Can we apply TAM in computer-based classes?

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ABSTRACT

While students may struggle in any classroom and consequently require help beyond the schedule meeting time and place of the class, computer-based courses pose the additional hurdle of requiring ready access to hardware and software that may be unavailable or inconvenient for students outside of the classroom and its scheduled meeting time. This paper explores the application of TAM (Technology Acceptance Model) to computer-related classes in order to encourage students who need help to actually seek that help, thereby enhancing their likelihood of success. Increasing Ease of Use with respect to requesting and receiving needed help may consequently increase the likelihood that students will ask for and receive that needed help in their computer-based classes. Two anecdotal examples based on one of the author's practical experiences are provided to demonstrate how this may be possible.

Keywords: Pedagogy, computer classes, technology acceptance model, TAM, ease of use
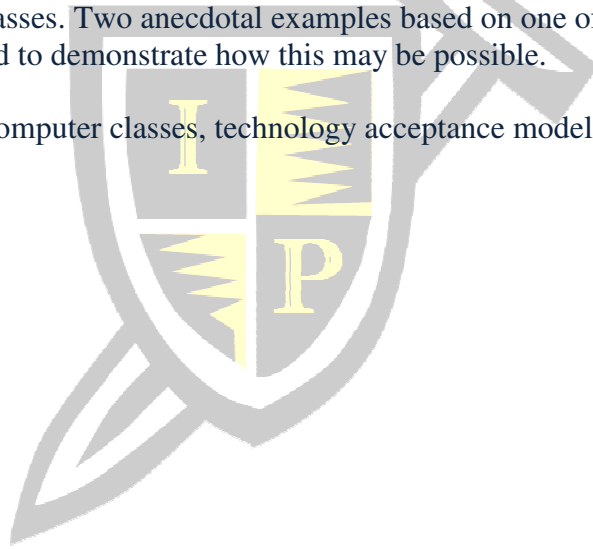
INTRODUCTION

This paper explores the question of whether TAM (or Technology Acceptance Model, credited to Davis) can be applied to encourage those students who need help in a heavily computer-based course to actually seek that help, and consequently enhance their ability to succeed. TAM uses two major variables: Perceived Ease of Use and Perceived Usefulness (Hasan and Ahmed, 2010; Lin and Yang, 2009; Park, 2009; Saadé and Kira, 2009; Shen and Eder, 2009; Tung et al., 2009).

Davis (1989) defines Perceived Usefulness with the following as
" ... the degree to which a person believes that using a particular
system would enhance his or her job performance."

Davis (1989) distinguishes Perceived Ease of Use as
" ... the degree to which a person believes that using a particular
system would be free of effort."

These two constructs are fundamental to TAM. Perceived Usefulness and Perceived Ease of Use thus are thought to influence not only the intended usage of information systems, but their actual usage as well (Davis, 1989; Hasan and Ahmed, 2010; Lin and Yang, 2009; Park, 2009; Shen and Eder, 2009; Tung et al., 2009). The goal for this paper is to consider the question of whether we can apply lessons from TAM to encourage those students who need help in heavily computer-based courses to actually seek that needed help, consequently enhancing the likelihood that those students will succeed. Influencing the two major variables, Usefulness and Ease of Use (as defined above), may therefore also influence whether or not a student will ask for needed help on specific assignments or simply solicit clarification of imperfectly understood aspects of course materials. It is hoped that the usefulness of asking for needed help or simple clarification can be clearly understood and communicated to students. The focus of this paper is on seeking ways to improve the Ease of Use variable. Are there small things that informed teachers can do to increase student awareness not only of the benefits of seeking needed help, but also the ease of getting that needed help?

THEORETICAL FOUNDATIONS

TAM has been used by prior researchers to study information system acceptance and use for a variety of systems. Davis (1989) considered an email system and a file editor system. Mahmood et al. (2001) used the variables Perceived Ease of Use and Perceived Usefulness in a meta-analysis study of literature regarding information technology usage, presenting a table of papers relating to Ease of Use ranging from 1989 to 1998 (Mahmood et al., 2001). Lin and Yang (2009) considered TAM in an effort to better understand patient behavior for asthma care and a mobile phone application. Tung et al. (2009) explored CRM (Customer Relationship Management) information system use. Lee et al.(2011) considered the implications of TAM in organizational acceptance, blending TAM with other theories, and elaborating five factors (relative advantage, compatibility, complexity, trialabiliy, and observability) as elements contributing to TAM's perceived Ease of Use construct. Additional subject areas that employed TAM for investigating acceptance include microcomputer use and workstation use, ERP (Enterprise Resource Planning) use, and Internet-related usage of technologies and systems (Hasan and Ahmed, 2010).

The research described above considered the use of TAM and TAM extensions to better understand acceptance and use of various technologies and systems, suggesting TAM's versatility in application.

