Habit Plays Major Role in Continued Use of Information Technology, Study Finds

April 8 2008

Business and management researchers generally acknowledge two basic stages of information-systems usage: adoption and continuance. Past research has focused on adoption, the initial, critical stage in which users are introduced to a given computer application or program, learn about it and come to accept it. But recently, organizational managers and researchers have begun to explore the importance of continuance, the post-adoption stage of information-systems usage.

In one of the first studies to thoroughly examine the role of user behavior during the continuance stage, an information-systems researcher at the University of Arkansas, collaborating with researchers in Spain and China, developed and tested a model of information-systems behavior and found that habit - rather than intention or conscious decision toward behavior - plays a much more significant role than previously thought.

"While plausible in the case of the adoption stage, the assumption that usage is determined mainly by intention may not be applicable to continued behavior," said Moez Limayem, professor and chair of the department of information systems in the Sam M. Walton College of Business. "The assumption ignores the fact that frequently performed behaviors tend to become habitual and thus automatic over time. And that is precisely what we found, that habit becomes prevalent during the continuance phase, and it influences the relationship between intention and behavior. This means that in the effort to understand technology acceptance, we can no longer assume that only intention will drive actual

behavior in predictable ways."

For the purposes of their study, habit was defined as behavior in which cognitive processes were not used to perform a given task. In other words, users did not evaluate why and how they performed the task. For example, at the beginning of a work day, a person may habitually open a Web browser and visit several preferred Web sites before starting work tasks.

Limayem and his colleagues studied user habit in the context of university undergraduate students' use of the World Wide Web. The subjects were business students at a university in Hong Kong. The choice of subjects and application was based on the belief that use of this technology is optional and that students develop many different levels and types of habit with it. But, most importantly, use of the World Wide Web for a majority of university students is so common that is it likened to "turning on the tap and getting water." A total of 553 students answered an initial questionnaire, and 227 respondents (129 women and 98 men) participated in all stages of data collection.

The researchers gathered data in three rounds, which corresponded to three separate weeks (weeks 10, 11 and 13) of students' continued usage of the Web. The purpose of the first round, week 10, was to assess many variables of usage: perceived usefulness, confirmation, satisfaction, continuance intention, habit, comprehensiveness and frequency of prior behavior. The second round (week 11) and third round (week 13) measured students continued Web usage.

In addition to the main finding - that habit exerts a moderation effect on the relationship between intention and behavior - Limayem and his colleagues found strong connections between the development of habits and satisfaction. Also, perhaps not surprisingly, they found that the more frequent a usage behavior was performed, the more likely it turned into a

habit. This was also true with comprehensiveness of usage.

The findings are important because other studies have demonstrated that habitual behavior in many information-systems contexts - such as order entry, payroll processing and recording of customer problems or complaints - tends to be highly efficient and less prone to error. Businesses and organizations spend thousands, sometimes millions, of dollars on information technology and personnel training. Managers want to know that these investments will pay dividends or fail.

As Limayem emphasized, there are many examples of error-prone usage, underutilization and discontinuing expensive information-systems programs or initiatives. These problems may have been avoided if managers understood the role of habit on intention. Knowledge of its role may explain why traditionally popular measures, such as rational arguments and persuasion tactics, used to influence user behavior have not been effective.

"If management wants to promote continued information-systems usage behavior, it clearly needs to understand what drives it," Limayem said. "We fervently believe that managers will benefit from understanding the nature of habit and habit formation when faced with situations that call for the promotion of certain behaviors."

The researchers also developed management guidelines related to the findings. Their study was published in a recent issue of *MIS Quarterly*, a top information-systems academic journal. The study is available upon request.

Source: University of Arkansas