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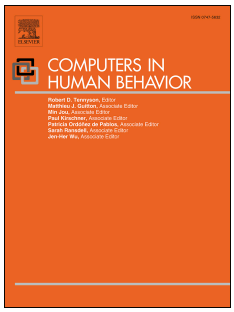

User trust in social networking services: A comparison of Facebook and LinkedIn

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User Trust in Social Networking Services: A Comparison of Facebook and LinkedIn

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User Trust in Social Networking Services: A Comparison of Facebook and LinkedIn

Abstract

The innovative social networking services (SNS) provide people with versatile personal, commerce, and social applications. This study compares Facebook and LinkedIn to better understand factors affecting users' trust on SNS. Subject domain experts were invited to participate in qualitative research based interviews. Using the refined research model a quantitative empirical study was designed and conducted to investigate the relationships between important constructs including effort expectancy, social influence, privacy concern, perceived risk, trust, and continuance intention. Users' trust on SNS is mainly influenced by effort expectancy, social influence, and perceived risk. The impacts of influential factors are different between Facebook and LinkedIn user groups. Our empirical results imply that when the positive influences, such as effort expectancy of the online community, users from different SNS have different needs in social reputation, or high security compliance, in consideration of the negative influence of perceived risk to users' trust when continuing to use the SNS. This study presents a conceptual framework using extant theories and models to form a foundation for SNS incorporating the important factors of trust and privacy concerns.

Keywords: social networking services (SNS); service trust; privacy concern; perceived risk

1. Introduction

In recent years, social networking services (SNS) have become a global phenomenon, attracting a great amount of people who want to share their current feelings and opinions. SNS allow users to create information content to publish on blogs, social networking sites, and online-sharing platforms. The social networking site user could be an information creator, commenter, or reviewer in a social community. Also, recent research shows that SNS may be beneficial to businesses in multiple ways related to product research, sales, marketing, customer service, and human resources; the adoption of SNS creates various user benefits such as facilitated collaboration among connected friends, the increased convenience of human communication, improved employee productivity between an enterprise and its customers, and the development of multi-channel retailing (Heidemann et al., 2012; Jang et al, 2015).

Online social services require users to provide personal information such as names, photographs, personal interests, and personal contact details. Users may utilize the information from the SNS to further expand their personal interests such as establishing professional relationships and creating business opportunities. Users may choose to share private information intensively to maintain their social relationships, find users with similar interests, and acquire knowledge through the SNS. Thus, the most popular SNS such as Facebook and LinkedIn are used to share personal status, information, opinions, propositions, or conversations with public, private, or connected networks of social friends (Boyd and Ellison, 2007).

Facebook and LinkedIn are prominence in social media worldwide. Facebook already has over one billion registered user accounts. Several surveys report that 50% of the over 500 million users of Facebook logon daily and spend over 700 billion minutes on site each month. The world largest professional networking site is LinkedIn. LinkedIn was established in 2003 and since then the number of members signed up on LinkedIn has reached over 450 million worldwide (LinkedIn, 2015). Users on LinkedIn are able to showcase their work-related capabilities and connections for their personal and professional purposes. The dominance of Facebook and LinkedIn among social networking sites indicates their significant relevance for study.

The difference between Facebook and LinkedIn is suggested in Baker et al. (2013) study that Facebook is generally associated with community and group interaction while LinkedIn is associated with solely professional networking. Both Facebook and LinkedIn are widely accepted in business and companies as these two SNS are beneficial in group creation and relationship ties (Skeels and Crudin, 2009). However, the perceptions and motivations of using Facebook and LinkedIn are different. Numerous studies showed that users use Facebook mainly for locating and communicating with friends (Manasijevic al., 2016). Yet, users engaged in LinkedIn for the purpose of self-promotion, group activities, job affairs, finding friends, follow up, profile viewer data, and professional networking (Basak and Calisir, 2014). Also, studies assess the objective and usage rate of using Facebook and LinkedIn and show that Facebook has higher percentage of people engaging in meeting new people while LinkedIn has lower percentage of engagement (Myers et al. 2011). These two sites are dominant in social media market, and yet they each have their own user groups who are different in motivation, purposes, engagement and perception of usage. Therefore, they are important to represent social and professional networking services and provide comparisons between the two SNS for research.

Previous studies showed that tensions over disclosing confidential information exist among users (Yokoyama and Sekiguch, 2014). Using SNS may result in security

issues relating to trust and privacy. The methods of personal information sharing through SNS create concerns over privacy and risk issues. Certainly, scholars have recently focused on trust characteristics of user behavior to understand more about these influence factors. For instance, Facebook trust were as technology and related person trust, which moderated by privacy concern of user perceived (Lankton and McKnight, 2011; Tan et al., 2012). Consequently, when enterprises utilize Facebook fan pages to facilitate business development, they must consider trust issues (Jang et al, 2015).

Prior research related to new technology has been conducted on user behavior to understand user intentions and acceptance of social media. A survey showed that users' objective of using Facebook is for meeting new people while using LinkedIn is for meeting other professionals (Myers et al., 2011). User intentions and acceptance of Facebook and LinkedIn are varied. Also, the ways of information disclosures in Facebook and LinkedIn results in different level of privacy concerns. According to the research, the more privacy concerns an individual perceived, the less information disclosed on the SNS (Stutzman et al., 2011). Other studies showed that privacy concerns have a role in mediating perceived usefulness and ease of use in user intention to use Facebook (Tan et al., 2012). In terms of trust-based issues and privacy concerns, the potential factors influencing user behavior still deserve further investigation (Al-Debei, 2013). To bridge this gap, the main objective of our study is to explore user trust in relationship to perceived privacy risks and continuance intention (ongoing usage). Our study further expands the scope to study the different user groups between Facebook and LinkedIn.

The acceptance of new users of Facebook and LinkedIn are investigated over various important factors. In particular, in terms of negative factors influencing trust of Facebook and LinkedIn, we considered previous research findings about privacy concerns and perceived risks (Tan, et al., 2011; Lankton and McKnight 2011; Fogel and Nehmad 2009). In sum, the overall objectives of this research are to build a model to investigate how users perceive privacy concerns, risk, and trust in SNS; to understand how effort expectancy and social influence affect user trust of SNS; and to incorporate user privacy concerns and perceived risks to explain the trust mechanisms at play in SNS user behavior among different user groups.

2. Literature review

2.1 Trust

Trust refers to an individual's belief in or expectation of others' ethical behaviors under various influential factors such as subjective norms, risk, confidence, and security (Grandison and Sloman, 2000). Trust is defined as the willingness to accept a

vulnerable situation based on a positive expectation regarding the actions of others. Researchers use different influential factors to determine the tendency to trust and construct trust as a central aspect in all types of relationships (Riegelsberger et al., 2005). For example, studies of cloud services investigated individual trust in the ability, skills, and expertise of service providers to perform tasks effectively for them (Gefen et al., 2003). In addition, the study of Bhattacherjee (2002) examined individual trust in online retailing and online banking.

Trust in technology means that users are willing to depend on its system functions as the users believe the technology has the desirable attributes to protect their concerns (McKnight, 2005). Prior research shows that risk is associated with trust (Doney et al., 1998). Human relationships are filled with various risks, which may paralyze action or lead to feelings of engulfment, dread, or anxiety (Sheppard and Sherman, 1998). In addition, the antecedents of online trust contain perceived useful, perceived security, perceived privacy, perceived good reputation, willingness to listen to the customer, system quality, and information quality (Chen and Barnes, 2007; Zhou, 2014). Helping to reduce social uncertainty and risk, trust is a vital element in virtual contexts and can be learned through social interaction and considered as a positive predictor for people's interactions and behaviors (Gefen et al., 2003). Representing a type of perception from a human psychological perspective, trust has key characteristics associated with vulnerability, uncertainty, and risk. Trust also refers to a user's belief in the security, dependability, and competence of the system the user is working with, especially under conditions of risk (Doney et al., 1998; Jang et al., 2014). In a situation where there is a lack of trust, user would be likely to limit interaction with the service provider.

Recently, Lankton and McKnight (2011) demonstrated trust beliefs around Facebook related to impersonal characteristics (competence, integrity, and benevolence) or technology characteristics (functionality, reliability, and helpfulness). Our study needs to carefully define belief attributes, integrating technology and personal trust in a combined user behavior construct. According to existing research results, trust is a key foundation of behavioral intention and needed to create user perceived value in SNS through social and experiential activities, and information and transactions in the emerging development of SNS commerce (Ngai et al., 2015).

2.2 Effort Expectancy and Social Influence

The Unified Theory of Acceptance and Use of Technology (UTAUT), a widely referenced framework in studying the acceptance of new technologies and assessing the likelihood of success for new technology introductions (Venkatesh el al., 2003), has been used to study the acceptance of technologies related to social networks

(Sykes et al., 2009). The UTAUT integrates eight technology acceptance models to explain user intention to accept a new technology as well as subsequent usage behavior (Venkatesh el al., 2003). The UTAUT model structure includes performance expectancy, effort expectancy, social influence, facilitating condition, and user intention. The model is able to account for 70 percent of the variance in user intention (Venkatesh el al., 2003), thus making it a useful tool to evaluate individual acceptance of information technology.

