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The Digital Album : Photo Collection And Organization In FLICKR

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The Digital Album: Photo Collection & Organization in Flickr

By

Michael Rajzman

A thesis presented to Ryerson University in partial fulfillment of the requirements for the
degree of *Master of Arts* in the Program of *Photographic Preservation and Collections*
Management

Toronto, Ontario, Canada, 2009

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Michael Rajzman

Abstract

The Digital Album: Photo Collection & Organization in Flickr

Michael Rajzman

Launched in 2004, Flickr.com is among the most popular photo-sharing websites on the planet. A mix of social networking and traditional album creation, Flickr is ideally suited to some of the key functions of family photography – sharing stories and memories, and maintaining social relations. This paper draws links between traditional album creation and social networking, while serving to document actual patterns of use and organization in Flickr. The data collected demonstrates that many users interact with the organizational abilities presented in Flickr in very simplistic ways, ‘dumping’ their photos online in a way that is reminiscent of how people used to dump printed photos into shoeboxes. A very different group more often found within Pro user accounts, took full advantage of the organizational structures presented in the website, creating complex webs of interconnected sets, tags and groups, while involving themselves in group photo pools and other social aspects of the site.

Acknowledgements and Dedication

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On January 14, 2004, the Eastman Kodak Company announced it would stop selling film-based reloadable cameras in Canada, the United States and Western Europe. With sales of digital cameras then expected to overtake 35mm film cameras, Kodak (as well as Nikon, Canon and others) began the final transition towards a film-less future. For over one hundred years, flexible film had been the primary format for both professional and family image-making. During this time, complex systems developed to organize, save and share images. With the advent of digital cameras, many of these systems changed. Flash memory cards replaced film and computer hard drives (rather than photo albums) have become the main repository for treasured family images.

One month after Kodak's announcement, Stewart Butterfield and Caterina Fake launched Flickr.com, an online photo-sharing website. Flickr allows registered users to upload digital image files to their personalized 'photostream' where they can be organized and made available to other users and Internet surfers. As the site has developed, advanced organizational and discussion features have been added, as has the ability for users to upload digital videos in addition to still images. The creative mix of online storage, image tagging and social networking has made Flickr one of the most popular photo-sharing websites on the planet. Flickr's users number in the millions and as of November, 2008, had collectively uploaded more than three billion photos to the site. (Champ, 2008).

It is Flickr's remarkable mix of functions that makes it an interesting research area. Flickr account holders can use the website like a digital photo album, grouping photos in various ways and sharing their images with friends and family. In this way Flickr is ideally suited to some of the key functions of family photography – sharing

stories and maintaining social relations. There has been a significant amount of research into the aspects surrounding Flickr's ability to maintain social relations. However, only a few studies have looked at the actual patterns of organization by Flickr users. Flickr allows for up to three-level organization structures in which users can arrange their images. This paper will ascertain how members of the Flickr website use these structures to organize their digital photo collections, and how this relates to traditional album creation and social networking. It will briefly explore some of the history and cultural significance of the family photo album in order to establish a basis from which online album use can be understood. A discussion of general social networking theory will also help explain the site's importance. Finally, analysis of user accounts – including a comparison of Basic and Pro accounts – will demonstrate the actual patterns of organization by Flickr users and act to preserve this current paradigm for future research and comparison.

Literature Review

In order to properly analyze Flickr, it is necessary to ascertain both the cultural influence photography and photo albums have had on society, as well as how the development of social networks have contributed to the overall structure and social climate within Flickr. This literature review will address four main loci of study: Literature concerning the history and social functions of photo albums, significant theoretical studies in the field of Internet society, research into photo sharing and saving, and previous studies involving Flickr.

History and Social Functions of Photo Albums

Photographic albums are fairly common in most households; families maintain albums of photographs and ephemera documenting both the important and everyday moments in their lives. It is, perhaps, because of this familiarity with albums that people tend to ignore or miss the importance format and organization have on a viewer when examining albums.

The origins of the photo album can be found in two places: the family bible, long used to chronicle family history and genealogy; and the 'visual memory albums' of the early nineteenth century, in which postcards, ticket stubs and other physical memorabilia of outings and events were kept (Chambers, 2006). These albums were used as *aides de memories*, objects used to jog memories of important or enjoyable events. As photographic technology advanced, it became common for the middle class to have their 'likenesses taken' and personal photographs began to be included in these memory

albums. Recording images of family, once limited to the upper classes and those able to pay for a painted portrait, became affordable through this new medium for the masses.

With the introduction of the *cartes des visite*, a small, mounted photograph format popular in the mid-nineteenth century, people began to collect images of family members and friends alongside mass-produced images of the famous and elite. These images were placed side by side in early window albums “indicating the family’s connection to, and endorsement by, public institutions” (Chambers, 2006). The family photo album became both a place to hold images, as well as construct notions of social order and family hierarchy. Many of these early window albums now reside within the collections of museums and archives and continue to teach us about the importance these albums had in the lives of nineteenth century families.

One of the earliest and most important studies of consumer behaviour surrounding photographs and family photo albums was conducted by Chalfen (1987). Looking at multiple personal and family collections of snapshots, Chalfen coined the term “home mode” communication to describe the kinds of interpersonal and small group communication that occur when viewing family collections of photographic snapshots and home movies, including narration, storytelling and the reinforcement of family history (p.8). Chalfen looked at many personal and family collections of snapshots before concluding many of them fit within a ‘Kodak Culture’ in which the owners typically know the majority of people who appear in their photographs. Chalfen also found patterns of photo taking that relate directly to life cycles and significant events in a person or family’s history. This idea of family pictures being intended for a small audience or ‘home mode’ as Chalfen would call it is also described by Harding (1992). He writes that

family photography is an inherently private medium, invested with the weight of personal experience. It is this level of involvement that explains why even technically poor quality photographs can become important personal objects.

