so I said lets just make this fun. If you find a glitch, you get a prize. So they get a little cutie thing from me that reinforces it and makes it ok for them to find something. So I think that helped.

I'm Teaching Some Technology Along With The Content

What I think I'm doing in terms of teaching them technology is helping them just get through it so that they're having success experiences with it. We had some problems early where things like the page would scroll across too far, things just didn't look good. Everybody survived it. They had little traumas here and there; some people missed something and such. It was fine, nobody died. So I think they're having that kind of experience and we tried to think about how to structure activities so they'd have experiences that were successful.

Here's the problem that I'm having...

It doesn't log the chats. I think that is something that VU can make it do and I'll ask them to do it for the course next time, but I don't get a running record, I can't look at these chats afterwards. So, this is the equivalent of having them talk to each other in a small group and here is where I would get another marker of the quality of the discussion they are having. So one of my students just told me that in another VU course she just had this was all logged to a web talk. I haven't set that up correctly or I haven't figured out how to do that. I just thought last week that that would be kind of cool to be able to go in and look at them retrospectively 'cause I'm not going to necessarily be online when

they are so that's something that I would like to think about how to look at those differently.

Web Talk is No Problem

I can go in and look at all their web talks and I just get such a rich feeling for what they're thinking about and they're wonderful. They are just wonderful. We've got lots of experienced [practitioners] who are telling great stories, I mean it's just super. So I think the satisfaction there, that's a surprise and the satisfaction that it seems that one of the concerns I had according to other faculty was that people don't really participate and it's hard to get them talking to each other and I just haven't seen that. I've seen that people are really engaged and I think it's a function of the small groups and all the interactivity that we built in and I wouldn't have known to do that had [the faculty development class professor] not talked to us about that and spent 4-5 weeks about what is online community and how to do that pedagogically, like what does that look like and how do you structure that. So, that's been really gratifying to see that. You know, you take a gamble, is this going to work, and it seems to be working so that's really gratifying.

I'm Enjoying it More Than a Face-To-Face Course...

Maybe 'cause it's new, the novelty is kind of fun. But I just feel like I'm getting a richer picture of them. I like being able to do it from home, I'll log on when the kids are watching a movie or something, I'll log on and read stuff. I'm often the first one up in my family so I'll have a cup of coffee, I log on, and I look at me email.

I think I missed [the face to face contact] more at the beginning than I do now because I feel like I've got relationships with these students that I didn't have in week one and two and week two I think many of them said, because we talked about relationships this week, some of them said to me I miss interacting with you as a faculty member face to face, I enjoyed that as a graduate student and I felt it too. I felt like I didn't' know them very well. I feel like I know them much better in week four. I've had two more weeks of looking at their work and I distinguish them as individuals. I can count on certain things from certain people, I mean I know I'm going to get a really good quality answer from this one 'cause that's the nature of her work, she really thinks deeply about these things. I know I'm going to have to stay on this one 'cause she's late in her work. So, I feel like I know them all as individuals and I didn't have that sense the first week.

The other thing that I'm aware of is that, because I've structured the accountability of this, that everybody must participate in order to get points, everybody is participating and I would bet given this cohort of students that in a face to face meeting I'd have four I can name, I know who they'd be, I'd have four students dominating these conversations because they're powerful, persuasive, smart, articulate students with wide experience and they're older, two of them are older, who would have my students on the floor and my people would be going I'm not a [practitioner]. But I've got them in groups with these people so I've eliminated some of that problem that you've got when you've got some experts in the room.

[Major Challenges]

It was a six-week summer course so it was intense, it was three graduate credits, I didn't cut them any slack, and they worked very hard. I didn't know how much work to give them. I didn't have a sense of the scope so the first week I gave them way too much and then I cut it back slightly in the second week, then by week three we had the right amount of content so in weeks two and three I made some things optional rather than required as a way to cut back on what they were doing and by that time I had substantially reworked weeks 4-6 so I just deleted some content so I think the primary challenge for me was the six week intensive course.

I asked [my students] for that feedback. I said let me know how things are going, I have never done this before so I'm gonna wait to hear from you about whether this is too much or what. I ended up cutting the number of activities in day two and then I made some of the readings optional, I tried to use the web as much as I could so I did a lot of linking to other sites and linking to texts on other sites that I wanted them to read and I made, I said some of those, you know, skim this one, so I didn't make those all, I told them to be flexible in how much they, I required them to read the text, I didn't change any of the text requirements 'cause I used two texts but I made some of those other readings optional and I where I cut back was the amount of activities they had to do so for example they had to work with two cases in the first week and that was just too much so I changed it to only one case per week.