Moreover, the UTAUT model in previous studies has been applied to information technology, e-commerce, and mobile services (Riemenschneide et al., 2003; Hong et al., 2006; Zhou et al., 2010; Im et al., 2011). In addition to such studies, the model has been adapted and extended in recent research to study social services, specifically relating to SNS (Sykes et al., 2009; Kwon et al., 2014). In terms of SNS research related to user behavior, several studies confirm that ease of use, usefulness, subjective norms, and trustworthiness affect SNS user behavior. Based on the aforementioned empirical studies, the comprehensive model of the UTAUT provides various constructs in this study to better understand user behavior related to trust.

In our study, we utilize prior studies to further investigate those key constructs, including effort expectancy and social influence, which could affect usage intention and actual behavior in terms of willingness to accept and recommend the SNS. In addition, gender, age, experience, and voluntary usage would moderate the impact of the key constructs. Following this research approach, our project also adopts the element of effort expectancy and social influence to investigate how its key constructs, together with relevant moderators, would affect user trust in SNS.

2.3 Perceived Privacy Risk

Privacy concerns are associated with the collection, unauthorized access, errors, usage, control, and awareness of sensitive or private data (Malhotra et al., 2004), specifically reflecting users' feeling about the collection and preservation of personal information (Li, 2011; Chang et al., 2015). Karyda, Gritzalis, Park and Kokolakis (2009) discussed individual privacy in a ubiquitous environment including physical privacy, territorial privacy, privacy of communications, information privacy, and location privacy, and how such privacy can be preserved and used. Fogel and Nehmad (2009) studied the influence of gender on privacy, indicating that women generally had more privacy concerns than men based on survey data. In short, privacy concerns reflect user concerns around personal information disclosure (Li, 2011). Prior studies found that SNS users' perceptions related to privacy protection positively influenced their trust, attitudes, and usage intention (Shin, 2010).

Perceived risk is an individual's perception of uncertainty and the adverse

consequences of pursuing an activity or behavior (Dowling and Staelin, 1994). Perceived risk, which can be further decomposed into various dimensions, including financial, performance, social, time, psychological and privacy, may negatively affect technology adoption and usage behavior (McKnight et al., 2002; Crespo et al. 2009). Prior research has shown that the economic and performance dimensions of perceived risk have greater negative impacts on e-commerce adoption than social and time dimensions (Crespo et al. 2009). In previous studies about e-commerce, there have been many scholarly discussions related to definitions of perceived risk covering perceived transaction risk, production and service risk that includes security, privacy, non-repudiation, functional lose, financial lose, time lose, opportunity lose, and asymmetric information (Park, Lee and Ahn, 2004). Additionally, studies have discussed that user technology adoption needs to consider moderating variables such as perceived risk, technology type, user experience, and gender (Im et al., 2008). Researchers have proposed extending the technology acceptance model (TAM) to include perceived risk, specifically financial, performance, social, time, psychological and privacy risks. The study also demonstrated that usage adoption of web shopping was influenced both positively by attitude and negatively by risk factors (Crespo et al. 2009).

Both privacy concerns and perceived risks are important factors that affect the trust construct, for instance, location-based services on mobile devices. Researchers identified that privacy concerns related to personal data collection and secondary use are main factors negatively impacting trust, and positively impacting perceived risk (Zhou, 2011). Based on the aforementioned research, it was considered valuable and important that our study explore how privacy concerns and perceived risk influence user trust in SNS. Our study considers privacy concerns and perceived risks to be negative impact factors for both Facebook and LinkedIn adoption (and ongoing usage) as both SNS requires personal information disclosure on its social networking site. People perceive the risk of information disclosure as the use, the sharing, and/or the misuse of information in the processing of social activities.

3. Research hypothesis and research model

When utilizing online SNS, users can use the co-construction approach (e.g., information sharing, including names, photographs, interests, hobbies, sexual preferences, religious beliefs, and social attitudes) or the social graph approach to search for new contacts with similar interests and share knowledge within a virtual community (Hsu et al., 2011). In this way, social content is shared with a public group. Users may discover the benefits of SNS such as idea creation, social support, knowledge enhancement, and diffusion of innovations. In contrast, users may also

perceive threats such as endangerment and a loss of control over personal information (Krasnova et al., 2012). Thus, this study aims to explore how the precursors of behavioral intentions can be used to influence user trust. In particular, the research framework considers both positive and negative impacts in relation to SNS user trust and ongoing intention to use SNS.

3.1 Research hypothesis

Effort expectancy is conceptually similar to perceived ease of use. According to the research from Venkatesh et al. (2003), effort expectancy includes perceived ease of use and complexity. In addition, according to Lankton and McKnight (2011), ease of use is an important factor significantly influencing Facebook users' trust intentions and continuance use intentions. Accordingly, our study considered effort expectancy as the degree of perceived ease of use, and the complexity associated with Facebook. Facebook user perceptions of trust in Facebook are shaped by social functions including profile identification, contact maintenance, social browsing, and social searching. Therefore, Facebook needs to offer its users fluent navigation, smooth user interactions, and enjoyable services. These services drive the perceptions of ease of use and enhance user trust. Trust is defined here as user belief that the SNS is honest and competent in protecting user private information. Accordingly, our first two hypotheses are postulated as follows.

H1: There is a positive relationship between effort expectancy and trust for using (a) LinkedIn and (b) Facebook.
H2: There is a positive relationship between effort expectancy and continuance intention for using (a) LinkedIn and (b) Facebook.

Social influence is related to the environmental determinants affecting behavioral intentions and reflects the effect of people's opinions on individuals. It has been defined similar to subjective norms in various technology acceptance theories (Venkatesh et al., 2003), which suggests that social influence may include subjective norms, social factors, and images that impact behavioral intentions (Venkatesh et al., 2003; Davis, 1989). In keeping with prior relevant studies, we propose here that user trust in the SNS is influenced by friends, colleagues, and family members. Opinions, suggestions, and recommendations given in online social communities would affect user trust in the SNS. Social influence is defined in this study as the degree to which users believe that their important friends, colleagues, and other relevant people want them to continue trusting and using the SNS. Therefore, the following two hypotheses are posited:

H3: There is a positive relationship between social influence and trust for using (a) LinkedIn and (b) Facebook.
H4: There is a positive relationship between social influence and continuance intention for using (a) LinkedIn and (b) Facebook.

Privacy concerns in the SNS environment relate to trustworthiness and the protection of user personal information; loss of privacy, unauthorized access, and loss of data control are feared (Lankton and McKnight, 2011). Tan and Qin argue that the privacy concerns of the SNS users do not have a direct impact on user acceptance but do mediate its perceived usefulness and perceived ease of use, thus influencing behavioral intention (Tan and Qin, 2012). The SNS collects personal information (such as profile data, information about one's current location, and social graph) regarding users, and this may arouse user privacy concerns. Users may worry about their personal data being revealed, used, and misused without their notice or agreement. This issue can be seen as a root cause of perceived risk for the SNS users, similar to the concerns described in prior studies about location-based services, which impact trust and perceived risk (Zhou, 2011). Consequently, some users have not only become reluctant to reveal personal information in conducting social activities on Facebook but also deactivated their accounts in protest against the way that their personal information has been handled by the SNS. Given this information, the following two hypotheses are posited:

H5: There is a negative relationship between privacy concerns and trust for using (a) LinkedIn and (b) Facebook.
H6: There is a positive relationship between privacy concerns and perceived risk for using (a) LinkedIn and (b) Facebook.

Recent research findings have shown that privacy management strategies related to SNS help users protect their privacy by, for instance, allowing contact information to be hidden and limiting the visibility of personal profiles (Young and Quan-Haase, 2013). Researchers used privacy management theory to show that women are more likely than men to employ individual privacy management strategies (Nofer et al., 2014). A study on mobile SNS by Zhou and Li revealed that perceived risk is significantly influenced by privacy concerns and privacy concerns impact user continuance intention (Zhou and Li, 2014). In the context of the SNS specifically, the perceived risk relates to the sharing of names, photographs, contact addresses, and current status. The question of whether or not the SNS is able to protect user information from being improperly accessed, misused, and disclosed to other parties

has been raised. In sum, increased risk perceptions may reduce the likelihood of Facebook users' continuance intentions. It is therefore proposed that user perceptions of risk might have a negative impact on continuance intention to use the SNS because the risk to personal privacy might negatively impact trust. Therefore, the following two hypotheses are postulated:

H7: There is a negative relationship between perceived risk and trust for using (a) LinkedIn and (b) Facebook.
H8: There is a negative relationship between perceived risk and continuance intention for using (a) LinkedIn and (b) Facebook.

Our study seeks to explore the trust antecedents relating to effort expectancy, social influence, and privacy concerns, in line with the recommendations from our expert questionnaire results. Indeed, according to research about website trust, the perceived ease of use, the information quality, the graphical characteristics, the social presence cues, the personalization capacity, the privacy assurance/security, and the third-party guarantees are all significant antecedents of trust terms of individual perceptions (Beldad et al., 2010). Other studies have looked at how the trust construct has a direct impact on user intentions and the continuous adoption of SNS (Zhou and Li, 2014). Thus, it is proposed that user perception of trust in the SNS might positively affect continuance usage intention. In this study, trust is defined as a user's belief that the SNS demonstrates honesty, integrity, and competency in terms of protecting user private information. With this in mind, the last hypothesis of this study is proposed as follows.

H9: There is a positive relationship between trust and continuance intention for using (a) LinkedIn and (b) Facebook.

