Effects of Motivation and Tool Features on Online Photo-Sharing Behavior

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ABSTRACT

Sharing photos online has become one of the most popular information sharing behaviors in recent years. Due to the plethora of online photo-sharing websites, applications, and other tools available, we share visual information easily, and quickly. In order to improve our current understanding of photo-sharing behaviors and identify the exhaustive list of online photo-sharing motivations, we analyzed 4,555 photos shared online. Seventeen interviewers interviewed 92 participants overall. Twenty photo-sharing motivations were identified in this study, including To share memory, To disseminate information, For amusement (humor, fun), To show off, and To appreciate beauty/cuteness.

KEYWORDS

Photo-Sharing Motivations; Photo-Sharing Behaviors; Image Information Behaviors; Online Photo-Sharing Behaviors

ASIS&T THESAURUS

Information Behavior; Information Sharing; Information Use

INTRODUCTION

Sharing photos has become a common activity in recent years due to the growth of photo-sharing applications and tools, such as Facebook, Instagram, Snapchat, and Flickr. At the end of 2015, there were more than 2,000 photo-sharing apps available, and in 2016 it was estimated that 2.5 trillion photos would be shared or stored online by the end of the year (Lee & Steward, 2016). Sharing photos with friends, family, or the public, and using a photo-sharing application have become part of our everyday life; 54% of adult Internet users share their original photos or videos online, and 47% of adult Internet users take photos or videos that they have found online and share them with others (Duggan, 2013).

Although several studies have investigated the motivations of sharing photos (Malik, Dhir, & Nieminen, 2016; Nov, Naaman, & Ye, 2010; Van House, Davis, Ames, Finn, & Viswanathan, 2005), many of the prior studies only focused on a single photo-sharing platform to analyze users' photo-sharing motivations, thus identifying and discussing only part of the existing user motivations. In addition, considering that many users, especially smartphone users, may be platform-agnostic and use different kinds of photo-sharing applications and services to share their photos with others, studying one specific photo-sharing tool might hinder our understanding of the overall picture of photo-sharing behaviors and their diverse motivations.

The objective of this study is to thoroughly understand the motivations of online photo-sharing behaviors and suggest necessary features of photo-sharing tools that could enhance users' overall visual information sharing experiences.

RQ1. What is the comprehensive list of primary motivations of online-photo-sharing based on the existing literature and current user investigation?

RQ2. Are there any differences between the uses of photo-sharing tools based on users' diverse photo-sharing motivations? If so, what are the differences?

RELEVANT STUDIES & IDENTIFIED MOTIVATIONS

Different Motivations for Photo-Sharing

Uses and Gratification theory is oft-cited in the literature seeking to explain motivations for Twitter users' need for a sense of connection to each other (Chen, 2011) and to the needs of self-presentation and belonging of Facebook users (Nadkarni & Hofmann, 2012). The use of Social Networking Sites (SNS) has provided a fertile ground for researchers exploring gratification factors in online behavior (Joinson, 2008), and SNS continue to become more prevalent in our everyday life. Photo-sharing behavior is a popular part of SNS: in 2013, Facebook's users were adding 350 million more photos per day, and Instagram users (90 million active users, monthly) were adding 40 million per day in 2014 (Etherington, 2013; Smith, 2013). In the context of photo-sharing on Facebook, Malik et al. (2016) rely on this theory to examine user behavior, identifying eight motivation factors relating to gratifications that users may seek from their sharing. Oeldorf-Hirsch and Sundar (2016) also drew on Uses and Gratification theory in their work, where they identified 42 distinct motivations organized into four motivation

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factors, observed that "photo-sharing online meets higher-order needs, such as bonding, (2016, p. 628)" and found that photo-sharing is increasingly used to communicate, build relationships, and participate in a community. This supports Van House et al.'s (2005) earlier work, wherein the authors looked at the social uses of personal photography enabled by camera phones and predicted that the ease of sharing brought about by new technology would result in increased activity for the purposes of social engagement and self-expression. Similarly, Kindberg, Spasojevic, Fleck, and Sellen (2005a, 2005b) investigated how and why people use camera phones. The authors examined camera phone users' intentions at the time of image capture and broadly categorized the motivations into two groups: affective and functional, which can be again divided into social and individual purposes.

The idea of mundane activities being worthy of capturing in photographs is explored by Lasén and Gómez-Cruz (2009), who note that online photo-sharing capabilities change the relation between privacy and intimacy and engender complex behaviors around self-identity and self-knowledge, concepts which echo motivation factors like disclosure, seeking, and showcasing experience identified by Malik et al. (2016) and Oeldorf-Hirsch and Sundar (2016), respectively. Likewise, work by Hunt, Lin, and Atkin (2014) discusses user concern with self-expression, self-presentation, and social connection as motivation for sharing images.

