Abstract

As higher education institutions increase their use of technology to further distance education initiatives, it is important to recognize the role that perspectives within the institution play in formulating a strategy for effective development and implementation of distance education. This study seeks to provide insight to these perspectives by examining the strengths, weaknesses, opportunities, and threats (SWOT Analysis) associated with using distance education (DE) technologies from the perspective of administrators, faculty, and support units within higher education. Analysis revealed that respondents recognized the opportunity to utilize DE technologies to improve instruction and reach new audiences through collaboration and new courses/programs, however, needs were expressed to expand policies/procedures to address critical issues (i.e., incentives, support, training, quality control, careers, and communication channels). The perspectives of administrators, faculty and support units were not found to be dramatically different, in fact many of the perspectives were the same. Based on Rogers’ attributes (1995), it was concluded that the rate of adoption of DE technologies could be enhanced through revised policies/procedures and the development of strategies to address critical issues.
Introduction

In 1989, Connie Dillon addressed the perceptions of faculty participation in instructional telecommunications. Her study provided insight into the factors that influence the integration of telecommunications teaching within the higher education system” (pp. 35-36). A decade has past and many higher education institutions are still struggling to integrate and utilize distance education technologies. The technologies have changed, but faculty attitudes often remain the same.

“Major organizational changes and new developments in higher education are being accelerated by dynamic advances in global digital communications and increasingly sophisticated learning technologies…Barriers to accessing higher education learning opportunities are being reduced globally because of improved learning technologies” (Hanna, 1999, p. 19). The movement of higher education institutions throughout the world to utilize technology to deliver education is often the result of administrative decisions to reach a broader audience. Resources have been and are continuing to be put in place for high-speed Internet connections and interactive videoconferencing. Specifically, extension education, academic courses, and full degree programs are being developed to meet demand from individuals seeking non-traditional access. It is important to determine administrator, faculty, and support staff perceptions, concerns, and interests regarding distance education (DE) technologies as these programs are implemented. This understanding can facilitate the diffusion/adoptions of DE technologies throughout an institution to enhance student learning while maintaining employee (administrator, faculty, and staff) engagement and satisfaction.

Theoretical Framework

The theoretical foundation for this study stems from Everett Rogers' reporting of diffusion of innovation research. Rogers defined an innovation as “an idea, practice or object that is perceived as new by an individual or other unit of adoption” (1995, p. 11). “Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system” (p. 5). The innovation-decision process is the "process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision” (p. 20). There are also influences on the process, such as the prior conditions, characteristics of the decision-making unit, the perceived characteristics of the innovation, and communication channels.

Rogers (1995) discussed five attributes that impact the rate of adoption: 1) relative advantage, 2) compatibility, 3) complexity, 4) trialability, and 5) observability. “Relative advantage is the degree to which an innovation is perceived as being better than the idea it supersedes” (p. 212). Many change agencies use incentives to increase the rate of adoption. The main function of an incentive is to increase the degree of relative advantage. The second attribute, compatibility, “is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters” (p. 224). The third attribute, complexity, “is the degree to which an innovation is perceived as relatively difficult to understand and use” (p. 242). The rate of adoption is slower with more complex innovations. The fourth, trialability, “is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the installment plan are
generally adopted more rapidly than innovations that are not divisible” (p. 243). The last
attribute, observability, “is the degree to which the results of an innovation are visible to
others” (p. 244).

With the increase in distance education technologies in higher education, the
implementation of systematic initiatives and the management of innovation become
increasingly important (Keast, 1997). As quoted by Keast, Moore (1994) recognized the
major obstacles associated with the acceptance or adoption of distance education
technologies, namely “organizational change, change in faculty roles, and change in
administrative structures” (p. 42).

“The view of distance education as an innovation provides an important means for
understanding the phenomena of distance education, particularly from the perspective of
those upon whom its acceptance depends: the faculty” (Dillon & Walsh, 1992, p. 6). How
people perceive and react to these technologies is far more important than the technical
obstacles in influencing implementation and use.

**Purpose**

The purpose of this study was to explore how stakeholders perceive and react to DE
technologies, thus affecting the rate of diffusion. The researchers were particularly interested
in determining if differences existed among the varying perspectives of administrators,
faculty, and support units. Using a holistic approach, the researchers sought to provide a
“snapshot” for the development of intervention strategies to alter how people perceive and
react to distance education technologies.