With different intention and expectation for the SNS, the user groups between Facebook and LinkedIn are expected to react in different level of SNS usage. It is observed that the user groups between Facebook and LinkedIn are different. Uses utilized in Facebook are for casual relationships and LinkedIn is for professional relationships. As studies demonstrate in survey, Facebook is used mainly as bridge in communication for uploading photos, chatting, using the Share button to promote comments, while LinkedIn is used for professional purposes such as online resume, portraying the professional images and broadening the professional network with others (Ionescu et al., 2014). Thus, the social influence for different purposes is different. Further, LinkedIn is used as a showcase to promote individuals to the public,

and it is likely that meeting the subjective culture and norms is more required for LinkedIn users than Facebook users. Also, studies show that light users on LinkedIn confronts higher barrier in adopting features built in LinkedIn system, and yet these light users use Facebook frequently (Florenthal, 2015). Effort expectancy in LinkedIn users is expected higher than Facebook users.

H10: Effort expectancy will influence trust more significantly for LinkedIn than for Facebook.
H11: Effort expectancy will influence continuance intention more significantly for LinkedIn than for Facebook.
H12: Social influence will influence trust more significantly for LinkedIn than for Facebook.
H13: Social influence will influence continuance intention more significantly for LinkedIn than for Facebook.

Users have different perception and trust in Facebook and LinkedIn. Studies show that most people share their real name, recent photo of themselves, education level, workplace and relationship status on Facebook but LinkedIn users are more reluctant to share these personal information about themselves (Ionescu et al., 2014). Also, studies show that people feel more comfortable and trust having private conversation on Facebook than LinkedIn (Ionescu et al., 2014). Previous studies conduct interview with LinkedIn users and found that LinkedIn system is perceived as not safe as users are uncertain to share their information to the public (Florenthal, 2015). Users on LinkedIn post their work-related information and seek professional networking, and therefore, they are expected to have higher privacy concerns and perceived higher risk and lower trust for the SNS.

H14: Privacy concerns will influence trust more significantly for LinkedIn than for Facebook.
H15: Privacy concerns will influence perceived risk more significantly for LinkedIn than for Facebook.
H16: Perceived risk will influence trust more significantly for LinkedIn than for Facebook.
H17: Perceived risk will influence continuance intention more significantly for LinkedIn than for Facebook.
H18: Trust will influence continuance intention more significantly for LinkedIn than for Facebook.

3.2 Research model

Based on the aforementioned background, together with the postulated hypotheses, a research framework to investigate user trust of SNS (Facebook and LinkedIn) was derived. As shown in Fig. 1, the framework not only used effort expectancy, social influence, and continuance usage intention, but also incorporated two variables, privacy concerns and perceived risk, adapted from the trust concept. Following the research approach used by Venkatesh et al. (2003), our study also uses the control variables of age, gender, and experience, to explore specific significant constructs.

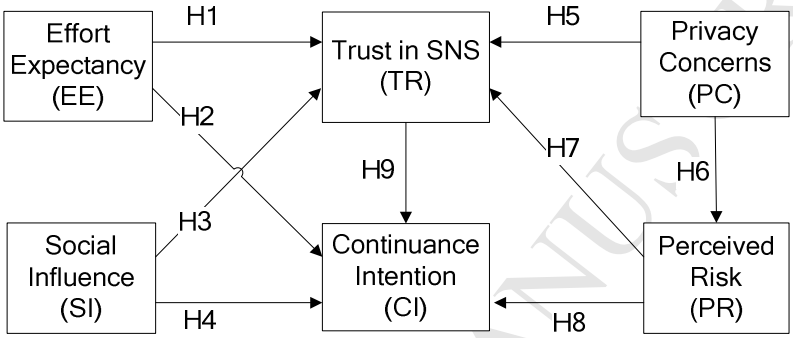

Figure 1. Research framework

4. Research methodology

4.1 Expert questionnaire

A review of the SNS literature on theory foundations, model applications, and user intentions (Heidemann et al., 2012; Jang et al., 2015; Al-Debei et al., 2013; Sykes et al., 2009; Kwon et al., 2014; Chang et al., 2015; Turban et al., 2011; Jin, 2013), shows that previous studies have partially deployed the UTAUT model with a view to understanding behavioral intentions. Past studies on trust have addressed SNS generally; however, few studies have used trust factors to examine performance expectancy, effort expectancy, social influence, and facilitating conditions. We invited six IS/EC (information systems and/or electronic commerce) experts and six industry consultants in social marketing, human resources, and sales promotion to assist with the conceptual design of a new model and the development of a research framework. Their recommendations were confirmed by Lawshe's study using a three-point Likert scale (Lawshe, 1975). The results of the expert interviews indicated the importance of the following factors: effort expectancy, social influence, privacy concerns, perceived risks, trust, and continuance intention (ongoing SNS usage) as shown in Table 1. Over half of the experts suggested that we filter out facilitating condition and performance expectancy as SNS users are commonly had enough resources, knowledge, and

experience with most online SNS. Moreover, both Facebook and LinkedIn were considered to be used mainly for personal connection and non-goal oriented communications.

Table 1. The results of expert interview

Constructs	Contents	Interview details	Result
Performance Expectancy	Perceived usefulness	Users perceive that using SNS improves their work performance.	○
	External motivation	Users are able to complete more valuable job comparing to the traditional ways.	○
	Job fit	The software function of SNS improves users' job performance.	○
	Relative advantages	Users agree using SNS is better than the traditional ways.	○
	Outcome expectations	Users expect the outcomes of using SNS	○
Effort Expectancy	Perceived ease-of-use	Users perceive the degree of ease-of-use in using SNS.	●
	Complexity	Users perceive the relative difficulty in learning and using SNS.	●
	Ease to use	Users perceive the degree of difficulty in using SNS	●
Social Influence	Subjective norms	People perceive the importance of other's opinions about them	●
	Social factors	People internalize a group's subjective culture	●
	Image	Users agree that using SNS improves their personal images to others.	●
Facilitating Conditions	Perceived behavioral control	When users control more resources and opportunity to use SNS, they have fewer obstacles in usages.	○
	Facilitating conditions	Users agree that the facilitating conditions of SNS are easy to users.	○
	Adaptability	Users consider the adaptability of SNS usages and current needs.	○
Privacy Concerns	Personal information	Users have concerns about the privacy of their personal information in SNS.	●
Perceived Risks	Information misusage	Users perceive the risks of information misusage in SNS.	●
Trust	Trust technology	Users trust SNS is friendly and fair in usages.	●
Continuance Intention	Continuance intention	Users intend to continue their usage in SNS.	●

●:agreed by experts; ○:Disagreed by experts

4.2 Questionnaire design, pretest, and sampling procedure

Based on the research framework and the postulated hypotheses, we developed a questionnaire consisting of twenty-eight items (shown in Table 1) to measure six constructs including effort expectancy (5 items), social influence (5 items), privacy concerns (4 items), trust (5 items), perceived risk (4 items), and use behavior (4 items).

Table 1. Questionnaire items and their derivation sources

***Effort Expectancy (EE)*: (Source: Venkatesh et al., 2003; Lawshe, 1975)**	
EE1	Learning to use Facebook/LinkedIn would be easy for me.
EE2	My interaction with Facebook/LinkedIn would be clear and understandable.
EE3	Using Facebook/LinkedIn to interact with friends would be easy for me.
EE4	Become skillful in using Facebook/LinkedIn would not be difficult for me.
EE5	Facebook/LinkedIn is suitable for me to use and it fits in my life well.
***Social Influence (SI):*(Source: Venkatesh et al., 2003; Lawshe, 1975)**	
SI1	I use Facebook/LinkedIn because my friends have already adopted it.
SI2	Friends who are important to me think that I should use Facebook/LinkedIn to interact with them.
SI3	Friends who influence my behavior think that I should use Facebook/LinkedIn to understand their lives.
SI4	Basically, my friends and relatives are very supportive in regard to the use of Facebook/LinkedIn in my life.
SI5	I feel that the use of Facebook/LinkedIn is a status symbol.
***Privacy Concerns (PC):*(Source: Chang et al., 2015; Lankton and McKnight, 2011)**	
PC1	I am concerned about the services I use may share my personal information with other parties.
PC2	I am concerned that a person can find private information about me on the Internet.
PC3	I am concerned about providing personal information to the service provider, because it could be used in a way I did not foresee.
PC4	I am concerned about submitting information on the Internet, because of what others might do with it.
***Trust (TR):*(Source: Gefen et al., 2003; Doney et al., 1998; Jang et al., 2014; Jin, 2013)**	
TR1	I think that Facebook/LinkedIn will keep its promises to users.
TR2	Facebook /LinkedIn is a trustworthy channel for me to interact with friends.
TR3	I can rely on Facebook/LinkedIn to conduct useful social networking activities.
TR4	The service offered by Facebook/LinkedIn meets my expectation.
TR5	I think that Facebook/LinkedIn keeps customer interests in mind.
***Perceived Risk:* (Source: McKnight et al., 2002)**	
PR1	Using Facebook might involve some unexpected problems.
PR2	I feel that I might get attacked by other people on Facebook/LinkedIn.
PR3	Based on my past experiences, the security mechanism provided by Facebook/LinkedIn cannot protect my account (or myself) well.
PR4	I am aware of the risks associated with using Facebook.
***Continuance Intention (CI):*(Source: Venkatesh et al., 2003; Lawshe, 1975)**	
CI1	Overall, it is pleasant to use Facebook.
CI2	I am willing to use Facebook..
CI3	I will continue to use Facebook.
CI4	I will recommend some Facebook contents/services to friends.

