Impact of Privacy, Trust, and User Activity on Intentions to Share Facebook Photos

1. Introduction

Social networking sites (SNS) have become an integral part of everyday activity for billions of Internet users ("Facebook Newsroom," 2015; Lenhart, 2015). People access SNS for status updates, interaction with groups, searching and browsing user profiles, inviting contacts, private messaging, content browsing and sharing, and commenting (Madden et al., 2013a; Malik et al., 2016; Smock et al., 2011). The rise in SNS usage and acceptance has led to an overwhelming increase in the information revealed by SNS users (Stutzman et al., 2013; Young and Quan-Haase, 2013). Extensive amounts of content shared on SNS have raised users' concerns over the vulnerability of their personal SNS content to unintended exposure (Chang and Heo, 2014; Fogel and Nehmad, 2009; Orito et al., 2014; Wilson et al., 2014). Prior literature has indicated that the SNS (including Facebook) collect and store users' personal information and browsing activity, as well as shared content, for an indefinite period of time (Debatin et al., 2009; Shin, 2010). These companies commonly use this rich data (e.g. photos, videos, user logs and user activities) for their own marketing purposes and business gains, as well as sharing it with third parties including governmental agencies and business partners. Consequently, the users tend to lose control over their data once it is published on these networks (Acquisti and Gross, 2006; Chang and Heo, 2014; Debatin et al., 2009). In addition to this, user concerns regarding information misuse and abuse, stolen personal data, cyber bullying, stalking and child safety also fuel the privacy concerns of the users (Chang and Heo, 2014; Krasnova et al., 2009a; Raynes-Goldie, 2010).

Despite the fact that, over recent years, concerns as well as awareness about privacy-related issues among SNS users have dramatically increased (Chang and Heo, 2014; Hoadley et al., 2010; Stutzman et al., 2013), most SNS users still seem unaware about the fate of their personal content on these platforms (Orito et al., 2014). Furthermore, Facebook users continue to disclose

information (such as photos) despite having concerns about privacy (Litt and Hargittai, 2014; Taddicken, 2014). As a result of increased privacy concerns and awareness among Facebook users, who are yet disclosing a lot of personal information, understanding the associated issues has become highly relevant for researchers as well as social networking practitioners.

Photo sharing is regarded as one of the leading activities on Facebook, and is also considered an important form of disclosure on Facebook (Eftekhar et al., 2014; Madden et al., 2013a; Malik et al., 2016). Facebook users have already contributed over 250 billion photos and every day they contribute 350 million photos on Facebook (*Internet.org: A Focus on Efficiency*, 2013). Similarly, more than 1.8 billion photos are uploaded and shared every day on five leading SNS platforms (Meeker, 2014). Despite this extraordinary adoption and usage of digital photos on Facebook and other SNS, a limited amount of research has explored privacy-related issues and attitudes in the context of photo sharing on Facebook (Cunningham et al., 2010; Litt and Hargittai, 2014; Shin, 2010). Specifically, the impact of the users' privacy attitudes and perceptions on the users' trust, SNS activity and photo sharing intentions is largely unknown. Consequently, it is important to understand this relationship since it helps in understanding as how various privacy-related attitudes and perceptions shape the user's trust and activity level, which ultimately influences an individual's intention to share photos. To address this gap, the present study investigates the impact of privacy awareness, privacy-seeking behaviour and privacy concerns on shaping an individual's trust and activity level. Furthermore, we examine the mediating role of trust and activity levels on an individual's photo sharing intentions. The study aims to answer the following research questions:

RQ1: How do users' privacy concerns, privacy awareness, and privacy-seeking measures influence their trust in Facebook?

RQ2: How do users' privacy concerns, privacy awareness, and privacy-seeking measures influence their activity on Facebook?

RQ3: How do users' levels of trust and activity influence their Facebook photo sharing?

2. Background Literature

2.1. SNS Disclosure & Privacy

Self-disclosure can be defined as communicating personal information to other people (Derlega and Chaikin, 1977). On SNS platforms, self-disclosures can be carried out either verbally (chat messages, commenting, location sharing or status updates) or though non-verbal means (sharing photos, videos, news, or links). Users generally tend to disclose different forms and types of information to fulfil various gratifications. For instance, maintaining social relationships, seeking attention, feedback, bridging social capital, and communications are some of the major gratifications that users seek by self-disclosing on SNS (Chang and Heo, 2014; Liu and Brown, 2014; Quan-Haase and Young, 2010). Facebook users also tend to disclose more information as they seek positive feedback and social capital (Liu and Brown, 2014). Disclosures that are motivated by relationship maintenance are usually positive and intentional (Tosun, 2012). In contrast, those users who are interested in maintaining offline relationships through Facebook self-disclose more for the sake of real-world ramifications (Hollenbaugh and Ferris, 2014). Furthermore, those Facebook users who seek entertainment and pastime gratifications also indulge in revealing more information through Facebook use (Li-Barber, 2012). In addition to this, previous literature suggests that higher levels of user activity and trust in the platform also intensify users' intentions to disclose information (Chang and Heo, 2014).