A table which exhaustively synthesizes and provides a mapping of previously identified photo-sharing motivations, as well as motivations observed in this study is available publicly at http://hdl.handle.net/1773/43786.

METHODS

We conducted 60-minute semi-structured interviews with undergraduate and graduate students. Interviewers were provided a protocol which guided them though the data collection process with 8 specific questions to ask regarding their photo sharing behavior, and guidelines for taking field notes. Interviewees identified the last 50 photographs shared using applications on their smartphones—these photos were limited to those the interviewees had taken or created. In addition, interviewees were allowed to skip photos for privacy concerns, and an initial consent form notified participants that they were allowed to decline to answer questions. For the purpose of this research, 17 students from the University of Washington were recruited as interviewers. A total of 4,555 photo-sharing events were collected from 92 interviewees, in the summer of 2016. The group consisted of 82 undergraduate and 10 graduate students. There were 38 males and 54 females.

Since motivation was collected as an open answer, three authors coded and analyzed motivation types according to their operational definition, which is based on the motivation factors defined in the previous literature (Malik et al., 2016; Nov, Naaman, & Ye, 2009; Oeldorf-Hirsch & Sundar, 2016; Sung, Lee, Kim, & Choi, 2016; and Van House et al., 2005), using inductive thematic analysis (Corbin & Strauss, 2015). The first author read partial samples of survey responses and prepared the initial codebook. Afterwards, the survey data were divided among three different coders who read and coded different subsets of the survey responses using the codebook prepared by the first author. All the coders took and shared notes, and discussed memos related to the coding process in which the initial codebook was refined. We then used a deductive approach and mapped and grouped the themes that emerged from the inductive coding process with the categories of motivations discussed in previous literature. The final codebook was established by this combination of inductive and deductive approaches, and the three coders reviewed and revised the application of the codes to responses again with this final version of the codebook.

Snapchat brought us an interesting issue to discuss. When designing the method, we decided not to include Snapchat as one of our photo-sharing tools because interviewees and participants could not see the history of shared photos on Snapchat. However, many of the participants still answered that they used Snapchat to share photos with others, which caused the large number of *Other* in this study. Due to the application's feature that allows users to view shared photos and videos only for a few seconds before they disappear, users who share photos on Snapchat might have another distinguishable photo-sharing motivation compared to others, such as to share more sensitive photos. This issue will be further investigated in our future study.

FINDINGS & DISCUSSION

Among the motivations identified, *To share memory* (32.12%), *For amusement (humor, fun)* (9.15%), *To appreciate beauty/cuteness* (8.45%), *To show off* (7.51%), and *To disseminate information* (6.37%) were the most frequently mentioned codes by participants. The types of photo-sharing motivations identified in this study are aligned with previous studies (Hunt, 2012; Oeldorf-Hirsch & Sundar, 2010; Van House et al., 2005); there are affective vs. functional motivations and social vs. individual motivations (Kindberg et al., 2005a, 2005b; Van House et al., 2005), and self-presentation and social purposes are the main motivations of photo-sharing behavior (Hunt, 2012; Oeldorf-Hirsch & Sundar, 2010). Technological reasons identified by Oeldorf-Hirsch and Sundar (2010) also appeared in our study, in terms of sharing tool selection based on convenience.

Different Tools, Different Intentions

Participants have distinct intentions when using different types of photo-sharing tools. Regardless of whether a tool is private or public, the subject of the photos tends to differ as well, depending on the tools. Users were intentional in selecting which tool to use for which kinds of photos.

Motivations	Definitions	Examples (quotes)	Frequency
To share memory	To record a moment, such as an event or activity	*"Sharing photo of me and boyfriend on vacation"*	1463 (32.12%)
For amusement (humor, fun)	For comedic effect	*"To share with friend how funny he looked"*	417 (9.15%)
To appreciate beauty/cuteness	An occurrence of the abstract concepts, such as beauty and/or cuteness	*"Show everyone how cute my dog is with a haircut"*	385 (8.45%)
To show off	To seek the attention, approval, and/or affection of others	*"She wanted to show off the makeup she put on her sister."*	342 (7.51%)
To disseminate information	To share information with other people	*"give banking information for receiving money"*	290 (6.37%)
To honor/celebrate	To recognize and express appreciation for individual	*"Celebrating her university's basketball team's win"*	248 (5.44%)
To share/evoke certain emotions	To elicit feeling of happiness, love, etc.	*"Share excitement for end of school year"*	206 (4.52%)
To update status	For maintenance of one's social relations	*"Show what I was doing and who I was with"*	191 (4.19%)
Vague	Motivation is unclear	*"Sharing some of her photography"*	188 (4.13%)
To participate in an event	For proof of engagement	*"She wanted to show she went to a pool party."*	121 (2.66%)
To promote something	To spread awareness of an event or activity	*"To tell eveyone about the fundraiser"*	114 (2.50%)
For self-presentation/self-expression	To cultivate or express one's personality or image	*"A body selfie to show off my first tattoo"*	102 (2.24%)
To illustrate/use as evidence	To support an argument	*"to show that document was received"*	98 (2.15%)
To update profile	For maintenance of one's online presence	*"New profile picture for spring"*	56 (1.23%)
To make an inquiry	Request of response, information, and/or opinion	*"Asking opinion on purchasing a bike."*	43 (0.94%)
To suggest/persuade	To give recommendations or sway opinions	*"Wanted to show friend what she needed to buy"*	26 (0.57%)
To get confirmation	To establish the truth or correctness of something	*"Asking if the document is the correct one to take to a friend."*	17 (0.37%)
To say hello	To use as a greeting or to begin a conversation	*"wanted to say hi, wrote a message in the sand"*	9 (0.20%)
To recall/remind	To provide reference point for future activity	*"To remind friend of this event"*	6 (0.13%)
Other	Motivation does not fit any of the codes provided here	*"Commentary on life."*	233 (5.12%)
Total			4555 (100.00%)

