

Cameraphone Inertia

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ABSTRACT

In this paper we summarize some initial results of an eight week study of the cameraphone use of one American family. These initial results highlight a number of inertial forces acting against the adoption and appropriation of cameraphones.

INTRODUCTION

Initial studies of the use of cameraphones and digital cameras in conjunction with mobile email devices paint a picture of successful adoption and creative appropriation (e.g., teasing [5], collaborative storytelling [4], or the mundane “elevated to a photographic object” [9]).

Most striking, perhaps, are the breadth of ways that users have appropriated photographs in computer-mediated communication technologies. Mäkelä et al. noted that photos were used for joking, expressing emotion, and sharing art [7]. In a study of cameraphone use by three workgroups, Ling and Julsrud identified genres of use including documentation of work-related objects, visualization of details and project status, snap shots, postcards and greetings, and chain messages [6]. Okabe noted image-based practices of personal archiving, intimate sharing, and peer-to-peer news and reporting [8]. Kindberg et al. proposed a taxonomy of image capture, with images serving either social or individual uses and either affective or functional uses [3]. Van House et al. identified uses including creating and maintaining social relationships, personal and group memory, self-expression, self-presentation, and functional [12]. In our study of photo-enhanced instant messaging, we proposed six themes of the communicative appropriation of images, including the image as amplification, narrative, awareness, local expression, invitation, and object/instrument [13].

Actual use of multimedia messaging services (MMS), however, has not lived up to initial expectations, with countries like the United States lagging even further behind other countries in adoption [10]. One goal of this research was to better understand how cameraphones were being used in a market with less successful adoption patterns. This paper presents initial results of a study of cameraphone use in the United States and reflects a preliminary analysis of inertial forces that act against the adoption and appropriation of cameraphones.

METHOD

We conducted an eight week study of the use of cameraphones by six members of one American family. Over the course of the eight weeks, we asked participants to

share with researchers copies of photos that they took on their cameraphones, shared from their cameraphones, or were shown from a cameraphone (either received via MMS, email, or viewed on a cameraphone display). We conducted a voicemail diary study [11]; each time participants took, shared, or viewed a cameraphone photo, we asked them to call a voicemail system and answer a series of open-ended questions about their experience. We also conducted a group interview of all participants prior to the eight week study and individual interviews during and after the study.

Participants

The participants in this study represented two generations of family members affiliated with a family owned and operated industrial automation business. We selected participants who were members of a family business so that we might observe cameraphone use across work and social contexts. In this family, the father managed the business while his elder and younger sons led the engineering and software development teams, respectively. The mother and the elder son’s wife had part time responsibilities with the business. The daughter attended middle school.

All family members except the daughter were born in Europe and immigrated to the United States, most more than 20 years ago¹.

All participants owned their own cameraphones (with VGA resolution cameras) and had service plans that included coverage of some MMS use. All participants except the mother had used the cameras on their phones prior to the start of the study. All but the mother and daughter had used the MMS capabilities of their phones prior to the study.

Compensation

Over the course of the study, we volunteered to reimburse participants for any service fees related to the use of their cameraphones. We also compensated participants for each individual interview and provided participants with monetary incentives for sharing photos with researchers and for calling in to the voicemail system.

PATTERNS OF USE

During the eight weeks of the study, the six participants took a total of 36 photos with their cameraphones [Table 1]. The use of cellphone cameras varied widely among participants. The father, for example, took one photo the day after the initial group interview and never used the camera on his phone again. The elder son took eleven photos, approximately half of which were shared via MMS with his

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1. As such, English is not the primary language of some of the participants. Quotes of participants are presented in their unaltered English.

	Father	Mother	Elder Son	Elder Son's Wife	Younger Son	Daughter	Total
Week 1	1	1	6	1	3	1	13
Week 2					2	3	5
Week 3		1		3		1	5
Week 4			2				2
Week 5			3	2	1		6
Week 6		1				3	4
Week 7		1					1
Week 8							0
Total	1	4	11	6	6	8	36

Table 1. Number of cameraphone photos taken by six participants over the course of eight weeks

younger brother or wife. The daughter took eight photos with her cameraphone. She shared none of them.