The relationship between users' privacy and SNS-based disclosures is a complicated one. This relationship is found to be contrary to the IS literature in many aspects. In IS literature, privacy is regarded as an important factor that negatively impacts users' acceptance, intentions, trust, and disclosures (Dinev and Hart, 2006; Van Dyke et al., 2007). On the contrary, research on Facebook users indicates no or minimal impact of privacy on disclosures (boyd and Hargittai, 2010; Hoadley et al., 2010). Furthermore, different motivations, including social acceptance, social

interaction, and communication and information sharing, are found to be in conflict with an individual's motivation to protect his/her privacy (Lipford et al., 2012). These tensions between user concerns and at the same time willingness to be a part of the online community by disclosing extensive amounts of personal information is often termed a "*privacy paradox*" (Taddicken, 2014). Even though the concept of the "*privacy paradox*" seems simple and easy to explain, it has not yet been completely explained or investigated (Taddicken, 2014; Wisniewski et al., 2015). This also suggests that other relevant factors including trust, privacy-seeking behaviours, and usage behaviours might also interplay here.

Privacy has emerged as one of the serious concerns in relation to sharing content on Facebook. Similar to other SNS, Facebook is also designed for encouraging and motivating its users to disclose their personal information and share content with others. Prior literature indicates that although Facebook provides privacy settings to control the privacy level, many users still fail to set the appropriate levels of privacy and tend to disclose sensitive information (Acquisti and Gross, 2006; boyd and Hargittai, 2010; Fogel and Nehmad, 2009). For instance, one recent study indicated that 36% of the total content is shared with default privacy settings on Facebook (Liu et al., 2011). Due to this, many Facebook users expose their personal information and content to more users than they actually expect. In addition to this, Facebook users generally underestimate the threats associated with self-disclosures on the platform (Strater and Lipford, 2008; Taddicken, 2014). However, too much information disclosure through Facebook often results in different privacy-related risks (Krasnova et al., 2010).

2.2. SNS Photo Sharing

Despite the fact that a number of risks and threats are associated with sharing photos on Facebook, it is still the most popular Facebook activity (Duggan, 2013; Madden et al., 2013b). Photo sharing is an active form of visual communication that helps Facebook users in identity management, and forming interpersonal impressions (Eftekhar et al., 2014). In addition to this, photos are shared for

the purposes of establishing new relationships and maintaining the old ones (Oeldorf-Hirsch and Sundar, 2010), to fulfil users' affection, attention seeking, and information sharing needs (Malik et al., 2016) and to gain positive feedback as well as to bridge social capital (Liu and Brown, 2014). Despite these benefits, there are many associated reasons, including reputation management and privacy concerns, due to which not all users engage in Facebook photo sharing (Strater and Lipford, 2008). Privacy concerns and privacy-related issues over photo sharing have emerged as the current systems have become highly efficient and supportive in sharing, storage and retrieval (Cunningham et al., 2010). Photos shared on Facebook can reveal private and confidential information that the users never intended to share, leading to social embarrassment (Johnson et al., 2012). Furthermore, photos shared on Facebook can also be accessed and viewed by unintended audiences (Taddicken, 2014; Xie and Kang, 2015), which increases the threats of misuse.

The recent study by Litt and Hargittai (2014) indicated that more Facebook users share their photos publicly compared to sharing with restricted access. The other findings include the fact that users who have grown up with privacy concerns and awareness of relevant privacy issues are also more likely to share their photos selectively and less likely to share publicly. Furthermore, users who are more active online are also more likely to share publicly as they become less sensitive to possible privacy concerns (Litt and Hargittai, 2014). Another study indicated that due to the fact that understanding an extensive and complex set of privacy settings requires effort and a certain level of skills, Facebook users tend to share most of their photos publicly (boyd and Hargittai, 2010). Relatively recent literature has focused on understanding the disclosure levels of important life events (Bevan et al., 2014), the gratifications of photo disclosures on Facebook (Malik et al., 2016), the motivations behind location-related disclosures (Chang and Chen, 2014), the relationship between self-disclosure and feedback and social capital (Liu and Brown, 2014), and self-disclosure and regret of sharing (Xie and Kang, 2015). It was also observed that recent years have witnessed a growing interest among researchers in understanding various aspect of privacy specific to various

forms of disclosure on Facebook. This work includes understanding location-based information sharing privacy concerns (Kim, 2016), the consequences of voluntary disclosures on Facebook (Waters and Ackerman, 2011), the impact of privacy concerns on different types of self-disclosure such as basic information, factual information, and sensitive information (Taddicken, 2014), and the relationship between privacy concerns and Facebook apps and tagging (Wisniewski et al., 2015).

3. Our Research Model

The research model of this study is designed to explain the impact of privacy awareness, privacy-seeking behaviour and privacy concerns on trust and actual Facebook user activity. Furthermore, it investigates how trust and activity levels relate to users' photo sharing intentions on Facebook.