To ensure content validity of the scale used, the questionnaire items were developed from literature reviews and modified to fit the context of SNS trust. The questionnaire items were measured using a seven-point Likert scale, ranging from "strongly disagree (1)" to "strongly agree (7)". To make sure that the questionnaire items would be understood and measured validly, we invited SNS users with over three years of Facebook/LinkedIn experience to conduct a pretest. Based on the feedbacks and findings derived from the pretest, modifications were made to the questionnaire for improving readability and reliability before it was used in the formal survey. To conduct the formal survey, an online questionnaire stored on Google Drive

was used. The snowballing technique (Simon and Burstein, 1985) was utilized to invite experienced Facebook and LinkedIn users to take the survey.

After the characteristics of respondents were recorded, the collected samples were analyzed and interpreted by using the Partial Least Square-Structural Equation Modeling (PLS-SEM) approach, which is a multivariate analysis technique gaining interest and popularity among researchers in recent years (Hair et al., 2011; Lin and Ooi, 2015). PLS-SEM is suggested as a powerful multivariate analysis tool requiring minimum restrictions on measurement scales and it can be used to model latent constructs under conditions of non-normality (Chin et al., 2003; Tenenhaus et al., 2005). In PLS-SEM, it is important to assess the accuracy of the measurement model, which connects the manifest variables to the latent variables, in terms of the individual item reliability, construct reliability, convergent validity, and discriminant validity of the variables in the model. Subsequently, a non-iterative application of ordinary least squares (OLS) regression is performed to obtain outer weights, loadings, and structure model relationships (path coefficients) for the latent and the manifest variables (Hair et al., 2011; Chin et al., 2003). Afterwards, the bootstrap re-sampling procedure is applied to evaluate the statistical significance of the paths coefficients.

5. Empirical analysis and results

Questionnaires were collected by this survey during the period from 1 March 2015 to 31 January 2016. 184 questionnaires were collected from users who stated to have experiences in using Facebook. To ensure the quality of the collected data, the questionnaire stated that respondents must possess reasonable experience in using Facebook. 16 of the 184 samples were identified as invalid by using filtering criteria such as reverse questions. 168 copies of questionnaire from Facebook users were valid for the study. Similarly, 156 questionnaires were collected from users who stated to have experiences in using LinkedIn. To ensure the quality of the collected data, the questionnaire stated that respondents must possess reasonable experience in using LinkedIn. 13 of the 154 samples were identified as invalid by using filtering criteria such as reverse questions. 141 copies of questionnaire from LinkedIn users were valid for the study. Overall, 309 valid questionnaires were collected and deemed valid and analyzed in this study. In PLS-SEM, the sample size requirement must be at least ten times the largest number of structural paths directed at a particular latent construct in the structural model (Hair et al., 2011). Since in our structure model, see Figure 1, there are 4 paths from EE, SI, PC, and PR directed at TR and also 4 paths from EE, SI, PR, and TR directed at CI, the sample size must be greater than 40. Therefore, 309 samples collected and used in our study satisfy the minimum sample size requirement for PLS-SEM analysis.

5.1 Descriptive statistics

In total 168 questionnaires from Facebook users and 141 questionnaires from LinkedIn users were valid for our study. Among the 168 respondents of Facebook users, 45 (26.8%) were in the 21-30 age group, 50 (29.8%) had ages between 31 and 40 years old, 42 (25.0%) were in the 41-50 age group, 8 (4.8%) aged 51 and above, and the rest 23 (13.7%) were 20 years old or younger. 76 (45.2%) respondents were male and 92 (54.8%) were female. As for the educational background, 39 (23.2%) respondents had postgraduate degrees, 69 (41.1%) were at the college level, 31 (18.5%) were at the high-school level, and the rest of 29 (17.3%) were at the middle-school level or lower. In regard to Facebook experience, 1 (0.6%) respondent had only about 1 year experience, 12 (7.1%) had used Facebook for 1 to 2 years, 36 (21.4%) accumulated 2 to 3 year experience in using Facebook, 31 (18.5%) had experience between 3 years and 4 years, 27 (16.1%) had 4 years to 5 years of Facebook experience, and the rest 61 (36.3%) had been using Facebook for more than 5 years. In terms of their Facebook usage, 133 (79.2%) respondents visited Facebook site several times a day, and 132 (78.6%) respondents spent less than 60 minutes per visit.

For 141 respondents of LinkedIn users, 41 (29.1%) were in the 21-30 age group, 54 (38.3%) had ages between 31 and 40 years old, 38 (27.0%) were in the 41-50 age group, 8 (5.6%) aged 51 and above. 72(51.1%) respondents were male and 69(48.9%) were female. As for the educational background, 42 (29.8%) respondents had postgraduate degrees, 92 (65.2%) were at the college level, and 7 (5.0%) were at the high-school level. In regard to LinkedIn experience, 25 (17.7%) respondent had only about 1 year experience, 36 (25.5%) had used LinkedIn for 1 to 2 years, 27 (19.1%) accumulated 2 to 3 year experience in using LinkedIn, 21(14.9%) had experience between 3 years and 4 years, 21 (14.9%) had 4 years to 5 years of LinkedIn experience, and the rest 11 (7.8%) had been using LinkedIn for more than 5 years. In terms of their Facebook usage, 38 (27.0%) respondents visited LinkedIn site several times a day, and 125 (88.7%) respondents spent less than 60 minutes per visit.

5.2 Check of unidimensionality

In PLS-SEM analysis, it is necessary to check for unidimensionality of each block (variable) in the proposed model, and a block is considered as unidimensional when its Cronbach's alpha (α) value and composite reliability (CR) value are higher than 0.7 (Tenenhaus et al., 2005). Actually, the CR value is considered as a better indicator of the unidimensionality of a block than the Cronbach's α which represents a lower bound estimate of internal consistency of a block (Chin et al., 2003; Tenenhaus

et al., 2005). As shown in Table 2, for all six blocks in our model in LinkedIn group and Facebook group, their Cronbach's α values ranged from 0.738 to 0.939 and their CR values ranged from 0.832 to 0.939, exceeding the threshold value (0.7).

Table 2. CR value, Cronbach's α and AVE of the measurement model estimation

	LinkedIn			Facebook		
Items	**AVE**	**Composite Reliability**	**Cronbachs Alpha**	**AVE**	**Composite Reliability**	**Cronbachs Alpha**
CI	0.846	0.956	0.939	0.795	0.939	0.914
EE	0.681	0.914	0.885	0.746	0.936	0.915
PC	0.524	0.832	0.738	0.735	0.932	0.909
PR	0.630	0.894	0.858	0.638	0.895	0.850
SI	0.754	0.939	0.918	0.720	0.928	0.902
TR	0.828	0.960	0.947	0.728	0.930	0.907

Notes: **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns; **TR:** Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

Table 3. Ourter weight and loadings of the measurement model estimation

		Linkedin		Facebook	
Latent Variable	**Manifest Variable**	**Outer Weight**	**Loadings**	**Outer Weight**	**Loadings**
Effort Expectancy (EE)	EE1	0.169	0.733	0.211	0.863
	EE2	0.214	0.797	0.212	0.848
	EE3	0.293	0.884	0.250	0.869
	EE4	0.306	0.878	0.244	0.913
	EE5	0.215	0.827	0.239	0.823
Social Influence (SI)	SI1	0.214	0.858	0.252	0.821
	SI2	0.260	0.845	0.234	0.853
	SI3	0.163	0.794	0.240	0.899
	SI4	0.239	0.910	0.242	0.849
	SI5	0.269	0.929	0.212	0.819
Privacy Concern (PC)	PC1	0.255	0.820	0.189	0.839
	PC2	0.297	0.879	0.247	0.912
	PC3	0.393	0.853	0.278	0.904
	PC4	0.273	0.612	0.204	0.818
Trust in using SNS (TR)	TR1	0.177	0.823	0.246	0.806
	TR2	0.220	0.940	0.204	0.793
	TR3	0.235	0.901	0.200	0.854
	TR4	0.231	0.904	0.292	0.845
	TR5	0.233	0.975	0.266	0.910
Perceived Risk (PR)	PR1	0.211	0.739	0.209	0.858
	PR2	0.367	0.886	0.269	0.819
	PR3	0.311	0.764	0.305	0.840
	PR4	0.298	0.845	0.307	0.924
Continuance Intention (CI)	CI1	0.280	0.940	0.277	0.867
	CI2	0.274	0.924	0.275	0.850
	CI3	0.238	0.859	0.303	0.916
	CI4	0.293	0.954	0.271	0.898

Notes: **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns; **TR:** Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

5.3 Test of the measurement model

The measure model estimation results, including outer weight, loadings, and the

average variance extracted (AVE) measures, are listed in Table 2 and Table 3. The outer loadings, which represent the loadings of the reflective manifest variables with their respective latent variable, can be used to assess individual item reliability, and it is considered by many researchers as acceptable when an item has a loading higher than 0.7 (Hulland, 1999). In this study, all outer loadings (ranging from 0.786 to 0.916) were higher than 0.7.

