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Exploring Intention Behavior Gap by E-Learning Discourses

Research-in-Progress

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Abstract

IS study emphasizes behavioral intention with an assumption that users increase system use when they have higher intentions. But this assumption is challenged by emerging studies. Taking an e-learning as an example, this study investigates the gap between intention and e-learning behaviors. Specifically, our investigation applied a discourse analysis, in addition to time expand and login frequency, for measuring e-learning behaviors. By analyzing 833 discourses posted by 14 users in an online course, our preliminary findings suggested that intention was insignificant to discourses and login frequency. However, the correlation between intention and time expand is negative significant. Our findings also presented that users who spent more time on e-learning had lower intention but used the platform more frequently. These users devoted equivalent effort on making task-oriented discourse, but they expressed more social and procedural discourses. These findings provided preliminary evidences on and an explanation to intention-behavior gap.

Keywords: E-learning Behavior, Intention, Discourse Analysis

Introduction

E-learning technology is introduced by organizations as the way to enhance knowledge accumulation and learning. With the properties of real-time training, anytime and anywhere learning, flexible training, and open learning, e-learning technology is expected to bring benefits to individual learning (Dominique 2005; Kathawala and Wilgen 2004; Rosenberg 2000).

Many studies emphasize intention to predict e-learning use (Liaw 2008). Built on Technology Acceptance Model (Davis 1989) and Unified Theory of Acceptance and Use of Technology (Venkatesh et al. 2003), these studies propose that individuals participate more in e-learning when they have higher intention of using that technology (Liaw 2008). And users' intention is determined by their perception on technology usefulness and ease of use (Cheon et al. 2012; Liaw 2008; Liu et al. 2009).

Although the importance of intention is emphasized, few studies elaborate how intention turned into e-learning behaviors. Even worse, many studies position their investigation on intention but exclude behavior in their research framework. These collectively reveal a take-for-grated assumption that intention can successfully predict and explain behavior. However, such assumption has been challenged by emerging studies that highlight a gap between intention and behavior (Burton-Jones and Straub 2006; Kim et al. 2005; Kuo and Young 2008).

This study investigates intention-behavior gap in e-learning context. Our research question examines whether it is a gap between intention and behavior in e-learning context. Our approach was to analyze fourteen learners' online discourses within a graduated course in an eighteen-week period. By doing so, we treated online discourse as learning behaviors that users communicated with each other through the mediation of technology platform. Applying discourse analysis, we examined the communicative orientation embedded in each discourse to unfold the learner's purpose when they participated in e-learning.

Literature Review

E-learning intention

E-learning intention is stressed by e-learning adoption research (Cheung and Vogel 2013; Merhi 2015). Adapting from Ajzen (1991)'s definition, an e-learning intention is a particular behavioral intention which refers to individual willingness to participate in online learning activities. Many e-learning studies suggest that e-learning intention can predict e-learning use (Liaw 2008; Tarhini et al. 2013). These studies propose that individuals with higher intention participate more in e-learning (Cheung and Vogel 2013; Lee 2006; Liaw 2008). Research also concerns about the antecedents affecting intention. Collectively, performance expectancy (i.e. perceived usefulness), effort expectancy (i.e. perceived ease of use), social influence (i.e., social norms), and facilitating conditions can directly affect intention of using technology (Liu et al. 2009); they can also indirectly affect system use through attitude toward that technology (Cheon et al. 2012; Liu et al. 2009).

Intention and behavior gap

When e-learning research continuously emphasizes the importance of intention to explain e-learning behavior, several studies remind an intention-behavior gap and challenge the explanation power of intention toward behavior (Burton-Jones and Straub 2006; Kim and Malhotra 2005; Kim et al. 2005; Kuo and Young 2008).

For example, Kuo and Young (2008) presented an gap between intention and action by suggesting that people not always performed in a manner consistent with their espoused beliefs. By analyzing actual knowledge sharing actions, rather than self-report responses, Kuo and Young (2008) found not only an insignificant effect between intention and behavior, but also that individual self-efficacy explained behavior better than intention and controllability did. In addition, by analyzing 386 responses of actual users of an information system, Kim and Malhotra (2005) reported that, instead of intention, past use predicted system usage significantly. Furthermore, the relationship between intention and behavior could be contingent to past use (Kim et al. 2005). System uses of heavier users who had more past use were less evaluative and less intentional than those of lighter users. Kim et al. (2005)'s findings showed that user's system use behavior became more habitual one than cognitive evaluation when past use was increased.

