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# Accelerating The Use Of Weblogs As An Alternative Method To Deliver Case-Based Learning

## Authors

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## Abstract

Weblog technology is an alternative medium to deliver the case-based method of learning business concepts. The social nature of this technology can potentially promote active learning and enhance analytical ability of students. The pre- sent research investigates the primary factors contributing to the adoption of Weblog technology by students to learn business cases. A theoretical framework is proposed to address this issue based on the Unified Theory of Acceptance and Use of Technology (UTAUT) theory. Statistical evidences show that three major factors can contribute to users' intention to adopt Weblogs: (a) performance expectancy, (b) effort expectancy, and (c) social influence. It is also found that behavioral intention is a significant antecedent to actual use of Weblogs to learn business cases. Implications of the results for educators as well as possible future research paths for researchers are also discussed.

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## **Accelerating the Use of Weblogs as an Alternative Method to Deliver case-Based Learning**

Cases are a widely accepted teaching vehicle to improve students' analytical skills, as well as to improve student involvement (Alavi, 1994). Case-based learning is a method of acquiring knowledge through students' active participation in analyzing and discussing real-world scenarios presented by a case; case-based learning shifts the emphasis away from memorization of

facts to critical analysis of contextual situations (Flynn & Keio, 2001). Major factors underpinning the success of case-based teaching methods are the active roles of students and facilitator roles of instructors (Charan, 1976). Utilizing cases, students need to actively engage in in-depth discussions with each other, instructors and subject-matter experts.

The user-centered and interactive features of Web 2.0 technologies, such as Weblogs, Wikis, and instant messaging (IM), enable people to collaborate and share information in virtual space. Weblog's asynchronous collaborative nature transcends the limitation of time, facility, and location. Weblogs allow webloggers to link to relevant information in a timely manner and to access temporal information (current and historical). Weblogs allow users to read posted information and write new information in reverse chronological journal form (Barger, 1999). The original creator of a Weblog owns his or her content and can customize the discussion environment to attract other users with the same interests. The owner of a Weblog can proactively invite other users (e.g., group members) to create, read, update, and delete (CRUD) comments. All messages posted on a Weblog are time stamped to show their currency. This interactive communication mode promotes constant feedback and learning from all participants (Wagner, 2003). Some advanced Weblog technologies (e.g., [www.movabletype.org](http://www.movabletype.org) and [www.myspace.com](http://www.myspace.com)) can automate cross blog comments activities, such as pinning, placing a reciprocal link or trace back, and collating all available responses in a central entry point (Blood, 2004). On the Weblog space, students can take on leadership roles while instructors can assume different facilitator roles, such as initiator, director, participant, and motivator (Charan, 1976).

All these features have made Weblog a potentially effective Web 2.0 technology to deliver the case-based method. Although Weblogs have been widely embraced by the popular culture today, the adoption of Weblogs has not been as popular in the higher education sector. In addition, a search of the literature shows that there has been no study examining the adoption of Weblogs in learning business cases (using the UTAUT model to be discussed later). As such, this study explores the factors contributing to the adoption of Weblogs specifically in the context of higher education.

## **USING WEBLOGS IN TEACHING CASES**

There is currently a growing interest in e-learning (Beck, Kung, Park, & Yang, 2004), and Weblogs are potentially a useful tool for use in the case-based method. Many researchers have advocated for the efficacy of turning Weblogs into a learning application (Baker, 2003; Baggaley, 2003; Trimarco, 2004). Because of their interactive, collaborative, easy-to-use, and instant archival features, Weblogs can be an effective tool that enhances the case-based teaching method in the online asynchronous environment.

