An Investigation Of How Faculty Learn To Teach At A Distance With Technology: Their Strategies For Solving The Problem

Rebecca D. Armstrong

Abstract: This exploratory, qualitative research study sought to understand-- from the faculty members' viewpoint--how they went about learning to teach at a distance with technology when not required to attend training. Findings point toward the importance of institutional context and indicate that some developmental process is occurring.

Introduction: The exponential growth of distance education--using instructional technology--in higher education is evidenced by the proliferation of undergraduate and graduate courses and programs, continuing professional education opportunities, and business and industry training modules that are offered on-line, by two-way audio and video, audiographics and other forms and combinations of instructional technology. Green and Gilbert noted already back in 1995, that "the changing demographics of higher education's clientele--the growing population of non-residential, part-time, older students--will continue to make distance education an attractive option" (p. 17). The move by institutions to offer distance education courses and programs has required that faculty members adopt the medium(s); adapt, revise or create new courses and programs; and, excel as teachers in the new technology-rich environment of distance education. Therein lies the problem, how do faculty learn to master teaching and facilitate student learning in an (almost) totally new environment where the "rules" of teaching and learning are different than face-to-face in a classroom, and especially when faculty are not required to participate in or attend faculty development activities or training prior to their teaching at a distance.

Theoretical Framework: The following topics--distance education, faculty development, and adult learning--were included in the literature review for this study, providing the conceptual framework for design and a grounding for understanding and interpretation of the data. Distance education provided the context of the study and numerous authors such as Gilbert (1995), Lewis, Alexander, and Farris (1997), and Walsh and Reese (1995) have addressed how significant distance education courses and programs can be to an institution. Along with distance education's emergence, the call for more training or faculty development (continuing professional education-CPE) for faculty members teaching at a distance was being echoed by many associated with distance education (Burke, 1994; Cyrs, 1997; Furiga, 1996). As a result, the literature on traditional faculty development, CPE and more recent literature pertaining to faculty preparation and use of instructional technology was reviewed. Dillon and Walsh (1992) reviewed five distance education journals and the Educational Resources Information Center (ERIC) locating just 24 research studies on faculty and issues concerning faculty participation in distance education. Of those studies, nine focused on faculty training programs addressing the skills required for distance teaching, teaching styles of distance teachers and the training needs of faculty. None of the studies they reviewed addressed faculty members' learning about how to teach at a distance from the learner's perspective. Since their literature review, many more articles have been written about faculty training programs--primarily workshops or summer

institutes--however, no research studies were found concerning how faculty--as professionals in their natural, (albeit, formal academic) vocational learning environment proceeded to learn how to teach at a distance with technology (i.e. solve a similar "problem". The last topic reviewed began with adult learning from the perspective that faculty members are professionals engaged in self-directed CPE as adult learners in their workplace. Theories about adult learning were examined (Houle, 1961; Knowles, 1980; Knox, 1980; Tough, 1967, 1979; and others) as well as the concept that gender may play a role in explaining differences in teaching and learning (Belenky, Clinchy, Goldberger & Tarule, 1986).

Research Design: This study was significant because it addressed theoretical and practical issues of a specific category of adult learners, full-time faculty members at traditional, residential four-year undergraduate and graduate institutions. The process by which faculty members continue their professional development in order to learn about a specific topic is a little studied subject and in addition, addressing how or if the learning process or strategies change for different stages of experience, had not been addressed. As a result, because very little literature links faculty members' (as adult learners) CPE in their work environment with a new medium of teaching an exploratory, a qualitative approach was taken with this study. With this approach the researcher sought to gain a more holistic understanding of the context and process(es) faculty members experience in their continuing professional development as teachers at a distance. The exploratory, qualitative methodology deemed most appropriate used a constant-comparative analysis of the data to generate substantive grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1990).

These research questions--reported on here--were part of a larger study:

1. How do faculty members proceed to learn to teach at a distance?
2. What criteria do faculty members employ in selecting and using resources?
3. How do faculty members evaluate the content and process of their learning about teaching at a distance?
4. How might faculty members continue their learning in the future?

