Ephemeral Photowork: Understanding the Mobile Social Photography Ecosystem

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Abstract

For many years, researchers have explored digital support for photographs and various methods of interaction around those photos. Services like Instagram, Facebook, and Flickr have demonstrated the value of online photographs in social media. Yet we know relatively little about these new practices of mobile social photography and in-situ sharing. Drawing on screen and audio recordings of mobile photo app use, this paper documents the ephemeral practices of social photography with mobile devices. We uncover how photo use on mobile devices is centered around social interactions through online services, but also face-to-face around the devices themselves. We argue for a new role for the mobile photograph, supporting networks of communication through instantaneous interactions, complemented with rich, in person discussions of captured images with family and friends; photography not for careful selection and archive, but as quick social play and talk. The paper concludes by discussing the design possibilities of ephemeral communication.

Researchers have had a longstanding interest in photography, and as digital technology has transformed photography practice, changing user practices (Kirk et al. 2006) and even as a research method in its own right (Carter and Mankoff 2005). The photo and its practice is under constant change and new applications in the past decade, from Flickr to Snapchat, have changed photo sharing practices. But herein lies a problem. It is all too easy to ignore the value and impact of offline sharing in the wake of an abundance of data in a single ecosystem/application. Research has shown us that photographs' physicality provides a "resource for individual identity construction... viscerally remind[ing] people of who they once were in a way" (Odom et al. 2014) especially in close social—particularly family—relationships. In other words, there's more to photo sharing than online comment threads, and much of this interaction still occurs offline.

An alternate, and more neglected, form of photowork is ephemeral (Bayer et al. 2015; Counts and Fellheimer 2004) where photographs are used in the moment, shared, talking about and then discarded. These are not photos that are archived and reflected upon years later, nor are they just photos that are cross posted to various social sites but rather they are also photos instantly shared with friends, with re-

actions received in real time in-app with social copresence. Social photo-sharing services let users view an abundance of photos in a continual flow, and rather than there being the selection of a set of valuable objects there is instead an abundance of media. These online interactions are not trivial: they prompt discussions, reflections, seed conversations, or illustrate arguments. We characterise this as ephemeral photowork: the use of photographs with lightweight rapid practices, photographs quickly produced, shared and consumed. The data from this paper is based around screen and audio recordings of in-situ mobile device use, supporting a close look at mobile photo work and talk around photos as they are captured and shared.

Related Work

There is much literature around photos use in the HCI, CSCW, and Multimedia communities, much of it pre-dating the modern internet-connected smartphone. Koskinen et al. (2002) conducted a study of MMS use with 25 participants, finding that humour and fun were intrinsic to many of the exchanges and involved friends teasing each other or staged and manipulated images of fake experiences. Okabe and Ito (2003) documented the use of camera phones for capturing casual mementos of everyday life. Research on Flickr showed the use of the site to share photos with restricted groups of family and friends for communication and relationship maintenance, if not just for memory archiving (Ames et al. 2010). Social networking sites such as Facebook and Twitter integrate text-based messaging, media sharing, and contact management in the same application. Photos can be posted as personal profile images or associated image collections but serve in either case to support text-based communication as the primary function.

A small amount of research has studied pre-smartphone use of photographs in social situations. Lindley et al. (2008) organized a CHI workshop around in-person interactions with photos. Given the era, many of these interactions involved printed photos, laptops, or grainy early-generation cell phone photos. Van House (2009) also explored this topic through this workshop, and described an interview-based study that explored photo practices in the home, including recalling storytelling around vacation photos, using photos on a fridge as conversation starters, and what people remembered pointing out while discussing photos with others. We

seek to go beyond this work, not only to study behaviors on current smartphones, but also to capture the actual, in-the-moment conversations and screen captures around the sharing instances to uncover how photos are actually discussed. For example, it is unlikely that coarse language that we recorded would have emerged in an interview study.

Methods and Corpus

Our interest here was not in specific apps or settings but rather the broad range of new photo interactions using phones and social media. We adopted an in-situ recording method that used a local recording application installed on participants' iPhones. This recording ran in the background on the phone and captured the screen of the device, its location, the apps used during that session, and the surrounding background audio from the microphone. Participants all reviewed their recordings before the researchers received access and had the opportunity to delete recordings that they did not want to share. After an average of seven days of recording, interviews with all participants were conducted either face to face or over Skype to discuss interesting behavior or ambiguities captured in their video data. We have used this material in earlier papers looking at mobile search, and how phone use is incorporated into everyday life (Brown, McGregor, and McMillan 2014). The corpus contains data from fifteen users in three countries, recording their phone use for between 5–10 days for each user. Of the 15 participants, six were female and nine male—all participants fell within the age range of 22–50 years, and lived in the UK, Sweden, or the US.