From

the pedagogical perspective, the success of the case-based teaching method is contingent upon the active discussion and instant feedback. Active discussion allows the exchange of multiple perspectives to develop critical thinking skills (Fung, 2004). Engaging in collaborative learning tasks can help an individual develop interpersonal and social skills, and helping each other solve problems can promote the effective support of a community (Stacey, 1999). Case-based method is a collaborative learning approach to solve complex problems and tasks (McAlpine, 2000). The more collaborative the efforts, the more likely students can achieve learning effectiveness of complex tasks. Students play active roles in the traditional case-based teaching method. Using Weblogs, they can potentially increase the level of their participation. This is because of the asynchronous nature of Weblogs – students can ask and respond to a multitude of questions and comments posted by other students anytime, anywhere. This modality is in contrast to the case-based learning in a traditional classroom where typically one person can speak at a time. The goal of using Weblogs includes exposing students to divergent ideas and leading them to discovering new knowledge on their own (Duffy & Cunningham, 1996).

However, applying the case-based method to the Weblog space does pose some challenges to both instructors and students. First, an instructor has limited control over how students or teams manage their Weblog spaces and their motivation to contribute. Knowledge exchange by way of a Weblog is a social exchange behavior. Knowledge shared is the social goods (Blau, 1964). The principles of rationality and reciprocity regulate the behavior (Turner, 1991). It takes time to establish trust and create norms (Coleman, 1990) before participants begin valuing collective interests over their own and contributing knowledge or social goods. Second, the volume of information generated by Weblogs may not be conducive to student learning. Constructivist learning theory asserts that cognitive activities such as elaboration and feedback allow users to have enough time to effectively process and store information in memory (Anderson, 1990). Assume the number of participants is  $n$  and everyone in a Weblog contributes a message to each other, then the number of communication messages per Weblog is at least  $n(n-1)$ . If everyone creates a Weblog in a classroom, then there are as many Weblogs created as the number of students in a classroom. The volume of information generated can create a poverty of attention, which may lead to unproductive cognitive activities.

Given that Weblogs is a potentially useful tool that can be used to deliver case-based learning (Trimarco, 2004), what contributes to the adoption and use of Weblogs in case-based learning becomes an important question. This study proposes using an adoption model in the context of university learning to investigate the use of Weblogs.

## CONCEPTUAL FOUNDATION

To encourage the use of Weblogs for case-based learning, it is necessary to investigate the factors that drive the intention to adopt Weblogs and ultimately the actual adoption behavior. This study explores the factors contributing to the adoption of Weblogs in higher education. To carry out this exploratory investigation, this study uses Unified Theory of Acceptance and Use of Technology ([UTAUT]; Venkatesh, Morris, Davis, & Davis, 2003). UTAUT is derived from an investigation that "set out to integrate the fragmented theory and research on individual acceptance of information technology into a unified theoretical model that captures the essential elements of eight previously established models." (Venkatesh et al., 2003, p. 467) The eight previously established models include the theory of reasoned action, the technology acceptance model, the motivational model, the theory of planned behavior, the model of PC utilization, the innovation diffusion theory, and the social cognitive theory. Since introducing Weblogs in case-based learning is equivalent to introducing a new piece of technology, UTAUT is well suited for studying the adoption behavior of students for the purpose of learning, especially when UTAUT is an integrative model that is across discipline. In addition, UTAUT is a useful model for those "...needing to assess the likelihood of success for new technology introductions and helps them understand the drivers of acceptance in order to proactively design interventions (including training, marketing, etc.) targeted at populations of users that may be less inclined to adopt and use new systems." (Venkatesh et al., 2003, pp. 425-426) The parsimonious structure of UTAUT is another advantage for the present exploratory research. Three independent variables from UTAUT – performance expectancy, effort expectancy, and social influence – are adopted which form direct predictors of user acceptance and usage behaviors of users. This study suggests that these constructs are pertinent to the user acceptance and usage behaviors of Weblogs by students to learn business cases.

### **Performance Expectancy**

In the context of learning business cases, performance expectancy about the use of Weblogs is the expectation by students that the technology will help them acquire business concepts. Performance expectancy is an important antecedent to goal commitment (DeShon & Landis, 1997), defined as one's determination to accomplish a goal (Locke, Latham, & Erez, 1988). Performance expectancy is also defined as "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p. 447). This is a multi-dimensional construct comprising of five factors: perceived usefulness, extrinsic motivation (Davis, Bagozzi, & Warshaw, 1989), job-fit (Thompson, Higgins, & Howell, 1991), relative advantage (Moore & Benbasat, 1991) and outcome

expectations (Compeau & Higgins, 1995). In a classroom situation, it is reasonable to conclude that students will use Weblogs more if they expect the technology will help improve their course performance. This study posits that improving student's performance expectancy about the use of Weblog technology is an antecedent to its adoption in learning business cases.