After a pilot study, semi-structured, conversational telephone interviews were conducted with a purposeful sample of 28 faculty members spread among four institutions. Faculty members were selected based on their experience with distance teaching (experienced, novice, or beginner), academic rank, discipline, and gender. Although the researcher did not set out to pick a purposeful sample that was representative of the larger faculty member population (in the United States) it was interesting to compare in retrospect, how closely the purposeful sample selected did reflect the larger faculty member population. In addition to faculty members, the researcher also interviewed one to two individuals with administrative and/or instructional design responsibilities in distance education at each institution in order to receive a more complete picture of distance teaching and learning at that institution.

Faculty members were chosen from institutions which did not require, however had available, formal training opportunities pertaining to distance teaching with technology within the year prior to the time of the study. At least five faculty members at each institution were interviewed. The telephone interviews were taped and transcribed, and a constant-comparative analysis of the

data used for naming phenomena, and developing categories and the coding manual. An interrater reliability procedure was also done to enhance dependability. Data reduction was facilitated using various strategies (Miles & Huberman, 1984) and a general learning process began to emerge.

Findings and Conclusions: Reducing hours of interviews and hundreds of pages of text was not an easy task. Keeping this in mind, the researcher presents for the reader a few highlights of this study emphasizing the strategies (methods) and resources for learning which this group of adult learners used and what effect their distance teaching experience may have had on this process.

While individual faculty members use different strategies and resources to learn, the institutional context plays a key role in facilitating what methods and assistance are used. Their institution (local learning environment) is primarily responsible for providing the resources--assistants (people), indirect or non-human resources and materials--which provide the channels by which faculty members locate, find and use human and non-human resources as sources of information and support. Almost all participants (faculty members) in this study turned to assistants (people) to facilitate their learning. In addition, participants also overwhelmingly preferred to use people as their main resource or source of information.

The criteria that participants used in selecting resources in this study centered around four main themes. First, participants overwhelmingly selected resources that were locally available, readily visible (easy to find), and abundant. The second criterion was closely related to the first in that the resource had to be accessible and easy to get. These two criterion are similar to what has been reported in the literature. The third selection criterion--content--had three sub-components to it. When selecting a resource for its content, participants may have been seeking general information, particular expertise, and/or selected that resource because of the currency of information contained within it.

The last major selection criterion was that by selecting and using that resource, there was a personal benefit to the participant. Two things are particularly interesting about this last finding. First, that over time, as participants gained experience, the frequency with which this was mentioned as a selection criterion diminished. In addition, although the overall frequency diminished with experience, more women than men continued to use it as a basis on which to select a resource. Secondly, when the researcher reviewed the raw data that this category arose from, the criteria as stated by the participants were reflective of the characteristics given in the literature for competencies and qualities desired of a helper or assistant such as being an effective communicator and a good listener, having some subject matter expertise, and interpersonal skills such as warmth, empathy, authenticity and sincere interest in the learner (Candy, 1991; Tremblay, 1983 cited in Candy, 1991). It would appear then that amongst the selection criteria for people who serve as resources, not only is technical expertise or information desired, but that the qualities inherent in being a good helper or assistant in learning are a basis for selecting and using that individual as a resource. That the participants might "outgrow" this need (selection criterion)--for the support an assistant or helper provides as they gain experience--is worthy to note because a gender difference appeared to exist, with more women continuing to include this as a selection criteria even though they became more experienced.

When participants turned to off-campus resources they did so for several reasons: (a) to seek general information about distance education, (b) to find examples of distance education courses, and (c) seek expertise on an issue or topic. In addition, experienced participants turned to off-campus resources as a means by which to compare their experiences with others and locate people similarly engaged in distance teaching with instructional technology. That participants--as they gain experience--turn to off-campus resources is probably reflective of their increased familiarity with the field and being better able to direct their own learning.