Langford (2006) notes that photographic theorists have advised albums are useless unless examined in the company of their compilers. She writes that this is because the photographic album can be understood by “recognising its original function as a mnemonic device for storytelling and situating it in the realm of orality” (p. 224).

Narrative text would not have been necessary for the original owners of the album, since they would have known who the people in the album were and the context of the photographs in the album. Chambers (2006) would seem to agree with this idea, indicating that captions allow non-family members to understand meanings encoded by the album’s compiler. Chambers also argues that the family album acts as an ideological device, constructing ideas of belonging within a family unit. Within this framework, an album is not a transparent receptacle for images, but rather an object that is intrinsically linked to the photographs it contains, as well as our understanding of them. This explains why the experience of viewing a family album in which the pictured people are not known is so drastically different than when viewing an album depicting people with which one is intimately associated.

Many early family albums are highly decorative and are often imbued with significant personal attention, captioning, and overall thought. Much like the visual memory albums of the early nineteenth century, family albums became important family documents, acting as a visual form of genealogy and story telling. This tradition is still alive today, especially in the recent reoccurrence of scrapbooking—a mixed art form that

combines photography, craft and the album format. However, with the advent of digital photographic technologies, photographs have moved into a new realm, that of images without objects. With this shift comes a need to better understand how these technologies are being used and whether or not this usage varies from traditional, physical photography collection and sharing.

Internet Culture

An awareness of the history of the Internet is important for understanding how online social networks have developed over time. The first computer networks dedicated to scientific communication between separate terminals developed in the late 1960s. Despite this early ability to network computers, it was not until 1982 that the Internet emerged as a viable platform for broad spectrum communication (DiMaggio, Hargittai, Neuman, & Robinson, 2004, p. 35). By the early 1990s, graphical interfaces for this platform were widely available, allowing commercial interests to participate. Throughout the 1990s, theorists on both sides of the issue wrote volumes about the social consequences of Internet use, social networking and the future of humanity. Both sociologists and ethnographers were interested in studying how people used the Internet because it offered a new platform for social interaction (Goyder, 1997). By this time, it was apparent that the Internet had the ability to change the way in which people communicated with each other. With an ever increasing number of people 'logging in' to this new technology, one main question began to surface in the literature devoted to the Internet: Could the relationships developing over online networks be considered a kind of community?

As Turkle (1995) wrote, “The Internet has become a significant social laboratory for experimenting with the constructions and reconstructions of self that characterize postmodern life” (p. 180). Her book, *Life on the Screen: Identity in the Age of the Internet*, focused on the development of communities in text-based Multi User Dungeons (MUDs). The book also looked seriously at online relationships and what she refers to as the fracturing of self – the ability to present oneself through multiple personas online. It was among the first to take a scientific look at how social networks can develop online and what that may mean to society.

A combination of multiple kinds of communication technologies, the Internet “offers a once-in-a-lifetime opportunity for scholars to test theories of technology diffusion and media effects *during the early stages of a new medium’s diffusion and institutionalization* [authors’ emphasis]” (DiMaggio et al., 2004, p. 36). After nearly half a century of exploring technology’s effects on society, researchers were able to study a new medium with the potential for social change far above any earlier communications technology. While some writers postulated that networking over the Internet represented an entirely new form of communication, others believed it was simply a different way of interacting in traditional patterns, afforded but not created by the Internet.

Writing ten years after Turkle’s book, Krug (2005) argues the ties created through online social networks could never be compared with real, interpersonal relations (p. 22). Writers like Krug believe that interaction through computer interfaces is somehow inferior to face-to-face communication because it is ephemeral and based on fragmented aspects of self, rather than human-to-human interaction. Many scholars, possibly drawing on criticism from those sharing Krug’s opinions, have developed a model whereby online

interactions can be classified and analyzed. Labelling social connections, or 'ties' as strong, medium or weak, researchers studying the Internet are trying to understand just how people are using these technologies and what effect it is having on interpersonal interactions.

Strong ties are considered to be those that provide social support. Emotional aid, companionship and a sense of belonging are some of the key aspects outlined by Sproull and Faraj in their essay "Atheism, Sex, and Databases: The Net as a Social Technology" (1996). These social supports are associated with traditional ideas of community, society and family. However, they note that weak ties, such as those that develop through online communities, interest groups and social networking sites have their use. "Their very weakness means that they tend to connect people who are more socially dissimilar than those connected through strong ties. Consequently, weak ties tend to link people to other social worlds, providing new sources of information and other resources" (p. 196).

The Internet is the ideal meeting place for fostering weak ties because relationships can be based on interests and not geographical location or social characteristics. However, weak ties also exist in society outside of online networks. Interest groups, clubs and assorted acquaintances can all be considered weak social ties, and all of these ties can be fostered by online relationships. It should be noted that the use of technology to foster specialized relationships is not new. The telegraph, telephone, radio, television, cellular phones and instant messaging can be seen to have all been used at some point to create or strengthen relationships.

Writers like McLuhan (1962) suggest that the structures of new media cause social change by allowing for new kinds of communication. However, this point of view

is not held by everyone. Many theorists and writers see technology as something that is inherently part of culture. Penzias (1997) defines technology as “the application of organized knowledge, by humans and for humans” (p. 99). If technology is viewed as a part of culture as Penzias would have us believe, then communities found within digital networks are not a result of the technology, but rather, already had their basis in culture and were merely facilitated by the new technology.