Some researchers have used TAM and TAM extensions to better understand student acceptance, willingness to use, and actual use of information technologies and information systems to support learning. Shen and Eder (2009) used TAM to explore student willingness to use Second Life. Raven et al. (2010), and Saadé and Kira (2009) used TAM constructs to learn more about student adoption of various uses of technology to support learning. Park (2009) considered the difficulty that universities face in the delivery of academic materials to students due to technological hurdles faced by not only the students, but by the academic institutions themselves. Yoo and Huang (2011) considered TAM in the light of cultural differences in students, and how those differences impacted a successful learning environment, and the acceptance of technological innovation. El-Gayer et al. (2011) discussed TAM in its role as a possible tool to determine how students might accept technology in education, particularly the use of table PCs in an academic environment. Tsai et al (2011) considered the acceptance of mobile communications systems and their implication in the classroom. Yuen and Ma (2008) considered the acceptance of technology in academic environment by the educators themselves.

These diverse uses for TAM and TAM constructs to explore intended usage of information systems support the idea that the constructs from TAM might also contribute to helping instructors encourage students to be more likely to ask for needed assistance.

DISCUSSION

The idea for this paper comes from one of the author's efforts to encourage those students who have questions or need help to actually meet with the instructor in order to get that needed help or clarification. Successful encouragement may be particularly challenging in computer-based classes or with computer-based work, given the need for computing resources to properly ask a question, or illustrate a hypothetical problem or point of student confusion. There are times when at the end of class, a student may mention that they are not completely confident about a particular spreadsheet or database skill. The student may then state their intention to meet with the instructor in the near future to review that particular skill, perhaps even making an appointment to do so. At other times, a student may similarly suggest their need for help with a step in a homework assignment. The student may follow that statement up with a statement of intent to meet with the instructor later for help. Despite these stated intents, however, it sometimes happens that the student does not meet with the instructor for help. While this may happen in any class, in a computer-based class, there is the additional challenge that the question (or skill or item) with which that student needs help may require the use of a computer and appropriate software. The question is therefore less easily transportable than a question not requiring technology to ask or answer. Another challenge is that students may vary in their comfort level with computer-based skills. Some students who need help may be reluctant to ask for help with computer-based assignments or skills if they do not have much experience with the relevant software, or are simply not particularly confident with that software, be it spreadsheet, database, or something altogether different,

As teachers, our experience with students in need of help who have failed to meet with us to get needed help has led to the question of whether there are things that we, as instructors, can do to encourage students who need help to be more likely to meet with us and actually get that

needed help. Obviously, we can encourage students to meet with us if they need help. We can solicit questions in the classroom. However, that does not seem to always be enough. So this leads back to the original question: are there things we can do to increase the likelihood that students who need or want help will consequently meet with us to actually get the help?

One of the authors of this paper has been scheduling a small portion of weekly time in a campus computer lab in the hope that the computer lab (with its hardware and software) will be a more convenient and practical venue to address technical questions than the author's office might be. This is one example of a small attempt to be more accessible to students and therefore make it easier for students to get needed help with spreadsheet or database assignments. This does not require much effort on the part of the instructor, but it does attempt to increase Ease of Use in the hope that the increase will translate to a corresponding increase in actual meetings with students who need help with homework assignments, knowledge or relevant material, or skills related to course mastery.

One of the authors discovered that a class taught in a computer classroom was followed by an empty time-slot for that computer classroom. While coincidental, this reality meant that there was no urgent need to leave the classroom immediately when class was over. This awareness led to the finding that when students expressed uncertainty about understanding a concept or posed a question about class material, it was easy to ask the students if they could spare a few minutes to discuss the concept or question immediately following the class. By not having to leave the classroom, it meant that students did not have to meet with the instructor at a later time, perhaps having to make a special visit to campus to do so. This avoided problems with having to ask for help later. This small thing, being able to ask students if they could stay for a few minutes before lunch or after completing a class towards the end of the day, seems to increase the likelihood that students ask their question or ask about a particular concept or skill. It seems to create an increase in the students' Ease of Use. The authors realize that it is not always possible for a class to be scheduled in such a way or at a time that allows this, but analogous efforts may prove similarly fruitful.

CONCLUSION

These two examples (scheduling regular time in a computer lab, convenient to needed hardware and software, and taking advantage of available time in an otherwise vacant computer lab after class) are ways in which the authors have sought to increase instances of students who need or want help with a class to actually meet with the instructor and receive that help. While there are surely many ways this can be done, awareness of the concern and desired outcomes is first necessary. The authors hope to continue to have ideas that may encourage students wanting help to ask for that help and to consequently increase learning. The goal of this paper was simply to ask the question of whether we can use what has been learned from TAM and the TAM extensions to support the actual instances of students meeting with instructors for assistance with course concepts and skills. How can we make those meetings more likely, and what are the factors that we can identify to assist us in our efforts to encourage and support student learning?

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