3.1. Privacy Awareness

Privacy awareness refers to the attention and understanding of an individual with respect to various aspects of privacy on Facebook (Zlatolas et al., 2015). The earliest SNS studies revealed that the users were generally unaware about the treatment and usage of the information and content they shared on these platforms (Dinev and Hart, 2006; Raynes-Goldie, 2010). This limited awareness held true for various groups of users regardless of their service usage frequency or levels of privacy concerns (Acquisti and Gross, 2006). However, recent studies have depicted a shifting trend as privacy awareness among SNS users has risen substantially through mainstream media and other channels (boyd and Hargittai, 2010; Stutzman et al., 2013; Torres, 2012). Literature on e-commerce suggests that with an increase in privacy awareness among consumers, the trust levels decrease, as well as limiting information disclosure (Dinev and Hart, 2006; Olivero and Lunt, 2004; Van Dyke et al., 2007). However, in the case of SNS the opposite holds true as, despite the increased levels of awareness among users, activities on these platforms keep surging (Torres, 2012). Increased levels of activity by Facebook users indicate that users might also trust the platform as they are willing to share and disclose more information. Facebook users with high privacy awareness tend to exhibit higher levels of trust in the service and have higher activity levels since they are more

knowledgeable about the reality and expectations (Hoadley et al., 2010; Torres, 2012). Recent studies also suggest that due to the higher awareness levels of privacy-related matters Facebook users' disclosures have actually increased as they communicate privately or with connected friends rather than with the general public or strangers (Stutzman et al., 2013).

Together, the above findings suggest that the degree to which Facebook users are aware of privacy issues will positively influence their trust in the service as well as their activity on the platform. We thus proposed that:

H1. *Privacy awareness positively affects users' trust in Facebook*

H2. *Privacy awareness positively affects users' photo sharing activity on Facebook*

3.2. Privacy-seeking Behaviour

Privacy-seeking behaviour refers to the actions users get involved in to safeguard their information on Facebook (Stutzman et al., 2013). Due to increasing threats and concerns, Facebook users are getting increasingly protective and vigilant about sharing content, especially when it comes to the public sharing of data (Madden and Smith, 2010; Stutzman et al., 2013). Even young adults share content on these sites more carefully as they consider the possibility of the data being reachable by their friends, employers, colleagues, and others (Madden and Smith, 2010). Direct messages, posting false information, removing friends from the friends list, deleting comments by friends, and un-tagging people from photos are some of the strategies adopted by Facebook users to protect their privacy (Johnson et al., 2012; Madden et al., 2013a; Young and Quan-Haase, 2013). Privacy-seeking behaviour is adopted to mitigate various privacy threats, especially from strangers on the network. Due to their conscious effort of opting for various privacy protection strategies, users generally feel confident enough to continue sharing content with their friends and peers (Stutzman et al., 2013; Young and Quan-Haase, 2013). Moreover, mechanisms offered by SNS that help in protecting users' privacy also aid in establishing users' trust with the service (Acquisti et al.,

2015). Together, the above findings suggest that the degree to which Facebook users seek privacy protection measures will positively influence their trust in the service as well as their actual activity. Thus, we propose:

H3. *Privacy-seeking behaviour positively affects users' trust in Facebook*

H4. *Privacy-seeking behaviour positively affects users' actual photo sharing activity on Facebook*

3.3. Privacy Concerns

Privacy concerns, also referred to as privacy risks, reflect the user's concern about his/her information privacy on a website (Dinev and Hart, 2006). Privacy concerns can be broadly categorised into two types; organisational concerns and social concerns (Krasnova et al., 2009a). Regarding organisational concerns, users are mostly concerned about acts by an institute or an organisation, while in terms of social concerns the users are threatened by or concerned about their friends or other users of the service (Krasnova et al., 2009a). Collecting user information, surveillance, data mining, recording user activities, data rights, access by unintended audience, identity theft, online bullying, lost data, online/offline stalking, and identity thefts are some of the critical user concerns on SNS (Debatin et al., 2009; Krasnova et al., 2009a; Strater and Lipford, 2008). The privacy concerns of SNS users can potentially hamper their behaviours, ultimately leading to lower trust in the service and limited activity in the form of reduced information sharing on the platforms (Acquisti and Gross, 2006; Tufekci, 2008). In the SNS environment, privacy concerns represent one of the most important factors that influence trust in the service, as well as the intention to disclose information (Torres, 2012; Wilson et al., 2014). Together, these findings suggest that the degree to which Facebook users are concerned about privacy will negatively influence their trust in the service as well as the actual activity on the platform. Thus, we propose:

H5. *Privacy concerns negatively affect users' trust in Facebook*

H6. *Privacy concerns negatively affect users' actual activity on Facebook*

3.4. Trust in Facebook

Trust can be defined as one's willingness to depend on Facebook (Lankton and Tripp, 2013). Like any traditional service, trust in an online service also plays an important role in gaining the loyalty of the users. In prior IS literature trust has been regarded as an imperative factor in determining users' activity in online environments (Metzger, 2004; Smith et al., 2011). Furthermore, trust plays an integral role in online marketplace exchanges (Pavlou and Dimoka, 2006), online shopping (Metzger, 2004), and online banking (Yousafzai et al., 2003). Likewise, trust is also one of the crucial determinants of SNS acceptance and usage (Krasnova et al., 2010; Shin, 2010; Wilson et al., 2014). Privacy perception is a critical factor that influences the level of trust by Facebook users (Torres, 2012). The mitigation of privacy concerns encourages SNS users in their frequent and continuous usage of the service (Fogel and Nehmad, 2009; Wilson et al., 2014), building trust in the service (Metzger, 2004; Smith et al., 2011), and information disclosures (Dwyer et al., 2007; Krasnova et al., 2010; Torres, 2012). Higher levels of trust in Facebook have been shown to have a positive impact on information disclosure and continuance intentions on Facebook (Dwyer et al., 2007; Fogel and Nehmad, 2009; Lankton and Tripp, 2013; Shin, 2010). We therefore propose trust as a determinant of photo sharing intention:

H7*. Trust positively impacts users' intentions to share photos on Facebook*

Furthermore, users' activities on Facebook also have an impact on their intentions to share photos on Facebook. It can be argued that those users who are more active on the platform are more likely to share their photos on Facebook. Thus:

H8*. Actual activity on Facebook positively impacts a user's intention to share photos on Facebook*

The research model for this study was developed based on prior literature on privacy, trust, and online self-disclosures (Figure 1). The model proposes that users' privacy awareness, privacy-seeking behaviours, and privacy concerns have a direct impact on users' trust and activity levels on Facebook, as stated in our hypotheses. Furthermore, the model suggests that users' trust and activity levels subsequently impact users' intentions to share photos on Facebook.

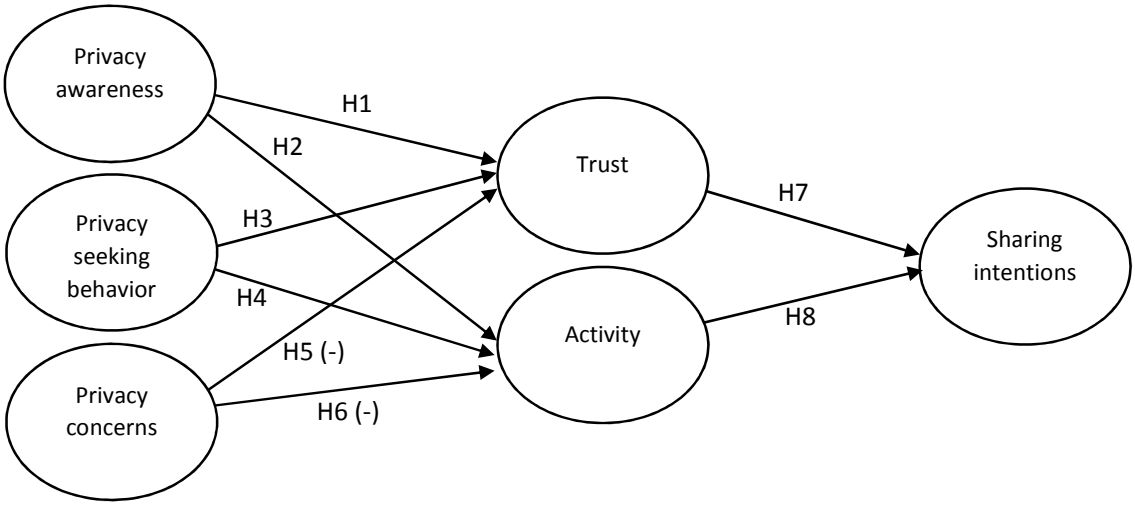

Figure 1: Research model

4. Research method

4.1. Data Collection and Study Participants

Data were collected using an online web-based survey hosted from December 2014 until January 2015. The target audience was Facebook photo-sharing users who were at least 18 years old. The survey was mainly publicised on a number of Facebook groups coupled with the snowball sampling technique. The main criteria for selecting the Facebook groups were that they should target diverse user demographics and that the group should not be targeted towards photo-savvy users. Potential Facebook groups were listed by browsing through the "Suggested Groups" on the Facebook profile of the first author. After screening the potential groups, a chat message with the survey details was sent to the group administrator. Thirteen Facebook groups accepted the request and posted the survey brief and link on their respective group pages. In the post, we encouraged viewers to forward the post to their friends and acquaintances. A week before the survey's closing date, a reminder was posted in all of the publicised groups. Participation was kept voluntary and anonymous. A total of 554 respondents completed the survey but after preliminary

screening a total of 174 use cases were deleted since they were not using Facebook for sharing photos or the responses were incomplete. A total of 378 valid responses were considered for further analysis. The study participants were aged from 18 to over 55 years old. The complete demographic description of the study participants is presented in Table 1.