H1: Higher performance expectancy on using Weblogs to learn business cases can lead to higher intention of Weblog adoption.

### **Effort Expectancy**

Instructors are becoming accustomed to the use of some prevalent e-learning systems, such as WebCT and Blackboard. These popular systems have some unique features, such as rapid template-based authoring tools to develop courseware, user-friendly interfaces, easy interfacing with school's library and textbook supporting materials, and importing/exporting of student's grades to and from school's records office. A 2004 industry report shows that one-third of the surveyed 228 e-learning developers are involved with rapid e-learning projects (Boehle, 2005), which are e-learning projects developed using methodologies similar to rapid applications development (RAD). The economic barrier to using Weblogs is relatively low as Weblog software in most cases is open for access, and users can freely download the software from the Internet.

Given that the user-friendly interface is an important contributor to the popularization of Weblogs on the Web, lowering the effort required to use Weblogs should also contribute to the intention of using Weblogs in the classroom. To lower the effort to acquire Weblog, the University of Mary Washington uses the sandbox concept, which is a method of quickly pulling together different open-source applications and deploying those applications to users. The University of Mary Washington has eased the process of configuring and deploying Weblog, helpdesk, survey, and calendar applications (Udell, 2006). Lowering the effort expectancy of users to learn business case through Weblog can potentially enhance their intention to adopt the technology.

H2: Lower effort expectancy on using Weblogs to learn business cases can lead to higher intention of Weblog adoption.

### **Social Influence**

Social influence is "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al., 2003, p. 451). This theoretical construct consists of three factors: (a) subjective norm, (b) social factors, and (c) image. Social influence is particularly pertinent to the adoption of innovative technology in a closed community like a classroom or school. The school administration has influence on

user's adoption of Weblog in learning business cases. For instance, they can promote the use of this technology by offering training sessions to users. Their attitude towards the Weblog adoption can influence the subjective norm of instructors and students. Instructors can also play important roles in influencing the intention of students to adopt Weblogs to support their case-based teaching. For instance, a faculty can encourage the use of Weblog and allow students to use the posted messages to turn in their assignments.

Social influence can also originate from the reference group, such as group members, students from competing groups, and friends from other institutions. These interpersonal agreements are social factors. In addition, some users perceive the use of a particular technology as a vehicle to improve self-image among the reference social group. These social influences have partially contributed to MySpace's popularity among its over 100 million profiles. This stream of social influence comes from the society in general. With these three forces of social influence interplayed in and outside the classroom, it is argued they can have impacts on student's adoption of Weblog technology.

H3: Higher social influence of using Weblogs to learn business cases can lead to higher intention of Weblog adoption.

### **Behavioral Intention and Actual Use**

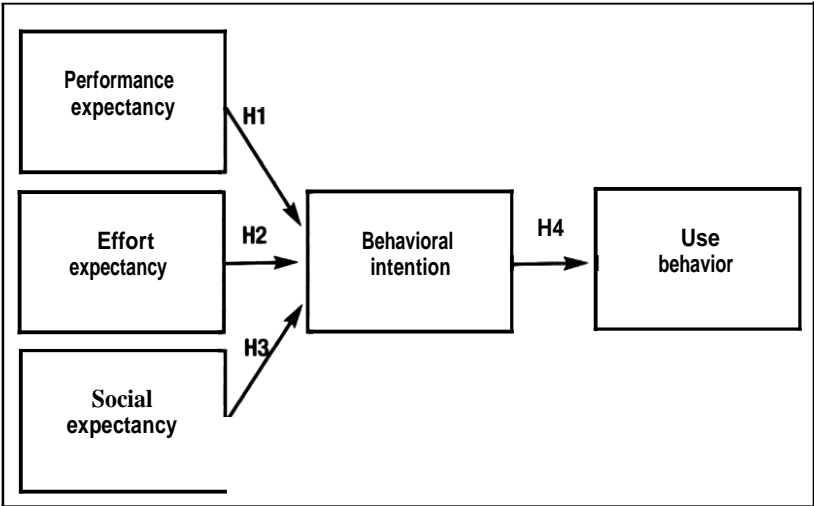
The eventual dependent variable in an adoption framework is actual use, and a positive behavioral intention is essential in the actual usage of a technology. This is consistent with the literature, which shows that behavioral intention is a reliable antecedent to actual use, and such a relationship is well established by past studies (Venkatesh et al., 2003; Taylor & Todd, 1995). Following the prior literature, the present research retains both actual use and behavioral intention as key dependent variables and hypothesizes that behavioral intention contributes to actual use.