These studies collectively challenge the promise that intention could predict behavior successfully. This challenge brings implications on a need to re-examine the relationship between intention and system use behavior. It also reminds a concern that many intention studies exclude system use behavior in their research model. Such manipulation might regret because we might be too optimistic on the espoused intention to predict the actual use behaviors.

E-learning Behavior

E-learning behavior as a computer-mediated communication

E-learning is a technology-mediated learning approach that allows users interacting with materials, teachers, and peers through a technology platform (Sangrà et al. 2012). In such way of learning, users learn by accessing learning materials and interacting with both teacher and other learners on the technology platform. Thus, individual e-learning behavior can be regarded as computer-mediated communications where individuals read learning materials and exchange idea with others via the aid of technology (Hirumi 2002; McIsaac et al. 1999).

Orientation of communication behaviors

When group of people communicate for performing a task, they typically engage in interactions that are not only for task but for social relationship (Bales 1950). When unfold the process of communicative interactions, Jensen and Chiberg (1991) conclude three orientations toward communicative behaviors, including procedure, task, and social actions. A task-oriented action refers to the behavior that individuals interact for doing a task. A social-oriented action is the behavior that individuals act to build or maintain social relationships and affective support. And a

procedure-oriented action is the behavior that individuals act for planning or clarifying schedule and process when they execute a task (Jensen and Chiberg 1991).

Research Methodology

Sampling

Our investigation was anchored on an e-learning course spread on eighteen weeks. The data was selected through convenient sampling as the following steps. First, we explored potential sampling pool with the courses that included online instructions and discussions on the e-learning platform of a Taiwanese university. Second, for each course in the sampling pool, we asked for the instructors' agreement on our observations on the participants' online activities. Although we got several permissions of online observation from instructors, we finally selected a graduate level course for following analysis because of the completeness of learning activities and higher learner accessibility.

The selected course introduced research methodology which was enrolled by fourteen graduate students who majored in Educational Technology. The course was conducted on blend learning which consisted of 72% online sessions and 28% physical meetings. During the 18 weeks of instruction, students participated in 13 weeks of online learning, 4 weeks of physical class and 1 weeks of examination (Midterm exams). For each online learning session, the students were requested to read learning materials, to answer the assigned questions in discussion forums, and to post at least three comments on their classmates' answers.

Data Collection and Analysis

This study applied two stages of investigation. First, we collected each subject's time spent and login frequency from system log. And, we developed a questionnaire for acquiring the subject's e-learning intention. Six items of measurement were adapted from Liu et al. (2010) and Teo & Noyes (2011). Each item was measured on a 5-point Likert scale with values ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument was verified by 2 academic domain experts and 3 experienced e-learning users. A pre-test was conducted to validate the reliability and validity. Spearman's correlation which was a non-parametric examination was used for estimating the correlation among constructs because of the limited sample size (i.e. 14 samples).

Second, we conducted a discourse analysis to examine the orientation of discourses. We collected all e-learning discourses posted by 14 participants throughout the 13 online learning sessions. Total 182 discussion threads that included 795 posts were collected, indicating that each discussion thread had 4.36 posts in average. It had to be noted, instead of a post, the unit of analysis was a discourse because a participant might say more than one thing in a single post. The researchers read the 795 posts sentence by sentence to distinguish discourses that represented singular semantic segment of meanings. Finally, 833 discourses were identified for following analysis.

A discourse analysis was performed by two independent coders based on a predefined coding scheme that include three orientation of communication. The coders classified the 833 discourses into three communicative orientations separately and independently. Among the 833 discourses, 697 discourses were consistently classified by the two coders, demonstrating 83% of consistency, which was satisfied the cut-off requirement (80%) of consistency (Kassarjian 1977).

Preliminary Findings

Subjects

The subjects were fourteen graduate students participated in the selected class. The subjects presented an equal portion of gender, and they were experienced computer users who engaged in more than 5 years in using a computer. In e-learning technology experience, eight subjects (57.1%) used the e-learning technology for more than 3 years, and five of them used it less than one year (see Table 1).