Studies on Digital Photo Collection and Sharing

Much like writers examining traditional album usage, current theorists are analyzing how people use digital technologies in relation to photography. Tee, Brush and Inkpen (2008) examined how people use technology to share photos and stay in touch with extended family. They found many families share photos through email because it is a good forum for text-based discussion and that people liked sharing photos because they were something people generally enjoyed receiving. The authors’ final conclusions were that an increase in communication between extended families would be difficult to achieve, despite technological advances, because of outside influences, including time and technological proficiency.

Time and technological proficiency were also broached as important issues by Rodden and Wood (2007) in their study of the digital photo management program called Shoebox. Their study involved analyses of digital photo collections as well as interviews with the users. They found that digital files were easier to manage than physical prints, due to the inherent metadata associated with photographs and the overall organization of the program. Their final conclusions were that most people did not use the advanced features available in the program, and that to many users the most important aspects of a

good program are the ability to display photos in chronological order and to be able to see a lot of thumbnails at once.

Camera phone usage has also been under the watchful eye of information scientists and social theorists. Kindberg, Spasojevic, Fleck, & Sellen (2005) studied consumer use of camera phones in "The Ubiquitous Camera: An In-depth Study of Camera Phone Use." The intent of the study was to find out how people are using these devices; knowing this allows for the development of more valuable products and services. Kindberg et al. found the most common reason for capturing an image was to share it and that once captured, the photos could either enhance the shared moment or be used as a memento. The report gave recommendations for improving saving, sharing and organizing functions relating to digital camera images.

Studies Involving Flickr

There have been numerous studies over the last few years focusing on Flickr and its many possibilities for organization and social interaction. One of the most cited is "Give and Take: A Study of Consumer Photo-Sharing Culture and Practice" by Miller and Edwards (2007). The main argument postulated in this paper is that photography practices by some users on Flickr are significantly different than the ways in which photography sharing has been conducted in the past. Miller and Edwards classified online photo sharing users under two main categories: Those for whom Flickr was a way to save and share personal photos with friends and family, and those for whom Flickr was a way to share their artistic or noteworthy images with as wide an audience as possible. They use Chalfen's ideas about 'home mode' communication and 'Kodak Culture' to compare

types of users – Kodak Culture (those who only take snapshots) and ‘Snapsr’ (those who are more involved in aspects and take more artistic types of photos).

Miller and Edwards’ work can be considered an important predecessor to the research conducted for this paper. Snapsr were found to follow new kinds of behaviours not seen before; ones interested in online community, photo sharing and not concerned with privacy. Snapsr were more likely to add tags and other metadata and shared photos primarily with their friends and contacts, while Kodak Culture people shared with family. Kodak Culture people were found to be more interested in privacy issues than Snapsr, and their images seemed to focus on ‘traditional’ social connections.

Incentive for posting, tagging and sharing photographs on Flickr was investigated by Skågeby (2008). Using Flickr as a case study, the research focused on determining why people post and share photos. Skågeby used a ‘gift-giving’ framework to show how social bonding is developed and maintained through online communication. Using data collected through interviews and forum message elicitation, Skågeby found that digital photo sharing had none of the costs associated with traditional gift giving and that users were often highly willing to share their images when they had some control over its direction.

The idea of ‘weak ties’ in online interactions discussed earlier reappear in the work of Prieur, Cardon, Beuscart, Pissard, & Pons in “The Strength of Weak Cooperation: A Case Study on Flickr” (2006). They use this term because tagging and group involvement lies “in the fact that it is not necessary for individuals to have a cooperative plan of action or an altruistic concern beforehand” (p. 1). Looking at the involvement of users in Flickr (including photos uploaded, comments, contacts,

favourites and groups), Prieur et al. found that while “advanced amateurs” constituted only a small percentage of users, they were a leading group when it came to group involvement, comments, tags and overall sharing. Like the research done by Miller and Edwards, the information gathered by Prieur et al. will provide a framework for comparison to the research conducted for this paper.

Stvilia and Jørgensen (2009) analyzed photoset and group descriptions, intent and content in their investigation into how user-generated collection metadata can help design better metadata schemas. In their own words, they wanted to understand the “concepts and relationships that users organize personal and shared collections [to inform] the process of making information resources from traditional databases more accessible and potentially enable reuse of user created collection metadata” (p. 5). The study found that 18% of users did not create sets. The median number of photos in sets was 22; the median number of photosets per user was four; 37% of users were not members of groups; and median number of group memberships was two. They also found that while sets were organized based on the images within them, image inclusion in groups was based on a predetermined topic or theme.

The online community within Flickr and the ever-expanding field of tagging has not gone unnoticed by large museums and other traditional repositories of images. In 2008, led by the Library of Congress (LOC), the Flickr Commons project was launched so that museums and archives could participate directly in Web 2.0 activities. The Commons project was designed for users to add tags, comments, group invites and notes to LOC photos. It allowed the LOC to join the community and get free image indexing from the community. Their initial report by Springer et al. (2008) lists the difficulties the

Library faced with digitizing, posting, sharing and accepting user-created tags. Among the challenges they faced included differences in the ways Flickr users labelled and added tags to their images compared to organizational schemes traditionally used by institutions.