In our study, nearly two-thirds of the photos were of classic Kodak Culture subjects [2]: four photos of family members, nine photos of pets, and nine photos of vacation sites.

INERTIAL FORCES

In our initial analysis, we identified three forces that may account for some of the less successful adoption or appropriation of cameraphones.

Usability Complaints

Participants in this study felt that the quality of cameraphone photos “sucked.” They reported that the photos were often blurry and that lighting in the photos was almost always a frustration. One participant was even more frustrated that he could not accurately judge the quality of the photo while it was on the phone and he had to email photos to himself before he knew whether or not they were any good.

Almost all participants had negative experiences with their MMS service. Sometimes MMS messages were delivered days after they were sent; sometimes they were not delivered at all.

Participants also felt that it was too cumbersome to type in email addresses to email photos from their phones. Participants generally worked around this by emailing photos to themselves to further distribute in email, where they felt the interaction was less awkward.

Spirit, Cars, and Being in a Hurry

Most participants discussed some way that their mood and lifestyle impacted their use of cameraphones. One participant said she had to be in a good mood to want to take photos, a mood that was generally ruined when the weather was dreary (as it was during the final weeks of the study). Another participant reflected a similar need to have a “spirit” to take photos:

You have telephone and you have camera, but only when you have vacation and you have the time, you enjoy it. You enjoy to share the pictures. When you go from your work, you thinking about all the things what you supposed to not do. Your boss put you on the carpet because you don't do

this and this. And you really don't have a...spirit. Spirit makes some nice pictures, and say “Look at what I see today....”

This same participant also discussed her perception of the difference in transportation and the pace of life between the United States and Europe and the way in which that always moving, hurried pace impacts the use of cameraphones:

The problem here is...you traveling very much. You are all time in the car. You have no real time, you know, to take nice pictures. You know, in the Europe, you walking. You stop. You walking. You think, “Oh this is nice.” You make the pictures. You know here, everybody hurry.

Culture of Seasonal Conformists

More than two thirds of photographers are seasonal conformists who take photographs either at family festivities or social gatherings, or during the summer holidays....Resignation to a practice that is rare and rudimentary, and the lack of enthusiasm for a more intense practice, presuppose...the awareness that there exists, as an abstract and impossible probability, a different form of practice that is possible *for others* [1].

As Bourdieu suggests, the meaning and function of the photographic image is, itself, a form of cultural inertia. While new technology may enable changes in practice, those changes in practice do not necessarily follow.

Our participants generally believed that digital photography supported these more “intense” photographic practices. They explained that without the constraints of film, one could experiment more with photography and take a greater number of photographs without incurring additional expense. One could also experiment without worrying that a stranger would see the photo while it was being developed in a lab.

Our participants explained that the cameraphone also supported more intense, more professional photographic practice, as one would be more likely to have a camera around to respond photographically to the environment.

A professional would also probably carry a camera with them all the time, so that gets you a step closer.

Even so, our participants actively differentiated their use of cameraphones and digital cameras from these more intense

photographic practices. All participants except the daughter (who was studying to be a better photographer by emulating photographic art she saw in department stores) adamantly denounced any desire to be any different a photographer.

I'm happy with how I am....I say I take bad pictures, but for me they serve my purposes. I see the picture and it reminds me of something and that's it.

Our participants primarily took photos of family, pets, and vacations. Some reflected that they only begrudgingly took the photos on their cameraphones because they had forgotten their better quality camera. In general, our participants just wanted to take the same kind of photos they had always taken and to have a camera that would make it as easy as possible.

I'm perfectly happy with all the pictures I take, content-wise....I'm still going to be taking all of the same pictures.

DISCUSSION: THE IDENTITY OF THE CAMERAPHONE

Given these forces of inertia, the question then becomes: which of these forces might be overcome? Which forces might be overcome over time? And which forces represent or mask problems that need to be solved? The answers to these questions may depend on what the identity of the cameraphone actually is.

