論文題目：

The Study of Media Richness Theory Influencing Individual's Perception and Behavior

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Abstract

Nowadays, Social Network Sites (SNSs) have experienced potential growth all over the world, and have attracted millions of people to register and participate. At the same time, SNSs also have changed people's communication behavior. SNSs are built and designed to provide online service and platform for social interaction and information exchange, so people can contact with friends and family, as well as meet new friends. In addition, SNSs are kinds of the communication techniques, which continue improving through technological innovation. Therefore, a success communication platform or service depends on how to design an appropriate environment.

This study is based on Social Cognitive Theory (SCT) as the theoretical concept to divide in to three components, and subsumes media richness theory under the environment of SCT and emphasizes the importance of environment in SNSs to examine whether users of social network services are influenced by the environment with higher media richness, and how they respond to their behaviors.

Data collected from 481 online users in SNSs provide support for the proposed model. This study shows that (1) In Taiwan, the most popular social network site is Facebook. (2) Media richness theory plays the important role in the antecedents of machine interaction and interpersonal interaction, especially content richness and content accuracy. (3) Media richness theory is partial antecedents of online privacy invasion and privacy risk belief. (4) Now, users are still inclined to use SNSs with positive attitudes, but it is possible for them to choose other SNSs, which has more attractive features or more good privacy settings because of online privacy invasion and privacy risk belief. (5) Online privacy is a dynamic variable which people feel different levels of privacy under different environments or situations.

Keywords: Social Cognitive Theory, Media Richness Theory, Social Network Sites

1. Research Background

SNSs have experienced potential growth all over the world. However, there are different developments of SNSs in different countries. Some are losing their memberships, and some are still attracting many people to register. For example, MySpace had lost 10 million users who are not willing to stay at the site because of the main competitor, Facebook. Although Facebook is one of the most popular sites, there is a lot of negative news involving in privacy issues. Facebook lost 7 million active users in the U.S and Canada in May 2011. SNSs are kinds of the communication techniques, which continue improving through technological innovation, and SNSs have influenced people's communication behaviors. This study is based on SCT as the theoretical concept to subsume media richness theory under the environment and examine whether users of social network services are influenced by the environment with higher media richness, and how they respond to their behavior. The following is five research objectives: (a) Media richness theory divided into four constructs is used in the environment of SNSs to examine what the key determinants influence perceived interactivity and perceived privacy; (b) Examine whether interactivity influences perceived privacy risk and invasion; (c) Explore the relationships among perceived interactivity, perceived privacy, and their behavior.

2. Literature Review

2.1 Social Cognition Theory

Social Cognition Theory (SCT) (Bandura, 1977; 1982) is the widely applied, accepted, and validated model of individual behavior (Compeau & Higgins, 1995), especially in the information systems (IS) (Bandura, 1986; 1989). SCT consists of three components: environment influences such as social or physical surroundings and specific situational characteristics, cognitive or personal factors including thoughts, beliefs, personality, as well as demographic characteristics, and behavior. These three

components interpret human functioning as a series of triadic, dynamic, and reciprocal interactions. According to Bandura (1986), individuals choose to exist in the environments, and then they are influenced by those environments; moreover, individual's behavior is affected by given situational characteristics, which is also affected by their behaviors. Finally, their behaviors are influenced by cognitive and personal factors, and also influence the same factors.

2.2 Media Richness Theory

Media Richness Theory was derived from contingency theory and developed by Daft, Lengel and Trevino (Daft & Lengel, 1984; Daft, Lengel & Trevino, 1987; Rice, 1992). Daft and Lengel (1986) considered that "rich" media could make users communicate more quickly and understand ambiguous or equivocal messages so that it is more appropriate for resolving equivocal situation while "lean" media could avoid users providing too much information and superfluous messages so that it is more appropriate for reducing uncertainty. For this reason, richer media are generally used for more complex tasks (Leonard, Brands, Edmondson & Fenwick, 1998).

The theory is based on four factors influenced the richer media (Daft et al., 1987): (1) the capability for immediate feedback; (2) the capability to transmit multiple cues; (3) language variety; (4) the capability of the media to have a personal focus. According to four criteria of media richness theory, Lan and Sie (2010) developed new four factors to evaluate delivery performance among SMS in the mobile environment, Email, and RSS: *content timeliness*, *content richness*, *content accuracy*, and *content adaptability*.