H4: Higher behavioral intention of using Weblogs to learn business cases can lead to higher actual usage of Weblogs.

Figure 1 shows the proposed theoretical framework of this study consisting of four hypotheses.

## **RESEARCH METHODOLOGY**

The proposed hypotheses are tested by conducting a field study and surveying a group of college students. The students are Management of Information Systems (MIS) majors in their second year of study at a private university in Taiwan. All students are approximately 20 years old and have little experience in using Weblogs to learn business cases. The field study lasted six weeks. All students need to complete their case study reports using Weblog at the end of this assignment.



**Figtn 1.** Theoretical model

### **Operationalization of Theoretical Constructs**

This study examines the effects of different predictor variables on the dependent variable of behavioral intention, as well as the effect of behavioral intention on actual use. To establish a research stream to prior literature in this area, previously-validated instruments are adopted so that cooperative research efforts can be promoted in the community (Hunter, Schmidt, & Jackson, 1983). Using validated instruments and agreed-upon constructs, researchers can also continue the research stream, conduct confirmatory, follow-up research across different settings and times, and support triangulation of results (Cook & Campbell, 1979). This way, the results can be consistently interpreted in light of the past literature in the area. In the long run, this approach can help to alleviate the confounding that is found in many research projects (Straub, 1989).

The survey instrument used to measure these constructs is based on that of Venkatesh et al. (2003). Performance expectancy is a multi-dimensional construct comprised of perceived usefulness, job-fit, relative advantage, and outcome expectations. Effort expectancy is comprised of three dimensions: (a) perceived ease of use, (b) complexity, and (c) ease of use. The social influence construct also comprises of three dimensions: (a) subjective norms, (b) social factors, and (c) image. Lastly, the behavioral intention construct is a one-dimensional construct (Venkatesh et al.) Table 1.



**Table 1**  
Constructs and Dimensions

Constructs	Dimensions	No.	Items
Performance Expectancy	Perceived usefulness	PE1	I would find Weblog technology useful in my learning of business cases.
		PE4	Using Weblog technology would improve my learning performance.
		PE5	Using Weblog technology would enhance my learning effectiveness.
	Relative Advantage	PE2	Using Weblog technology enables me to accomplish learning business cases more quickly than other e-learning technologies (e.g., discussion board, bulletin board).
		PE3	Using Weblog technology enhances my learning effectiveness of MIS concepts.
	Outcome Expectations	PE6	If I use Weblog technology, I will increase my chances of grasping MIS concepts.
		PE?	If I use Weblog technology, I will increase the quality and quantity of output of for the same amount of effort.
Job-Fit	PEB	If I use Weblog technology, I will increase my learning effectiveness on the learning tasks.	
Effort Expectancy	Perceived Ease of Use	EE1	My interaction with Weblog technology is clear and understandable.
		EE2	It would be easy for me to become skillful at using Weblog technology.
		EE3	I find Weblog technology easy to use.
	Ease of Use	EE4	I believe that it is easy to get Weblog technology to do what I want it to do.
		EE5	Learning to use Weblog technology in learning business cases is easy for me.
	Complexity	EE6	Working with Weblog technology is so complicated, it is difficult to understand what is going on.
Social Influence	Subjective Norms	SI1	People who influence my behavior think that I should use Weblog technology in learning business cases.
		SI2	People who are important to me think that I should use the system.