However, even if resources are available--either locally or off campus (e.g. on the Internet)--it is how the faculty member perceives the accessibility of the resource(s) which influences whether he or she pursues multiple or limited (few) learning strategies. In general, if there is an abundance of local resources present or perceived to be readily available, visible and accessible for a faculty member to use then he or she will use multiple learning strategies in preparation for teaching at a distance. However, if few local resources are found or perceived to be present, the faculty member will limit his or her learning strategies to just a few methods. This perception of resources (which may include support) appears to be a key factor in moderating the quantity (variety) of learning strategies subsequently chosen.

Faculty then choose and use a variety of different learning strategies (methods) prior to teaching their first course, however, most depend on the actual teaching experience as the primary method of learning. While this learning by doing is occurring, individual faculty may engage in a variety of assessment methods such as self, student, and peers; feel the need to currently engage in additional or different learning strategies; be stimulated to seek additional resources or make changes involving aspects of his or her teaching, the instructional design or the technology in use.

Learning strategies used--other than learning by doing--included formal learning activities (e.g. workshops), reading, tutoring, learning from others' experience, collaborating, reviewing, watching, reflecting, engaging in related learning, and other miscellaneous methods. Beginners, as a group, did not chose watching (observing) as a learning strategy. Participants who talked about engaging in reflecting as a learning strategy were more likely to be beginners or novices as they thought and talked about planning and teaching their course. Novices used the widest variety of learning strategies as they were preparing to teach their first course at a distance. Participation in related learning strategies diminished with increasing experience such that experienced participants did not mention engaging in related learning activities. Learning from others' experience was an important strategy across all sub-categories of experienced participants and where formal learning strategies were engaged in, the less likely it was that the participants used tutoring as a strategy. The strategy of watching (observing) was used more by men, however the women reviewed video tapes of their teaching and invited observers into their classrooms whereas, the men did not.

One condition--in addition to the presence of multiple resources--which appeared to affect whether or not a faculty member continued his or her learning using multiple strategies after teaching his or her first course at a distance, was whether or not he or she pursued teaching at a distance using a different instructional technology. If multiple resources were not available or perceived as such, and a different instructional technology was not used, then faculty appeared to

resort to using only a few learning strategies--primarily relying and planning on formal learning activities (workshops)--as the means by which they did and anticipated that they would continue their learning about teaching at a distance. Furthermore, faculty who had only taught one course and did not know when they might teach at a distance again reported and anticipated using just a few learning strategies regardless of resource availablity. The primary method identified for future learning of these participants was through formal activities (i.e. workshops).

It is difficult to say that faculty have "learned" how to teach at a distance because of the changing student population, rapid advances in instructional technology, and the continually expanding body of knowledge in any given discipline. As such, there is theoretically no "end" to their learning project--assuming the faculty remain interested and motivated to learn in this field--however, practically speaking, if they are no longer teaching at a distance it is difficult to imagine that they will actively continue to pursue learning in this field.

As some faculty proceeded in their learning project--from beginners to very experienced instructors--there was evidence of professional development over time. For example, an increasing awareness of their learning process including how they use their resources. For more experienced participants, the questions to which they were seeking answers were different and no longer at the technical, how-to level. They became more interested in sharing and comparing their experience with others, not too dissimilar to the means and accepted practice by which faculty share new knowledge in their disciplines through conferences, publications and other public forums. In addition, it appears to take time for faculty to get involved in using instructional technology to teach at a distance; and, then repeated practice is necessary for them to demonstrate proficiency and comfort in distance teaching.

These faculty participants relied heavily on learning by doing (teaching the course) and it is in the "doing" that they primarily assess the quality of their learning. This was done mainly through evaluation of student outcomes supplemented by student feedback (formative and summative) about the course. Very few participants were able to talk about and assess their own learning process(es) and the content which they found necessary to learn, independent of what the student outcomes were.