I did have one group that continued to complain, actually one student in one group continued to complain all the way through week five and I asked her for data about that, I guess it was week four, and by that time everyone else had settled down and I

asked her for data about how much time she was actually spending and that went away after that so she may just have been someone who was looking for something to complain about.

Because it's not a typical 15 week breakdown and I wasn't sure how to chunk the information and then given the fact that it was online and I had never done that before I wasn't sure what the content flow should be so that was the biggest challenge that I faced in terms of the time frame for the course was just trying to decide how much to give them, what the requirements should be.

[Most Enjoyable]

I liked the flexibility, I liked being able to do this at home in the evening, especially in the summer. That was really a great thing not to have to be on campus a lot this summer. That was really nice. I liked the novelty of it. It was a real intellectual challenge for me to develop the course and then to teach it and to figure out how to manage my time, manage my interactions with students, all that was new in this format, and that was really very intellectually engaging to think about my teaching in a different way. That was really a lot of fun.

I liked the accountability in the course, that the way I structured things, some groups used a chat and we didn't have any way to record those, but most of my groups used web talk so I saw everything that they did in terms of response to questions, how they were processing the cases, all of that was very accountable. It was all right there on the web for me to look at so that was a real surprise to me that I had a sense going in that I wouldn't know these students very well and I thought I knew them extraordinarily well

by about week two or so because I saw everything they were thinking and I don't see that in my face-to-face classes so that was really surprising and fun. I hadn't expected that at all.

I liked the fact that I continued to develop relationships with these students and I didn't think I would do that as much as I did and I feel like in any course that I teach that's as large as this one was you get to know four or five students really well and I felt like I did that. Those were students that sought out extra time with me, emailed me about stuff or made personal comments to me in their reflections that helped me to know them as people and I was able to do that back with them, so that was a little surprising, it was nice.

The other thing that I thought was really nice about this format that worked better than face to face is the fact that the playing field is pretty even that in a face to face course I could tell you who the three or four students were in this course that would have dominated the class discussions and because of this format they didn't get to do that. I got to hear everybody's voice and I don't hear that in face to face. I mean I try to structure that with a lot of small group work so that people are really engaged but the engagement in learning to me is important in my philosophy of teaching and this format made it happen. Nobody could slack off in the format that I had, well, they could have and in fact one person tried to and her group landed on her, but it just worked so that everybody had sort of an equal voice and that was really really nice 'cause I can also tell you who the three or four students were in this course I never would have heard a peep from in a face to face course but here I heard from them every week and that was really nice.

One of the other surprising and wonderful things was that the groups self-corrected and they taught each other, which is ideally what you want-, a collaborative group arrangement. There was one instance in particular where a student had posted and it was just a little off the mark. It reflected a slight misunderstanding of the content that we were covering but the next person on the list had responded and corrected the student in a very generous way and so, because I was thinking to myself that I need to send an email to that student correcting this idea and I didn't have to 'cause there it was and it was really nice in that regard.

[The Context]

The support of the college for sure which provided the financial incentives, a lap top computer and the 882 course. I don't know how people could do this without [faculty development class] because I don't know how you just get ramped up to think about this on your own. I think it was a statement of commitment on the part of the dean to make those resources available. I think it says something about the importance of this and teaching doesn't often get a lot of attention so the support of the college, my department chair and the dean in doing this was helpful. [The college] pulled together last year a series of noontime talks for faculty on technology issues and I went to a few of those, again, it's another indicator of support for these kinds of activities in the college.

My husband does this professionally. He works on line so there is a lot of technology in my house and a lot of appreciation for the medium and online stuff and he's quite knowledgeable about that stuff [and] we had those conversations. We didn't do

much fiddling with the course but I asked his opinion a lot. We talked about more issues, global sort of issues.

VU really worked for this course. Sam was there. He was available, he was helpful, he was creative, he made stuff work, he solved problems and he was timely. When students needed help, they could get help on the help line. Sometimes I ferried the message to Sam and he would get back to the student and me. It just worked. They were just very flexible and easy to work with and it was terrific. That was something that was new for me in teaching. I had never worked with, I had worked with teaching assistants but I've never seen them as co creators of the course and although they didn't do any content they did all this making it happen which was fun. I hadn't worked like that with anyone before and so that was fun. It just worked.

