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Faculty Development in Instructional Technology: A Multiple Case Study

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FACULTY DEVELOPMENT IN INSTRUCTIONAL TECHNOLOGY: A MULTIPLE CASE STUDY

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ABSTRACT: Employing the descriptive multiple case study method, this qualitative study explores the experiences of ten faculty members involved in learning about technology at a Major Pubic University in the United States. Participants shed light on the learning process in instructional technology by sharing their personal experiences, perspectives, ideas and behaviors. This paper summarizes the results of the study, making comparisons with related literature, and then discussing its practical implications and recommendations for faculty development. The findings indicate the need of a more holistic approach to faculty development programs in instructional technology.

Keywords: Teaching, instruction, technology, faculty development.

INTRODUCTION

Instructional technology can be either a powerful tool for learning or a major threat to faculty members who do not master the use of technology and may feel intimidated by the challenge of learning how to use different equipments and software. This study explores different aspects of how faculty learn about instructional technology, based on an innovative workshop experience. In fact, research literature supports the relevance of professional development programs to assist faculty members in developing technology skills. Two relevant areas of literature on the process of faculty learning instructional technology are: (1) Faculty attitudes towards change in technology, and (2) Faculty development support in technology.

Faculty Attitudes towards Change and Technology

Research suggests that the use of instructional technology by faculty members is intrinsically related to their attitudes and beliefs regarding the role of technology in education. That is why research data on faculty attitudes towards change and technology has direct implications for faculty development. People will not always accept a change simply because others tell them of its practical advantages over an existing practice. In fact, the adoption process depends on a set of perceptions toward the change by the people involved in the desired change (Lee & Lawson, 2002). and this set of perceptions has been defined as the process by which people attach meaning to their experience (Eggan & Kauchak, 2003). In other words, without seeing real advantages in using instructional technology, no one will actually change their teaching style to adopt technology in the classroom.

Middendorf proposes four "truths" or principles about people and change. She describes these four principles as, (a) resistance, according to which faculty, as all people, have natural resistance to change for personal or general reasons; (b) vision, as "faculty need to 'see' what they are being asked to do and how it's going to help them" (Middendorf, 1998); (c) key people, as faculty are influenced by other people's view of a change; and (d) acceptance stages, as the process of accepting a change occurs in relatively predictable stages. Middendorf stresses that the fourth principle provides a powerful guide to planning and implementation of a change process and describes the five predictable stages as being, (a) awareness, which means making people aware of the proposed change; (b) curiosity, in which people ask questions and look for information; (c) visualizing or imagining the change in specific situations; (d) tryout or experimenting the change; and finally (e) using or incorporating the change into their teaching routine. Understanding these basic principles and stages in the process of change would result in less frustration in faculty development efforts (Middendorf, 1998).

Despite people's natural resistance to change, however, research shows an increasing positive attitude toward the use of technology. Using the Attitudinal Differences Model, Montgomery (Montgomery, 1999) found that overall, faculty are interested in teaching with technology and engaging in a distance education class in the future, as indicated by 66% of the survey respondents. In fact, the number of faculty using technology has increased in the past five years and is expected to accelerate in the near future (Metlitzky, 1999). Right now, career enhancement seems to be the basic reason why most faculty engage in instructional technology, especially junior and female faculty, although many male faculty usually use technology to learn more about it (Metlitzky,

1999). Another finding of Metlitzky's study is that "there is strong faculty demand for recognizing technology use through the academic reward system" (Metlitzky, 1999).

Faculty Development Theories and Programs

In addition to the literature on faculty change, an extensive body of research is related to this study because it addresses faculty development by focusing on the process of faculty growth. In fact, different theories have been developed to explain the faculty development process, and some studies emphasize the relationship between teaching theories and faculty growth. Ramsden's (1992), for example, makes no separation between the instructor's teaching skills and student learning. He describes three progressive "theories," which are, (a) teaching is telling and transmitting information; (b) teaching is engaging learners actively to increase motivation; and (c) the most evolved theory, teaching is cooperatively working and integrating with learners to make learning possible. Based on the third theory, he argues that the only way to improve learning is making a connection between the learning of a particular content and the quality of teaching of that specific content. In other words, faculty development activities, such as training in technology, "without contextualizing them within the instructor's current understanding of teaching and within their subject matter, are bound to fail in improving teaching competency" (Saroyan, Amundsen, & Li, 1997). This theory highlights the importance of self-reflection and peer-critique to promote changes on the individual's thoughts and actions.