Media richness theory has been widely applied in varied field, and current studies takes up applying other issues due to development of technology information, such as distant education environment (Shepherd & Martz, 2006), mobile learning (Lan & Sie, 2010), electronic commerce (Aljukhadar, Senecal & Ouellette, 2010; Chen, Chen & Kazman, 2007), advergames (Sukoco & Wu, 2010), product Web site design (Simon &

3

Peppas, 2004), virtual community (Shiue, Chiu & Chang, 2010), and so on. Media richness theory has been applied in a variety of issues with success in both theoretical analyses and empirical studies (Lan & Sie, 2010). Therefore, this study adopts media richness theory with four key factors-*content timeliness, content richness, content accuracy, and content adaptability*-to examine Websites design on social network and evaluate its importance of users' perception to predict their behavior.

2.3 Perceived Interactivity

People can perceive that the interaction or communication between person-to-person and person-to-machine is two-way, controllable, and responsive to their action (Mollen & Wilson, 2010) so that they have ability to effectively control the outcome during the interaction. *Machine interaction* refers to interactivity with the media emphasizing human-to-computer interface. *Interpersonal interaction* refers to interactivity through the media emphasizing human-to-human communication as mediated by the computer. These two types of interactivity involve not only a user feature and a media feature, but also definite aspects over the whole process of the interaction. Therefore, this study adopts two factors to interpret the antecedent factors that affect the perception of users and their behaviors on the SNSs.

The online communication environment can influence perceived quality of interactivity. The online communication is different from face-to-face communication, so people choose the communication with higher media richness to have good interaction, such as immediate response, various topics, many media types (Argyle & Dean, 1965; Walther, 1992), size of groups (Tu, 2002), and accurate information. Thus, this study hypothesizes that:

H1a/b~4a/b: Content timeliness/content richness/content accuracy/content adaptability has significant and positive effect on machine interaction/interpersonal interaction.

2.4 Privacy

Two privacy factors this study adopts are previous online privacy invasion and privacy risk belief, respectively. *Online privacy invasion* refers to online users' previous privacy invasion experience (Awad & Krishnan, 2006). *Privacy risk belief* refers to potential loss of control over personal information (Malhotra, Kim & Agarwal, 2004). Users are afraid of their own personal information including messages people post, photos people upload, activities people participate, and so on are unauthorized access and theft.

Online privacy invasion is regarded as a violation of psychological social contract and people may perceive the feeling of betrayal or injustice (Pate & Malone, 2000; Rousseau, 1989) and begin to mistrust other parties. Pavlou and Gefen (2005) indicated that when psychological social contract violated by a seller in online marketplace, people must perceive the violation for a seller, even for this community. This situation will heighten the individual's perception of risks from the community. Thus, this study hypothesizes that:

H5: Online privacy invasion has significant and positive effect on privacy risk belief.

Shiue et al. (2010) found media richness has significant and positive effects on perceived risk. The main reason is that face-to-face communication is different from mediated communication. Face-to-face communication may decrease many uncertainties and deliver trust, friendship, and emotional expression of message (Feldman & March, 1981). However, mediated communication with higher media is difficult to convey social cues, even generate higher levels of perceived conflict among people (Lam, 1997). Thus, this study hypothesizes that:

H6a/b~H9a/b: Content timeliness/content richness/content accuracy/content adaptability has significant and positive effect on online privacy

invasion/ privacy risk belief.

Online privacy is a dynamic variable which people feel different levels of online privacy under different environments or situations. Tu (2002) argued whether it is better to have more privacy online environment. In general, in more pubic and less private environment, the good interaction with others has the better effects, especially on the online learning (Tu & Blocher, 2000), but it may increase feeling of privacy. Thus, this study hypothesizes that:

H10a/b~H11a/b: Machine interaction/interpersonal interaction has significant and positive effect on online privacy invasion/privacy risk belief.

2.5 Motivation for Relationship Maintenance

According to Stafford and Canary (1991), relational maintenance is an interpersonal strategic behavior that people maintain a specific goal or long-distant relationship intentionally and consciously, and is regarded as "actions and activities used to sustain desired relational definitions". High quality of a mediated conversation can make users have more motivation to maintain their relationships; hence, users want to post or show something on the wall (Hwang, 2011; Walther, 2007). As such, the efficient communication, rather than the overly conservative ones would influence person's active and straightforward behavior (Rabby & Walther, 2003). Thus, this study hypothesizes that:

H12/13: Machine interaction/interpersonal interaction has significant and positive effect on motivation for relationship maintenance.