The average variance extracted (AVE) measures can be used to assess the convergent validity of the reflective constructs. As shown in Table 2, AVE scores in this study varied from 0.633 to 0.792 for the full sample, 0.524 to 0.846 for LinkedIn group and 0.638 to 0.795 for Facebook group, which all are passing the threshold value (0.5) suggested by prior research (Fornell and Larcker, 1991). To assess the discriminant validity, the square root of the AVE measure on each construct must exceed the estimated correlations shared between the construct and other constructs in the model. The discriminant validity for the constructs used in our study was acceptable, since the square root of AVE on each construct, which is the diagonal elements in Table 3, was greater than the correlations of the construct with other constructs, which are those related off-diagonal elements in Table 4.

Table 4. Inter-construct correlations and square root of AVE measure

Samples	CI	EE	PC	PR	SI	TR
LinkedIn						
CI	0.920					
EE	0.798	0.826				
PC	-0.508	-0.442	0.724			
PR	-0.608	-0.404	0.433	0.794		
SI	0.456	0.403	0.118	-0.047	0.868	
TR	0.900	0.781	-0.623	-0.553	0.445	0.910
Facebook						
CI	0.892					
EE	0.747	0.864				
PC	0.225	0.238	0.857			
PR	0.221	0.231	0.636	0.799		
SI	0.745	0.749	0.378	0.287	0.848	
TR	0.655	0.606	0.090	-0.053	0.572	0.853

Notes: **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns; **TR:** Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

5.4 Structural modeling and results

After the measurement model was validated, the structural model which

specified the relationships between latent variables was then estimated. The path coefficients for the endogenous latent variables and the R-square statistics were derived. The structural model results of LinkedIn are presented in Table 5 and the structural model results of Facebook are presented in Table 6 It is important to note in the following discussions that the level of significance is set at 5%, which p value is less than 0.05, and the β value has nothing to do with error II type but corresponds to the path coefficient.

Table 5. Structural model results (LinkedIn)

Path	Path coefficient	*P* -value	Hypothesis test result
H1a: EE→TR	0.389***	**0.0000**	supported
H2a: EE→CI	0.241***	**0.0001**	supported
H3a: SI→TR	0.326***	**0.0000**	supported
H4a: SI→CI	0.096*	**0.0207**	supported
H5a: PC→TR	-0.397***	**0.0000**	supported
H6a: PC→PR	0.434***	**0.0000**	supported
H7a: PR→TR	-0.212***	**0.0000**	supported
H8a: PR→CI	-0.192***	**0.0001**	supported
H9a: TR→CI	0.565***	**0.0000**	supported

Notes: (1) *p<0.05, **p<0.01, ***p<0.001;
(2) **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns; **TR:** Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

Our empirical results (shown in Table 5) confirm that users' trust in LinkedIn is significantly and positively associated with both effort expectancy (β=0.389, p=0.0000) and social influence (β=0.241, p=0.0001). Users' trust in LinkedIn is significantly and negatively associated with users' perceived risk (β=-0.212, p=0.0000) and users' privacy concerns (β=-0.397, p=0.0000). Also, users' privacy concerns is significantly and positively associated with their perceived risk (β=0.434, p=0.0000). Users' trust in LinkedIn is significantly and positively associated with their continuance intention to use LinkedIn (β=0.565, p=0.0000). Users' continuance intention to use LinkedIn is positively and significantly associated with effort expectancy (β=0.241, p=0.0001) and social influence (β=0.096, p=0.0207). Overall, hypotheses H1a, H2a, H3a, H4a, H5a, H6a, H7a, H8a and H9a postulated in this study were supported.

Table 6. Structural model results (Facebook)

Path	Path coefficient	*P* -value	Hypothesis test result
H1b: EE→TR	0.424***	**0.0000**	supported
H2b: EE→CI	0.310**	**0.0032**	supported
H3b: SI→TR	0.321**	**0.0015**	supported
H4b: SI→CI	0.324**	**0.0015**	supported
H5b: PC→TR	0.040	**0.6809**	not supported
H6b: PC→PR	0.632***	**0.0000**	supported
H7b: PR→TR	–0.273**	**0.0047**	supported

H8b: PR→CI	0.081	**0.1358**	not supported
H9b: TR→CI	0.286***	**0.0000**	supported

Notes: (1) *p<0.05, **p<0.01, ***p<0.001;
(2) **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns;
TR: Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

Our empirical results (shown in Table 6) confirm that users' trust in Facebook is significantly and positively associated with both effort expectancy (β=0.424, p=0.0000) and social influence (β=0.321, p=0.0015). We also found that users' trust in SNS is significantly and negatively associated with users' perceived risk (β=-0.273, p=0.0047), but users' trust in Facebook is not significantly associated with users' privacy concerns (β=0.040, p=0.6809). Our modeling results also confirm that users' privacy concerns is significantly and positively associated with their perceived risk (β=0.632, p=0.0000). In addition, users' trust in Facebook was found by our study to be significantly and positively associated with their continuance intention to use Facebook (β=0.286, p=0.0000), but such continuance intention is not significantly associated with users' perceived risk (β=0.081, p=0.1358). Finally, our results also reveal that users' continuance intention to use Facebook is positively and significantly associated with effort expectancy (β=0.310, p=0.0032) and social influence (β=0.324, p=0.0015). Overall, hypotheses H1b, H2b, H3b, H4b, H6b, H7b and H9b postulated in this study were supported by the empirical results, though the hypotheses H5b and H8b were not supported.

Table 7. Comparisons of User Groups between LinkedIn and Facebook

Hypothesis	LinkedIn(β1)	Facebook(β2)	Δβ	Comparison of paths(t-value)	Differences
H10: EE→TR	0.389***	0.424***	**-0.031**	**-4.65*** **	**Yes**
H11: EE→CI	0.241***	0.310**	**-0.073**	**-8.46*** **	**Yes**
H12: SI→TR	0.326***	0.321**	**0.006**	**0.81**	**No**
H13: SI→CI	0.096*	0.324**	**-0.233**	**-33.12*** **	**Yes**
H14: PC→TR	-0.397***	0.040	**-0.435**	**-59.03*** **	**Yes**
H15: PC→PR	0.434***	0.632***	**-0.202**	**-32.02*** **	**Yes**
H16: PR→TR	-0.212***	−0.273**	**0.053**	**7.84*** **	**Yes**
H17: PR→CI	-0.192***	0.081	**-0.261**	**-49.17*** **	**Yes**
H18: TR→CI	0.565***	0.286***	**0.284**	**37.60*** **	**Yes**

Notes: (1) *p<0.05, **p<0.01, ***p<0.001;
(2) **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns;
TR: Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

5.5 Comparisons of user groups between LinkedIn and Facebook

Our research employed control variables from the original UTAUT model for the observation of path acceptances between LinkedIn and Facebook. As shown in Table7, there are significant differences in most relational impacts between LinkedIn and Facebook. Overall, only hypotheses H14, H17 and H18 postulated in this study were

supported. Privacy concerns has significantly stronger influence on trust for LinkedIn than Facebook (β_1=-0.397, β_2=0.040). Also, privacy risk has significantly negative influence on trust for LinkedIn while it has no significant influence on trust for Facebook (β_1=-0.192, β_2=0.081). Continuance intention was significantly influenced by trust more significantly for LinkedIn than Facebook (β_1=0.565, β_2=0.286).

However, the hypotheses H10, H11, H12, H13, H15 and H16 were not supported. Our results show that effort expectancy has a significantly stronger influence in users' trust (β_1=0.389, β_2=0.424) and continuance intention (β_1=0.241, β_2=0.310) in Facebook than LinkedIn. Also, users' trust is significantly influenced more by perceived risk (β_1=-0.212, β_2=-0.273) in Facebook than LinkedIn. Privacy concern influences perceived risks significantly stronger for Facebook instead of LinkedIn (β_1=0.434, β_2=0.632). Social influence has significantly stronger influence for Facebook than LinkedIn (β_1=0.096, β_2=0.324). Social influence has no significant difference on trust between LinkedIn and Facebook (β_1=0.326, β_2=0.321).

6. Discussion

This study involved several steps, including expert questionnaire surveys, the creation of a research model with nine hypotheses, questionnaire design, data collection from respondents, and data analysis. This study clearly demonstrates that both LinkedIn and Facebook trust mechanisms may be created based on privacy concerns and perceived risk, combined with effort expectancy and the social influence of user trust and continuance intention. According to the findings, the influence of effort expectancy and social influence were greater than the influence of perceived risk and privacy concerns. Similar studies have looked at perceived ease of use, perceived usefulness, trust, social influence, and perceived risk in terms of user intention to adopt mobile banking (Shaikh and Karjaluoto, 2015). Undoubtedly, our explorative research confirms the findings of several studies that not only the privacy concerns of SNS users influenced their usage intentions, but also the positive perceptions of trust positively affect the continuance intention to use LinkedIn and Facebook, even when the users perceived potential risks from such usage (Lankton and McKnight, 2011; Tan and Qin, 2012).

Social influence significantly affected trust according to our findings, which indicates the power of "critical mass" in terms of information-based trust. As such, if users experienced a series of losses and expressed their negative feedbacks within their communities, the social reputation of the service would be affected, potentially creating a decline in user continuance intention. Therefore, SNS providers should pay attention to dynamic changes in trust mechanisms in terms of effort expectancy, social influence, and privacy concerns. Moreover, the balance between trust and risk that

Facebook users perceive should encourage service providers to pursue the creation of useful and reliable social functions within their services through technological innovation. The valuable study by Jøsang provides a comprehensive list of literature on trust and reputation systems in successful commercial online services and this list is definitely a useful reference point here (Jøsang et al., 2007). According to our empirical results, trust in technology can influence the continuance intention to use that technology more than perceived risk in terms of the path coefficients (0.286 vs. 0.081) and the statistics significance (p=0.0000 vs. p=0.1358).

