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Tsai-Hsin Shu

National Chiayi University

Yu-Tzu Chiu

National Chiayi University

Yi-Ying Chen

National Chiayi University

Yen-Hsien Lee

National Chiayi Univ. Chiayi, Taiwan, yhlee@mail.ncyu.edu.tw

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EXPLORING E-LEARNING BEHAVIOR THROUGH LEARNING DISCOURSES

Tsai-Hsin Chu
Department of E-Learning Design and Management
National Chiayi University

Yu-Tzu Chiu
Department of E-Learning Design and Management
National Chiayi University

Yi-Ying Chen
Department of E-Learning Design and Management
National Chiayi University

Yen-Hsien Lee *
Department of E-Learning Design and Management
National Chiayi University
yhlee@mail.ncyu.edu.tw

Abstract

As many studies predict e-learning behaviors through intention, few of them investigate user's learning behaviors directly. In addition to intention, individual's e-learning behaviors may be influenced by technology readiness and group influences, such as social identity and social bond. This research-in-progress study explores how e-learning behaviors vary with intention, technology readiness, social identity and social bond. Our investigation was based on analyzing the speech acts embedded in fourteen learners' online discourses in an eighteen-week e-learning course. We then compared how speech acts varied among groups with different degree of intention, technology readiness, social identity, and social bond. Our findings contribute e-learning research by clarifying how intention, technology readiness, social identity, and social bond influence learning behaviors in e-learning context.

Keywords: E-learning Behavior, Intention, Technology Readiness, Social Identity, Social Bond, Discourse Analysis

I. INTRODUCTION

More and more organizations and schools introduce an e-learning technology as the way to enhance knowledge accumulation and learning. Research proposes the benefits brought by e-learning including real-time training, anytime and anywhere learning, flexible training, and open learning [Rosenberg, 2000; Kathawala and Wilgen, 2004; Dominique, 2005]. To get the benefits of e-learning, however, users must use that technology for learning. Therefore, how to promote e-learning technology use is critical to both academy and practice.

Many studies emphasized intention to predict whether an individual used e-learning technology [Liaw, 2008; Park, 2009; Masrom, 2007; Yi and Hwang, 2003]. These studies built on Technology Acceptance Model [Davis, 1989], and proposed that user's perception on technology usefulness and ease of use could determine his or her intention of using the e-learning technology [Cheon, Crooks and Song, 2012; Liu, Liao and Pratt, 2009; Lee, Cheung and Chen, 2005; Yi and Hwang, 2003]. And when an individual had higher intention of using that technology, he or she would more involve and participate in e-learning [Lee, Yoon and Lee, 2009; Liu, Liao and Pratt, 2009; Lee, Cheung and Chen, 2005; Yi and Hwang, 2003].

Even though these studies show the importance of intention, they fail to elaborate how intention would be turned into e-learning behaviors. It also remains unclear that how people with different degree of intention perform different learning behaviors on an e-learning platform. In addition, these studies neglect other factors that might also influence individual's e-learning behavior. Excepting intention, an individual adjust his or her e-learning behaviors according to technology readiness and group influences. An individual's technology readiness refers to the tendency that an individual prefer to use technology for activities [Parasuraman, 2000]. An individual tends to use e-learning technology more frequent when he or she has higher technology readiness. For group influences, this study particularly focuses on behavior impacts brought by social identity and social bond. Social identity is defined as the degree of belonging, sharing values and emotional association to a group [Tajfel and Turner, 1986]. When an individual has higher social identity to a group, he or she will perform the behaviors that are consistent with the identified image of that group [Riley and Burke, 1995]. Social bond refers to social constraints which keep an individual on the track within a group [Hirschi, 1969; Chriss, 2007; Hirschi, 1969]. When an individual perceives higher social bond within a group, he or she will prevent performing the actions that violate the norms of that group [Han and Johnson, 2012]. Social identity may provide a positive attraction which facilitates an individual to engage in online learning. And social bond may act as a negative repulsion which avoids an individual escaping from online learning.