2.6 Social Loafing

Social loafing is the tendency that a person provides less effort when working together than working alone (Karau & Williams, 1993). People have no motivations to work with a group, because they consider that their contribution and effort will not be

concerned and valued, so that social loafing behavior results in some problems, such as affecting groups' performance over quality decision, quantity and quality of ideas (Chidambaram & Tung, 2005). In the SNSs, the perception of uncertainty makes users hesitate to disclosure personal information (Dinev & Hart, 2006), because their information could be used without permission. Pavlou and Gefen (2005) have argued negative experiences bring about negative feelings. Even if people were invaded privacy once, they gradually decrease times that disclosure their information on the SNSs. Thus, this study hypothesizes that:

H14/15: Online privacy invasion/privacy risk belief has significant and positive
        effect on social loafing.

2.7 Willingness to Provide Information

Willingness to provide information refers to the intention to perform behavior that disclose and share information to a Websites (Li, Sarathy & Xu, 2011; Zimmer, Arsal, Al-Marzouq & Grover, 2010). There are two positive reasons for people to disclose information in online communication media. First, self-disclosure can provide impressing or interesting information, then get the return disclosures from others when they agree with you (Jourard, 1971). Second, the depth of self-disclosure will be expanded (Wang, Jackson & Zhang, 2011) because online communication media may not make users concern about perceptions that cause fewer inhibitions (Walther, 1996).

In the SNS, users can show the personal information on their profile, upload photos to make others view and tag people who are in the photo, post sentences on their own pages or others', and join the groups they interest to share comments or provide suggestions for others, even strangers. Users are willing to deliver information about themselves in order to make their friends feel happy or demonstrate how they value the relationships with those friends (Park et al., 2011). Thus, this study hypothesizes that:

H16: Motivation for relationship maintenance has significant and positive effect on willingness to provide information.

2.8 Intention to Switch

Past studies had used PPM model to examine "intervening obstacles" and "personal factors" (Lee, 1966) as antecedents constructs, and proposed the notion of "mooring" to show the lifestyle, cultural and spatial factors, which may affect or obstruct a migratory decision (Longino, 1992). Therefore, many researches applied the PPM model in service migration, and found some factors, including satisfaction, quality, value, trust commitment and price perception are viewed as evaluative drivers of service switching intention (Bansal et al., 2005). According to the PPM model and social loafing, this study hypothesizes that:

H17: Social loafing has significant and positive effect on intention to switch.

2.9 Actual Usage Behavior

According to Theory of Reasoned Action (TRA), which was developed by Fishbein and Ajzen and is a widely studied model in social psychology, an individual's behavior can be predicted by behavioral intentions, and behavioral intentions can be impacted by the person's attitudes and motivations regarding the behavior. SNSs which are relatively a richer communication environment and a new information technology have been developed rapidly, but users could generate attitudes involving in positive and negative personal factors due to information transparency, then their behavioral intentions affect their actual usage behavior. Thus, this study hypothesizes that:

H18: Willingness to provide information has significant and positive effect on actual usage behavior.

H19: Intention to switch has significant and negative effect on actual usage behavior.

3. Methodology

The items for measuring media richness theory were adapted from Lan and Sie (2010). Interactivity was measured with items adapted from Hoerner (1999). Online privacy invasion and privacy risk belief were adapted from Bansal, Zahedi and Gefen (2010). The items for measuring motivation for relationship maintenance were adapted from Wheeless (1978). The items for measuring social loafing were adapted from Lin and Huang (2009). The items for measuring willingness to provide information were based on Constant, Sproull and Kiesler (1996). The items for measuring intention to switch were adapted from Kim, Shin and Lee (2006). The items for measuring actual usage behavior were adapted from Moon and Kim (2001). The items of media richness theory and willingness to provide information are assessed on a five-point Likert scale. Online privacy invasion and privacy risk belief are measured on a continuous 11-point semantic differential scale, where 0 is the lower end, and 10 is the upper one. Others used a seven-point Likert scale.

This study focuses the participants who have used one of SNSs for six months. Using SNSs is viewed as the activity on the Internet; hence, this study adopts the Internet survey as the research tool and create online questionnaire (mySurvey online service) to place a link on Facebook, Google +, and so on.