[Rethinking Face To Face Teaching]

I think I get a better sense of they're thinking in this format in terms of the way they're working with the material. I saw that more explicitly [online] and I don't make them write [in my face to face classes]. I haven't used journals for my graduate students. I know a lot of people do that. That might give me more of that weekly look at their thinking if I could engage them in a journal-writing piece. I might do that [in my face to face classes].

[Accountability]. I would say it is the major one, the accountability for their learning because I've been thinking for the last year in particular, I had a student for just one course last year in the spring and she was in this (online course). I never heard a word from her in my face-to-face class. If I would pick her out, I'm not one to call on

people that don't have their hands raised, but when I was able to elicit something from her in class, it was very insightful. She was consistently insightful in class, in the online class; I was very impressed with her contributions. I actually wrote to her and said you know as part of my feedback I really want to here this more from you when we get back to fall, the face-to-face I'd love to hear this from you because it was really super so that's made me think a little, again the accountability and seeing what people can do has helped me to think about the need to do that more in face-to-face. How do you get those people who are always going to put their hands up to sit down a little bit more and get those other people activated and the way I've typically done that is with small group work but I don't get to see that.

When I go back to a [face to face] content laden course, or just a content course I'm going to think about that more about what should be the outcomes of those small groups and as I think about what I did in that course last year that I will teach again in the spring, half of it was just pure group process, have your group kick this around and about half was do something and I might have them do more things because it gives them a goal, a super ordinate goal to shoot at. It forces them to be on task in a different way and I might structure those a little bit more. I've been pretty open with graduate students. I expect they come with the readings under their belt and they don't need much structure from me but I might structure those a little bit more, make sure you look at these key ideas for discussion and I think about how to process those after we all come back together as a class so that everybody represents what they did in the group in a different way.

Our students are very good students and they usually want to get things right and my experience has taught me that, and maybe it's a lack of skill on my part, that when I become overly structuring they start to think about what's the right answer so I want to structure it enough so that they're on task but I don't want to be so structured that they're only looking for one answer because I really want them to do all that divergent thinking that gets them to really start thinking about what all the issues are surrounding what we're trying to cover so the more didactic I become the more our students, because they're so trained by the time they get to us to get the right answer. They slip into that you're the teacher; I'm the student, right answer thing. I think It's walking that fine line for me that's going to be a challenge as how I think about how to do that a little bit more and perhaps those are always flip sides of the same coin, you know, accountability versus freedom to think. Those seem to be; they've got to be in tension I think. The accountability was so high [in the online class] and it was unexpected and I think I got them to think really well so again it helped me to think about the idea that maybe I can do more of that in some of these [face to face] courses.

The Technology...

Forced me to be much more explicit than I would have been in a face-to-face class. I mean I've got a new lecture tonight and I've got a bunch of materials prepared for them but I probably have a half a page of notes to myself about what's going to take me three hours because I know what that means and I know what I'm gonna do to structure this and that so building an online course you just work in a very different way so that affected my teaching just the shear demands of the space, the front loading of content,

structuring, thinking ahead before I even knew these students about what might work for them, I didn't know how to group them, like I'll have a good sense tonight [in my face to face class] 'cause I know this group pretty well, I have a lot of ideas about what's going to work best and what's not going to work that you get after knowing a group and I didn't have that with the online class. The frontload piece was difficult and it's not the style that I like. I've never worked like that so that was new.

What I didn't want to do for this course was have it be self-contained. I didn't want to have the only thing they interact with be my stuff in my site. I really wanted to make use of the web by sending them out to other resources that were on the web and I'd never done that in my teaching before. The previous semester to teaching this [online class] all my students were reporting on a project. They had a project to talk about and almost all of those sites had web sites so they ended up showing us the web sites in the class so to some degree that was technology infusion but I've never required it to teach with before it always had been supplemental and so instead of me typing up what is intrinsic motivation I sent them out to a site to read about that and then they came back and I liked that. I thought that was a good use of the technology.

I learned a lot about the web. I bumped into some really cool resources that I'm continuing to use in my teaching. I'll bring [the web] up in class. I can do that and I don't think I would have been so fluid in doing that before [the faculty development class] so this course really helped me think about using the web as a resource for my teaching.

I've Learned...