Sites such as Flickr and others are changing the way in which data is amassed, organized and accessed. Chu (2001) looked at two methods of indexing – content-based and description-based – in the paper entitled “Research in Image Indexing and Retrieval as Reflected in the Literature.” While content-based indexing seen in traditional libraries and archives still dominates the field, description-based indexing is becoming more common. After looking at various authors writing on the different approaches and the number of times they have been cited, Chu argues that a combination of approaches should be encouraged, as both methods have their own pros and cons. Much of Flickr tagging is description based indexing, as it relies on the manual input of keywords by users.

Research has only recently begun analysing digital photography in the context of online social networks. Many of these look back to writing on traditional album formation as the basis for their analysis. Chalfen (1987) is repeatedly cited in this context. Overall conclusions seem to indicate that for some, online posting of digital photographs represents an entirely new way of sharing and organizing images. However, for others, the ways in which they use the various interfaces available to them seem to mirror earlier uses. This paper will build on previous research while also directly linking early social uses of photography to social networks, specifically Flickr.

Web 2.0, Social Networks & Flickr

2006 marked the official beginning of a new World Wide Web. Dubbed Web 2.0 in reference to how new software editions are titled, this new Web centres on commerce and more advanced social networking platforms. In December of 2006, *Time Magazine* named “You,” – the everyday blogger, YouTube, MySpace, Facebook or Flickr user – as the most influential newsmakers of 2006. The cover of the magazine, featuring the image of an Apple computer read “Yes you. You control the Information Age. Welcome to your world” (Grossman, 2006). Users uploading photos and videos, discussing current events, or even creating an Internet-based version of themselves on sites like Second Life were, according to *Time*, the top news-makers of 2006, beating out the widely publicized actions of Iranian President Mahmoud Ahmadinejad.

The uses of the Internet that *Time* applauds, far different from the research and military defence purposes for which it was first intended, shows one important trend: The Internet is the new environment of our society. To sociologists, the popularity of these sites and the communities that grow around them is one of the most interesting aspects of the Internet.

Community in Flickr

Flickr, like earlier social networking sites mentioned in this paper, is the ideal nurturing ground for fostering weak tie relationships. Due to the nature of the site itself, it is also an ideal place for forming relationship between people interested in photography or other interests in which photography can be used as a document. Wellman and Gulia (1999) discuss this topic in their paper “Virtual Communities as Communities: Net

Surfers Don't Ride Alone." They write that the Internet, like earlier communications technologies, helps foster specialized relationships and supports "cooperative approaches to finding social resources in virtual communities" (p. 171). Flickr, through groups and discussion threads, can allow participants to share ideas and concerns in just this way.

For some users, Flickr and Flickr groups are not just an online activity. Photo-taking challenges, contests and meetings all contribute to a sense of real-world participation by the online users. This would seem to go against writers like Krug (2005) who wrote that technologies like the Internet make people "arguably more isolated, more depressed, and more alienated" (p. 22) than those who maintain only real-world connections. In fact, interest groups on Flickr commonly arrange real-world get-togethers; both to take photos and for strictly social reasons. Rheingold (2006) writes: "It is the relationship that is the important thing and not the communication medium" (p. 83). Flickr may allow these users to connect to each other, but it is the connection itself that is important to them.

Flickr, Networking and 'Gift-Giving'

A key feature of Flickr and similar sites is the way in which it combines traditional album creation with social networking. This is accomplished through the utilization of end-user contributions. Unlike other sites where the webmaster is responsible for both the coding and content, sites like Flickr rely on content uploaded by users. The term 'end-user' comes from a study conducted by Skågeby (2008) in which the term is used to describe users of internet sites or social networks where contributors are the same people who access and use the materials. In these sites, the line between what is private and what is public material is sometimes more vague than with traditional

notions of ownership. This is what Skågeby refers to as the “gift-giving” (p. 289) mentality on many website communities, where much of what is posted online is considered commonly owned.

Skågeby pulls the phrase ‘gift giving’ from various sources, but the origin of the term may lie in the work of Mauss (1970), in which he examined how gift-giving helps develop communities and can lead to reciprocal exchange. This is clearly seen in multiple online websites where different users often either share, or edit each other’s images or work. Indeed, as mentioned earlier, Skågeby found that users were often highly willing to share their images when they had some control over its direction.

Hirsch (2008) discusses sharing and collaboration of shared online material in his thesis *Light and Lens: Photography in the Digital Age*. In it he writes that because of websites like Flickr, images are no longer static objects, fixed in a single trajectory, but are instead part of a “dynamic collaborative process that harnesses collective intelligence, much in the same way that the open-source online encyclopaedia Wikipedia... allows people to write and edit articles” (p. 113). These types of websites rely almost entirely on the contributions and comments of users to make them interesting, useful and entertaining.

Flickr & Photography

The advent of digital photography and the development of social networking sites such as Flickr have significantly transformed the ways people interact with photographs. With online photo collections or ‘digital albums,’ not only are content, structure and overall organization not fixed, but they can also be completely changed with the click of a mouse. Sets, collections and group ‘photo pools’ on Flickr can all be considered kinds

of digital albums because much like traditional photo albums, each functions to order and arrange images so that they can be viewed in a linear manner. However, they are in fact entirely un-linear, and very much digital. Physicality is no longer a necessary component for either viewing a photographic image, or responding to it. Instead of poring over physical albums or shoeboxes stuffed with prints, many people now look to computers for both storing and accessing their photo collections.

It is important to remember that while the ways in which people store and access photographs may have changed, many of the uses of photography remain the same. Photographs, be they composed of silver particles or pixels are fundamentally the same when viewed as images and not as objects. They can act both as mnemonic devices and as tools to frame social relations between individuals and groups of people.