Following the same line of thought, Mezirow developed the theory of transformative learning, according to which, as adult learners, faculty improve their professional practice when there is a change in the basic assumptions held about themselves as learners, the role of the teacher, and the goal of education (Merizow, 1991). In terms of faculty development programs, the transformative learning theory presupposes that faculty members revise their assumptions based on critical self-reflection and peer critique, thus making changes in their practice (Saroyan, 1997).

METHODOLOGICAL OVERVIEW

The major purpose of this study was to collect and analyze information about the personal experiences of faculty members in learning to use instructional technology, and to understand how the learning experience of faculty in instructional technology was impacted by factors such as professional development interventions, personal learning styles, and pedagogical beliefs.

This study employed qualitative research using the descriptive and interpretive case study tradition of inquiry in order to present a more detailed account of the phenomenon being studied (Merriam, 1998). To better understand the phenomenon of how faculty members learn to use instructional technology, I chose the multiple case study of ten faculty members involved in learning about technology at a major Midwestern public university, looking at the same phenomenon through the experience of different participants, based on the theoretical assumption that the more cases included in a study, and the greater the variation across the cases, the more compelling the interpretation is (Merriam, 1998).

The study attempted to understand how different factors influenced the learning process of the participants, starting with their very first experience with instructional technology. As there is little information about the many factors influencing the way faculty learn about instructional technology, this study took an in-depth look at how faculty approach this learning situation and the ways in which their learning can be successfully facilitated.

Using a purposeful sample (Patton, 1990), ten participants were selected among faculty who attended a series of workshops and seminars in instructional technology, offered by a public university. In order to obtain a larger variety of data, the sampling strategy employed a maximum variation approach, including faculty from different disciplines and academic areas, and also from different levels of academic appointment.

Several different data collection methods were employed. The basic method consisted of in-depth face-to-face semi-structured interviews with the participants, supported by follow-up email interviews (Flick, 1998). In addition, samples of handouts, descriptions of content, and copies of the actual agenda of the workshops were gathered for document analysis. Finally, the data collection included nonparticipant observations of the environment during one offering of the technology workshop (Marshall & Rossman, 1995).

Based on Creswell (1998), the data analysis consisted of a within-case analysis in which a detailed description of each case presented the participants' story of learning instructional technology. I asked participants to share their personal experiences, beliefs, successes, and struggles in learning about instructional technology, and analyzed the data looking for thematic patterns across the cases.

RESULTS AND DISCUSSION

As faculty members explored their own experiences in learning about instructional technology, six key categories of analysis were identified: the thematic format as a useful workshop strategy, the influence of learning styles and personal attitudes on faculty development efforts, the influence of pedagogical beliefs, the influence of motivation, the influence of student reaction, and the influence of institutional barriers. In the following sections, the themes within each of these categories are discussed and compared with the related literature. The discussion addresses the major findings based on the faculty learning experiences.

The Technology Workshop Format

From the data analysis, a major theme that emerged was the positive impact of the technology workshop in the format it was presented. The Technology Workshop Series is a faculty development program of a major pubic university in the United States and includes four different levels of seminars offered annually, from basic to advanced. Each level of seminar consists of a three-day workshop, in which the participants alternate training sessions in a computer lab with personal project presentations, exchange of personal experiences in using technology, and social interactions, including having breakfast and lunch together every day. The first three levels of workshop are taught every year in the summer, and the fourth level in the following spring. In order to make them more attractive and enjoyable, each workshop is structured under an illustrative theme related to sports or adventure.

Faculty in this study identified seven major features of the workshop format that made a strong impact on their process of learning technology. These key features of the workshop were: (a) the theme strategy of illustrating the workshop as a sportive adventure; (b) the respectful and caring attitude of the instructors in making participants feel comfortable; (c) the "hands-on" approach in using a computer lab for the participants to apply the content of the workshop; (d) the peer interaction in the classroom and also in social opportunities; (e) the time available for practice after each lesson and presentation by the instructors; (f) the opportunity to develop their own projects during the workshop; and (g) the continued assistance available to them as they worked for three days surrounded by instructors.