Behavioral Intention	Social Factors	S13	My school is very supportive of the use of Weblog technology for my learning of business cases.
		S14	My teacher and teaching assistants have been helpful in the use of Weblog technology to learn business cases.
		S15	My teacher and teaching assistants are very supportive of the use of Weblog technology for my learning of business cases.
	Image	S16	Students in my class who use the Weblog to learn business cases have more prestige than those who do not.
		B11	The actual process of using the system is pleasant.
		B12	I look forward to those aspects of learning tasks that require me to use the system.
		B13	I would recommend using Weblog technology to learn business cases.

For actual use, this study adopts the objective usage records captured by the Weblog system. The Weblog system used (see next section) used a MySQL database to track the historical records of all stu-

the number of posted messages per week, the usage duration per week, and the number of response messages per week are indicators that measure the actual use variable. These indicators are calculated by

six weeks. Out of these three indicators, the number of response messages measures usage by and interactivity among students; interaction among students is an

### Weblog System

The researchers decided to build a Weblog system for this study for two rea-

control of user interface. Second, most freeware did not have the dynamic feature of connecting to a database for data analy-

Weblog with connectivity to a backend database (e.g., MySQL) can enable the automatic generation of logs that track usage behavior of students. Many Weblog

researchers compared Movable Type,

their abilities to connect to a database.

Lifetype stood out because of its many system features. First, this Weblog system is written in the open-source programming languages PHP and MySQL that can run on web server Apache. These features made Lifetype a cost-effective Weblog

All Weblogs created can be centrally managed by a user, so the user can keep himself/herself updated with the latest information on class activities in one central space. Third, templates are available for students to use. Students can efficiently organize the posted messages and other course materials via templates. Students can also easily upload image, audio, and video files onto their Weblogs by way of the file management feature of Lifetype. Many add-on features (e.g., emotion icons, audible, and anti-spam software) are also available for users to include on their Weblogs. As a result, Lifetype was chosen as the Weblog platform for this study.

### **Operational Procedure**

One hundred and sixty four students took an introductory MIS course. An informal polling shows that these students have little experience in using Weblogs to learn business cases, but most had experience in personal Weblogs. Over six weeks, students needed to study three business cases taken from the textbook *Management Information Systems for the Information Age* authored by Hagg, Cummings, and McCubbrey (2005). In the first two weeks, the instructor demonstrated how to use a Weblog system hosted on the school's web server. Students were also told how the instructor would assess their learning performance, including the use of Weblog technology, throughout the semester.

In the remaining four weeks, students studied and discussed three MIS cases – one case every 10 days. At the beginning of each 10-day period, the instructor would explain one business case to students before they began studying and discussing the case on the Weblog system. Course materials, including relevant websites, were provided on the Weblog to assist students in understanding the business cases. In each 10-day period, a student needed to spend the first seven days in completing a case report and uploading it to his/her individual Weblog. In the case report, a student had to address at least two questions related to each business case. Students could also earn bonus scores if they share other relevant information on their Weblogs.

Students then spent the other three days providing comments, responding to comments, asking questions, and organizing posted messages on Weblogs. The instructor and teaching assistants provided assistance and guidance to students who encountered technical difficulty in using the Weblog system. To encourage the use of Weblogs in learning business cases, the instructor frequently updated the Weblog with latest announcements and information related to the course. Students needed to log on to the Weblog to obtain the latest information about this course throughout the semester. Students could also communicate with the instructor, teaching assistants, and each other on the Weblog. In case-based learning, just as the role of the instructor is that of a facilitator in a traditional classroom setting (Charan, 1976), here the instructor also serves as a facilitator in the Weblog setting.

To promote more dialogues on Weblogs, the instructor reads all the postings and can respond to them, offer additional information, or ask questions to elicit additional responses.

The instructor and students repeated the process for each case over the 30-day period until all three business cases were completed. At the end of the 30 days, students were asked to complete the survey on using Weblogs to learn business cases. The survey instrument consists of the items shown in Table 1. Seven-point scales were used for all of the items, ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Table 2 shows the detailed operating schedule of this field study.