Flickr Background Information

Any person with a valid email address and Internet access can sign up for a free Flickr account. Once registered, users can begin uploading files to the Flickr server where they can be arranged, annotated, and cross-posted in various ways. 'Basic' accounts are free, but are limited in the number and file size of photos that can be uploaded, as well as in the ways that the photos can be organized. If users need more storage or increased organizational options, they can pay to upgrade to a 'Pro' account. Pro users have no restrictions on the number of photos uploaded, or the way in which they can be organized. Some users receive free Pro accounts if their Internet service provider has such a deal with Yahoo, the owner of Flickr.

There are several ways that users can organize their files on Flickr. All methods of organization are voluntary and depend entirely upon the amount of effort a user is willing

to expend. Organization can be applied to the files as the photos are uploaded, or at a later date. Once the files are organized, users can view them through searches, cross-linking or hyperlinks. The number of ways users can view a series of images depends entirely on how many avenues for discovery the owner has provided for their files. The following section outlines the various ways that files can be organized on Flickr.

Types of Organization in Flickr

Photostream

The photostream is the primary level of organization in Flickr. The 'stream' is the representation of all of the files uploaded to a user's account, viewable in the order in which they were uploaded. Once uploaded, users cannot move around the order of the photos in the stream without deleting and then re-uploading them.

Sets

Sets are the main form of organization in Flickr. Photos and videos are often organized into sets because they share similarities in content, themes or time of taking. However, users have total control as to how photos are organized and viewed in sets. Arrangement of photos can be done at any time and changed at the whim of a user. Generally, Basic user accounts are limited to creating three sets; this is an effort by the creators of Flickr to encourage users to upgrade to a Pro account.

Collection

Collections are created by users who want to link multiple sets under a larger, organizational category. Another way the creators of Flickr encourage users to upgrade to a Pro account is by limiting collection creation to Pro users. Collections have no

restrictions on the number of sets contained within them and sets can also be cross posted in multiple collections.

Group

Groups are very important aspects of the larger social infrastructure of Flickr. Group membership is the key in creating or maintaining social ties between people. While some contacts on the site are due to pre-existing 'real world' social connections, many are forged when users notice images or text postings in groups that they find interesting. In this way, new social connections are made solely on similar interests and group membership.

Groups can be created by any user and often have specific themes. Users who join groups can add photos from their own stream to the group 'pool.' This pool then becomes a way to view photos by multiple users in the order in which they were added to the group. Group administrators can invite photos from other users' streams to join the group pool. Groups are also used as a place for users to share photos from a specific event. For example, a group may be dedicated solely to photos from a wedding. Groups may be visible to anyone on Flickr, or restricted so that only members may view the photos in the pool.

Tag

Tags are a type of metadata users can add to their photos. Tags are searchable keywords that make photos more visible and recoverable both to the user and the general Flickr public. Tags can be imputed individually or en masse when uploading photos in bulk. Flickr limits the number of tags associated to each photo to 75.

Methodology

In order to explore the ways in which Flickr users organize and catalogue their images, two studies were conducted in March of 2009, recording how Flickr users organized and catalogued their images using the features available on the website; and how the social networking aspects of the site worked to enhance or compliment this information. The first study focused on analyzing the overall organizational usages of 500 Flickr users to determine the overall organizational structures Flickr users give to their collections – whether, and to what extent users made use of the set, collection and group organizational structures of Flickr. The second study looked at the actual organization used for 500 individual photographs on Flickr to determine if there were any relationships between the organization of the images and how they were accessed, notated or commented upon by other users. By analyzing the in-depth information available on each individual photograph's page it was possible to see how users used the organizational and social networking options available to them in real-world samples.

In both studies, obvious initial differences between Pro and Basic users allowed for some comparisons to be made between the two groups. Such a comparison was suggested by Skågeby (2008), who called for a quantitative study comparing Pro and Basic users on Flickr as a way of determining differences in the two types of users' experiences, intentions or concerns. However, direct comparison of organization was not the best option for all facets of the research since Pro users have greater ability to upload and organize their photos. As a result, some conclusions are based on comparing the two groups while others are generalizations about the entire sample.

FlickRandom, a random Flickr photo generating program found on www.krazydad.com/gustavog/FlickRandom.html was used to generate a random sample of images and profiles for study. *FlickRandom* selects six photographs at a time on a third-party website, where a hyperlinked thumbnail image, as well as a direct link to the user's profile page can be accessed through the program. A screenshot of *FlickRandom* can be found in *Appendix A*. Every photo generated by *FlickRandom* was used for the study; personal taste and aesthetic qualities were not factors in deciding which image files or users were to be included. All of the user pages and individual photo pages analyzed were saved and bookmarked using Internet Explorer 7.0. Data accumulation, organization and analysis were all completed using Microsoft Excel 2003.

Using *FlickRandom* to access user profiles, the first step of data collection involved recording the user account type, number of contacts and the number of public groups of which the user was a member. Their photostream was also reviewed, so that the total number of items, number of sets and number of collections could be counted. The sizes of the smallest and largest sets were also recorded, as was the title and type of content in the largest set.