The findings of the current study are consistent with research addressing adult learning and faculty development. Literature on innovation and organizational change supports the idea that faculty development programs such as the technology workshop can stimulate faculty to learn about instructional technology. According to Chism, Lees, & Evenbeck (2002), faculty development programs can create stimuli for change through strategies such as workshops and reports on innovative practices, seminars, conferences, consultation, etc. Chism categorizes some of the most popular approaches to faculty change in higher education and their associated assumptions and explores the extent to which these can serve as rationales for faculty development programs, such as the technology workshop series. These approaches include the tendency of faculty to follow a respected peer in the use of technology, the importance of contact with new ideas, the relevance of training in basic technology skills, the positive influence of institutional support and rewards to help faculty incorporate instructional technology in their teaching, and the importance of making technology attractive by being current, reliable, and user-friendly. She concludes that although the most powerful way of facilitating faculty use of instructional technology is to engage faculty in reflective inquiry situated around a problem or possibility that intrigues them, these other approaches all have some role in facilitating development as well (Chism, Lees, & Evenbeck (2002).

The way in which the technology workshop series was designed seems to include the concepts underlying the above approaches and strategies. Some functions such as modeling, skill training, intensive help, and a user-friendly environment, were mentioned by the participants as an effective part of the workshop format. In summary, participants approved the workshop format and they think faculty development programs should explore more the strategies used in this technology workshop series.

The Influence of Pedagogical Beliefs and Technology Background

Another major theme that emerged was the influence of personal beliefs and background on the process of learning technology. Research suggests that the use of instructional technology by faculty members is directly related to their personal beliefs regarding the role of technology in education (Race, 2001). Those who believe technology has a potential to improve teaching and learning are more likely to learn and use instructional technology. Lee and Lawson (2002) found that the degree of change in faculty behavior is compatible with their

values and beliefs. They found that skeptical faculty members did not use instructional technology even after years of participating in different faculty development programs and workshops.

This relationship is supported by the experience of the participants in this study. Those faculty members who believe in the potential of technology to improve learning did become regular users of technology, while those who did not see technology as very beneficial to learning did not have an involvement with technology on a regular basis. Those participants who see technology as beneficial did take advantage of online strategies and other devices to enhance student engagement and interaction, as well as to create innovative teaching strategies. Another finding of this study is that the instructors' background with technology in general did influence their attitudes and beliefs towards instructional technology, as the participants who had no know-how in the use of computers and other applications tended to be more reluctant to learn and use technology than those who were familiar with technology. Based on the participants' experiences, it seems that there is a close relationship between the participants' background with technology in general and their attitude and beliefs regarding its potential to benefit teaching and learning.

The Influence of Motivation

Along with personal beliefs and attitudes, another major theme that emerged from this study is the power of motivation to encourage learning about technology. More than learning styles and other issues, the most decisive factor influencing learning in instructional technology, based on the participants' experience, was found to be the positive attitude and motivation they had for learning about technology under any circumstances. In fact, even institutional barriers or personal struggles, such as time commitment, equipment or system failure, lack of support or financial rewards, or any other issue had little or no effect on changing the motivation and determination of those participants who wanted to learn technology, regardless the difficulties they faced.

This finding is consistent with previous research. Referring to adult learners, Knowles (1984) stresses that, as a person matures, the motivation to learn tends to be internalized, which seems to be the case with most participants' experiences. In fact, one half of the participants pointed to intrinsic motivators such as the desire to perform better as a teacher, or the fun and enjoyable aspect of technology, as their basic motivation for learning technology. Likewise, those who referred to extrinsic motivators such as external pressure, or the goal of academic rewards, did not decrease their motivation when facing personal or institutional obstacles.

According to Chism (2003), an internal drive to learn tends to prevail even under adverse organizational climates, or on the other hand, resistance may be so strong that an individual would not be influenced even when surrounded by institutional support. This assumption is supported by Lee and Lawson (2002), who found that some faculty members who were skeptical of technology were not persuaded to use computers even five years after being exposed to a faculty development intervention. In fact, Chism (2003) stresses that many faculty have learned to use instructional technology well without any support or resources, while others have refused to learn where conditions were favorable.

Literature confirms the fact that motivation has a strong influence on learning. Indeed, research says that what and how much is learned and remembered are influenced by factors such as self-awareness, personal beliefs, personal values and interests, personal goals and expectations, as well as affective and general states of mind, which result in personal motivation to learn (American Psychological Association, 1995). In addition, learners who have intrinsic motivation to learn are described in the literature as individuals who are naturally curious and enjoy learning experiences (American Psychological Association, 1995), which seemed to be the case with several participants in this study.