This research-in-progress study investigates learner's e-learning behaviors on an e-learning platform. Our research question is that whether an individual's e-learning behaviors are contingent on intention, technology readiness, social identity, and social bond. Our approach to e-learning behaviors was to analyze learners' online discourses on an e-learning platform. We collected fourteen learners' online discourses throughout an eighteen-week e-learning course. Applying the speech act theory to analyze the online discourses, we could examine the latent acts of discourses in order to explore the learner's motives of performing certain learning behaviors in online learning. In this light, we treated written texts (i.e. the post in discussion forum) as utterances that a participant communicated with others. This communication could be successful only when the receptors could recognize the writer's intention of post [Bach and Harnish, 1979]. In this area, speech act theory is a well-known tool to reveal the communicative acts embedded in the speaker's (and writer's) utterances [Austin 1962; Searle, 1975; 1976]. Conducting a discourse analysis, we classified the collected discourses into five speech act categories, and analyzed how speech acts could vary with the groups with different degree of intention, technology readiness, social identity, and social bond.

II. LITERATURE REVIEW

E-learning Behavior as communications

E-learning is a technology-mediated learning approach which uses information communication technology (ICT) for enhancing learning by increasing the access of learning materials and interactions among participants [Alavi and Leidner, 2001; Sangra, Vlachopoulos and Cabrera, 2012]. User's learning behaviors on an e-learning platform are learning activities including learning materials access, teacher- learner interactions, and the interactions among learners [Alavi and Leidner, 2001]. In this light, users' e-learning behavior can be regarded as communications in which individuals exchange idea with learning materials and other participants [Mclsaac, Blocher, Mahes and Vrasidas, 1999]. Most of these communications are asynchronous and mediated by technology [Hirumi, 2002].

Speech act embedded in communication

Austin (1962) proposes the idea of speech act theory (SAT) to highlight the communicative act embedded in people speech. Human speech is not merely to exercise vocal utterance, but corresponds to a certain act that represent different communicative intentions [Austin, 1962; Searle, 1975]. Although SAT was original proposed for analyzing spoken utterances, many studies extended its application to analyze written texts [Kim et

al., 2006; Qadir and Riloff, 2011; Cohen et al., 2004]. For example, Kim et al. (2006) used SAT to examine undergraduate students' online discussion for explaining why discussion thread ended without conclusion. Qadir and Riloff (2011) applied SAT to analyze WWW message board posts. Even though it is presented by written texts, an online discussion thread is essentially a conversation where the participants post opinion and respond to others about a particular issue (or issues) asynchronously on a technology platform. Therefore, the discourses of online discussion can inherit the property of human speech that contains certain communicative acts.

Austin (1962) distinguishes human utterance into locutionary act, illocutionary act and prelocutionary act. *Locutionary act* represents a rhetorical action which speaker is saying something in certain context [Austin, 1962; Bach and Harnish, 1979]. *Illocutionary act* refers to speaker's intention in saying something [Austin, 1962; Bach and Harnish, 1979]. Illocutionary act represents the purposes and metaphorical senses embedded in people's speech [Austin, 1962]. For instance, when a person is saying: "I do" in a wedding context. The utterance is not only making a response, but also carries the "act" of making a commitment to someone. Likewise, the utterance "how are you" indicates the speaker's intention of "greeting". *Prelocutionary act* means the speaker intends to affect listener(s) in a certain way by saying something [Austin, 1962; Bach and Harnish, 1979]. In this study, we particularly concern about the illocutionary act of speech rather than the prelocutionary act. It is because that the discourses on e-learning platform represent what speaker (i.e. the one who post) says to others but hold limited information of the consequences of that speech (i.e. the prelocutionary act).

Searle (1976) provides a linguistic structure to analyze Illocutionary act by distinguishing five types of acts, including *Assertives*, *Directives*, *Commissives*, *Expressives* and *Declarations*. *Assertives* refer to speaker's intention of expressing proposition on a particular subject matter. An example of assertive is that "I believe it is wrong". *Directives* refer to the speaker's expectations or requirements to the listener. "I order you to leave" can be an example of directives. *Commissives* commit the speaker to some future course of action. A typical example is that "I pledge allegiance to the flag". *Expressives* express the speaker's psychological and affective state specified in the propositional content. An example is that "I apologize for my bad behavior". *Declarations* refer to the speaker's intention to bring about the correspondence between the propositional content and reality to guarantee successful performance. The discussion relevant to norm or guideline is a typical example of Declarations. Furthermore, the utterances that triggered a change of status quo are regarded as Declarations, too. An example is that "I now pronounce you man and wife".