Table 1

Variables Recorded for Study 1 (Users)

-
• Account Status (Pro vs. Basic)	• Number of Sets
• Number of Contacts	• Size of Smallest Set
• Number of Public Groups joined	• Size of Largest Set
• Number of Items in Photostream	• Title of Largest Set
• Number of Collections	• Total Number of Items in Sets
• Number of Sets in Collections	• Number of Videos in Sets
-

Since Flickr only makes available advanced user account information to the account holder, it was difficult to quickly establish the actual number of photographs that

were included in sets and collections. As such, the “total number of items in sets” was calculated by manually adding the number of items in each set. The resulting number indicates the total size of all the sets, but does not take into account items that may be posted in multiple sets.

Item-level organization and social comments were the focus of the second study. The sample images were also collected using *FlickRandom*, but instead of linking directly to the users’ profile pages, the actual photo generated by *FlickRandom* was used. A sample photo page can be seen in *Appendix B*. For each of the samples in Study 2, all available text, tags or other organizational options used were recorded. If available, titles and captions were recorded, as were the number of sets and groups in which each photo was included. Any comments and notes were also counted, as was the number of users who called the image a ‘favorite.’

Table 2

Variables Recorded for Study 2 (Photos)

-
• Photo Name	• Number of comments
• Photo Caption	• Number of Notes
• Number of sets into which photo is organized	• Number of groups into which photo is organized
• Is photo within a collection?	• Number of Favourites
• Number of Views	• Upload Date
• Number of tags	• Account Status (Pro vs. Basic)
-

The total number of views for each photo was included in this study. However, the act of viewing the page caused the number to increase by one across the board. For this reason, the number of views had to be recorded immediately since subsequent visits to the page would undoubtedly have different, skewed results.

Results

Study 1 (Users) – Organization Aspects

The most significant initial result discovered through this study was the number of users who created sets. Over 85.6% of users had organized some or all of their photos into sets. This number jumped to 99% when only Pro accounts were sampled. Thirty per cent of Basic users had fewer than 5% of their photos in sets. The Pro equivalent statistic was only 2%. These numbers are similar to those reported by Stvilia and Jørgensen (2009). They found that 82% of users created sets, but they did not differentiate between Pro and Basic accounts. This initial stage of organization shows that the majority of Flickr users have at least some understanding of the organizational abilities afforded by the platform, and took the time and effort into organizing their photographs into sets.

Figure 1. Percentage of Users Who Created Sets

There seems to be a slightly inverse relation between the number of sets a user created, and the mean number of items in each set. This would make sense, since a larger

number of sets would logically create a smaller average set size. There was a strong concentration of users with a median set size in the 100-150 items per set range, indicating that this was a common set size for a large number of users.

There did not seem to be any significant relation between the number of items in sets and the number of items in each set (*Note that the number of items in sets is derived from counting the total number of items in each set. If a single item is posted in multiple sets then it will count multiple times.*). This seems to indicate that the total number of items in sets does not strongly reflect the mean number of items in each set. While the spread is very wide, it does not vary considerably from one end to the other. There is an indication that users with fewer items in their streams (under 2000) had a lower mean number of items in each set, but this is likely a result of having fewer items to organize.

There is a slight inverse relation between the number of sets a user created and the percentage of items not in sets. This is reasonable, because a user interested in making sets and organizing their collection is more likely to include a higher percentage of their stream within some organizational scheme.

When analyzing collection organization, only the Pro user accounts were taken into consideration because Basic users are unable to create collections. However, not everyone who can make collections does so. Sixty-three percent of Pro users created one or more collections. For those users who did make collections, the majority of their sets are organized within them. Very few users had more sets in collections than the total number of sets. Most that did so were very close to the total.

Figure 2. Pro User Collection Breakdown

Study 2 (Photos) – Organization Aspects

When looking at individual photos from user streams, the numbers showed similar patterns of organization to that of overall user organization. Sixty percent of the photos in study 2 were organized into one or more sets, but the vast majority of these (56% of 60%) were only arranged into one set. This compares to the 85% of users who used sets in their organization of photos. Photos pulled from Pro users were three times more likely to be in sets than Basic users (87% vs. 28%). Photo inclusion in collections was limited to photos in Pro user accounts. Over one-third (37%) of all photos from Pro users were organized in collections. Forty-two percent of the photos from Pro accounts in Sets were also in Collections.

Figure 3. Set Inclusion by User Type

While tagging was not the main focus of this study, it is an important part of description-based organization, and the social networking functions of Flickr. Pro users were found to be almost twice as likely to have added tags to their photos (54% vs. 30%). Additionally, Pro users were more likely to have added more tags to their photos. Overall, the mean number of tags per photo was 1.8. Basic users had a mean number of one tag per photo, while Pro users had a mean of 2.4 tags.

Study 1 (Users) – Social Aspects

Some users also choose to add captions or descriptions to their sets. When looking at the largest set for each user, 17.4% had something written in the set description field. Pro users were three times as likely to have something written in the description field at 25% vs. 7.1%.

Nearly half (48.6%) of all sampled users were members of groups (25% for Basic users and 67% for Pro users) with a median membership rate of 10.55 (15.92 for Pro and 3.94 for Basic). These numbers differ from those reported by Stvilia and Jørgensen

(2009). They found that the 63% of users in their sample of 3000 were members of groups and the median number of group memberships was two. These levels of membership indicate a desire by a large number of people to be members of these image-based communities.

Figure 4. Group Membership by User Type

Over twenty percent of Pro users were members of fifty or more groups. This number dropped to under five percent when looking at Basic users, indicating that there is a difference in the types of ways Pro users interact within the Flickr community compared to Pro Users. It also seems as though the groups appear in a profile in the order in which they were joined. Additionally, if a user is a member of more than 50 groups, only the most recent 50 show. This would account for the large number of users who are members of exactly 50 groups and none who are members of more than 50.