Table 1. Descriptive Statistics on Demographics

Measure	Item	(%) Frequency
Gender	Female	(49.7) 188
	Male	(50.3) 190
Age (years)	18-24	(11) 43
	25-34	(39) 146
	35-44	(29) 108
	45-54	(13) 50
	Over 55	(8) 31
Education	High School or equivalent	(5) 19
	Bachelor's or equivalent	(33) 125
	Master's or equivalent	(45) 170
	Doctorate	(17) 64
Country	Finland	(43) 163
	UK	(15) 56
	USA	(13) 50
	Others	(29) 109

4.2. Study Measures

4.2.1 Demographics: The study participants were asked to provide information about their age, gender, educational background and country of residence (see Table 1).

4.2.2 Facebook and Photo Sharing Activity: In order to gain a deeper understanding of respondents' Facebook and photo-related activity, a total of four items were included in the survey. These items were: tenure of Facebook use (FBTEN); frequency of visiting Facebook (FBFRE); number of photos shared on Facebook during the past month (FBPHO); and number of photos shared on other SNS during the past month (SNPHO) (see Table 2).

Table 2. Descriptive Statistics on Facebook and photo usage

Measure	Item	(%) Frequency
Tenure on Facebook (FBTEN)	Less than 1 year	(1) 3
	Between 1-3 years	(4) 14
	Between 3-5 years	(17) 63
	Over 5 years	(79) 298
Frequency of visiting Facebook (FBFRE)	Once each week	(3) 13
	Several times a week	(7) 28
	Once each day	(11) 41
	Several times a day	(78) 296
Number of photos shared on Facebook during past month (FBPHO)	Less than 10	(28) 104
	Between 10-20	(31) 116
	Between 20-50	(25) 94
	Over 50	(17) 64
Number of photos shared on other SNS during past month (SNPHO)	Less than10	(65) 245
	Between 10-20	(21) 78
	Between 20-50	(9) 33
	Over 50	(6) 22

4.2.3 Privacy, Trust, and Sharing Intentions: Items measuring the presented model (except activity) consisted of 23 statements (see Table 3). All of the items were measured on a five-point Likert scale where 1 = "strongly disagree" and 5 = "strongly agree".

Table 3: Measurement of variables

Construct	Items	References
Privacy awareness	PA1: I have read Facebook's privacy statement	(Torres, 2012)
	PA2: Facebook privacy statement is easy to understand	
	PA3: Facebook privacy settings are easy to use	
	PA4: I understand all the privacy setting of Facebook	
	PA5: I am aware of all the appropriate actions to ensure my privacy on Facebook	
	PA6: I am aware of my privacy rights and responsibilities on Facebook	
Privacy seeking behavior	PSB1: Since joining Facebook, I have changed the privacy settings multiple times	Self-developed
	PSB2: I usually keep track of my photos shared on Facebook	
	PSB3: I usually delete my photos shared on Facebook	
	PSB4: I usually think carefully before sharing my photos on Facebook	
Privacy concerns	PC1: Shared photos could be misused by Facebook	(Acquisti and Gross, 2006; Dinev and Hart, 2006; Krasnova
	PC2: Shared photos on Facebook could be accessed by third parties	
	PC3: Shared photos on Facebook could be misused by my Facebook friends	

	PC4: Shared photos on Facebook could be seen by unwanted people PC5: Shared photos on Facebook could reveal private information PC6: Shared photos on Facebook could have negative consequences that I cannot foresee	et al., 2009a)
Trust in Facebook	TiF1: I believe that privacy of my photos is well protected by Facebook TiF2: I believe that Facebook will not use my photos for any other purpose TiF3: I believe that Facebook is a secure platform for sharing photos	(Dwyer et al., 2007; Krasnova et al., 2010)
Intention to share	IS1: I intend to keep sharing my photos on Facebook IS2: I would share more photos on Facebook if privacy settings are simplified IS3: I would share more photos if the privacy control policies are verified by a security company IS4: I would share more photos on Facebook if my privacy concerns are addressed properly	Self-developed

5. Results

The data were analysed using partial least squares path modelling (PLS), which is increasingly applied as a statistical method for theory testing in the information systems and social science community (Gerow et al., 2010). As our measurement model (survey) is newly developed and relatively untested, PLS is suitable alternative to more traditional covariance-based SEM (Urbach and Ahlemann, 2010). PLS has also been recently utilized in the domain of SNS privacy research (Krasnova et al., 2010; Wisniewski et al., 2015). The PLS analysis performed in this study follows the recommendations of Marcoulides and Saunders (2006). More specifically, the recommendations concerning the theoretical support for the model, data screening, and the analysis of the psychometric properties of all of the variables of the model were followed. The actual analysis was conducted using SmartPLS 2.0. The model consisted of six constructs that are all considered reflective; that is, their indicators present a great level of correlation between them, and a variation of one normally leads to the variation of the rest of the indicators in the same construct. The individual indicators and their descriptions are presented in Table 3.

