Learning From Colleagues: A Small World Study of Strategies Used in Information Technology Infused Distance Education

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Abstract

This investigation focused on the intersection of distance education and information technology. Similarities and differences in technology infused education and distance learning across the fields of business administration, library and information science and nursing were explored. Scholars and administrators in these disparate disciplines in the United States and Finland were interviewed to determine the course and diffusion of innovative ways of informing students and improving the learning processes. Findings indicate that scholars and administrators in all three disciplines chose to interact with colleagues within their discipline when faced with similar issues in pedagogy. After the content was determined, the individuals interviewed indicated that they expected IT professionals on their campus to recommend and provide appropriate technology and delivery systems in support of their program's goals.

Keywords: distance education, information technology, business administration, library and information science (LIS), nursing, health care

Introduction

Learning from others, whether informally in discussions with colleagues, or more intentionally by attending a lecture on a given topic at a conference, or independently, by researching the literature and reading widely to teach oneself a new area is a common activity for educators and professionals who are broadening their own knowledge base. Each of these three academic fields, business administration, library and information science (LIS) and nursing serves a market of undergraduate and graduate degree students with professional aspirations and needs. Each discipline also reaches out to the field it serves with continuing education opportunities, for both altruistic and market-driven reasons. The fields also intersect at times as they each pursue their role in society. For example, the literature of the field of business administration often provides new ideas that are later adapted or adopted by the non-profit world, including the worlds of nursing and library and information science. Studies in risk management in hospital/healthcare administration and financial management classes for library and information professionals are examples.

If one were to draw a Venn diagram to illustrate this idea, business administration literature could be in the center. Nursing and library and information science literatures would each separately overlap the business administration core in the area of management. A typical example is the use of a business or management concept or practice, as reported in the management literature, as part of the introduction of a new theory or practice to LIS or nursing. In these cases, there is always a time

Paper Accepted as a Short Paper

lag between when a theory is first explored in management science and when the theory is introduced in a second field. For example, when a LIS professor who teaches management updates her syllabus she will frequently add readings from the business literature, often selecting articles from *Harvard Business Review* or a comparable journal, articles that represent research begun at least several years previously. When this occurs, the diffusion of innovation theory of Rogers (1995) is demonstrated. At times library and information science theories of information literacy influence business and health care faculty who wish their students to develop research competencies.

Literature Review

Theoretical background for our investigation came from Rogers' innovation theory (1995). The early innovator, in the example described above, the discipline of business, or a management theorist, is the source of ideas for others in the same discipline or those in different fields who see the relevance and are willing to be part of the second wave of implementation. They are willing to try the concept after it has been successful in the business field. Rogers's theory may be useful as a lens with which to view the rate of acceptance of information technology infused distance education within and across fields. One can also explore the rate of acceptance within a profession across two or more countries. To do so, it is appropriate to interview a sample of distance education providers in one or more fields in a minimum of two countries. This study has chosen to explore these practices in the fields of business, library and information science and nursing because each discipline has been involved in one or more forms of distance education for decades. Each field has also embraced information technology as a means of improving both core and professional educational programs. The two countries selected for comparison each offer advanced training in these three professions and have strong higher education and technology infrastructures.

In addition to using the diffusion of innovation concept as a locus for some of our interview questions, two other intertwined information science theories are used to explore other facets of the subject of information technology infused distance education practices in these three disciplines. The first theory is the theory of the invisible college as described by William Paisley (1968). The invisible college theory states that there is a core of influential people in each discipline, individuals who know each other, are comfortable communicating with each other, and indeed, use each other as sounding boards when testing new ideas. These leaders often create the ideas that then move forward into the mainstream of the field over a period of years, with the rate of acceptance of the ideas often similar to the patterns of acceptance seen in innovation diffusion studies. Accordingly, there will be early, middle and late adopters of the innovation, or theory, or acceptance of information technology infused distance education. The influence is usually discipline specific. Changes in the content of LIS, nursing or business administration education come as a result of many factors, but most emerge from field specific issues.. The discipline of information technology offers opportunities for creating stimuli to increase the rate of acceptance of a given technology, In addition, the opportunity to serve as an innovation broker to several disciplines at a time is inherent in the mission of the IT profession.

Paisley (1968) coined the term gatekeeper to describe individuals with a certain set of social and knowledge skills. Gatekeepers serve a semi-public role outside their private role in the invisible college, a role that puts them in the position of spokesperson or facilitator or networker within their discipline. Ideas do not move in a random fashion, they are moved forward by individuals who choose to champion an idea, share information openly about work in process or recently completed. Gatekeepers often bridge the gap between the field's leaders and the majority of the profession when their knowledge and accessibility causes others to seek them out when they are looking for new ideas and contacts to further their own work. (Paisley, 1993) They may also serve as bridges between disciplines at either a local, national or even international level. Conference speakers from one profession who are asked to speak at another groups meeting can serve this function to some degree.