In summary:

1. The number (variety) of different learning strategies (methods) used appears to be directly related to the availability, accessibility, variety and visibility of resources in the faculty member's local institutional environment as perceived by the faculty member.

2. Faculty place a heavy emphasis on the importance of learning by doing.

3. Faculty base their learning success primarily on the resulting student outcomes supplemented by student evaluations (formative and summative).

4. After teaching their first course at a distance with instructional technology, faculty members who switch to a different instructional technology mode to teach a subsequent course appear to use multiple learning strategies as long as there are multiple, readily accessible local resources.

Implications for Theory and Practice: Understanding the relationship between finding and using local resources that are abundant and accessible--particularly the important role people play--and how faculty members' preferences for learning strategies change with experience is important in providing resources as well as in developing programs and materials to support faculty learning. Furthermore, with the emphasis that faculty place on learning by doing, continuing support while they are in the process of teaching should facilitate and encourage more reflective practice on the process of distance teaching and facilitate assessment of their personal learning in addition to assessing it in terms of student outcomes. Few faculty had any interaction with distance education support staff or other faculty about their course while teaching it at a distance. Follow through during the course--whether initiated by the faculty member, an experienced distance teaching mentor, or the distance education support staff--should be an integral part of the process of distance teaching and time be allotted for this interaction between support staff, peers, and the faculty member.

The formative role that the context (institution) plays in shaping faculty CPE is reflected in who is available locally to help and facilitate faculty learning and direct them to additional resources. This investment in human capital--in addition to the hardware and software of instructional technology--is becoming an even more critical element in the success of distance education as institutions expand their offerings. Lobbying administrators for additional support and including sufficient funding in budgets and grant proposals to facilitate hiring faculty development personnel with expertise in instructional technology, instructional designers and technical experts will help address the need of faculty to use people as their primary source of information and as a channel through which to find additional resources.

The effect of an individual's self-directedness in learning to teach at a distance with instructional technology is influenced by experience, institutional (workplace) context and other factors which reflect the difficulty in developing any unifying explanation of how faculty--as professionals and adult learners--learn to teach at a distance with instructional technology. While the literature in adult and self-directed learning would seem to indicate that faculty should (and could) be highly self-directing, more often than not, this is not the case. Studying how highly educated professionals go about solving a new and similar "problem" in a variety of contexts could generate helpful insights in how to facilitate CPE in other different, yet similar contexts. Repeating this study--or particular aspects of it--in historically Black and/or Native American institutions and with different comprehensive and land-grant institutions would help address this issue.

There appear to be key aspects for faculty in the process of learning to teach at a distance with technology: institutional and personal factors, resources and strategies, learning by doing, and continuous learning through the use of new instructional technologies. However, this exploratory, qualitative research study only brushed the surface of this topic and highlighted additional potentially interesting areas and relationships to study in-depth. Studies are needed to understand the faculty member's assessment of his or her learning and how he or she monitors it. In particular, the effect and role that student performance and student evaluations play in assessing faculty learning (by self and others) could be a promising and interesting avenue of research into the teaching/learning transaction where the students may or may not mirror the faculty member's success in learning to teach.

In addition, investigating how faculty development can facilitate and guide faculty into becoming autonomous learners (self-directed learners) as well as reflective practitioners is worthy of future research. Longitudinal studies of individual faculty from when they initiate their learning project through several years or multiple distance courses may facilitate and aid understanding of this developmental process as well as address the discrepancy between how people say they want to learn in the future and what they may actually do to learn regardless of how they have gone about learning in the past.

And finally, more in-depth study should be done on the institutional context in which faculty members initiate their learning. Studies focused on the institutional setting may be better able to elicit what the key channels, resources or nodes of information are and how they are used by faculty members. Improved understanding of the setting may facilitate increasing faculty participation (initiating this learning project); promote, encourage, and support the transition from beginner to experienced distance instructor; and, the role which promotion, tenure, rewards or grants play in faculty member participation in teaching at a distance with instructional technology.

<div align="center">References available upon request from the author.</div>