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Longitudinal Examination of Student Attitudes Towards Enhanced Instruction with Tablet PC.

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ABSTRACT

This study measures student's attitudes towards tablet personal computer (TPC) enhanced instruction. The goal of this study is to develop a theoretical model that measures student's attitudes toward the implementation of TPCs. The participants will be tracked longitudinally during their academic careers with an online five point Likert scale survey. Subject confidentiality is maintained by utilizing an outside entity to assign and manage participant identification numbers.

Keywords

Attitudes, tablet PC, acceptance, technology acceptance model

INTRODUCTION

Tablet personal computers' enhance the utility provided by laptops by providing the ability to capture handwriting using a magnetic pen (commonly referred to as a stylus). Since the introduction of the first commercial Tablet PC in fall 2002, TPCs have been steadily gaining market share with sales expected to reach 14 million by 2009 (Ozok, Benson, Chakraborty, & Norcio, 2008). The portability and ease of note taking made possible by TPC have attracted users from various sectors including healthcare, construction, government, and education. A fair number of universities have embarked on mobile computing initiatives including Bentley College, Notre Dame, University of Texas, and the University of Washington. Other universities with TPC programs include Purdue, MIT, Temple, Seton Hall, Chatham, and many others (Wachsmuth, 2003). Green (2008) indicates that about two thirds of college classroom have wireless networks access. Over 200 of these institutions have notebook, or TPC, initiatives in place as indicated by a website maintained by Ray Brown (2009).

Some pedagogical changes resulting in TPC implementation by faculty include: a) improved interaction with students with the flexibility of a wireless projector, b) enhanced lecture notes, podcast, and videos due to the inking/highlighting tools and recording capabilities of the TPC, c) the enhanced ability to critique and share ideas using the devices, and d) provide pen written feedback on student submitted assignments. The goal of this study will be determine the effectiveness, or acceptance, of these by the student stakeholders.

This study will investigate students' acceptance of TPs' utilizing a modified technology acceptance model (TAM). TAM has been widely used in studies on the adoption of Information Systems (Davis, Bagozzi, & Warshaw, 1989). The TAM model focuses on two constructs to determine attitude towards and intention to use the IS. Those are perceived usefulness (PU) and perceived ease of use (PEOU) of the IS. In this study the original TAM has been modified to include self efficacy, or "the conviction that one can successfully execute (a given) behavior" (Bandura, 1977, p. 193). The initial surveys conducted in the past just examined how self efficacy predicted TPC use in the classroom (Christoph, Puetz, & Walters, 2006).

While much of the literature on Tablet PCs' is positive many authors (Evers 2005, Mackie 2005, Clendenin 2004) cite potential issue that hinder TPC acceptance. Anderson et. al. published a report on faculty acceptance of the devices (Anderson, Schwager, & Kerns, 2006) using the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Vankatesh, et al. (2003). In this study Anderson found that additional constructs should be considered when evaluating adoption of mobile computing devices. This lead the researchers to consider factors in addition to computer self efficacy (CSE) to evaluate students acceptance of TPCs'.

METHODOLOGY

The objective of this study is to measure the degree of acceptance of Tablet PC's enhanced courses by college students using a study derived model. At this early stage a review of existing studies indicate that an enhanced technology acceptance model (TAM) may be the tool to examine the users' acceptance of the new technology (Davis et. al., 1989). Previous publications by the authors examined how self efficacy affect acceptance (Walters, Puetz, Christoph, Moran, 2008) and specific questions will be asked based on this construct. Specifically, the research will identify the extent students "accept" the technology, and determine what proportion of that acceptance can be attributed to various characteristics of the model. The expectations are that the study will provide evidence of the integration of the devices by identifying characteristics of acceptance. This study will survey participants multiple times during their enrollment in this environment. The instrument used for the survey is Checkbox a popular survey application program.

DISCUSSION

This study will develop and test a model, see figure 1 for model, used in a longitudinal study of the relationship between student attitudes toward computer enhanced instruction, their performance in an enhanced instruction environment, and the interaction of attitudes / performance in this environment. At this time the authors have not found studies of this nature measuring the acceptance of mobile computing initiatives. Furthermore this study will attempt to measure acceptance at several institutions with like initiatives. This study will provide the academic community with valuable information toward the success of these programs over time.

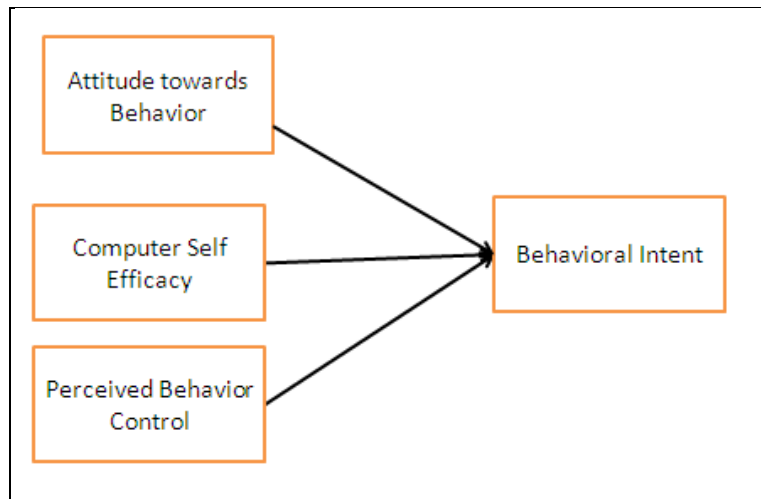


Figure 1. Proposed Research Model

CONCLUSIONS

This study will develop and test a model to allow a longitudinal study of the relationship between student attitudes toward computer enhanced instruction, their performance in an enhanced instruction environment, and the interaction of attitudes / performance in this environment.

At this time the research group has accomplished

- We found that survey participants were initial enthusiastic but the initial high scores indicating acceptance of TPC declined over time.
- A student participation waiver form has been designed and approved by the university human subject committee.
- Developed a double blind data collection process that allows longitudinal study of student performance.
- Obtained a facilitator to maintain student confidentiality
- Developed a preliminary survey instrument.
- Created a partnership with another notebook university.
- Published a few articles on the subject

RESEARCH LIMITATIONS

Limitations of this study are questions addressing if it is the TPC hardware that affects acceptance by students or software used on the computers. Also when the research is expanded to other university environments what effect of the TPC

manufacturer will have on the acceptance of the devices by the survey participants. Other questions to be address includes the incentive of student participants to continue to participate in the study must be addressed.

FUTURE RESEARCH

The research group is actively recruiting institutions and researchers with similar interests. The intent of the group is to develop the survey instrument over the summer months and establish a working model to administer the longitudinal study with student participants.

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