When Technology is Mandatory - Factors Influencing Users Satisfaction

Julia S. J. Yeo, Aybuke Aurum, Meliha Handzic, Peter Parkin
School of Information Systems, Technology and Management
University of New South Wales, Sydney, NSW, Australia 2052
{julia.yeo; aybuke; m.handzic; p.parkin}@unsw.edu.au

Abstract
One commonly acknowledged factor in the successful implementation of any application or information system is user satisfaction. This paper studied users' judgments on a new technology in an educational context. This study found that, while perceived usefulness and perceived ease of use each had a positive correlation with user satisfaction, there are likely to be additional factors that contribute to user satisfaction.

1: Introduction and Prior Research

Significant progress has been made over the last decade in predicting user acceptance of information systems and software applications. In particular, substantial theoretical and empirical support has accumulated in favour of the technology acceptance model (TAM) [1,5,8]. TAM theorises that an individual’s behaviour intention to use a system is determined by his or her perceived usefulness in that system and his or her perceived ease of use of that system. Perceived usefulness is the degree to which an individual believes that a particular information system would enhance his or her job performance. Perceived ease of use is the degree to which a person believes that using a particular system would be free of effort [5]. Other studies have since extended TAM to include other variables such as attitude towards the technology, information quality, system quality, individual impact such as users experience, and organisational impact to be drivers of user acceptance [6,7,8].

One of the findings reported in a recent study by Bhattacherjee [4, p.1] was that user satisfaction is influenced by perceived usefulness and users' confirmation of expectation from prior IS use. Results of Baroudi et al's study [3] indicate that high user satisfaction with a system leads to greater system usage. Most of the above-mentioned studies have researched user satisfaction and acceptance in situations where users have options in choosing their tools and systems. However in many industrial and educational environments only particular technology is available to users. This raises questions as to whether the user satisfaction/acceptance influences of TAM apply in these mandatory environments. This paper attempts to address some of these questions by investigating the end users’ perception of usefulness and ease of use of the MS Access application and their satisfaction with the application in a mandatory situation.

2: Method

This study applied a quasi-experimental research design with user satisfaction, perceived usefulness and perceived ease of use as the variables. The participants were undergraduate students attending an introductory database course at the University of New South Wales. Majority of the participants were first year undergraduate students from Information Systems (IS) and Software Engineering with a small proportion of students in their second year of studies from the School of Computer Science. Students were required to implement their database using MS Access as part of a course assignment. They had to learn how to operate MS Access on their own to complete their assignment. There was no training provided although trivial “how-to” support was available from computer laboratory supervisors. The assignment required students to design/create forms, tables, specific queries, and specific reports.

The research was conducted using a short questionnaire by drawing from a number of existing surveys that have been shown to have validity [2,5]. The questions were modified to suit the task environment and survey population. The subjects’ responses were captured on five point Likert scales with one being strongly disagree and five being strongly agree. The questionnaire was distributed during tutorial class sessions, one week before the end of the semester. A total of 250 subjects voluntarily participated in the study and 215 usable responses were obtained.

3: Data Analysis, Results and Discussion

In this paper, a descriptive and analytical statistical approach was taken to examine the positive direct relationship between perceived usefulness, perceived ease of use and satisfaction. This analysis was undertaken primarily by applying a least-squares linear regression
approach using satisfaction as the dependant variable. In addition, ANOVA tests were used to examine some of the potentially confounding factors.

The averages of user satisfaction, perceived usefulness and perceived ease of use were 3.45, 3.77, and 3.43 respectively. High levels of satisfaction were evident with 83% of subjects strongly agreeing or agreeing with positive satisfaction-related questions.

Software Engineering and Computer Science student subjects had on average slightly more technology experience (5.7 years) compared to their IS counterparts (5.61 years) and 34% of the subjects were female. There was no significant difference in satisfaction levels between the different groups of students by degree or gender.

The correlation between perceived usefulness and perceived ease of use is 0.392. The correlation between each of these variables and satisfaction was 0.405 and 0.410 respectively. Thus, there is moderate support for our hypothesis that perceived usefulness and perceived ease of use are associated with and are perhaps drivers of satisfaction. Figure 1 presents a graphical overview that is also consistent with our hypothesis.

The linear regression coefficients of perceived usefulness (0.38) and perceived ease of use (0.34) were both significant ($P<0.001$). Although this supports the contention that these variables contribute to satisfaction, there are certainly other factors involved as together the variables account for only 24% of the variation in satisfaction.

4: Conclusions

The main findings of this study indicate that both perceived usefulness and perceived ease of use have a positive correlation with user satisfaction in the situation when users are given no other choice but to accept application software. This suggests that, in a mandatory environment, potential user assessments of the perceived usefulness and perceived ease of use of a new or proposed system may provide useful insights into later user satisfaction with an ensuing system as well as system usage and the success of an implementation project. The tertiary educational sector in particular seems rich in these mandatory software environments where students are increasingly being expected to use both web-enabled enrolment and administrative software as well as university course-related software.

These findings are tempered by the nature of the subjects in that they are quite likely to have pre-conceived positive attitudes toward technology. Attitude may well proved to be a major additional driver of satisfaction in a mandatory setting. In order to examine these issues in a general manner, further research is required involving other tasks, context and user groups. Future work may also examine whether the linear model of the relationship between our experimental variables used herein is the most suitable.

5: Acknowledgments

The authors would like to acknowledge Robert Booth and Irem Sevinç, Business Information Technology students, from School of Information Systems, Technology and Management, University of New South Wales for their valuable contribution to this paper.

6: References