CONCLUSIONS AND RECOMMENDATIONS

The experience of the participants in this study provided helpful information on different aspects of the process of learning to use instructional technology. Specific factors have either positive or negative impact on the learning experience of faculty members, and it is very difficult to assess the level of impact of each particular factor on the overall learning process because different factors have a different degree of influence on different faculty members. Based on the faculty members' experience in this profesional development intervention, the following conclusions seem to be evident:

In order to attract faculty members with different backgrounds, beliefs, and motivations, technology workshops need to be creative, dynamic, and involve participants in a presentation style that includes active learning strategies and a hands-on approach.

The theme strategy of illustrating the workshop as an adventure was found to be a powerful resource to break the natural fear many faculty members feel towards technology, and made them feel comfortable and relaxed enough to enjoy a real learning experience.

A prolonged immersion approach is crucial to make participants "live" in a technology environment with full support and tutoring available, so no participant will get stuck without solving the common problems technology presents for beginners.

A friendly, respectful, and patient attitude on the part of the instructors is essential for making faculty feel encouraged to participate. Being experts in many different areas, faculty do not feel comfortable being treated as inferior for not knowing the basics of some programs or software.

The social interactions promoted by sharing food and participating in group discussion, as well as the peer teaching opportunities, are a powerful learning resource that make faculty encourage each other and exchange learning experiences.

In addition, this study found that participants who believe in instructional technology as a helpful teaching strategy and feel motivated to learn will make as much effort as is necessary to understand and acquire the skills needed to incorporate technology in their teaching routine. It is my conclusion that the same reasoning should guide institutional administrators in providing opportunities for faculty growth in technology. In other words, if administrators believe instructional technology is important for the institution's mission and goals, they must provide the means to allow faculty members to have access to learning opportunities and the resources required for such learning process.

REFERENCES

American Psychological Association. (1995). *Learner-centered psychological principles: Guidelines for the teaching of educational psychology in teacher education programs*. Retrieved January 6, 2003, from Arizona State University Website: http://seamonkey.ed.asu.edu/~gene/TEPSIG/apa-principles.html#principles.

Chism, N. (2003). *Faculty development in the use of information technologies: A framework for judging when and how to use specific strategies*. Manuscript in review.

Chism, N., Lees, N., & Evenbeck, S. (2002, Summer). Faculty development innovation for teaching. *Liberal Education, 88*(3), 34-41.

Creswell, J. (1998). *Qualitative inquiry and research design*. Thousand Oaks, CA: Sage.

Eggan, P., & Kauchak, D. (2003). Educational psychology, windows on classrooms (6th ed.). NJ: Merrill, Prentice Hall.

Flick, U. (1998). *An introduction to qualitative research*. Thousand Oaks, CA: SAGE Publications.

Knowles, M. (1984). *The adult learner: A neglected species* (3rd ed.). Houston, TX: Gulf Publishing.

Lee, H., & Lawson, A. (2002). What do the faculty think? The importance of concerns analysis in introducing technological change. *To Improve the Academy, 20,* 150-161.

Marshall, C., & Rossman, G. B. (1995). *Designing qualitative research.* Thousand Oaks, CA: Sage.

Merizow, J. (1991). *Transformative dimensions of adult learning.* San Francisco: Jossey-Bass.

Merriam, S. B. (1998). *Qualitative research and case study applications in education*.

Metlitzky, L. (1999). *Bridging the gap for the mainstream faculty: Understanding the use of technology in instruction*. Dissertation Abstracts International, A-61 (02), 524.

Middendorf, J. K. (1998). A case study in getting faculty to change. In M. Kaplan (Ed.) *To Improve the Academy, 17*, 203-224.

Montgomery, C. J. (1999). *Faculty attitudes toward technology-based distance education at the University of Nevada, Las Vegas.* Dissertation Abstracts International, A-60 (09), 3222. (UMI No. AAT 9946518).

Patton, M. Q. (1990). *Qualitative evaluation and research methods.* London: Sage.

Race, S. P. (2001). *Instructional technology preparation of pre-service teachers at Widener University: A descriptive case study (Pennsylvania).* Dissertation Abstracts International, A-60 (10), 3962. (UMI No. AAT 3003357).

Ramsden, P. (1992). *Learning to teach in higher education.* London: Routledge.

Saroyan, A., Amundsen, C., & Li, C. (1997). Incorporating theories of teacher growth and adult education in a faculty development program. *To Improve the Academy, 16*, 93-116.