Table 1 Subject profile (n=14)					
	Item	n		Item	n
Gender	M	7	Student type	Full time	11
	F	7		Part time	3
Age (yrs)	20-25	8	Computer experience (year)	5-10	7
	26-30	3		< 10	7
	30-35	0	E-learning experience (year)	> 1	5
	36-40	1		2-3	1
	>41	2		< 3	8

E-learning intention and behaviors

The subjects' e-learning behaviors were indicated by time spent, login frequency, as well as discourses expressed on the platform. Table 2 presented the mean and correlation among these variables. The subjects reported fair intention on e-learning. And, they expressed 59.2 discourses in average.

Table 2 Construct means and correlation						
	Mean	Std	Intention	Discourse	Time	logins
Intention	3.26	0.89	1.000			
Discourse	59.5	34.38	-.038 (p=.899)	1.000		
Time (sec)	296970.5	107407.3	-.602* (p=.023)	.342 (p=.233)	1.00	
Logins	2149.36	811.66	-.438 (p=.117)	.282 (p=.328)	.721** (p=.004)	1.00

* p<0.05, ** p<0.01, *** p<0.001

The test of Spearman's correlation indicated non-significant correlations among intention, discourse and logins. That was, the subjects expressed comparable discourses and had similar number of logins, no matter that they had higher or lower intention. However, time was significantly correlated to intention but with a negative correlation. That meant, the subjects with lower intention spent more time on using the learning platform.

E-learning discourses

What did the subjects do for participating in the learning activities on the e-learning platform? Among the 833 discourses expressed through 18 weeks, most of them (40%) were social-oriented (see Table 3). Task-oriented discourse constituted 31.5% and procedure-oriented discourse were 28.5%. The result of Friedman test showed a non-significant differences among the three discourse orientation ($X^2= 2.868$, $p=0.238>0.05$), indicating a comparable orientation of discourse.

Table 3 discourse orientations of the 14 subjects				
	Total	%	Mean	St. d
Procedure	237	28.5	16.93	9.425532
Task	262	31.5	18.71429	14.08998
Social	334	40	23.85714	15.64932

Comparing behavior between groups

When most of the subjects expressed similar intention, it failed to cluster them base on intention. As intention was significantly correlated to time spent in our data (see Table 2), it might be an alternative way for clustering to explore the relation between discourse orientations and intention. Two groups were identified based on time spent by two-step clustering approach with Schwarz-Baysian rule. Mann-Whitney U test was used to examine the difference on discourse orientation between the two groups. The Mann-Whitney U test showed significant differences on time spent, intention and logins between the two groups (Table 6). The individuals in Group 1 spent less time, had higher intention but less logins than those in Group 2 did. In addition, the individuals in Group 2 expressed more discourses although it did not reach to the 0.05 significance level. When the more discourses were expressed in Group 2, most of them were social-oriented ones which was irrelevant to task.

Table 6 learning behaviors of the groups with different level of time spent

	Time	Intention	Logins	Total Discourse	Discourse orientation		
					Procedure	Task	Social
Group 1 (n=8)	221771.13	3.71	1720.00	50.63	13.13	18.75	18.75
Group 2 (n=6)	397236.33	2.67	2721.83	71.33	22.00	18.67	30.67
Mann-Whitney U	.00	5.50	8.00	11.00	13.00	20.50	10.00
Wilcoxon W	36.00	26.50	44.00	47.00	49.00	41.50	46.00
Z value	-3.10	-2.07	-2.45	-1.68	-1.42	-.45	-1.82
P value	.002**	.039*	.014*	.093†	.155	.651	.069†

†: p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Conclusion

This study examines the intention-behavior gap by time, logins, and online discourse analysis. Our preliminary findings suggested a non-significant correlation among intention, discourses, and login frequency, providing an evident to the intention-action gap. The individuals with lower intention used the e-learning platform more frequently and expressed more discourses. However, we found a significant but negative correlation between intention and time expand. The individuals with higher intention spent less time on the e-learning platform. We also conducted a group comparison to explain the gap. Our findings presented that users who spent more time on e-learning had lower intention but used the platform more frequently. However, these users devoted similar effort on making task-oriented discourse as the other group did. That collectively indicated that, although the lower intention spent much of time, they mainly made more social- and procedural-oriented discourses.

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