4. Data Analysis

4.1 Measurement Model

Composite reliability of all construct are above 0.7 and average variance extracted are above 0.5, which conform to the recommended values (Fornell & Larcker, 1981) and indicate that all items are significantly related to their specified constructs (Hulland, 1999). Discriminant validity was examined using criteria suggested by Gaski and Nevin (1985) and by Fornell and Larcker (1981). This study examines correlation coefficient matrix of variables, and the results consisted with three criteria; thus, the construct

validity of the measurement scales were acceptable. Reliability Analysis is separated into two parts: item reliability and construct Reliability. All factor loadings are greater than 0.6, which conform to the recommended values (Hair Jr. et al., 2010), and SMC values for all items range from 0.363 to 0.932, which also conform to the recommended values (SMC>0.2) (Bentler & Wu, 1993; Jöreskog & Sörbom, 1993). The results indicated all items are significantly related to their specified constructs. This study also tested for reliability of each construct, and it showed Cronbach's α of all constructs are above 0.7, which conforms to the standard of values for the constructs (Nunnally, 1978) and indicates there are internal consistencies among the items.

4.2 Structural Model

Absolute fit measures of this study are: χ^2=2505.833, D.F.=999, χ^2/D.F.=2.526, GFI=0.818, AGFI=0.795, RMSR=0.081, RMSEA=0.056. χ^2=2505.833 (P<0.05), AGFI, RMSR and RMSEA are lower than the recommended criteria, but other indices are above the accepted value. Hair Jr. et al. (2010) indicated that if the sample size is more than 250 and predicated variables are more than 12. In addition, if GFI and AGFI are lower than the recommended criteria that Hair Jr. et al. (2010) suggested, it is also accepted that GFI and AGFI are between 0.80 and 0.89 (Jöreskog & Sörbom, 1993). All in all, absolute fit indexes of this study conform to the recommended standard.

This study tested the hypothesized relationships among various constructs using the structural equation modeling (SEM) technique. Figure 1 reports the results of SEM analysis.
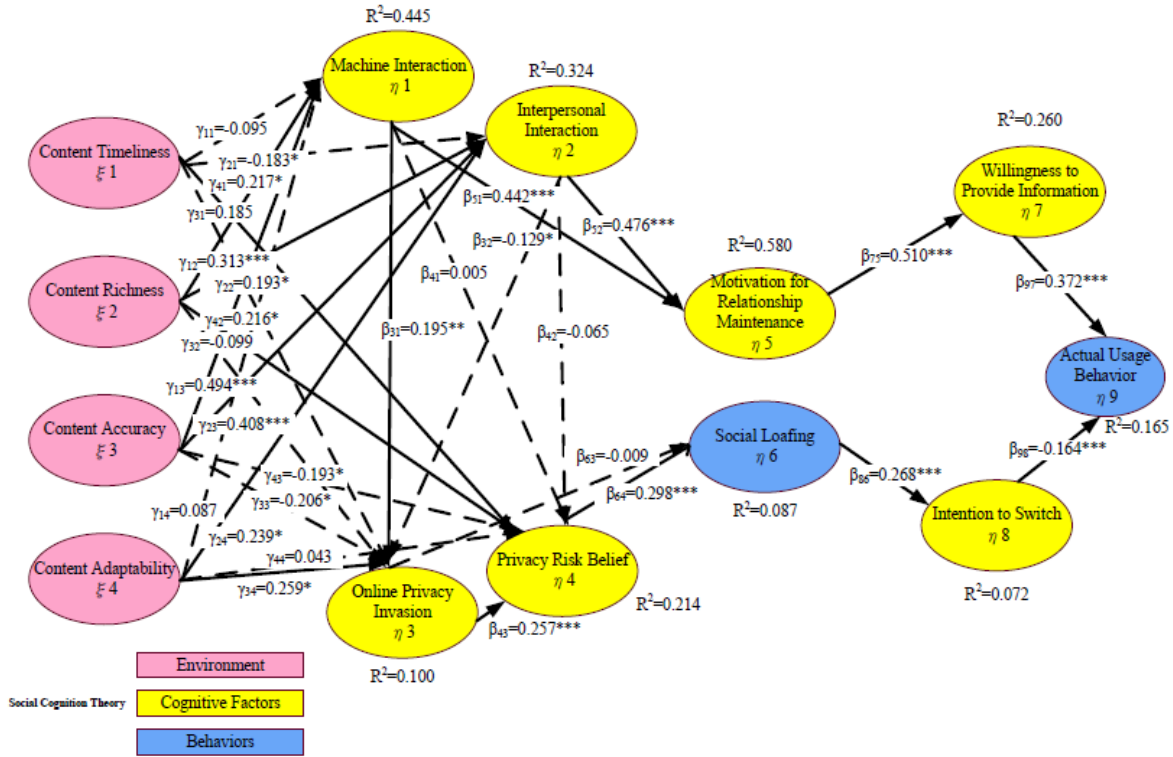
Figure 1 Overall Research Framework

5. Conclusions and Suggestions

5.1 Conclusions

(1)The Environment of SCT: Media Richness Theory

For media richness theory as the antecedents of perceived interactivity, the results show content richness and content accuracy has significant and positive effects on both machine interaction and interpersonal interaction, and content adaptability has significant and positive effect on interpersonal interaction. Except H1a, H1b, H4a, other five hypotheses are supported. Consequently, it implies that media richness theory plays the important role in the antecedents of machine interaction and interpersonal interaction, especially content richness and content accuracy.