## RESULTS

### Descriptive Statistics

At the end of the 30-day period, these 164 students were asked to fill out an online questionnaire. Students were given explicit instruction to fill out the questionnaire completely. After the administration of the survey, 11 questionnaires were found to be incomplete and thus deemed invalid. After excluding 11 invalid samples, there are a total of 153 valid samples. Of the valid samples, males and females account for 41.8% and 58.2% of the samples, respectively. A majority of the students (66.7%) spend one to three hours in using Weblogs every week. The average number of posted messages per week is 2.27. The average number of response messages per week is 0.89. See Table 3.

**Table 2**  
Operating Schedule of the Research Project

Weeks	Schedule	Major Learning Activities
1-2	11/11-11/24	Handout of syllabus and other course grading guidelines. Teaching how to use the LifeType Weblog system
3-6	11/25-12/11	MIS Case 1: Case Report Composition
	12/12-12/14	MIS Case 1: Blogging
	12/15-12/11	MIS Case 2: Case Report Composition
	12/12-12/14	MIS Case 2: Blogging
	12/15-12/21	MIS Case 3: Case Report Composition
	12/22-12/24	MIS Case 3: Blogging
7	12/25-12/31	Survey and Discussion

**Table 3**  
Background Data (N=153)

Individual Characteristics	Classification	#of users	%
Gender	Female	64	41.8
	Male	89	58.2
Weekly usage duration of Weblogs	Less than 1 hour	20	13.1
	1-3 hours	102	66.7
	3-5 hours	26	17.0
	5-7 hours	5	3.3
	More than 7 hours	0	0.0
Weekly number of posted messages (2.27)	0-1 message	22	14.4
	1-2 messages	41	26.8
	2-3 messages	64	41.8
	3-4 messages	19	12.4
	More than 4 messages	7	4.6
Weekly number of feedback messages (0.89)	0-1 message	121	79.1
	1-2 messages	13	8.5
	2-4 messages	11	7.2
	More than 4 messages	8	5.2

### Reliability Analysis

The questionnaire was assessed using Cronbach's *a* test to assess the internal consistency or stability of the model used to measure the constructs of the proposed framework. Table 4 shows Cronbach's *a* values for the five theoretical constructs used in this study. All Cronbach's *a* values exceeded the threshold value 0.7 (Devellis, 1991; Nunally, 1967). This indicates that the adopted questionnaire has a high internal reliability.

### Unear Regression

The linear regression analysis is adopted to determine the predictive power of independent variables. Three models are constructed for regression analysis. The first model is used to validate H1, H2 and H3. The second model is to validate H4.

- Behavioral Intention = Performance Expectancy + Effort Expectancy + Social Influence + constant
- Actual Use = Behavioral Intention + constant

**Tabla 4**  
Cronbach *a* Values of Theoretical Constructs

<b>Constructs</b>	<b>Cronbach's a</b>
Performance Expectancy	0.88
Effort Expectancy	0.88
Social Influence	0.78
Behavioral Intention	0.91

Table 5 displays the direct effects of performance expectancy, effort expectancy, and social influence on intention to use Weblogs to learn business cases. These three independent variables together can explain 47.2% of the behavioral intention of using Weblogs. These independent variables have varying power of predicting behavioral intention, in the order of performance expectancy (=0.484), social influence (=0.220) and effort expectancy (0.165). Performance expectancy has a higher influence on college students' intention to use Weblogs to learn business cases than social influence, followed by effort expectancy. All independent variables of performance expectancy, effort expectancy and social influence are significant. Thus H1, H2 and H3 are supported.

It was also posited that behavior intention contributes to actual use. Table 6 shows the regression results of behavioral intention as independent variable and actual use as dependent variable. In particular, the weekly number of posted messages, the weekly usage duration of Weblogs, and the weekly number of response messages are the proxies for the actual use variable. As shown in Table 6, behavioral intention has significant relationships with all three proxies. Thus H4 is supported. In particular, the behavioral intention factor accounts for 5.7% of variance in weekly average number of posted messages, 10.6% of variance in weekly average usage duration, and 6.2% of variance in weekly average number of response messages.