From the corpus of overall phone use, photo app usage comprised of 8.4% of the corpus' video in total: 0.74% in the Photo app, 0.65% in the camera app, 1.3% in Pinterest and 5.8% in Instagram. An additional 7.6% of our recordings involved Facebook use, with photo viewing and posting part of that use, mixed with other social media interaction. Extracting these recordings resulted in a corpus of roughly 4 hours of Instagram use (182 clips from 5 users), 30 minutes of the Photo viewing app (29 clips from 8 users), and 27 minutes of the camera app. (15 clips, 7 users). From the Facebook usage we extracted a sample of around 30 minutes of photography use, although much of the consumption of photos was embedded as part of general Facebook browsing and so was difficult to extract exhaustively. The screen captures, ambient audio, location, diary entries and qualitative data from the post-study interviews gives an opportunity to look in depth at the broader activities around photographs, beyond log data, as we have instrumented viewing, commenting, and face to face discussions around photographs—a considerable corpus of different photo actions.

Drawing on an ethnomethodological position our interest in these videos was not retrospective accounts (which are inherently distanced from the events in question) but rather understanding in situ behavior. This style of recordings carry certain advantages versus retrospective accounts of behavior (Brown, McGregor, and McMillan 2014). For each clip we listed themes and particular critical incidents, and in joint data analysis sessions we analysed interaction and photo use.

We selected 25 clips for full transcription and in-depth analysis, of which we present a selection from here.

Results

The following themes emerged from the analysis described above. Specific examples will be given that are representative of the larger themes that were observed.

Viewing photographs

Alongside the Camera app, the iPhone offers a Photos app to browse through one's own photographs (or even screenshots taken). In much of the viewing of photos we recorded, users browsed through photos for discussion in-person with others, such as sharing photos from a family vacation, or showing the status of home improvement projects. However, the majority of photo browsing in our data comes from outside of the Photos app, and consists largely of browsing the timeline on Instagram. The Instagram timeline allows users to scroll through an almost unlimited list of photos posted by those one is following. "Reading Instagram" seemed to follow a fairly continuous pattern of scrolling to an image, looking at the photo and the commentary, potentially interacting with the photo (such as 'liking' the photo), and then scrolling further. Although viewing the timeline on Instagram makes up the majority of the time spent in the application, like television watching it appears to be fairly passive media consumption; photographs might prompt laughter but in most cases of consumption that we recorded, photos are quickly and silently browsed one after another. Participants would view Instagram on breaks from activity, or opportunistically, such as when waiting to meet a friend. In this use it was not so different from other social media consumption.

Interactions with Photographs

Instagram is markedly different from the iPhone's photo app in that online social interaction is core to its use.

Liking photos   The main mechanism of photo interaction on Instagram (and to a lesser extent Facebook) is the posting of photographs and the viewing of those photographs by others. Over and above the photographs, however, these social networking sites allow users to comment on and like photos, but also to link to other users in those comments or to insert hashtags that can "topic-alize" photographs. Much of the interaction online on social networking sites takes place through these relatively lightweight mechanisms. Take the 'like' for example—a simple action on Instagram done by touching the photo or an adjacent heart icon. The social graph controls whose photographs (posts) feature in a user's newsfeed. So the ability to like a photo has become the centre of social interaction between users with liking supporting emergent practices such as posting particular images on certain days (such as 'women crush Wednesday'), as well as, allowing users to transverse social connections through browsing users who have commented or liked others pictures.

Some popular users can gain thousands of likes on their photographs, but less well known users can still have the

likes as a form of affirmation on the photograph being taken and shared. In one clip, one of our participations Veronica, uploads a photograph to Instagram and then stays in the app constantly 'reloading' to count the reactions that she gets to the photograph. She occasionally goes into check who it was has liked her photograph. Interestingly, this posting also prompts users to go in and view and like her past photographs. This behavior thus suggests that 'liking' offers real-time gratification to users and can encourage content production. This behaviour is not unique to Instagram or only Veronica. Another participant, Erin, took a photo of her baked donuts, shared them on Instagram and Facebook, and used an in-app functionality in which she can share likes on both Instagram and Facebook. We even saw cases where a photo did not receive enough likes in the first few minutes after being posted, and was then taken down. We noticed considerable differences in how much users liked photographs with our most committed Instagram user (Cathy) liking around 87% of all the photographs she viewed, but with our other five Instagram users we saw much less liking: among the other Instagram users only liked around 20% or so of images viewed. More extensive studies show that 75% of Instagram photographs receive at least 3 likes (Bakhshi, Shamma, and Gilbert 2014).