What is the user's perceived identity of the cameraphone? Is the cameraphone perceived as being a ubiquitous digital camera or a visual communication medium? To what extent have usability issues forced users to perceive the cameraphone in one way over another? To what extent have other factors influenced the perceived identity of the cameraphone?

At first glance, there appears to be a tension between the cameraphone being a ubiquitous digital camera and the cameraphone being a visual communication medium. In this study, much of the cameraphone's identity as a visual communication medium seems to have been thwarted by usability issues. The remaining inertial forces seem to reflect a perception of the cameraphone as being a ubiquitous digital camera. If the usability issues are resolved, will the cameraphone be more readily perceived as a visual communication medium and ease the other inertial forces in the process?

This mixed identity of the cameraphone implies a next generation of research questions: how do these two identities interact in the mind of the user and in the design of the technology? What are the trade-offs between designing for the cameraphone as a ubiquitous digital camera and between designing for the cameraphone as a visual communication medium?

If we take the identity of the cameraphone to be a ubiquitous digital camera, where do we go next?

If we take the identity of the cameraphone to be a visual communication medium, where do we go next?

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REFERENCES

1. Bourdieu, P. (1990). *Photography: A middle-brow art*. (S. Whiteside, Trans.). Stanford, CA: Stanford University Press. (Original work published 1965)
2. Chalfen, R. (1987). *Snapshot versions of life*. Bowling Green, OH: Bowling Green State University Popular Press.
3. Kindberg, T., Spasojevic, M., Fleck, R., & Sellen, A. (2005). The ubiquitous camera: An in-depth study of camera phone use. *IEEE Pervasive Computing*, 4(2), 42-50.
4. Koskinen, I., Kurvinen, E. & Lehtonen, T. (2002). *Mobile image*. Edita, Finland: IT Press.
5. Kurvinen, E. (2003). Only when miss universe snatches me: Teasing in MMS messaging. In *Proceedings of the Conference on Designing Pleasurable Products and Interfaces*. New York: ACM Press, pp. 98-102.
6. Ling, R. & Julsrud, T. (2004, June). *The development of grounded genres in multimedia messaging systems (MMS) among mobile professionals*. Paper presented at T-Mobile Conference, Budapest, Hungary.
7. Mäkelä, A., Giller, V., Tscheligi, M. & Sefelin, R. (2000). Joking, storytelling, artsharing, expressing affection: A field trial of how children and their social network communicate with digital images in leisure time. In *Proceedings of the ACM Conference on Human Factors in Computing Systems*. New York: ACM Press, pp. 548-555.
8. Okabe, D. (2004, October). *Emergent social practices, situations and relations through everyday camera phone use*. Paper presented at Mobile Communication and Social Change: The 2004 International Conference on Mobile Communication, Seoul, Korea.
9. Okabe, D. & Ito, M. (2003, August 29). Camera phones changing the definition of picture-worthy. *Japan Media Review*. Online: <http://www.ojr.org/japan/wireless/1062208524.php>
10. Orłowski, A. (2004, September 15). Picture messaging — It's worse than you thought. *The Register*. Online: http://www.theregister.co.uk/2004/09/15/mms_flop_needs_fix/
11. Palen, L. & Salzman, M. (2002). Voice-mail diary studies for naturalistic data capture under mobile conditions. In *Proceedings of the ACM Conference on Computer Supported Cooperative Work*. New York: ACM Press, pp. 87-95.
12. Van House, N., Davis, M., Ames, M., Finn, M. & Viswanathan, V. (2005). The uses of personal networked digital imaging: An empirical study of cameraphone photos and sharing. In *Extended Abstracts of the ACM Conference on Human Factors in Computing Systems*. New York: ACM Press, pp 1853-1856.
13. Volda, A. & Mynatt, E.D. (2005). Six themes of the communicative appropriation of photographic images. In *Proceedings of the ACM Conference on Human Factors in Computing Systems*. New York: ACM Press, pp. 171-180.