**Methods**

The higher education institution under investigation was a major Research 1
university that has been engaged in distance education delivery for over ten years. In
determining the perceptions and reactions of administrators, faculty, and support staff, the
researchers chose to use a SWOT (strengths, weaknesses, opportunities, and threats) Analysis
(Goodstein, Nolan, & Pfeiffer, 1993). Strengths and opportunities refer to those things that
currently exist within an organization and those things that have not been realized but may be
able to be taken advantage of to achieve the organization's desired future, respectively.
Strengths and opportunities serve to diffuse innovations such as distance education.
Weaknesses and threats refer to those things that currently exist within the organization and
those things that, while not realized, can prevent the organization from achieving its desired
future. Therefore, weaknesses and threats prevent or diminish the diffusion process.

Respondents were selected using the snowball sampling technique (Babbie, 1989). The
process began with the Associate Dean who identified key employees who were
“innovators” in using distance education technologies. The interviews continued until the
researchers had redundancy in responses. A total of 42 interviews were conducted from
August – December, 1999. The interviewees consisted of 35 employees (16 administrators,
15 faculty members, 4 support members) across 17 departments/units in the College of
Agriculture and Life Sciences. Additionally, 7 support unit employees were interviewed,
most of whom held positions that enhance the distance education efforts across the university
system. Total respondents consisted of 8 females and 34 males. Similar to Dillon's study
(1989), the majority of the faculty were veteran faculty. Approximately half (22) of the
respondents were professors, 7 were associate professors, 1 was an assistant professor, 1
held the title of research assistant, and 11 were professional staff. All respondents were
familiar with distance education technologies (i.e., interactive videoconferencing, Internet,
CD-ROM, etc.) and thus displayed the characteristics of innovators and early adopters
(Rogers, 1995).

The researchers used a variety of qualitative methods to ensure truth, value,
applicability, consistency, and neutrality (Erlandson, Harris, Skipper & Allen, 1993, pp.
133-161). The interview process served as the primary data collection instrument.
Individuals were asked probing questions to gather descriptive information. The
interviews were semi-structured with each interview beginning with a brief explanation
of the reason for the meeting. Questions included items such as "How do you see this
technology impacting your department?" and "In relation to distance education
technologies – what strengths, weaknesses, opportunities, and threats do you see?"
Interviews were reconstructed using field notes. The constant comparative method
was used for the data analysis (Lincoln & Guba, 1985, pp. 339-344).

Findings and Conclusions

Using a holistic approach, the data were summarized through the use of Venn
diagrams for each component of the SWOT Analysis. Each integrated category derived from
the interviews was listed in the key provided and each circle represents the three
perspectives of respondents. Categories that were prominent based upon the number of
times mentioned were indicated with an asterisk. Categories that were shared or unique to a
particular perspective can be viewed by observing the overlapping circles (see Figures 1-4).

Review of the Venn diagrams revealed that the majority of the categories were shared
among administrators, faculty and support units. The predominant category was found to be
identical among the groups in relation to strengths, opportunities, and weaknesses while
each group expressed a unique prominent category in relation to threats.

A. Continuous improvement of DE technologies
B. Ability to reach new audiences and existing demand
C. Presence of early adopters and proximity to technology
D. Reputation for quality content
E. Extensive infrastructure and network
F. Use of technology to enhance teaching and learning
G. Administrative encouragement and support

* Notes prominent category for all groups

Figure 1. Strengths Expressed by Respondents based on Group Affiliation (n=42).
Strengths

Evaluation and synthesis of the responses revealed topics related to technology, audiences, content, the institution, enhancement of teaching and learning, and collaboration. Out of the seven categories, "enhancement of teaching and learning" was identified as the most significant strength by all groups. The recognition of the potential for enhancement is an important milestone for the diffusion of distance education because the recognition of "relative advantage" (Rogers, 1995) is movement toward diffusion. Because of the continuous improvement of distance education technologies and the institutions’ reputation for high quality content, it is not surprising that all three groups mentioned these as strengths. Only administrators mentioned the importance of an “early adopter” and proximity to technology as factors positively impacting the rate of diffusion. The finding that faculty and support units (not administrators) indicated administrative encouragement and support as a strength leads one to conclude that administrators are unaware of the impact that they may have on the diffusion of distance education.

Opportunities

Many of the categories that evolved for opportunities were similar to those indicated as strengths. Out of the five categories that surfaced out of comments provided by the respondents, the opportunity most frequently expressed by all groups was expansion of the audience base to reach nontraditional students. As noted by Dillon (1989), faculty members who participate in distance education often have "an altruism toward the nontraditional learner." Other opportunities included the ability to create an individualized and enhanced interactive learning experience to be delivered through the system network. This parallels with the predominant strength of using technology to enhance teaching and learning. Administrators and faculty proposed more focused opportunities including collaboration with private and public institutions and development of unique and specialized courses/programs.