Methodology

A variation of the small world theory, (Milgram, 1977; Kochen, 1989) shapes our methodology for reaching key individuals in three disciplines- LIS, nursing and business administration. Each researcher is sufficiently linked to the fields being studied to enjoy excellent access to practitioners, gatekeepers and members of the invisible college in these fields. Using this knowledge enabled us to develop an initial group of interviewees. The responsibilities of the individuals selected include: the founding director of an early and well-respected LIS master's degree distance education program employing information technology; a professor of management who is a pioneer in developing a continuing education series of training courses for uniformed services personnel that heavily utilizes information technology; an international library consultant who is the creator of a certificate program for teacher-librarians that crosses many disciplinary boundaries; the chief co-researchers for a pilot study using information technology to develop distance education non-credit offerings for library staff who are not librarian; and the dean of a nursing master's degree program that is offered by distance. Professors and practitioners of management, library and information science and nursing who have some responsibilities for expanding course offerings opportunities for students who prefer not to come to campus for all classes and or have participated in an information technology infused distance education program have also been interviewed.

Our questions explored whether or not educators in different, but overlapping disciplines choose to stay within the context of their own discipline when learning about Information Technology infused Distance Education. . These disciplines have been selected because they each combine attention to theory and practice and function as applied disciplines. Beyond that general similarity, there may or may not be similarities in how each discipline approaches the challenge of incorporating new concepts and practices in its educational offerings, but because of the applied focus in each field, there are some common questions relating to the introduction and use of information infused distance education offerings in the disciplines that deserve exploration. Given the difference is size of the two countries that are home to the scholars being questioned there may be some differences in practice that emerge that can be attributed to relative size of the higher education community in each country. Our first hypothesis is that there are parallel activities with respect to the introduction of information technology infused distance education in each field. Our second hypothesis is that there is little or no overlap of shared knowledge across these disciplines when it comes to the introduction of information technology infused distance education programs in each area. To explore these ideas we asked the following questions in interviews with each person described above, as well as with individuals they recommended we interview:

- what was your original impetus for a distance education effort using information technology;
- where did you get your ideas;
- which individuals or programs were models;
- what were highlights, learning points and struggles associated with that effort;
- how did subsequent efforts benefit from learning curve of first program;
- how has your choice of a given IT mode for delivery changed over time;
- how have your goals for IT delivered distance education changed over time;
- which trends will hold, and what new concepts need to be incorporated into information technology infused distance education programs for students and practitioners in LIS, Nursing and Business Administration.

Results

The interviews took place between December 2002 and March 2003. Findings are necessarily tentative and subject to further research, especially research that broadens the interviewee base to reach a greater number of individuals in these fields. Each person contacted provided some demographic and career duration data. They were then asked to describe their first experiences with mainframe and personal computers, their assessment of their current level of skill, knowledge in IT systems development and the frequency and variety of their experience with IT and with IT infused distance education. Individuals in the study ranged in age between their late 30s to their mid 60's. While there are still some quill pen professors, usually found in humanities disciplines, the individuals we interviewed were literate when it came to information technology. Our subjects, given the applied nature of their disciplines, appear to be early or intermediate adopters and adapters of information technology.

The earliest use of mainframes reported was in 1959 when the individual was in high school. Several subjects who pursued advanced degrees in the 1960s reported use of mainframes in support of their research. LIS professionals mentioned use of early versions of automated library catalogs, primarily for data storage and retrieval. Business faculty worked with large government data sets. Most participants in this study were using personal computers regularly by the mid to late 1980s. For some it was as a result of their youthful and/ or professional curiosity, for others it was a matter of being led to use by a change in work procedures made by their organization No one described themselves as being very knowledgeable about IT design or systems or as being in the very first wave of use, but most considered themselves earlier rather than later adopters. All reported increased use as ease of use improved when computers became more user friendly A few individuals based at research institutions used the precursors of the Internet; all now use it regularly for personal and professional reasons, including distance education.

While there were stories told of various difficulties relating to IT selection decisions, as well as IT development and delivery problems with one or more program experience, the group in general evinced mature and realistic attitudes towards their IT expectations. They appeared to understand what knowledge they needed to have to develop new programs and services and for what services they could expect to have IT professionals provide the knowledge. In one case, a dean who uses personal computers for research and writing projects described her knowledge of advanced IT systems used to deliver distance education as pitiful, and acknowledged she was grateful others on her staff had those responsibilities. However, this dean also initiated the school's distance education program.

When asked about where and when they learned about IT, especially IT for distance education purposes, the respondents give two main sources of information: their peers at their own or comparable institutions and most often, IT professionals on their home campus, especially IT professionals assigned to distance education units and initiatives. The kind of cross-disciplinary influences found in the research literature of these three applied disciplines does not apply when it comes to program development. No one said, it was ***x*** program in ***y*** discipline that gave me an idea we could do likewise in our field. Instead the stimulus came from the example of ***x*** program in ***x*** discipline at a comparable institution. Or the initiative began with the IT department as it sought to increase use of IT on campus and either gave incentive grants or in-kind services to those department and schools willing to begin a new program.