Online Discussions   Online photo-sharing sites such as Instagram and Flickr also over mechanisms for discussions with the makers of the photo and their broader social network through comments. Comments were initially designed to enable users to provide feedback on the content presented. However, our observations show that comments can go beyond simple feedback and at times they are places where users participate in discussions of a variety of topics. We see several instances of videos where users tag friends in the comments and wait to receive responses from them. The person who is tagged in the comments receives a notification, and so the conversation points then to that specific person. One of our participants, for example, tagged the person who originally posted the photo in the comment to express interest in her reply. Later, when she received a reply on the comment, she went to the app and immediately opened the comment thread, even before checking any of her other notifications in the app. In some cases, these notifications triggered correspondence between individuals who were not attached or related to the photo.

For some pictures or videos, comments on the posted media could lead to heated debate. One of our participants posted a reply to a spam comment on "Ciara's" (a celebrary singer and model) Instagram feed. After the spam was deleted this was misstook by other commentors as being a critique of the singer, leading to heated debate, "...i was talking about the comment that obviously got deleted thats it and she's like ((my bad girl i thought you were coming for her)) get out of hewer...its fucking Instagram get over your go Away." This small online 'fight' is tellable as an event in its own right—and provides an opportunity for a short discussion of Instagram and people who take comment feeds too seriously. Of course, the story that is told later suggests that the fight, and Instagram comments, are of some impor-

tance.

Co-present Interactions   Since our recording set up captured ambient audio around the mobile phone use, we were able to listen in on how photographs played into conversations while using the phone. We observed how a photo could be brought in to enhance an in-person conversation. In one instance, a conversation was already on going and a participant brought up the camera roll to find a photo of an "awkward thing" that conveys the needed visual. More complex cases involved in-situ storytelling typically from a series of related event with a narration given to the listener. In this example, translated from Swedish, a participant discusses a trip to Northern Sweden. Several photos were shown in succession that described the trip, picking various types of berries, and finally making pancakes with those berries.

The photos are used to drive the story itself, with the participant talking about the content or answering questions about whatever photo happens to appear next in the stream. We will close this section with two cases of many offline photo-sharing conversations that we captured – from bookmarking, to storytelling, to experiences from online that are recalled later when people meet face-to-face.

B: That's a bat

A: Yeah, but read the caption though. [3.0] Sassier.

B: Exceptionally [Sassier] hhhhhhhhhaaa

A: [Sassier] Wait, here hold on [turns phone sideways] Wait. Let me see. Look, they're hanging upside down

B: Ha [laughing]

A: You turn them this way and they're like YO!

[both laughing]

A: What was the other one I was going to show you

[scrolling through lots of screen captures]

A: This one's kind of mean, but it's just the fact that it's just raining on one tiny little spot.

B: mmm

A: It's like fuck this place, in particular. Not anywhere else, just this one little spot right here.

B: Oh boy, mentioning that I have let me show you pictures in my camera. If I could find my phone. I don't know where it is

Discussion

We have touched on different ways in which photos are used as part of contemporary phone use. Much of the photowork practices here seem quite different from the ways in which photos have generally been considered in the literature, where there has been an emphasis on slowness,

preservation, and memory. Indeed, many modern applications speak towards instant-gratification, disposable image collection and sharing. We characterise our data as examples of *ephemeral photowork*—the use of photographs with lightweight rapid practices, photographs quickly produced, shared and consumed. By ephemerality we do not mean to belittle or downplay the importance of the photo practices. Rather our point is that the attention given to individual photograph is fleeting, yet cumulatively these photos produce value, attention and social connections.

Take the 'like' on Instagram as example—an ephemeral lightweight way of communicating with another person, although not one without communicative intent. Showing the likers' names supports interaction between individuals, particularly when combined with a lightweight way to topically tag photographs, using hashtags. These interactions can potentially grow into 'follow' relationships and even richer interactions and conversations. An ephemeral communication over a photo can thus become something of value. Photos themselves are a very lightweight form of communication by showing a selfie, object, or environment. The practice we observed of taking both a front- and rear-facing photo at the same time to capture the sender and their surroundings conveys a large amount of information in one moment. Through studying the exact moment of capture through screen recording and open audio, we could understand how these images were captured and shared, including times when a participant decided not to share or abandoned sharing mid-stream.