**Table5**  
Regression Analysis (DV = Behavioral Intention)

	<b>Standardized coefficients</b>	<b>t-value</b>	<b>VIF</b>
Performance Expectancy	.484	6.977***	1.359
Effort Expectancy	.165	2.620**	1.123
Social Influence	.220	3.289***	1.259

R<sup>2</sup> = .472. Adjusted R<sup>2</sup> = .462  
 \*p < 0.05 \*\*p < 0.01 \*\*\*p < 0.001

**Table 6**  
Regression Analysis (DV = Actual Use)

	Weekly number of posted messages	Weekly usage duration of Weblogs	Weekly number of feedback messages
Behavioral Intention	.239**	.326***	.249**
R <sup>2</sup>	.057	.106	.062

\*p 0.05 \*\*p 0.01 \*\*\* p 0.001

### DISCUSSION AND CONCLUSIONS

This research study adopts the UTAUT, a comprehensive theory that integrates eight social psychology and sociology theories, to investigate the effects of major factors on behavioral intention and actual use of Weblog technology to learn business cases. One hundred and fifty three students participated in this study. Empirical data collected confirms the existence of hypothesized relationships in the context of Weblog adoption.

Performance expectancy has the highest predictive power of behavioral intention. The result makes sense because students would not intend to adopt a technology if they do not expect it to improve their academic performance. Hence introducing Weblog technology to assimilate MIS concepts shows much potential in terms of adoption. This result has normative implications as well. In a traditional classroom setting, if a course meets once a week then the weekly discussion of a business case is confined to a single class period. During a single class period, the number of times students can speak up is limited, and not everyone would be able to participate in the discussion. On the other hand, learning business cases via Weblogs has the advantage of stretching the discussion time over the entire week, and all students can participate to increase their learning. They may do so at their convenience and respond to messages that most interest them. In addition, using Weblogs also may result in more discussions. The average number of posted messages per week in this study is 2.27. Thus, university instructors may want to adopt Weblogs for learning business cases for the reason of eliciting more student responses.

Social influence has the second highest predictive power of behavioral intention. It is well known that social influence affect young people's adoption of instant messaging, cellular phones (Chen & Yang, 2006), and social networking sites for hedonic purposes. But it was not clear whether or not social influence exhibits similar effects in Weblogs for the purpose of learning. This study shows that social influence does have a positive relationship with behavioral intention to adopt as far as learning business cases is concerned. Thus to accelerate Weblog adoption to learn business cases, it is equally, if not more important to utilize the effect of social influence to posi-

tion encouragement from peers. For example, if an instructor would like to use Weblogs in a course, he or she may consider forming student groups where each group consists of students who have used Weblogs in other classes before and students who have not. Also, social influence may come from the instructor and the university. To the extent that the authority demonstrates that Weblog use is encouraged, students' behavioral intention to adopt should increase as well. To accelerate Weblog adoption, an instructor may consider speaking positively about the technology during course orientation and demonstrating by example by maintaining his or her own Weblog.

Effort expectancy also exhibits a significant effect on behavioral intention. In the context of a university, lower effort expectancy can come from two sources: instructor and school. The instructor and teaching staff can lower students' effort expectancy by being helpful to students in using Weblogs, especially if a student first starts the course and has no experience in using Weblogs in learning. School administration can lower effort expectancy by maintaining a knowledgeable and capable helpdesk that can help students if and when they run into system-related problems. School administration can also lower effort expectancy by providing training classes. Lower effort expectancy should improve the intention of users to adopt Weblog technology to learn business cases.

The relationship between behavioral intention and actual use is confirmed by this study. Although this relationship is well known in the technology acceptance literature (Ajzen, 1991; Taylor & Todd, 1995), this study confirms the relationship in a university setting as far as learning business concepts is concerned. In the context of Weblog adoption by students, the confirmation of the same relationship establishes the fact that in order to increase actual use, the dependent variable of behavioral intention is a legitimate target of intervention. This result is especially robust because this study adopts objective measures of actual usage (recorded by the database) rather than subjective, self-reported usage. Thus improving behavioral intention of students to adopt Weblogs to learn business cases should increase actual use.