First, the measurement and structural models were evaluated. The evaluation of the measurement model was conducted by ensuring the reliability of the construct (using Cronbach's alpha and

Composite Reliability (CR)), average variance extracted (AVE), and discriminant validity of the latent variables. Second, the structural model was validated in order to confirm whether the causal relationships were consistent with the available data (Hair Jr et al., 2013)(see Figure 2).

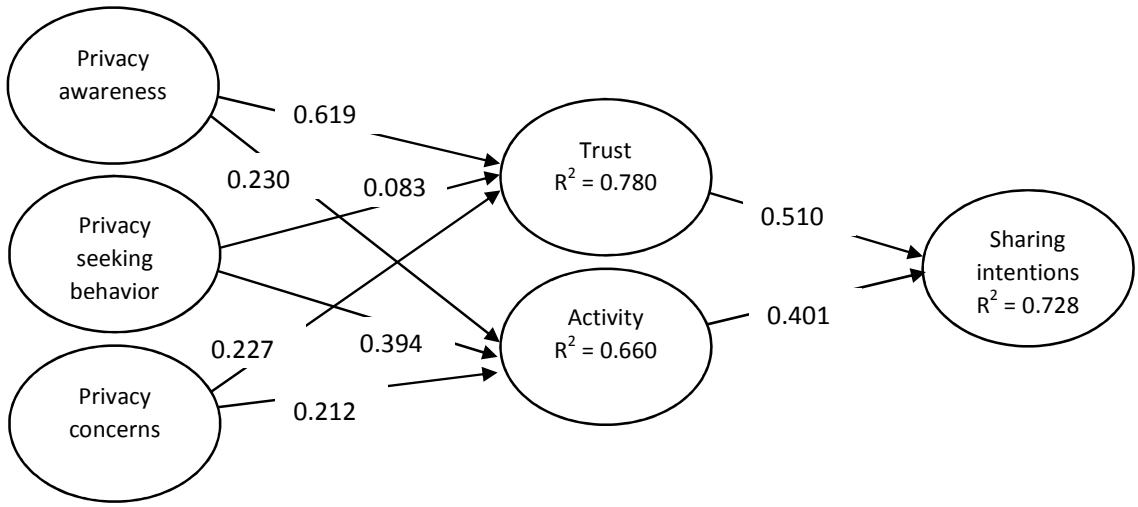

Figure 2: PLS model

The indicators' outer loadings (Appendix A) are all higher than 0.7, satisfying the requirement for indicator reliability (Hair Jr et al., 2013). Similarly, all of the constructs can be considered reliable since their values for CR > .70, thus satisfying the requirement for exploratory research (Hair Jr et al., 2013) (Table 4). Moreover, all of the constructs have an AVE > 0.5, satisfying the requirement for convergent validity (Hair Jr et al., 2013). The discriminant validity is satisfied by comparing the square root of the AVE of each construct with the correlations between constructs (Table 5).

Table 4: Construct reliabilities, explained variance and predictive relevance

Study constructs	AVE	Composite Reliability	Cronbach's-α	R^2	Q^2
Privacy awareness	0.87	0.97	0.96		0.80
Privacy seeking behavior	0.89	0.97	0.95		0.79
Privacy concerns	0.93	0.98	0.98		0.88
Trust	0.94	0.98	0.96	0.78	0.82

Activity	0.75	0.86	0.69	0.66	0.27
Sharing intentions	0.95	0.98	0.97	0.72	0.83

Table 5: $\sqrt{AVE}$ (diagonal) and the correlations between latent variables

Study constructs	1	2	3	4	5	6
Privacy seeking behavior	0.94					
Activity	0.80	0.87				
Privacy awareness	0.91	0.77	0.93			
Privacy concerns	0.93	0.78	0.87	0.96		
Sharing intentions	0.89	0.78	0.83	0.90	0.97	
Trust	0.84	0.75	0.87	0.82	0.81	0.97

Next, the structural model was evaluated by examining the values of R2, Q2 test for predictive relevance, the size of the coefficients of paths, and the stability of the estimations by means of the t-statistics obtained in the bootstrap with 3000 samples. The values of the explained variance R2 and Q2 tests for the predictive relevance for each construct are presented in Table 4. In addition to this, Table 6 presents the proposed hypotheses, path coefficients, and respective t-values observed with the level of significance obtained in the bootstrap test.