Antecedents of e-learning behaviors

E-learning Intention

Technology Intention is defined as the degree to which user's willing to use a particular technology [Davis, Bagozzi and Warshaw, 1989]. Accordingly, e-learning intention is the intention to use an e-learning technology for learning. Many studies suggest that e-learning intention can effectively predict e-learning technology use [Masrom, 2007; Park, 2009; Lee, Cerreto and Lee, 2010; Hsiao, 2012; Tarhini, Hone and Liu, 2013; Liao, Yu and Yi, 2011]. For example, based on four hundred college students' responses, Liaw (2008) found that intention was significantly and positively correlated to e-learning behavior. The similarly result was found by Lee (2006) in compulsory class. Yi and Hwang (2003) had the consistent observation in online learning context. Previous research collectively highlights that when an individual has higher intention, he or she will more likely to engage in e-learning and perform more e-learning behaviors. However, it is still unclear that how e-learning behaviors different according to various degree of intention.

Technology Readiness

Technology readiness refers to the tendency that an individual prefers using technology to accomplish tasks [Parasuraman, 2000]. Previous research proposes technology readiness can effectively predict technology use [Kaur and Gupta, 2012; Kuo, Liu and Ma,

2013]. As e-learning is using technology for learning, an individual's tendency of technology readiness may influence how he or she use e-learning technology to learn.

Parasuraman (2000) proposes that technology readiness can be constituted by two positive indicators (i.e. optimism and innovativeness) and two negative indicators. Optimism refers to the extent of an individual belief that technology can increase efficiency, flexibility and control. Innovativeness refers to the extent of priority that an individual use technology for performing tasks. Discomfort measures how an individual perceives negative effects brought by technology. Insecurity evaluates the extent of distrust and suspect of technology [Walczuch et al, 2007]. In e-learning context, users with high technology readiness believe e-learning technology brings benefits, prefer using technology, have high comfort and hold less anxiety to e-learning technology. Therefore, they are more likely to use the technology for learning.

Social Identity

Social identity theory suggests that people's social behaviors vary and mix interpersonal behavior (i.e. individual characteristics and interpersonal relationships) with intergroup behavior (i.e. in-group and out-group distinguish) [Hogg and Williams, 2000]. An individual develops self-concept from perceived membership in a relevant social group [Turner and Oakes, 1986]. Social identity refers to an individual's knowledge about his belongings to certain social groups together with value and emotional significance to him of this group membership [Tajfel and Turner, 1979]. Social identity rests on intergroup social comparisons that an individual seek to confirm or to establish distinctiveness between in-group and out-group [Turner, 1975; Hogg and Terry, 2000; Tajfel and Turner, 1986; Lee and Robbins, 1998]. Social identity is constructed through social comparison and social categorization processes. Firstly, an individual perceives the unique attributes of a group by comparing this group with others. Second, the individual compares the similarity and difference between self-image and group attributes. When the individual finds the shared characteristics between her and the group, she would conclude herself as an in-group [Tajfel and Turner, 1979; Tajfel, 1981; Briggs and Cheek, 1982]. Social categorization of self and others into in-group (or out-group) stresses the perceived similarity of the individual to the attributes of the group. It then produces the deindividualization process that the individuals are no longer represented as single individuals but as embodiments of the relevant group [Hogg and Terry, 2000]. With higher social identity, therefore, the individual tends to perform the particular behaviors that are consistent with the image or the value of the group [Dutton and Dukerich, 1991].

Social Bond

Rooted in sociology and criminological research, social bond refers to the social bindings to keep individuals on the track in a society [Hirschi, 1969]. Hirschi's social bonding theory suggests the relationship between an individual and the society (or group) provides bonds to control deviate [Hirschi, 1969]. In this regard, Hirschi distinguishes four bonds (i.e. attachment, commitment, involvement and belief) that contain people not to violate social norms and values [Hirschi, 1969]. He argues that when a person is more attached other members of society, more believe in the values of society, and more invest and involve in conventional lines of activity, he or she is less likely to deviate [Chriss, 2007]. In other words, when an individual has stronger bond to a group, he or she will not do the behaviors which are not accepted by the group. The social bond perspective has been applied for investigating many issues, such as criminal control [Akers and Sellers, 2009; Bender, Tripodi, Aguilar and Thompson, 2010; Popp and Peguero, 2012], online learning environment design [Heeyoung and Johnson, 2012], and online community design [Ren, Kraut and Kiesler, 2007]. Extending this idea to an e-learning context, users' perception of social bond may affect their e-learning behaviors.

III. Research Methodology

This study conducted a discourse analysis to examine how e-learning behaviors vary with intention, technology readiness, social identity and social bond. Our investigation was anchored on a case study of an e-learning course spread on eighteen weeks.

Sampling

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 instructional and learning activities, as well as higher learner accessibility.