Our study shows that privacy concern has more influence on LinkedIn users' trust than Facebook users' trust to the SNS. Users of LinkedIn post their work-related information for career purpose, and the information disclosure on LinkedIn may be confidential between job seekers and providers or among groups with the same professional interests. Users reciprocally exchange work-related information with other professionals is incorporated with the concept of reciprocity (Eklinder-Frick, Eriksson, and Hallén, 2011). Users would like their information prioritized as confidential by anyone in the professional group so this network or relationship on LinkedIn can be trusted and mutual benefited for a period of time. Therefore, LinkedIn users' privacy concern causes more harm to users' trust. Furthermore, LinkedIn users' continuance intention is affected by privacy risks and trust more intensively than Facebook users. It is suggested that the relationship built on networking such as LinkedIn to search new jobs or information is based on the partially overlapping circles over large number of weak ties (Quinton and Wilsonb, 2016). Unlike the relationship built on Facebook is based on majority of close friends and acquaintances, the relationship on LinkedIn is more easily to be weaken. Therefore, when usage threat such as privacy risks and loss of trust exists, users are likely to terminate the usage for LinkedIn than Facebook.

Social influence to continuance intention is more significant for Facebook than LinkedIn. The result of strong social influence on Facebook is in accordance with previous studies as Facebook is most popular SNS among friends and family members (Ezumah, 2013). Therefore, it is rational that higher interaction on Facebook results in users' interests in using the SNS. Also, previous study shows that Facebook is identified as easier to navigate and very user-friendly (Ezumah, 2013). Our study also shows that Facebook users' trust and continuance intention is greatly related to effort expectancy. LinkedIn users univitebaly investigate efforts to establish better professional images on the SNS, thus it is expected that LinkedIn users have higher tolerance in effort expectancy. It can be concluded that Facebook users enjoy effortless and friendly environment in comparison to LinkedIn users.

Our exploratory findings provide information about trust related to SNS

applications in the Web 2.0 context, particularly providing insights into the practical implications for SNS and their users. A study conducted by Kim and Park on trust and trust performance in relation to social commerce has identified key factors directly influencing consumer trust in social commerce, and such trust would affect users' intentions (Kim and Park, 2013). Among the identified factors, users' intention was shown to play a critical role in social commerce in terms of building trust in products and services as well as subsequent purchase behavior. Our study has explored trust in terms of SNS activities such as information sharing, idea and use behavior, via a balance between trust and risk. Moreover, our study also demonstrates that when it comes to system designs for online social communities, service functionality as well as reliability and helpfulness based on ease of use should be a concern, because users can easily influence social reputations in the virtual world and thereby influence the behavioral intentions of others, thus affecting the SNS in question.

7. Conclusion and future work

This study has highlighted important issues in relation to the trust mechanisms of SNS and SNS users, in order to understand the influence of effort expectancy and social influence on trust. User perceived risk was found to have a negative impact on trust and perceived risk was significantly and positively influenced by privacy concerns. Trust has also been shown to directly and significantly influence user continuance intention. The study has examined why individuals continue to use Facebook for their social activities even when they perceive the site as unsafe in terms of data protection. Generally, user behavior in the SNS context was shown to be influenced by trust. The model in this study was used to explore dynamic user behavior by considering user behavior of SNS and trust in SNS. Different types of social activities (information sharing and use behavior) are affected by trust, which is negatively and significantly affected by the perceived risk in the SNS. Our empirical results imply that when the positive influences, such as ease of use of the online community, a good social reputation, or high security compliance, outweigh the negative influence of perceived risk, users will continue to use the SNS.

This study has certain limitations. This study focused on the comparison of SNS between Facebook and LinkedIn mainly for the distinctive user groups between personal networking and professional networking. However, there are numerous types of SNS and each of them owns a different characteristic of user groups. It would be an interesting to further expand the research scope to compare other type of SNS to study different perception of SNS usages.

Also, the study did not address issues of different services with various design philosophies and implementation approaches might influence user perception, attitude,

trust, and behavior in the whole process of using the SNS. Therefore, we are interested in studying various design and implementation issues in our follow-up research efforts. For example, marketing tourism via SNS or even Smartphone SNS are new business arenas with many exciting technologies and vast application potential. Research into various designs of commercially viable SNS is likely not only to widen the scope of the practical applications but also to contribute to developing a design theory for using SNS to enhance commercial activities as well as other related business benefits.

An interesting topic for future investigation is the exploration of how user trust in SNS can be built for various segments of users, as exemplified by this article exploring the effects of control variables (gender, age, and use experience) on user trust in SNS with the necessary modifications. A wider scope of exploration of trust in SNS would make the identified and suggested design principles and specific application guidelines more general in nature.

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Research Highlights

- Effort expectancy and social influence affect users' intention more than privacy.
- Users' perceptions and trust between Facebook and LinkedIn are different.
- Users' perception of privacy affects trust, attitudes, and usage intention.

4. Research methodology

4.1 Expert questionnaire

A review of the SNS literature on theory foundations, model applications, and user intentions (Heidemann et al., 2012; Jang et al., 2015; Al-Debei et al., 2013; Sykes et al., 2009; Kwon et al., 2014; Chang et al., 2015; Turban et al., 2011; Jin, 2013), shows that previous studies have partially deployed the UTAUT model with a view to understanding behavioral intentions. Past studies on trust have addressed SNS generally; however, few studies have used trust factors to examine performance expectancy, effort expectancy, social influence, and facilitating conditions. We invited six IS/EC (information systems and/or electronic commerce) experts and six industry consultants in social marketing, human resources, and sales promotion to assist with the conceptual design of a new model and the development of a research framework. Their recommendations were confirmed by Lawshe's study using a three-point Likert scale (Lawshe, 1975). The results of the expert interviews indicated the importance of the following factors: effort expectancy, social influence, privacy concerns, perceived risks, trust, and continuance intention (ongoing SNS usage) as shown in Table 1. Over half of the experts suggested that we filter out facilitating condition and performance expectancy as SNS users are commonly had enough resources, knowledge, and experience with most online SNS. Moreover, both Facebook and LinkedIn were considered to be used mainly for personal connection and non-goal oriented communications.

Table 1. The results of expert interview

Constructs	Contents	Interview details	Result
Performance Expectancy	Perceived usefulness	Users perceive that using SNS improves their work performance.	○
	External motivation	Users are able to complete more valuable job comparing to the traditional ways.	○
	Job fit	The software function of SNS improves users' job performance.	○
	Relative advantages	Users agree using SNS is better than the traditional ways.	○
	Outcome expectations	Users expect the outcomes of using SNS	○
Effort Expectancy	Perceived ease-of-use	Users perceive the degree of ease-of-use in using SNS.	●
	Complexity	Users perceive the relative difficulty in learning and using SNS.	●
	Ease to use	Users perceive the degree of difficulty in using SNS	●
Social Influence	Subjective norms	People perceive the importance of other's opinions about them	●
	Social factors	People internalize a group's subjective culture	●
	Image	Users agree that using SNS improves their personal images to others.	●
Facilitating Conditions	Perceived behavioral control	When users control more resources and opportunity to use SNS, they have fewer obstacles in usages.	○
	Facilitating conditions	Users agree that the facilitating conditions of SNS are easy to users.	○

	Adaptability	Users consider the adaptability of SNS usages and current needs.	○
Privacy Concerns	Personal information	Users have concerns about the privacy of their personal information in SNS.	●
Perceived Risks	Information misusage	Users perceive the risks of information misusage in SNS.	●
Trust	Trust technology	Users trust SNS is friendly and fair in usages.	●
Continuance Intention	Continuance intention	Users intend to continue their usage in SNS.	●

●:agreed by experts; ○:Disagreed by experts

4.2 Questionnaire design, pretest, and sampling procedure

Based on the research framework and the postulated hypotheses, we developed a questionnaire consisting of twenty-eight items (shown in Table 2) to measure six constructs including effort expectancy (5 items), social influence (5 items), privacy concerns (4 items), trust (5 items), perceived risk (4 items), and use behavior (4 items).