Table 6: Path loadings and t-values

Study hypothesis	Paths	t-value	Hypothesis
Privacy awareness → Trust	0.61	12.12**	Accepted
Privacy awareness → Activity	0.23	3.91**	Accepted
Privacy seeking behavior → Trust	0.08	0.78	Rejected
Privacy seeking behavior → Activity	0.39	4.58**	Accepted
Privacy concerns → Trust	0.22	3.49**	Rejected
Privacy concerns → Activity	0.21	2.82*	Rejected
Trust → Sharing intentions	0.51	15.06**	Accepted
Activity → Sharing intentions	0.40	12.43**	Accepted

Note: (*) significant at $p < 0.01$; (**) significant at $p < 0.001$

5. Discussion

Despite the fact that photo-sharing is very popular among Facebook users, limited research has explored the complex relationship between users' privacy attitudes, trust, and intentions to share photos on Facebook. To address this research gap, the present study has examined the impact of various privacy-related behaviours (including privacy awareness, privacy-seeking behaviour, and privacy concerns) and the mediating role of trust and Facebook activity on users' intentions to share photos on Facebook. Through an online survey of 378 participants, the current study contributes by validating the prior SNS literature, examining various privacy aspects of Facebook users.

The study results suggest that privacy awareness has the strongest relationship with trust among three types of privacy-related behaviour (namely, privacy awareness, privacy-seeking behaviour, and privacy concerns). This suggests that Facebook users with a higher level of awareness about Facebook privacy tend to trust Facebook more compared to those with less awareness. This is also consistent with the prior literature, which suggests that users with higher privacy awareness exhibit higher levels of trust in the service as they are more knowledgeable about the reality and actual expectations in the context of their privacy on that platform (Hoadley et al., 2010; Metzger, 2004; Van Dyke et al., 2007). Moreover, due to high awareness about privacy-related issues, Facebook users are more knowledgeable and conscious about sharing their photos. For instance, it is highly likely that they share their personal photos with a limited number of connections (Litt and Hargittai, 2014; Stutzman et al., 2013) instead of sharing publicly. By sharing with a limited number of known friends, they feel confident enough that their photos will not be misused; this ultimately increases their trust level with Facebook.

Our results also indicate a positive relationship between privacy awareness and actual activity on Facebook, suggesting that users who are well informed about privacy issues are more likely to have higher activity levels on the platform, as those users who are generally more aware about privacy-related matters are more realistic and know the expected outcomes (Hoadley et al., 2010; Van Dyke et al., 2007). Higher awareness of privacy might guide them in taking the necessary measures to

protect their privacy, consequently making them more confident in exhibiting a higher level of activity than their counterparts. Furthermore, it is quite plausible that privacy awareness leads Facebook users to share increasing numbers of photos with a selected and limited known network (Litt and Hargittai, 2014; Stutzman et al., 2013) as they feel confident enough that their privacy will not be violated. Hence, we can conclude that greater privacy awareness leads to higher levels of trust and activity on Facebook.

The results also indicate that privacy-seeking behaviour has a significant positive relationship with Facebook activity but its impact on the level of trust with Facebook was negligible. It suggests that users who actively involve themselves in various privacy protection strategies feel more confident and thus share more information and content. This is also consistent with earlier Facebook-related studies, e.g. Facebook users who spend more time on the site also have higher levels of confidence in using Facebook's privacy settings (boyd and Hargittai, 2010). Moreover, it is likely that due to high awareness about privacy-related issues, Facebook users opt for various privacy protection strategies to safeguard their shared photos, as Facebook provides an extensive set of privacy-related settings that can help the users in defining various levels of privacy for their photos. As engaging with privacy settings and other protection strategies alleviate privacy threats, users can feel confident enough to share more photos on the platform (Stutzman et al., 2013; Young and Quan-Haase, 2013).

An insignificant relationship between privacy concerns-trust and privacy concerns-users' activity suggests that the privacy concerns of Facebook users do not impact trust or sharing activity in the service when it comes to sharing photos on Facebook. This finding is contrary to previous findings within the IS domain, signalling a negative relationship between privacy concerns and trust (Metzger, 2004; Van Dyke et al., 2007). Based on the results, we can infer that the privacy concerns and doubts of Facebook users are not translated to their trust in the service or users' activity. From the SNS-focused research point of view, this finding aligns with previous findings that point out the

stronger concerns of users when it comes to privacy (Debatin et al., 2009; Tufekci, 2008), although these concerns do not effectively impact their behaviours on Facebook (boyd and Hargittai, 2010; Debatin et al., 2009; Taddicken, 2014). For instance, it is quite likely that even though Facebook users have high privacy concerns, they consider Facebook an important outlet for sharing their photos with others to fulfil their gratifications. Moreover, it is highly likely that due to increased awareness among Facebook users, they adopt various strategies, such as limiting their sharing network, but do not change their sharing practices. This disconnect between privacy concerns and self-disclosure has also been highlighted in prior literature (boyd and Hargittai, 2010; Taddicken, 2014). Another reason behind this disconnect can be attributed to users' belief that their privacy has not yet been breached by Facebook, leading to an "it won't happen to me" attitude (Fogel and Nehmad, 2009; Krasnova et al., 2009b). Another plausible reason for this disconnect could be the stronger influence of social threats compared to organisational-level threats. It is quite possible that, in general, Facebook users are more concerned about the threats from their own friends' network, or from other people on Facebook, compared to threats from Facebook itself. It is possible that Facebook users are more concerned about social threats such as cyber bullying, stalking, embarrassment, and identity theft compared to organisational or institutional threats (Krasnova et al., 2009a; Raynes-Goldie, 2010; Young and Quan-Haase, 2013), although this assumption needs to be further examined. It is also likely that Facebook users tend to renounce their privacy concerns as they have a high level of trust in Facebook as an organisation that they feel will safeguard their personal information and data. Furthermore, it is probable that most of the study respondents have been using the service for a while and they have intentionally or unintentionally accepted the privacy limitations of Facebook to be part of the network to fulfil their communication and self-inclusion needs.