Table 1. Definitions of motivations and overall frequency.

For example, when participants wanted to share photos *To appreciate beauty/cuteness*, they preferred Instagram (60.3%) over other tools. When the motivation was *For amusement (humor, fun)*, Facebook (35.7%) and Instagram (24.2%) were the most popular sharing tools among students. Overall, Instagram was the most frequently mentioned photo-sharing tool among participants (46.4%) followed by Facebook (42.7%).

"*Many of the surveyed participants used multiple messaging systems to privately send picture messages eg. LINE, messenger, sms text, etc. Depending on the nature of the application, the photos shared match the purpose of the application and may have been why the participant used the application. For example, text message was very commonly used to send pictures exclusively of directions and maps whereas FB messenger sent selfies and email was homework note pictures*." (from the anonymous open-ended response from the student interviewers).

Presumably due to their different features, settings, and user groups, various photo-sharing tools seem to have evolved into culturally different photo-sharing communities. As an example, Facebook users are able to easily share their photos with longer textual descriptions so photos which illustrate discussion-worthy topics tend to be shared more frequently compared to the other tools. Similarly, participants are likely to share more food/drink or fashion/make-up related photos on Instagram, which is a tool that has a simple interface that emphasizes the photo itself.

Sharing Photos for Utility vs. Pleasure

Additionally, we noted the different viewpoints users had with regards to how they treated the photos; in some cases, they were mainly focused on aesthetic aspects of photos for pleasure, and in other cases, they were treated more like data for utility purposes, which also seemed to affect people's decision as to which tools they would use. This finding is aligned with Fidel's (1997) point of views on images, images as data and images as objects, and also with Kindberg et al. (2005a, 2005b).

"US graduate students were more likely to post less with more work/school related purposes. US undergraduate students on the other hand post much more frequently on multiple platforms but with more general, varied information." (from the anonymous open-ended response from the student interviewers).

Different Perceptions on Privacy

It was mentioned that when participants were older, their photo-sharing behavior tends to be more private compared to the younger participants. Privacy discourses on sharing photos has been conducted in a more cultural perspective in previous studies, such as Liu and Fan (2015) and Abokhodair, Hodges, and Vieweg (2017); but it seems that different age groups could be another factor to affect privacy related decisions on photo-sharing behaviors.

The older the person was, the more likely they are to not share photos with anyone, at least in a public sphere. They would rely on other people to share pictures of themselves for them instead." (from the anonymous open-ended response from the student interviewers).

Findings from this study indicate that subtle differences in the design of photo-sharing tools result in different user groups with different intentions of photo-sharing behaviors. Therefore, when designing tools for sharing photos online, considering what kinds of image uses the tool is aimed for would help to create better photo-sharing experiences for users.

CONCLUSION & FUTURE STUDIES

Overall, 19 photo-sharing motivations were identified based on a total of 4,555 photo-sharing instances from 92 participants. Some of the more frequently mentioned motivations were: *To share memory*, *For amusement (humor, fun), To appreciate beauty/cuteness*, *To show off*, and *To disseminate information*, and Instagram and Facebook were the most frequently used photo-sharing tools among participants. The present study provides evidence of differences in user behavior with regard to tool choice depending on motivation and content. Given the wide array of factors affecting photo sharing behavior, developing a tool which satisfies all user needs appears unlikely or at least considerably challenging, but designing tools toward specific use cases may be a way to compensate for the breadth of need and improve user experiences.

This study is potentially limited in that the data only reflects photos that the participants were comfortable talking about with their interviewer. Thus, we may be missing data about personally sensitive photos.

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