For media richness theory as the antecedents of perceived privacy, it shows content timeliness and content richness has significant and positive effect on privacy risk belief, and content adaptability has significant and positive effect on online privacy invasion.

Because only three hypotheses are supported, it may imply that media richness theory is partial antecedents of online privacy invasion and privacy risk belief. This study finds that content accuracy has significant and negative effects on both online privacy invasion and privacy risk belief. When received messages are more clearly expressed, it would decrease the perceptions of online privacy invasion and privacy risk belief.

(2)Personal Factors and Behaviors: Positive or Negative?

For positive factors, the results show both machine interaction and interpersonal interaction have significant and positive effects on motivation for relationship maintenance; motivation for relationship maintenance has significant and positive effect on willingness to provide information; willingness to provide information has significant and positive effects on actual usage behavior (standardized path coefficients are 0.442, 0.476, 0.510 and 0.372, respectively). For negative factors, the results show online privacy invasion does not have significant and positive effect on social loafing; privacy risk belief has significant and positive effect on social loafing; social loafing has significant and positive effect on intention to switch; intention to switch has significant and positive effect on actual usage behavior (standardized path coefficients are -0.009, 0.298, 0.268 and -0.164, respectively). From the viewpoint of path coefficients, all positive factors are higher than negative factors. It presents that users are inclined to use SNSs with more positive attitudes and perceptions than negative effects.

(3)Interactivity vs. Privacy

According to the results, this study finds that both machine interaction and interpersonal interaction affect online privacy invasion. Machine interaction has significant and positive effect on online privacy invasion and interpersonal interaction has significant and negative effect on online privacy invasion. Because only one hypothesis is supported, the study infers that it is complicated to identify the

relationship between interactivity and privacy. However, it indicates users' perceived interactivity is related to their experience on privacy invasion.

5.2 Implications for Practice

This study finds that if received messages have the great speed to get immediate feedback in SNSs, users perceive the lower level of interpersonal interaction but the higher level of privacy risk belief. The online communication is different from face-to-face communication; thus, it cannot express more nonverbal cues (Jonassen & Kwon, 2001; Rice & Love, 1987), so that users might sometimes feel uncomfortable on messages and be afraid personal information are unauthorized access and theft. Web designers should create some lovely emotions which use punctuation marks and letters to express a person's mood and make users with more functional tools to show emotion and feeling easily. It may avoid unnecessary misunderstanding from its context.

This study finds if received messages include various media types in SNSs, users have higher level of machine interaction and interpersonal interaction but perceive higher level of privacy risk belief. It indicates users are conflicting with their perception. In SNSs, users have a good interaction with machine and members because they can use different media types to show opinions. Relatively, they are afraid that messages friends post, photo friends upload are unauthorized access. Therefore, it is necessary to strengthen the function tools and make users decide whether their messages are visible to anyone or limited by some people.

A received message can be clearly expressed and easy to be comprehended in SNSs. It not only heightens interactivity with machine and other members but also reduces negative feeling and experience on privacy problems.   Content accuracy is the vital element to successful SNSs. Consequently, Web designers should design the space of a whole page, layout and detail be explicit and easy to understand.

Even if received messages can be adapted to different formats in SNSs, they

perceive higher level of experience online privacy invasion but perceive higher level of interpersonal interaction. It indicates while users have a good interaction with members, they feel a lot of members observe themselves through backtracking functions and recent activities options. Therefore, Website designers should think about how to improve its effect. If designers want to provide the function of recent activity, they would also provide the option for users or increase privacy setting to reduce the negative effects.

This study finds interactivity can be view as the important factor in SNSs. The benefits and satisfactions from SNS users can override and replace the effects of negative experience and privacy risk belief. As long as users have a great interaction and make them relax, they would ignore negative experience gradually and reduce privacy risk belief. Therefore, Website designers should create more functions about "interactivity". At the same time, they should pay much attention on privacy setting lest users distrust this environment.

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