Figure 2. Opportunities Expressed by Respondents based on Group Affiliation (n=42).
Weaknesses
As was the case in Connie Dillon’s 1989 study, the prominent weaknesses included limited incentives, development support, and funding to support development. Other weaknesses noted by all groups included not knowing what support is available (problems with communication channels), slow action on critical issues (i.e. using old policies to address evolving distance education issues), technological glitches, and overall lack of skill, expertise, and the desire to develop interactive DE courses. Recognition of the "loss of interaction" as a weakness of distance education is well documented in other studies (Gehlauf, Shatz, & Frye, 1991; Dillon, 1989). The findings in this study lend further support, as administrators and faculty indicated the loss of interaction between faculty and students and limited knowledge on copyright and intellectual property issues as additional weaknesses.

Figure 4. Threats Expressed by Respondents based on Group Affiliation (n=42).

Threats
While administrators, faculty, and support units consistently viewed identical categories as their prominent strength, opportunity, and weakness, threats were not consistent based upon varying perspectives. All three groups noted career and job security, competition
from private and public institutions, and misinformation on the Internet as threats. But, faculty perceived career and job security as their prominent threat. The idea that tenure and promotion policies needed to be revised in order for faculty to embrace distance education was very strong. Faculty also expressed a fear that “capturing” their intellectual property through multimedia might eliminate positions. In contrast, administrators perceived the greatest threat stemming from competition from private and public institutions. It is interesting to note that collaboration with public and private institutions was indicated as an opportunity! Administrators indicated concern that the DE “market” could encourage students to select courses and programs globally, causing resident campuses to lose enrollments (i.e., tuition, fees, etc.). Although all groups mentioned misinformation on the Internet due to ease of publishing, lack of peer review, etc. this threat was not prominent. Support units felt that higher education institutions relied too heavily upon outside developers and programmers and this in turn created financial, development time, and security concerns (i.e., hackers).

**Effects on Diffusion**

Based upon Rogers’ attributes (1995), it is apparent that respondents perceive distance education technologies to have a “relative advantage” in terms of reaching new audiences and enhancing teaching and learning; however, because there were limited incentives, respondents did not see it being “compatible” with their current situation. Respondents perceived technology usage to be extremely “complex” (i.e., the technology, scheduling, policy issues) and the “trialability” of the technology to be limited due to the required time and effort to convert courses into DE format. Unless a department had its own support staff, proximity to equipment in the office or building, or other “rewards” through tenure/promotion, development grants, etc., the “observability” was non-existent.

**Recommendations and Educational Significance**

As indicated by Moore (1997) in his comparison of DE programs, those programs with a commitment to faculty support and training result in higher quality programs. Institutions that are involved in, or currently moving into the realm of distance education can benefit from the results of this study. “The environment for higher education has become much more dynamic and even more complex with the recent development of new digital technologies” (Hanna 1999, 25). As the complexity continues and the desire to integrate distance education programs expands, attention must be given to critical issues.

The perspectives of administrators, faculty and support units were not found to be dramatically different, in fact many of the perspectives were the same. While each group recognized the potential for DE, intervention strategies are necessary to alter “how people perceive and react” to distance education technologies. Through the eyes of an administrator, faculty member, or support employee, it is apparent that steps must be taken to increase the rate of adoption. The results of this study indicate three major areas that require consideration: 1) administrative support, 2) training, and 3) incentives. Administrative support should include student/technical support and providing a seamless infrastructure and “virtual presence” for the distant learner. Training should not only include technology exposure, but instructional design, pedagogy/andragogy, and “cook-book” strategies and “how-to” manuals. Support extends beyond “verbal” to providing the support/professional
staff to assist. The importance of faculty rewards as a “relative advantage” cannot be overlooked by administrators. By providing incentives such as release time, mini-grants, continuing education stipends, and recognition in the promotion and tenure process, faculty will have more than “verbal” encouragement to continue, or begin, using distance education technologies and will have the reason to do so. Research 1 institutions must revise policies that are mainly focused on research agendas and establish the institutional capacity to support the development of DE courses/programs if these institutions aim to effectively utilize distance education technologies.

This study has cross-national implications due to the nature of telecommunications and the increased possibilities to bridge between institutions, cultures, and nations through distance education. New audiences will cause a shift in intellectual property, access to information and technology, and broadening cross-cultural communications. International agencies can benefit from the findings in this study by applying the concepts to their own agency and encouraging the development of a structure that can facilitate and support distance education within their institution. Reflection upon the findings presented can aid agencies in focusing resources in the most effective way possible. Distance education offers great promise. Are agricultural and extension educators ready for the challenge?

References


