Impact of Administrative Influence and Support on Use of Internet Technology for Course Delivery

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IMPACT OF ADMINISTRATIVE INFLUENCE AND SUPPORT ON USE OF INTERNET TECHNOLOGY FOR COURSE DELIVERY

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Abstract

Internet and World Wide Web (WWW) technologies have had an increasingly significant impact on the design and delivery of courses in universities. While not replacing traditional classroom instruction, the internet allows instructors to enhance traditional classroom delivery methods. However, the acceptance of this technology has not been universal. The purpose of this paper is to present the motivations, progress and plans for an ongoing project examining the influence of administrative planning and support on the adoption of Internet and Web technologies in academia. The project is grew out of the results of a Theory of Planned Behavior (TPB) based study into the factors affecting educator’s intentions to adopt internet technologies and from the experiences of internet adoption at two similar universities.

Introduction

Internet and World Wide Web (WWW) technologies have had an increasingly significant impact on the design and delivery of courses in colleges and universities. Technologies such as course web pages, discussion groups, chat groups, newsgroups, list servers and comprehensive server based course management packages (e.g., BlackBoard) have changed the way instructors communicate and interact with students in and out of the classroom. These technologies allow for inexpensive access to material by a large number of users. While the WWW is not replacing traditional classroom instruction, it allows instructors to enhance and add value to traditional classroom delivery methods. Internet technologies are also providing universities alternative forms of course delivery, in the form of electronic learning (e-learning), to support students outside traditional institutional service regions much more cheaply than other forms of distance education (i.e., remote video). Studies such as the 1999 Campus Computing Survey (Green, 1999) report that college courses are increasingly using technology resources. The survey reports that 54 percent of all college courses were making use of electronic mail, 39 percent were using Web resources in the syllabus, and 28 percent of courses have a Web page, all up from the numbers reported in previous years. Although the use of the Internet is increasing among faculty, its acceptance has not been universal. As the survey shows, a majority of instructors still do not actively use the Web for course delivery. This may be due to several technical, personal and organizational factors.

This paper discusses a research project designed to study the influence of top down administrative planning and support on the adoption of web based course material in academia. The motivation for this study comes from two sources: 1) the findings from a preliminary study into the behavior of university faculty in the adoption of web based course material using the Theory of Planned Behavior (TPB) (Ajzen, 1991) as a theoretical foundation and 2) the experience of a member of e-learning committees at two universities, one where the administration took an active role in promoting and supporting the use of the technology and the other where the use of the technology was left to individual faculty.

Theory of Planned Behavior

The TPB (figure 1) is a widely studied model from social psychology that is concerned with the determinants of consciously intended behaviors (Ajzen, 1991). According to TPB, a person’s performance of a specified behavior is determined by that person’s behavioral intention to perform the behavior. This behavioral intention is, in turn, determined by three factors concerning the behavior in question: the person’s attitude (A), subjective norms (SN) and perceived behavioral control (PCB). TPB uses estimates of these factors to predict behavioral intentions, which, in turn, are used to predict behavior. In TPB each of these factors...
are seen as functions of other factors. Attitude is a function of the products of behavioral beliefs (the likelihood or extent to which an action will result in a particular outcome) and outcome evaluations (positive or negative evaluation of the desirability of the outcome). Subjective norms are determined by a person’s perceived expectation of specific referent individuals or groups multiplied by his or her motivation to comply with these expectations. Perceived behavioral control is defined as someone’s perception of the presence or absence of requisite resources and opportunities to perform the behavior of interest and is a product of control belief (a perception of the availability of skills, resources, and opportunities) multiplied by perceived facilitation (an assessment of the importance of those resources to the achievement of outcomes). TPB has successfully been used in several studies predict users’ intention to use information systems (see, for example, Mathieson 1991). The variety of situations in which it has been employed provides support for its applicability for studying intention to use the internet in pedagogy. The TPB is an attractive model because it incorporates constructs believed to be relevant for web based instruction adoption including subjective norms. A primary focus of this study is whether the impact of increased demands from administration and others are indeed factors influencing the intention of professors to increase technology content of classes. TPB also considers control beliefs and perceived facilitation, important in considering perceived barriers to adoption due to technology and technical support.

### Preliminary Research Results

The research being proposed in this study is based on the outcomes of two other research efforts. The first is a TPB based research project examining educator intention to adopt Internet and web technology. The second factor motivating this research is the experience of adopting Internet and web technologies at two similar universities. These two studies are detailed below.

The initial phases of this TPB study have been completed. As recommended by the literature (Ajzen, 1991), elicitation interviews were conducted with a representative sample of the target population (university professors). Twenty professors in business or engineering programs from several different four-year universities were interviewed using an open-ended questionnaire developed based on models provided by Mykytyn and Harrison (1993) and Mathieson (1991). For this phase of the study, the behavior of interest was defined as the active use of World Wide Web technologies by professors for course delivery in the following academic year. Responses were classified and grouped. Those factors mentioned most often were chosen for consideration for incorporation the full survey instrument currently being developed. Generally, factors mentioned by at least half of the respondents were selected for inclusion. Factors related to Attitude identified included both advantages and disadvantages. Among the advantages mentioned most often were immediate access to materials by students, improved ease and facilitation of communications, improved note taking, improving the rigor and interest of classes, and the ability to link to multiple sources and types of information. Disadvantages related to loss of verbal communications, the increased time and training required and the increased dependence of technology. For the Subjective Norms, the salient individuals or groups included administrators, students, and peers (other professors). Finally, the factors identified for Perceived Behavioral Control were computer and programming skills, time, and technical and software support.