Trust and activity on Facebook were in significant positive correlation with users' intentions to share photos. This suggests that users are more likely to share their photos on Facebook if they have

trust in the service. Similarly, the likelihood of sharing photos also increases if users are already active on the platform. This finding is consistent with prior literature which indicates that the more users engage with Facebook, the more information they disclose on the network (Chang and Heo, 2014). Prior literature also indicates that trust is one of the strongest aspects that influence users' activity and willingness to disclose information and content on Facebook (Chang and Heo, 2014; Dwyer et al., 2007). Similarly, the literature also indicated that despite having a dubious reputation with respect to privacy, many users still trust Facebook for sharing content and personal information (Acquisti and Gross, 2006; Dwyer et al., 2007; Fogel and Nehmad, 2009). Moreover, due to trust in Facebook, they also perceive that their shared content will only be accessible to their defined contacts (Taddicken, 2014). In addition to this, other possible factors could be "carelessness", "need for social inclusion" and a "won't happen to me" attitude.

Although numerous studies have been carried out to help understand various aspects of privacy and their impact on disclosure, the current study specifically examined the impact of privacy aspects with regard to one of the leading and most popular forms of content shared on Facebook i.e. photo sharing. As billions of photos have been shared on Facebook, it is vital to understand the factors that impact this activity. This study fills the current research gap by validating prior literature on SNS examining users' privacy and trust aspects in the context of sharing photos. Moreover, our study fills the existing research gap by examining the factors that impact users' intentions to share photos on Facebook.

7. Study Implications and Future Research

The present study offers new knowledge concerning SNS privacy issues and their impact on photo sharing activity. The study results provide important insights to SNS providers and relevant stakeholders regarding the various factors that encourage or limit photo-sharing activity on these platforms. To be specific, the results contribute to the existing body of knowledge in computer-mediated communications, SNS behaviour as well as IS literature addressing privacy-related issues.

In addition to this, the study findings also contribute to the limited literature that focuses on studying feature-specific aspects of SNSs, *i.e.* Facebook photo sharing in the present study. The presented model also attempts to validate some of the key privacy variables that can have a significant impact on users' intentions to share photos on the platform. Therefore, the present study also provides an excellent grounding for future researchers to test the proposed model on various other features of Facebook and also in case of other SNSs besides Facebook.

For researchers and practitioners, this study also offers several practical implications. The proposed model can assist other researchers interested in understanding the relationship between privacy, trust, activity, and intentions towards other features such as liking, commenting, video sharing, and group/page participation. Furthermore, this model can be replicated to understand the relationship with other forms of self-disclosure on Facebook; for instance, status updates, location check-in, and instant messaging. Similarly, the study results could be highly beneficial for IT designers engaged in developing photo-related features and applications. Finally, the findings also offer insights to SNS providers regarding the various privacy aspects of their users that could eventually help them in refining their existing features and user interactions.

The current study also has a number of limitations that offer new opportunities for future research. First, the components of the measurement model are based on a limited number of items. Due to this, future studies should expand, add new items and test the model. Second, the study participants represent a convenience sample, which is geographically non-bound. Therefore, linking the study findings with a specific culture, setting or geographical area would be difficult. It would be highly interesting to carry out a study in confined countries and cultures and explore the differences between them. Third, the measurement model could be expanded by including additional constructs addressing the user's privacy-related attitudes, perceptions and behaviours. Additional variables such as personality traits, type of photos shared, and various gratifications for sharing photos on Facebook could also be included. Fourth, a comparative study should be carried out by replicating

the same study in other forms of SNS such as Twitter, Pinterest, and Instagram. Finally, getting detailed insight into various organizational and social level threats can also be highly beneficial for the research community.

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APPENDIX A: Indicator outer loadings

Items	AWARENESS	ACTIONS	CONCERNS	TRUST	INTENTION	ACTIVITY
PA1	0.904					
PA2	0.928					
PA04	0.943					
PA05	0.949					
PA06	0.954					
PSB01		0.952				
PSB02		0.949				
PSB03		0.911				
PSB04		0.964				
PC02			0.955			
PC03			0.951			
PC04			0.977			
PC05			0.974			
PC06			0.976			
TiF01				0.973		
TiF02				0.966		
TiF03				0.972		
IS02					0.976	
IS03					0.976	
IS04					0.972	
FBPHO						0.919
FBFRE						0.821