Study 2 (Photos) – Social Aspects

Like sets, individual photos can be titled and captioned. However, with individual photos, adding such information is not required. Flickr, by default, often assigns the actual image file name as the title of the photo. Sixty-three percent of the photos analyzed in Study 2 had been renamed to something other than the consecutive numbering done in-camera. Interestingly, there was little difference between Pro and Basic users for this category. In addition to titling the photos, users have the option of adding a caption below the image. This can be a descriptive or narrative title used to clarify the content, subject matter or intent of the photos for other users, in both the oral narrative and gift-giving traditions discussed earlier in this paper. Pro users were slightly more likely to caption their photos at just over 20%, while Basic users sat at around 18%.

Despite the high levels of group membership found in Study 1, less than 10% of the photos sampled in Study 2 linked to groups. Photos by Pro users were four times as likely to be in groups, and almost five times as likely to be in more than one group.

Figure 5. Photo Inclusion in Groups

When comparing the mean number of view per item to various types of organization, no discernable patterns arose. When set and group organization was combined into a single table, a slight trend was visible indicating some connection between organization and views. Set and group organization was combined because both have the ability to organize and give a sense of linearity when viewing photos on Flickr. These characteristics allow both to be considered the formation of a kind of 'digital album' and can therefore be reasonably classified together for this purpose. However, it would seem that the image itself likely has a lot to do with the number of views and it is not simply a matter of organization.

Conclusions on the uses of online albums

The information collected in these studies fosters awareness of how users interact with the organizational and social networking structures offered on Flickr. By assessing both the sociological and informational aspects of photo sharing websites, this research furthers our understanding of how people actually interact in online environments. Increased knowledge of how people use these sites informs the process of how communications technologies can affect our lives, as well as how these technologies change the way in which we approach and understand photography.

This study has also answered a call by Skågeby (2008) to discover differences in how Pro and Basic users arrange and organize their photostreams. Overall, there were some definite differences. Pro users were more likely to have spent the time arranging and organizing their photos than Basic users. However, it is not known whether these users upgraded to a Pro account to access the increased organizational abilities, or if they upgraded for the increase storage capacity and the increased organization was a side effect of larger collections. Interviews with actual users to determine motivations would be a logical next step for further research.

A secondary aspect of this research was to discover the extent to which people used the various tools within Flickr, including tagging, group usage and notes. Surprisingly, despite high rates of memberships in groups, the actual number of photos in groups was found to be comparatively low. Many of the users who were apt to include their images in groups could be what Miller and Edwards (2007) referred to as Snaps and what Prieur et al. (2006) called “advanced amateurs.” Both these studies found a

small percentage of users who commonly had high levels of organization in their photostreams and led group participation and discussions.

In Chalfen's (1987) analysis of print photograph collections, he notes that many of the photos in the collections he studied refer to important points in a person's or family's life-cycle. Chalfen also mentions marketing reports that indicate the two events most likely to spur people to buy a new camera are family events and taking a vacation. These patterns appear to be the same for digital photography as they were for print photography. When examining the titles and contents of 500 users' single largest set, 123 (24.6%) involved vacations or extended trips. This indicates that for many users, not only are these trips prominent enough to spur their own sets, but the number of photographs taken during these trips is often more than any other event in which photographs are taken.

Significant family events were the second most common group when examining users' largest sets. Thirty-four of these involved family events, the most common of which was weddings (12) followed by births and birthdays (8). This indicates that these significant events also lend themselves strongly to both taking and saving large numbers of photographs.

Other significant themes found in the largest sets of users included friends, interests and hobbies and day-to-day activities. Though not examined in this study, it would be interesting to discover if there are any differences in the level of documentation of everyday life through digital photography when compared to film photography.

For many users, Flickr seems to act like a sort of ‘digital shoebox’ into which they can upload hundreds, or thousands of photos with little description, notation or other usage. While writers like Rodden and Wood (2007) may have found that digital files were easier to manage than physical prints, it seems as though many users do not actually take the time to properly manage their collections. Reasons for this may include technological proficiency, time or the tendency for digital collections to grow significantly faster than print collections due to the lower costs associated with taking multiple images. Again interviewing subjects would be a useful continuation of this research.

The End of the Private Sphere?

For much of its history, the photo album has remained essentially a private object. While some of these albums have made their way into public or private collections over time, for the most part, albums are primarily viewed only by those who created them, their families and their friends (Chambers, 2006). However, when posted to this new, digital realm, the family album becomes a public commodity, freely available to anyone who accesses its online address.

For Flickr user *orionsgirl*, a “mommy of 3 amazing little boys,” Flickr serves mainly as a place to post photographs of her children and extended family. Her general usage of Flickr would fit within the classification of a Kodak Culture user as described by Miller and Edwards (2007). On her user profile page *orionsgirl* noted she had blocked some images from public access, limiting their viewing to users registered as being friends or family. Limiting the view of certain images within an album is something that would have been very difficult with traditional albums, short of physically removing or

blocking viewing of the images. However, with Flickr, while many photos are posted freely, any image can be made private, viewable only by the users with which the poster had logged as a contact, friend or family member. This means that while a user may upload only one set of images, other users may see different groups of images, dependant upon the setting the posting user decided.

Of 500 user accounts analyzed for this paper, only *orionsgirl* made any direct reference to hiding, or making private photos from her collection on her profile page. “You will NOT see photos of my oldest son on Flickr. They are private. He has decided that he is uncomfortable being posted on the web & I respect that.” Despite this comment, removed from her profile since the initial study, many seemingly personal photos of her family, including many of her small children, remain publically viewable on her photostream.