To not make any assumptions about what people could or could not do on the web and Sam and I talked a little bit about trying to do some sort of preview in which they would actually use the tools before the course starts so post something to web talk or kind of move around the site a bit before having to use it to get familiar with it. I had a couple of people who, again none of it was prohibitive of their getting through the course but if there was a little glitch they were more panicky about it than others and they were the folks who told me straight out the first day that I'm a technophobe and I don't like this so when they ran into a problem they really didn't like it and I just provided support and helped them work it through and they got help. The VU help line was wonderful and Sam was so responsive that we just solved problems for people so I don't think the technology hindered much accept for those people for whom it created more anxiety and I don't know what you can do about that. They signed up for an online course and they stuck with it so it was manageable for them or they would have dropped it I assume.

It's interesting, Sam taught me how to do all this stuff so I now can record all my own audio, compress the file and load it up to the server. That's cool. That makes me feel like a real techno geek, I like that. And I'm working on, I think these two weeks I did in word and then I used dream weaver to do these. It still looks like a word file. I'm not very fancy with it but I'm getting a little more comfortable with HTML and he's given me all of them I can go in and edit the course pages and content exchange.

This course really helped me to feel much more comfortable with technology more broadly speaking. I used technology and the web before like for shopping, I'm not afraid of it in any way but I think to be more comfortable with it as a teaching tool is one

thing and also to be more comfortable with the stuff you need to do to get it to work like I was recording and uploading my own audio files in this course, [Sam] taught me how to do that. I screwed it up a couple times, then I got it to work, and then it was fine so I feel more competent in that way. I feel like my competency has really grown. I didn't know how to FTP something over to somebody. I didn't even know what that was before but now, not that I care what the language is, but I know how to do that for my course so that's a cool thing so I feel much more comfortable in my technology skills as limited as it is.

I Changed My Thinking About The Content Of This Course Absolutely

I hadn't ever taught this course. I had taught components of [it] for years but I'd never taught them to [practitioners] and I was a little worried about my capacity to teach [them] anything they didn't already know. People get this stuff in their preservice courses. Not as much, I'm finding, as they should but they are supposed to know this and so what I had was these experienced [practitioners] coming back to this course and being very reflective about their practice. That helped me think about the content in really different ways because with my [regular] students, unless they've been [practitioners], they don't interact with this content in the same depth. They just don't have the experience to do it but boy these [practitioners] sure do. They can enliven it with stories, they can talk about their philosophy of [practice] and whether it does or doesn't support practice. They did all that for me so it really helped me think about it. It was really great so I realized going through that what [practitioners] don't get or what knowledge they have based on their own experience but they don't have a frame to hang it on yet. They

don't have words for it and so they've got lots of experiences but just helping them articulate them and putting them into a perspective was a benefit to them and I was worried that they might not find the course very challenging or very interesting and they were able to take some meaning from it and I was very pleased by that but it helped me to think about the content in a different way and about it's importance because I kind of felt, well as [practitioners], once you've got this you've got it but it changes over the course of your experience and the kind of [work setting] you are in and so on. What was really nice was having the interdisciplinary conversations so that we had [different disciplines] in the same groups talking with each other about how they saw these issues and I think that was really helpful.

I've Thought More About How People Learn Based on This Experience

As the weeks [progressed] I guess I was aware that there was one person, I guess I give lip service to the fact that we have individual differences in learning and everyone has a unique learning style and so on but I'm aware that I just teach in one way so if you want to do a correspondence course with me I don't offer that option and I had one student who wanted to do that. That was her model of how she wanted to learn. She didn't want to be bound up by these other students she wanted to go through the content at her own pace and interact with me about the content and she was very nice about it but she said to me in her feedback have you thought about giving opportunities for individuals to move forward at their own pace and we had a nice conversation online about my philosophy of teaching an why I chose to do things the way I did but I don't think I hear that from students in a face to face class. If they don't like what I'm doing,

I've never had anyone come up to me and say I don't like what you are doing. I typically do survey students a mid term to see how they are doing and what is the pace like for them so I may make some adjustments based on that feedback but I don't think I've ever had someone say do it differently next time. I guess it was highlighted for me in this course 'cause I guess this student came in with the expectation that this would be more of an individual one on one sort of experience.

If anything it taught me, it helped reinforce my ideas that I do think, especially in this format, that people need active engagement with the material and with each other. I saw such a good quality of thinking in the work that people were doing and I know that some folks in the college have been very gracious about sharing the fact that some things didn't work as well in their courses so we really tried to think about how to structure a lot of intergroup dependence and I think this really helped this course and that's consistent with what I think about learning.

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