One of the most often mentioned salient groups mentioned in the TPB study was Administrators at the University, College, and Department levels. A follow up interview on the influence of university administrators showed that this referent group seems to be a particularly strong influence on the level of faculty commitment to employing Internet technologies to support traditional course delivery or to deliver on-line e-learning courses. The experiences of two schools in the University of Louisiana system is telling of the differences in successfully implementing e-learning through a top-down driven strategy versus a more laissez faire environment. The University of Louisiana-Monroe (ULM) and Northwestern State University (NSU) are similar sized universities in the University of Louisiana (UL) system, both serving a widely dispersed population throughout the northern Louisiana region. In an effort to reverse a trend toward declining enrollments, both schools have looked to the development of on-line course support and delivery to expand their regional coverage.

NSU adopted a top-down driven approach to implementing Internet-based classes. The president of the university established a centralized authority at the vice-president level to oversee the development and delivery of on-line courses and the use of Internet technology to support instruction delivery. This central authority manages all training, schedule coordination, and the policy for compensating faculty. The importance of the program is continually reinforced through periodic communications from

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**Figure 1. The Theory of Planned Behavior**

![Figure 1. The Theory of Planned Behavior](image-url)
the president to the faculty at large. Adoption of Internet technology to support courses and on-line classes has been much less widespread at ULM. A university level e-learning committee comprised of members from each of the major divisions is used to coordinate the use of Internet technologies for supporting course delivery. However, this committee has no power to make policy or regulate the e-learning efforts of the various colleges within the university. Individual departments and faculty members decide on the level of involvement in e-learning to pursue. This commitment varies even within departments as departmental goals shift.

In both of these universities, adoption of Internet technologies to support traditional course delivery and the implementation of e-learning has progressed with the adoption of easy to use tools and improved training. Despite the implementation of a common toolset throughout the UL system (BlackBoard), actual adoption success of these technologies is mixed. The experiences of NSU and ULM demonstrate that priorities set by university administration has a potentially powerful impact of the adoption attitudes and subsequent intentions of faculty members. A full picture of Internet technology adoption behavior can be view as being driven by both individual faculty beliefs about the technological infrastructure and their beliefs about the priorities of the university leadership.

Conclusions and Future Directions

The initial phase of the study described in this paper supports the premise that Theory of Planned Behavior would be an effective technique for assessing the attitudes of university professors in using Internet technologies for course delivery. While varying answers were given to each of the questions from the pilot study, there was enough commonality to identify several possibly relevant factors addressed within the TPB. One of the strengths of the TPB is its explicit consideration of facilitating and limiting resources and of subjective norms (the opinions of others). While a full survey would be required to make any conclusions, most respondents mentioned administrators and students (and to a lesser degree peers) as influencing factors. Anecdotal evidence from the experiences of NSU and ULM in their efforts to implement e-learning appears to link the commitment of university level administrators to the use of Internet technologies to support course delivery. The vastly different experiences of these two schools are suggestive of additional lines of investigation in examining the use of TPB for understanding technology adoption, particularly in the adoption of e-learning technology. The first of these additional considerations is that level of influence exerted by influence groups (subjective norm) may be linked to their position in an organizational hierarchy relative to the adopter. A potentially more important question posed by this anecdotal evidence is whether all influence groups exert direct influence on the adopter or is the influence exerted through the definition of organizational procedures and culture.

The next phase of this research is the development of specific questions that evaluate the TPB constructs using guidelines found in the literature (Ajzen, 1991; Mathieson, 1991). A survey instrument is currently being developed to assess the TPB components: intention, attitude, subjective norm, perceived control, and the beliefs underlying those components. Maximal use will be made of previously developed measurement instruments to take advantage of the proven reliability of these scale items and to add to the overall construct validity of the research. However, given that potentially new issues have been identified, additional operationalizations and measurement scales must be developed. For each of these components, one or more questions using a semantic differential technique will be developed. The questions themselves will be presented as anchored Likert scales. Once the survey instrument has been developed and validated, it will be sent to a random sample of university professors and administrators nationwide.

Data collected from professors adopting Internet technology for course delivery will be used to examine the explanatory value of the TPB in understanding the adoption of Internet technology for course delivery. Additionally, the data will also be analyzed in an effort to identify the relative dominance of factors within the TPB framework to the adoption of Internet technology for course delivery using methods such as principle component analysis or partial correlations. Data collected from administrators will be used to assess the level of commitment by university governance bodies. The primary goal for this portion of the data analysis is to gain insight into the development of adopter perceptions of administration influence and the mechanism use to spread this influence.

References