Miller and Edwards (2007) found Kodak Culture users were far more concerned with security issues associated with posting family and personal images than the Snaprs. However, the results of this study indicate that while this may be true for some users, these new practices and privacy issues do not exist solely within what they would classify as Snaprs. Actual analysis of user photostreams indicate many users who seem to fit the Kodak Culture description still publically post images of their children, friends, family and other assorted images publically and without restrictions.

For Levine (2006), it is a desire for attention drives many people to post some of their most private images online:

What is the difference between the Kodak Brownie’s arrival in 1900 and the arrival one hundred years later of the digital age? As I see it, these albums have evolved, or devolved, into what we know today as shameless self-chronicling (i.e. reality television, webcams, and blogs). It is

technology, ever changing and new, that has allowed our stories to be broadcast far and wide (p. 20).

For many users, it is not simply enough to take the photos. The relative value of the image is seen to increase when more people are able to view and appreciate it. This is clearly seen in the profile posting of Flickr user *matuko amini*:

[I] love being on flickr and i've met some of the most amazing people through my photos and paintings.

[I] remember the first time I received [sic] a comment and fave on one of my photos...it was so wonderful and i felt so good that i decided that i wanted to give that feeling to as many people as i could.

[I] believe that letting someone know on flickr and in real life how you feel about their work and their accomplishments is a truly worthwhile endeavor [sic]!

With this understanding for posting pictures, *Matuko Amini* appears less interested in “shameless self-chronicling” and more in becoming a part of a community interested in sharing and discussing images.

Limitations and Recommendations for Further Research

The sample images and profiles used in these studies represent a random sampling of publically posted images on Flickr. Images, sets and collections made private by users did not appear in search results using FlickrRandom. Hence, conclusions concerning the organizational patterns of users refer only to publically posted images. While Flickr does not make statistics concerning public vs. private images available on their website, a 2005 interview with Flickr co-founder Stewart Butterfield stated that 82% of the three and a half million photos uploaded on Flickr were publicly posted (Koman, 2005). Inaccessible private posting may have serious implications for fully understanding the organizational options utilized by Flickr users. Without cooperation with Flickr or users themselves it is difficult to properly ascertain the actual patterns of use and organization on the website. Interviews and other forms of personal contact with users would be a reasonable next step in the research process to gain access to data concerning these hidden files.

Interviewing Flickr users would also add to the understanding behind motivations for their organizational decisions. Interviews with Flickr users have already been used in several studies (Kindberg, Spasojevic, Fleck, & Sellen, 2005; Rodden & Wood, 2007, Miler and Edwards, 2007, and Skågeby, 2008). However, these all looked at the social aspects of image sharing and not on motivations for organization. After analyzing the available organization for each user, specific questions regarding motivations and desired use of the website would be a logical extension of this project.

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Appendix A – FlickrRandom Screenshot

<p>FlickrRandom: randomly-picked photos from Flickr's vast database Just reload for more! -- Created by GustavoG and hosted by jbum Or browse randomly-picked favorites! -- a tool created by fd</p>		<p>Usage counter: 12325152</p>
<p>Songkran Festival 1 (à,²à,‡à,¶ à,£à,²à,TMà,•à¹E)</p> <p>People wishing each other happy new year, by rubbi...</p> <p>Uploaded by: à,²à,‡à,¶à,£à,²à,TMà,•à¹E Marco </p>	<p>26Dec2006-9</p> <p>Uploaded by: tcfung </p>	<p>PC290511</p> <p>Uploaded by: littlenorth </p>
<p>DSC03336.jpg</p> <p>Uploaded by: huangchiirwei </p>	<p>Windmill</p> <p>Uploaded by: Librarianatish </p>	<p>7</p> <p>Uploaded by: kiii0708 </p>
<p>Just reload for more. Clicked too fast, and missed something interesting? Check the OOPS page. Do you enjoy this tool? Pay me a visit and say hi!</p>		

Appendix B – Flickr Screenshot

Dusk in Victoria

Share This

ADD NOTE SEND TO GROUP ADD TO SET BLOG THIS ALL SIZES ORDER PRINTS ROTATE EDIT PHOTO DELETE

This photo has notes. Move your mouse over the photo to see them.

Comments

Siep- pro says:

I'd love to have seen a large version of this shot, but it's still a nice photo. Nice composition and the colour of the blue hour is lovely.

Posted 8 months ago. ([permalink](#) | [delete](#))

Add your comment

How do I format my comment?

PREVIEW

OR

POST COMMENT

Uploaded on January 13, 2008
by [Michael Rajzman](#)

Michael Rajzman's photostream

Some of My Favourites (Set)

93 items

[browse](#)
Part of: [The bests](#)

This photo also belongs to:

- The Best of "West Coast Adventures" (Set)
- Night Lights (Pool) ×
- After Dark - Night Photography (Pool) ×
- Canada's Best Shots (Pool) ×
- Available Light / Existing Light (Pool) ×

Tags

- 2007 ×
- summer ×
- adventure ×
- victoria ×
- dock ×
- nighttime ×
- Michael Rajzman ×

[Add a tag](#)

Additional Information

- All rights reserved ([edit](#))
- Anyone can see this photo ([edit](#))
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- ☐ Taken with a [Ricoh Caplio GX100](#).
[More properties](#)
- ☐ Taken on [July 9, 2007](#) ([edit](#))
- ☐ [Photo stats](#)
- ☐ Viewed 27 times (Not including you)