Given the role campus IT personnel played in each program described by our subjects, it would be good to expand the study to include interviews with the IT professionals who serviced the IT needs of the programs our interviewees discussed. Perceptions of competence, professionalism and service may not be mutual. However, whether shared or not, these positive perceptions are at the heart of the real findings of this study.

Conclusions

The significant finding is that the importance of wide access to professional training, including continuing education, dominates discussions relating to the design and delivery distance education in each field. It is assumed it will be IT infused as money is found to make change happen. At the most basic level, funding derives from revenues generated in other continuing education efforts. Hitching on to an IT department offer of free trial time seems to fit the intermediate level type of strategy for growth as some revenues come from department reallocations and some limited outside funding is found. At an advanced level, proposals are generated to seek institutional, state, federal or private funding prior to implementation of a new program. Our interviewees used each strategy, and sometimes used all of them concurrently.

In each case the focus of attention remains the content and the opportunities for students to have access to the content across time and distance. Decisions about content are influenced by the work and roles of early adaptors and gatekeepers in the specific discipline. An example of early adopters will demonstrate the power of IT infused distance education to deliver particular types of continuing education opportunities, courses, and certificate and/or degree programs. A gatekeeper who reports on the work will then help the rest of the field determine the relevance of the IT infused distance education program to their particular programmatic needs. Local content will then be created and dialogues begun with campus IT professionals. After the basic content decision is made, the specifics of the delivery system design, installation and maintenance are primarily delegated to campus IT professionals if at all possible. Departments do not wish to use their own limited resources to supply these services, although they may later support content enrichment and training with departmental funds.

It is during the birthing process of a new program that the personality and history of the IT professional in charge begins to significantly influence outcomes. IT professionals can also be categorized as early, middle or late adaptors of particular forms of IT. They may or may not choose to serve as gatekeepers, bringing new IT ideas to the attention of others. Ultimately, the implementation of any program is a local issue. But, the nature of the issues will differ on campuses with different approaches to IT experimentation. One of our interviews was with the person who served as dean of a library school when it sought and received a very large grant to design and deliver a statewide IT infused distance education master's degree program. It helped considerably that the campus is one that is very proud of its role as a pioneer in IT and is viewed by the state legislature of the primary campus in the state. These two factors greatly enhanced the rapid and strong development of the program. In less than a decade the program has won several awards and now serves as a university success story. In another interview we heard a different story. The program's content was equally well thought out but the resources allocated were not sufficient to the task, perhaps because the culture of the campus was not conducive to off campus outreach, and the IT staff were not told, nor did they chose to claim, this effort as a priority. This program has had a hard time gaining institutional acceptance, although there is a clear demand for it by students.

In our Finnish example, the situation again differed. Universities in Finland in the early 1990s time period often centered their focus on their on-campus programs. The locus of effort for continuing education rested with other agencies, agencies not certified to offer degrees, but agencies accustomed to working with many different groups of educators, and finding ways to reach out to them. When it was determined that IT offered a method for facilitating change in institutions of higher education, it was the continuing education agency that took up the challenge. One of the staff developed a program that used information literacy theories to empower faculty in different disciplines at several polytechnics to serve as gatekeepers for the introduction of IT based educational strategies. In a country that is home to Nokia and has a population with the highest cell phone use in the world, the strategy was sound, but its success has not caused universal change to occur in Finnish higher education.

One interviewee reported on major conflicts between program goals and university IT choices in the early 1990s but indicated that such unilateral decision-making was IT history, not current reality. Most reported that these days, the wars, if there are wars between the program designers and the IT professionals, are usually skirmishes. The issues that cause the most angst center on pedagogy. Teachers need to learn how to teach well in this new medium, students need how to learn best. Administrators as well as faculty and students need to find satisfactory ways of evaluating their efforts, contributions and impact. The fact that all these needs are played out in real time, indeed accelerated development time, and in the circle of learning that includes students make them needs that can sabotage an IT enriched distance program if ignored. These issues tend to be dealt with within the school, or by reliance on campus wide training and evaluation systems. At times the IT department on campus offered the training, at times the distance education department or a faculty retraining and teaching improvement center, usually called the Faculty Development Program or some comparable euphemism. The department itself relies on these sources and trial and error to make the program run.

When there is collaboration between professionals who share a mutual desire to have IT based educational programming created and delivered at the highest level and the resources are sufficient to address most concerns, the results are typically quite satisfactory. In reviewing the practices in these disciplines it appears that the work of gatekeepers and early adoptors is important, and serves as a stimulus to designing distance education programs in each field. However, equally important is the real, but often unsung role of the campus information technologist professional who ensures that the distance education program is designed with appropriate information technology.

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Biographies

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