Moreover, another result of the study is that the proxy of average number of response messages per week is also correlated with behavioral intention. This result has implications beyond simply the actual use of Weblogs. In case-based learning, high interactivity among students is a preferred outcome. The number of response messages shows the level of interaction among students in Weblogs. Hence in case-based learning, improving behavioral intention not only can improve actual use but also may increase the amount of interaction beyond what can be achieved in the traditional classroom.

### **Umltations of the Present Research**

According to UTAUT (Venkatesh et al., 2003), some factors, including gender, age, experience, and voluntariness of use, can moderate the hypothe



sized relationships of this study. The potential moderating factors were not examined because they were considered to have minimal influences in this particular field setting. First, past literature shows that gender has effect on the performance of jobs that are task-oriented (Minton & Schneider, 1980). Because of this tendency, men are more likely motivated with task-related performance, and thus have higher performance expectancy (Kirchmeyer, 2002). However, the number of males (58.2%) and females (41.8%) are not much different from each other in this study. Hence the potential effect of gender should be small. Second, studies (Fields & Shallenberger, 1987; Morris & Venkatesh, 2000) have shown that users of younger age are more attracted to extrinsic rewards (e.g., bonus, salary raise, and luxury car) and users of older age are to intrinsic rewards (e.g., praise, self-actualization, and motivation). The learning curve also tends to be more discontinuous for users in the older age than those in the younger age in the context of IT. This can have an effect on the construct of effort expectancy (Plude & Hoyer, 1985). The findings of this study are less sensitive to the effects of age because students are mostly full-time university students in the age range of 20-22 years old. Thus the effect of age on the findings of this study should be minimal.

Little control of experience and voluntariness of use are two limitations of this study. Past literature shows that both factors can influence the intention of using an information technology and the actual behavior of using it (Venkatesh et al., 2003). In this study, students complied with the class requirement to use Weblogs in the course. This study did not control for voluntariness of use since in the course setting, there is no variance in the voluntariness of use. The use of Weblogs was required in the course and students had to use the technology. In addition, the use of Weblog technology to learn business cases is a novelty project to most student participants, thus the effect of experience should not be salient. Students participating in this study are homogeneous Taiwanese. Taiwan is a country endowed with high uncertainty avoidance culture. From the anthropological and technological perspective, social norms, particularly in the society where high uncertainty avoidance culture is prevalent, are a stronger determinant of behavioral intention of using new information technology than gender, age, and experience (Srite & Karahanna, 2006). Nevertheless, readers should be aware of these limitations when interpreting the findings of this study.

In addition, this study focused on the quantitative assessment of proposed relationships in the theoretical model. It did not include the content and the quality of the Weblog messages as part of the study. However, the instructor did read all the messages as part of delivering the course, and based on the instructor's experience, the quality of the comments have been similar to verbal comments provided in classroom settings of previous semesters. Nevertheless, assessing the content and quality of messages would provide richer results to the study, and it is recommended that future research investigating the use of Weblogs also assess the content of the messages themselves as well.

## Suggestions for Future Research

In future studies, researchers can investigate the use of Weblog technology by graduate students to generalize the findings of this study. With a more controllable environment, researchers can also manipulate those moderating factors (e.g., gender, age, experience, voluntariness of use, and culture) that were not examined by this study to verify whether or not those factors are significant in a university setting. In addition, UTAUT incorporates theories from marketing. Other marketing studies theorize the relationship between constructs of service value (Dodds & Monroe, 1985), service quality (DeLone & McLean, 1992), sacrifice (Zeithaml, 1988) and behavioral intention. These marketing-oriented studies have confirmed relationships between service value, service quality, and sacrifice and the improvement of behavioral intention and actual use of a product or service. Future research can further explore these other constructs in the context of using Weblogs to learn business cases. Moreover, a question that is relevant in a university context is whether or not there is a difference between social influence of authorities (e.g., professors) and social influence of peers (e.g., students). Separating the construct of social influence into those due to authority and peer and investigating their individual effects will allow education practitioners to fine-tune their intervention and should be a worthy research path.

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