Table 2. Questionnaire items and their derivation sources

***Effort Expectancy (EE)*: (Source: Venkatesh et al., 2003; Lawshe, 1975)**	
EE1	Learning to use Facebook/LinkedIn would be easy for me.
EE2	My interaction with Facebook/LinkedIn would be clear and understandable.
EE3	Using Facebook/LinkedIn to interact with friends would be easy for me.
EE4	Become skillful in using Facebook/LinkedIn would not be difficult for me.
EE5	Facebook/LinkedIn is suitable for me to use and it fits in my life well.
***Social Influence (SI):*(Source: Venkatesh et al., 2003; Lawshe, 1975)**	
SI1	I use Facebook/LinkedIn because my friends have already adopted it.
SI2	Friends who are important to me think that I should use Facebook/LinkedIn to interact with them.
SI3	Friends who influence my behavior think that I should use Facebook/LinkedIn to understand their lives.
SI4	Basically, my friends and relatives are very supportive in regard to the use of Facebook/LinkedIn in my life.
SI5	I feel that the use of Facebook/LinkedIn is a status symbol.
***Privacy Concerns (PC):*(Source: Chang et al., 2015; Lankton and McKnight, 2011)**	
PC1	I am concerned about the services I use may share my personal information with other parties.
PC2	I am concerned that a person can find private information about me on the Internet.
PC3	I am concerned about providing personal information to the service provider, because it could be used in a way I did not foresee.
PC4	I am concerned about submitting information on the Internet, because of what others might do with it.
***Trust (TR):*(Source: Gefen et al., 2003; Doney et al., 1998; Jang et al., 2014; Jin, 2013)**	
TR1	I think that Facebook/LinkedIn will keep its promises to users.
TR2	Facebook /LinkedIn is a trustworthy channel for me to interact with friends.
TR3	I can rely on Facebook/LinkedIn to conduct useful social networking activities.
TR4	The service offered by Facebook/LinkedIn meets my expectation.
TR5	I think that Facebook/LinkedIn keeps customer interests in mind.
***Perceived Risk:* (Source: McKnight et al., 2002)**	
PR1	Using Facebook might involve some unexpected problems.
PR2	I feel that I might get attacked by other people on Facebook/LinkedIn.
PR3	Based on my past experiences, the security mechanism provided by Facebook/LinkedIn cannot protect my account (or myself) well.
PR4	I am aware of the risks associated with using Facebook.
***Continuance Intention (CI):*(Source: Venkatesh et al., 2003; Lawshe, 1975)**	
CI1	Overall, it is pleasant to use Facebook.
CI2	I am willing to use Facebook..
CI3	I will continue to use Facebook.
CI4	I will recommend some Facebook contents/services to friends.

To ensure content validity of the scale used, the questionnaire items were developed from literature reviews and modified to fit the context of SNS trust. The questionnaire items were measured using a seven-point Likert scale, ranging from "strongly disagree (1)" to "strongly agree (7)". To make sure that the questionnaire items would be understood and measured validly, we invited SNS users with over three years of Facebook/LinkedIn experience to conduct a pretest. Based on the feedbacks and findings derived from the pretest, modifications were made to the questionnaire for improving readability and reliability before it was used in the formal survey. To conduct the formal survey, an online questionnaire stored on Google Drive

was used. The snowballing technique (Simon and Burstein, 1985) was utilized to invite experienced Facebook and LinkedIn users to take the survey.

After the characteristics of respondents were recorded, the collected samples were analyzed and interpreted by using the Partial Least Square-Structural Equation Modeling (PLS-SEM) approach, which is a multivariate analysis technique gaining interest and popularity among researchers in recent years (Hair et al., 2011; Lin and Ooi, 2015). PLS-SEM is suggested as a powerful multivariate analysis tool requiring minimum restrictions on measurement scales and it can be used to model latent constructs under conditions of non-normality (Chin et al., 2003; Tenenhaus et al., 2005). In PLS-SEM, it is important to assess the accuracy of the measurement model, which connects the manifest variables to the latent variables, in terms of the individual item reliability, construct reliability, convergent validity, and discriminant validity of the variables in the model. Subsequently, a non-iterative application of ordinary least squares (OLS) regression is performed to obtain outer weights, loadings, and structure model relationships (path coefficients) for the latent and the manifest variables (Hair et al., 2011; Chin et al., 2003). Afterwards, the bootstrap re-sampling procedure is applied to evaluate the statistical significance of the paths coefficients.

5. Empirical analysis and results

Questionnaires were collected by this survey during the period from 1 March 2015 to 31 January 2016. 184 questionnaires were collected from users who stated to have experiences in using Facebook. To ensure the quality of the collected data, the questionnaire stated that respondents must possess reasonable experience in using Facebook. 16 of the 184 samples were identified as invalid by using filtering criteria such as reverse questions. 168 copies of questionnaire from Facebook users were valid for the study. Similarly, 156 questionnaires were collected from users who stated to have experiences in using LinkedIn. To ensure the quality of the collected data, the questionnaire stated that respondents must possess reasonable experience in using LinkedIn. 13 of the 154 samples were identified as invalid by using filtering criteria such as reverse questions. 141 copies of questionnaire from LinkedIn users were valid for the study. Overall, 309 valid questionnaires were collected and deemed valid and analyzed in this study. In PLS-SEM, the sample size requirement must be at least ten times the largest number of structural paths directed at a particular latent construct in the structural model (Hair et al., 2011). Since in our structure model, see Figure 1, there are 4 paths from EE, SI, PC, and PR directed at TR and also 4 paths from EE, SI, PR, and TR directed at CI, the sample size must be greater than 40. Therefore, 309 samples collected and used in our study satisfy the minimum sample size requirement for PLS-SEM analysis.

5.1 Descriptive statistics

In total 168 questionnaires from Facebook users and 141 questionnaires from LinkedIn users were valid for our study. Among the 168 respondents of Facebook users, 45 (26.8%) were in the 21-30 age group, 50 (29.8%) had ages between 31 and 40 years old, 42 (25.0%) were in the 41-50 age group, 8 (4.8%) aged 51 and above, and the rest 23 (13.7%) were 20 years old or younger. 76 (45.2%) respondents were male and 92 (54.8%) were female. As for the educational background, 39 (23.2%) respondents had postgraduate degrees, 69 (41.1%) were at the college level, 31 (18.5%) were at the high-school level, and the rest of 29 (17.3%) were at the middle-school level or lower. In regard to Facebook experience, 1 (0.6%) respondent had only about 1 year experience, 12 (7.1%) had used Facebook for 1 to 2 years, 36 (21.4%) accumulated 2 to 3 year experience in using Facebook, 31 (18.5%) had experience between 3 years and 4 years, 27 (16.1%) had 4 years to 5 years of Facebook experience, and the rest 61 (36.3%) had been using Facebook for more than 5 years. In terms of their Facebook usage, 133 (79.2%) respondents visited Facebook site several times a day, and 132 (78.6%) respondents spent less than 60 minutes per visit.

For 141 respondents of LinkedIn users, 41 (29.1%) were in the 21-30 age group, 54 (38.3%) had ages between 31 and 40 years old, 38 (27.0%) were in the 41-50 age group, 8 (5.6%) aged 51 and above. 72(51.1%) respondents were male and 69(48.9%) were female. As for the educational background, 42 (29.8%) respondents had postgraduate degrees, 92 (65.2%) were at the college level, and 7 (5.0%) were at the high-school level. In regard to LinkedIn experience, 25 (17.7%) respondent had only about 1 year experience, 36 (25.5%) had used LinkedIn for 1 to 2 years, 27 (19.1%) accumulated 2 to 3 year experience in using LinkedIn, 21(14.9%) had experience between 3 years and 4 years, 21 (14.9%) had 4 years to 5 years of LinkedIn experience, and the rest 11 (7.8%) had been using LinkedIn for more than 5 years. In terms of their Facebook usage, 38 (27.0%) respondents visited LinkedIn site several times a day, and 125 (88.7%) respondents spent less than 60 minutes per visit.

5.2 Check of unidimensionality

In PLS-SEM analysis, it is necessary to check for unidimensionality of each block (variable) in the proposed model, and a block is considered as unidimensional when its Cronbach's alpha (α) value and composite reliability (CR) value are higher than 0.7 (Tenenhaus et al., 2005). Actually, the CR value is considered as a better indicator of the unidimensionality of a block than the Cronbach's α which represents a lower bound estimate of internal consistency of a block (Chin et al., 2003; Tenenhaus

et al., 2005). As shown in Table 3, for all six blocks in our model in LinkedIn group and Facebook group, their Cronbach's α values ranged from 0.738 to 0.939 and their CR values ranged from 0.832 to 0.939, exceeding the threshold value (0.7).

Table 3. CR value, Cronbach's α and AVE of the measurement model estimation

	LinkedIn			Facebook		
Items	**AVE**	**Composite Reliability**	**Cronbachs Alpha**	**AVE**	**Composite Reliability**	**Cronbachs Alpha**
CI	0.846	0.956	0.939	0.795	0.939	0.914
EE	0.681	0.914	0.885	0.746	0.936	0.915
PC	0.524	0.832	0.738	0.735	0.932	0.909
PR	0.630	0.894	0.858	0.638	0.895	0.850
SI	0.754	0.939	0.918	0.720	0.928	0.902
TR	0.828	0.960	0.947	0.728	0.930	0.907

Notes: **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns; **TR:** Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

Table 4. Ourter weight and loadings of the measurement model estimation

		Linkedin		Facebook	
Latent Variable	**Manifest Variable**	**Outer Weight**	**Loadings**	**Outer Weight**	**Loadings**
Effort Expectancy (EE)	EE1	0.169	0.733	0.211	0.863
	EE2	0.214	0.797	0.212	0.848
	EE3	0.293	0.884	0.250	0.869
	EE4	0.306	0.878	0.244	0.913
	EE5	0.215	0.827	0.239	0.823
Social Influence (SI)	SI1	0.214	0.858	0.252	0.821
	SI2	0.260	0.845	0.234	0.853
	SI3	0.163	0.794	0.240	0.899
	SI4	0.239	0.910	0.242	0.849
	SI5	0.269	0.929	0.212	0.819
Privacy Concern (PC)	PC1	0.255	0.820	0.189	0.839
	PC2	0.297	0.879	0.247	0.912
	PC3	0.393	0.853	0.278	0.904
	PC4	0.273	0.612	0.204	0.818
Trust in using SNS (TR)	TR1	0.177	0.823	0.246	0.806
	TR2	0.220	0.940	0.204	0.793
	TR3	0.235	0.901	0.200	0.854
	TR4	0.231	0.904	0.292	0.845
	TR5	0.233	0.975	0.266	0.910
Perceived Risk (PR)	PR1	0.211	0.739	0.209	0.858
	PR2	0.367	0.886	0.269	0.819
	PR3	0.311	0.764	0.305	0.840
	PR4	0.298	0.845	0.307	0.924
Continuance Intention (CI)	CI1	0.280	0.940	0.277	0.867
	CI2	0.274	0.924	0.275	0.850
	CI3	0.238	0.859	0.303	0.916
	CI4	0.293	0.954	0.271	0.898

Notes: **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns; **TR:** Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

5.3 Test of the measurement model

The measure model estimation results, including outer weight, loadings, and the

average variance extracted (AVE) measures, are listed in Table 3 and Table 4. The outer loadings, which represent the loadings of the reflective manifest variables with their respective latent variable, can be used to assess individual item reliability, and it is considered by many researchers as acceptable when an item has a loading higher than 0.7 (Hulland, 1999). In this study, all outer loadings (ranging from 0.786 to 0.916) were higher than 0.7.