The selected course introduced educational 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, 3 weeks of physical class and 2 weeks of examination (Midterm and Final exams). For each online learning session, the students were requested to read learning materials, to answer assigned questions in discussion forums, and to post at least three comments on their classmates' answers.

Data Collection

Our data was collected by discussion log and questionnaire. We collected all discourses from the discussion threads posted by 14 participants in the 13 online learning sessions. As each student was required to open a single discussion thread to present his or her opinion on the assignment in each online session, 182 discussion threads were collected. In addition, each student was asked to post at least 3 comments on their classmates' opinions for each discussion. In our data, we found that each discussion thread included 4.37 posts in average. Therefore, totally 795 posts were collected for analysis.

Furthermore, we developed a questionnaire for the participants to report their e-learning intention, technology readiness, social identity, and social bond. The measurement of each construct was developed by adapting items from previous studies. A 5-point Likert scale was used for response. A pretest of the reliability and validity was performed before the formal investigation.

Data Analysis

This study conducted discourse analysis to analyze the collected 795 posts. The unit of analysis was a discourse, rather than a post, because a participant might say more than one thing in a single post. In each post of discussion threads, we read sentence by sentence to distinguish discourses that represented a singular semantic segment of meanings. Finally, we identified 833 discourses for following discourse analysis.

For discourse analysis, we developed our coding scheme of illocutionary acts based on Searle (1979). The operational definition and corresponding verbs of each illocutionary act were established. Then, two independent coders classified the 833 discourses into five illocutionary act categories according to the developed coding scheme. The two coders executed the coding process separately and independently. After they finished their individual coding, the two coders contrasted their coding results and discussed the inconsistencies for making consensus. Among the 833 discourses, 679 discourses were consistently classified into an illocutionary act category by the two coders. It demonstrated 83% of consistency, which was satisfied the cut-off requirement (80%) of consistency [Kassarjian, 1977].

IV. Conclusions

This research-in-progress study attempts to examine how e-learning behaviors vary with intention, technology readiness, social identity, and social bond. Based on analyzing the speech acts embedded in learner's discourses, this study is expected to extend our understandings on e-learning behaviors.

The potential contributions of this study may be two folds. First, our research findings are based on examining learning discourses, rather than analyzing self-report results. This investigation can specifically reveal the process where learning takes place. By analyzing the speech acts embedded in learning discourses, we can distinguish learners' motives behind behaviors to clarify how learning is approached on an e-learning platform. Second, this study extends the antecedents of e-learning behaviors by considering both individual and group influences. For individual influences, this study examines the effect of technology readiness in addition to e-learning intention. For group influences, this study considers the effect of social identity and social bond. In this regards, we remind that e-learning is not only an individual matter, but also a group affair. In addition to increasing individual intention and technology readiness, the instructors can manipulate group influences, such as social identity and social bond, for facilitating particular e-learning behaviors.

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ABOUT THE AUTHORS

Tsai-Hsin Chu is an Associate Professor of Department of E-Learning Design and Management at National Chiayi University in Taiwan, R.O.C. She received her Ph. D in National Sun Yat-sen University and had been a visiting researcher of Department of Information Technology Management at Georgia Institute of Technology and the Centre of Management Information and techpreneurship at National University of Singapore. Her research interests include information technology acceptance and adoption, technology and organizational change, e-learning, knowledge management, electronic commerce, and computer mediated communication. She has published papers in major journals, including *European Journal of Information Systems*, *Information & Management*, *Computers in Human Behaviors*, *Journal of Organizational Computing & Electronic Commerce*, and *Decision Support Systems*. Tsai-Hsin can be reached by thchu@mail.ncyu.edu.tw.

Yu-Tzu Chiu is a Graduate Student of Department of E-Learning Design and Management at National Chiayi University. Her research interests include E-learning behaviors and knowledge management.

Yi-Ying Chen is a Human Resource Staff of Asiatic Fiber Corporation. She received her Master degree from National Chiayi University. Her research interests include E-learning behaviors and knowledge management.

Yen-Hsien Lee is an Associate Professor of Management Information Systems at National Chiayi University in Taiwan, R.O.C. He received his Ph.D. in Information Management from National Sun Yat-Sen University in Taiwan, R.O.C. in 2005. He has published papers in *Journal of Management Information Systems*; *Journal of the American Society for Information Science and Technology*; *IEEE Transactions on Systems, Man and Cybernetics*; *Decision Support Systems*; *Artificial Intelligence in Medicine*; and *Expert Systems with Applications*. His current research interests include knowledge discovery and data mining, knowledge management, information retrieval, text mining, and web mining.