The face-to-face interactions around photos uniquely highlight the ability of photos to enable conversation. It is important to note how mobile photos can be brought into a conversation momentarily and then put away (only 37 seconds in the case of the discussion of the 'awkward thing'). These brief interactions are unlikely to have appeared in previous interview-based studies as they are just so mundane as to be forgotten. One research challenge is the privileging of physical artifacts for supporting interactions around photos. This object/device physicality encourages social engagement with the photographs (Odom et al. 2014). This highlights the importance of rapid search and browsing photo tools for in-person discussion in a matter of seconds. If the entire interaction is 37 seconds, a tool that takes 20 seconds to find a photo is going to inhibit these quick "let me show you something" interactions.

Conclusion

Screens and digital surfaces appear to have their own affordances that support new and potentially more interesting behaviors. Perhaps the most important aspect of the phone is that it is always available and can be pulled out spontaneously in conversation. This means that photographs can be brought into conversation opportunistically, rather than as a premeditated 'photo event.' Indeed, many of the online interactions we documented would have been impossible with physical photos. This interaction can also take place in lulls during other events: the quick 'snack' of social media consumption. Through networks of followers, amusement and art can equally pass causing ephemeral, but still real, emotions. We have discussed how lightweight interactions with photographs allow people to thread media from themselves and others into their ordinary conversations. In closing we might remark, what if this ephemerality was the focus of design, rather than concentrating on preservation and remembrance? It may be that rather than designing for slowness there may be new and exciting opportunities in embracing the fleeting ephemeral nature of media in our everyday lives.

References

Ames, M.; Eckles, D.; Naaman, M.; Spasojevic, M.; and House, N. 2010. Requirements for mobile photoware. *Personal Ubiquitous Comput.* 14(2):95–109.

Bakhshi, S.; Shamma, D. A.; and Gilbert, E. 2014. Faces engage us: Photos with faces attract more likes and comments on instagram. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, CHI '14, 965–974. New York, NY, USA: ACM.

Bayer, J. B.; Ellison, N. B.; Schoenebeck, S. Y.; and Falk, E. B. 2015. Sharing the small moments: ephemeral social interaction on snapchat. *Information, Communication & Society* 1–22.

Brown, B.; McGregor, M.; and McMillan, D. 2014. 100 days of iphone use: Understanding the details of mobile device use. In *Proceedings of the 16th International Conference on Human-computer Interaction with Mobile Devices & Services*, MobileHCI '14, 223–232. New York, NY, USA: ACM.

Carter, S., and Mankoff, J. 2005. When participants do the capturing: The role of media in diary studies. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, CHI '05, 899–908. New York, NY, USA: ACM.

Counts, S., and Fellheimer, E. 2004. Supporting social presence through lightweight photo sharing on and off the desktop. In *Proceedings of the SIGCHI conference on Human factors in computing systems*, 599–606. ACM.

Kirk, D.; Sellen, A.; Rother, C.; and Wood, K. 2006. Understanding photowork. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, CHI '06, 761–770. New York, NY, USA: ACM.

Koskinen, I.; Kurvinen, E.; Lehtonen, T.-K.; Kaski, J.; Keinänen, N.; and Absetz, K. 2002. *Mobile image*. Edita, IT Press.

Lindley, S. E.; Durrant, A. C.; Kirk, D. S.; and Taylor, A. S. 2008. Collocated social practices surrounding photos. In *CHI'08 Extended Abstracts on Human Factors in Computing Systems*, 3921–3924. ACM.

Odom, W. T.; Sellen, A. J.; Banks, R.; Kirk, D. S.; Regan, T.; Selby, M.; Forlizzi, J. L.; and Zimmerman, J. 2014. Designing for slowness, anticipation and re-visitation: A long term field study of the photobox. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, CHI '14, 1961–1970. New York, NY, USA: ACM.

Okabe, D., and Ito, M. 2003. Camera phones changing the definition of picture-worthy. *Japan Media Review* 29.

Van House, N. A. 2009. Collocated photo sharing, story-telling, and the performance of self. *International Journal of Human-Computer Studies* 67(12):1073–1086.