The average variance extracted (AVE) measures can be used to assess the convergent validity of the reflective constructs. As shown in Table 3, AVE scores in this study varied from 0.633 to 0.792 for the full sample, 0.524 to 0.846 for LinkedIn group and 0.638 to 0.795 for Facebook group, which all are passing the threshold value (0.5) suggested by prior research (Fornell and Larcker, 1991). To assess the discriminant validity, the square root of the AVE measure on each construct must exceed the estimated correlations shared between the construct and other constructs in the model. The discriminant validity for the constructs used in our study was acceptable, since the square root of AVE on each construct, which is the diagonal elements in Table 5, was greater than the correlations of the construct with other constructs, which are those related off-diagonal elements in Table 5.

Table 5. Inter-construct correlations and square root of AVE measure

Samples	CI	EE	PC	PR	SI	TR
LinkedIn						
CI	0.920					
EE	0.798	0.826				
PC	-0.508	-0.442	0.724			
PR	-0.608	-0.404	0.433	0.794		
SI	0.456	0.403	0.118	-0.047	0.868	
TR	0.900	0.781	-0.623	-0.553	0.445	0.910
Facebook						
CI	0.892					
EE	0.747	0.864				
PC	0.225	0.238	0.857			
PR	0.221	0.231	0.636	0.799		
SI	0.745	0.749	0.378	0.287	0.848	
TR	0.655	0.606	0.090	-0.053	0.572	0.853

Notes: **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns; **TR:** Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

5.4 Structural modeling and results

After the measurement model was validated, the structural model which

specified the relationships between latent variables was then estimated. The path coefficients for the endogenous latent variables and the R-square statistics were derived. The structural model results of LinkedIn are presented in Table 6 and the structural model results of Facebook are presented in Table 6 It is important to note in the following discussions that the level of significance is set at 5%, which p value is less than 0.05, and the β value has nothing to do with error II type but corresponds to the path coefficient.

Table 6. Structural model results (LinkedIn)

Path	Path coefficient	*P* -value	Hypothesis test result
H1a: EE→TR	0.389***	**0.0000**	supported
H2a: EE→CI	0.241***	**0.0001**	supported
H3a: SI→TR	0.326***	**0.0000**	supported
H4a: SI→CI	0.096*	**0.0207**	supported
H5a: PC→TR	-0.397***	**0.0000**	supported
H6a: PC→PR	0.434***	**0.0000**	supported
H7a: PR→TR	-0.212***	**0.0000**	supported
H8a: PR→CI	-0.192***	**0.0001**	supported
H9a: TR→CI	0.565***	**0.0000**	supported

Notes: (1) *p<0.05, **p<0.01, ***p<0.001;
(2) **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns; **TR:** Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

Our empirical results (shown in Table 6) confirm that users' trust in LinkedIn is significantly and positively associated with both effort expectancy (β=0.389, p=0.0000) and social influence (β=0.241, p=0.0001). Users' trust in LinkedIn is significantly and negatively associated with users' perceived risk (β=-0.212, p=0.0000) and users' privacy concerns (β=-0.397, p=0.0000). Also, users' privacy concerns is significantly and positively associated with their perceived risk (β=0.434, p=0.0000). Users' trust in LinkedIn is significantly and positively associated with their continuance intention to use LinkedIn (β=0.565, p=0.0000). Users' continuance intention to use LinkedIn is positively and significantly associated with effort expectancy (β=0.241, p=0.0001) and social influence (β=0.096, p=0.0207). Overall, hypotheses H1a, H2a, H3a, H4a, H5a, H6a, H7a, H8a and H9a postulated in this study were supported.

Table 7. Structural model results (Facebook)

Path	Path coefficient	*P* -value	Hypothesis test result
H1b: EE→TR	0.424***	**0.0000**	supported
H2b: EE→CI	0.310**	**0.0032**	supported
H3b: SI→TR	0.321**	**0.0015**	supported
H4b: SI→CI	0.324**	**0.0015**	supported
H5b: PC→TR	0.040	**0.6809**	not supported
H6b: PC→PR	0.632***	**0.0000**	supported
H7b: PR→TR	–0.273**	**0.0047**	supported

H8b: PR→CI	0.081	**0.1358**	not supported
H9b: TR→CI	0.286***	**0.0000**	supported

Notes: (1) *p<0.05, **p<0.01, ***p<0.001;
(2) **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns;
TR: Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

Our empirical results (shown in Table 7 confirm that users' trust in Facebook is significantly and positively associated with both effort expectancy (β=0.424, p=0.0000) and social influence (β=0.321, p=0.0015). We also found that users' trust in SNS is significantly and negatively associated with users' perceived risk (β=-0.273, p=0.0047), but users' trust in Facebook is not significantly associated with users' privacy concerns (β=0.040, p=0.6809). Our modeling results also confirm that users' privacy concerns is significantly and positively associated with their perceived risk (β=0.632, p=0.0000). In addition, users' trust in Facebook was found by our study to be significantly and positively associated with their continuance intention to use Facebook (β=0.286, p=0.0000), but such continuance intention is not significantly associated with users' perceived risk (β=0.081, p=0.1358). Finally, our results also reveal that users' continuance intention to use Facebook is positively and significantly associated with effort expectancy (β=0.310, p=0.0032) and social influence (β=0.324, p=0.0015). Overall, hypotheses H1b, H2b, H3b, H4b, H6b, H7b and H9b postulated in this study were supported by the empirical results, though the hypotheses H5b and H8b were not supported.

Table 8. Comparisons of User Groups between LinkedIn and Facebook

Hypothesis	LinkedIn(β1)	Facebook(β2)	Δβ	Comparison of paths(t-value)	Differences
H10: EE→TR	0.389***	0.424***	**-0.031**	**-4.65*** **	**Yes**
H11: EE→CI	0.241***	0.310**	**-0.073**	**-8.46*** **	**Yes**
H12: SI→TR	0.326***	0.321**	**0.006**	**0.81**	**No**
H13: SI→CI	0.096*	0.324**	**-0.233**	**-33.12*** **	**Yes**
H14: PC→TR	-0.397***	0.040	**-0.435**	**-59.03*** **	**Yes**
H15: PC→PR	0.434***	0.632***	**-0.202**	**-32.02*** **	**Yes**
H16: PR→TR	-0.212***	−0.273**	**0.053**	**7.84*** **	**Yes**
H17: PR→CI	-0.192***	0.081	**-0.261**	**-49.17*** **	**Yes**
H18: TR→CI	0.565***	0.286***	**0.284**	**37.60*** **	**Yes**

Notes: (1) *p<0.05, **p<0.01, ***p<0.001;
(2) **EE:** Effort Expectancy; **SI:** Social Influence; **PC:** Privacy Concerns;
TR: Trust in SNS; **PR:** Perceived Risk; **CI:** Continuance Intention

5.5 Comparisons of user groups between LinkedIn and Facebook

Our research employed control variables from the original UTAUT model for the observation of path acceptances between LinkedIn and Facebook. As shown in Table 8, there are significant differences in most relational impacts between LinkedIn and Facebook. Overall, only hypotheses H14, H17 and H18 postulated in this study were

supported. Privacy concerns has significantly stronger influence on trust for LinkedIn than Facebook (β_1=-0.397, β_2=0.040). Also, privacy risk has significantly negative influence on trust for LinkedIn while it has no significant influence on trust for Facebook (β_1=-0.192, β_2=0.081). Continuance intention was significantly influenced by trust more significantly for LinkedIn than Facebook (β_1=0.565, β_2=0.286).

However, the hypotheses H10, H11, H12, H13, H15 and H16 were not supported. Our results show that effort expectancy has a significantly stronger influence in users' trust (β_1=0.389, β_2=0.424) and continuance intention (β_1=0.241, β_2=0.310) in Facebook than LinkedIn. Also, users' trust is significantly influenced more by perceived risk (β_1=-0.212, β_2=-0.273) in Facebook than LinkedIn. Privacy concern influences perceived risks significantly stronger for Facebook instead of LinkedIn (β_1=0.434, β_2=0.632). Social influence has significantly stronger influence for Facebook than LinkedIn (β_1=0.096, β_2=0.324). Social influence has no significant difference on trust between LinkedIn and Facebook (β_1=0.326, β_2=0.321).