
Memory at the Moment: To Fully Engage with Your Digital Pictures

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Abstract

We present design sketches of new photo application concepts. Considering the popularity of digital photography, we explored new design space to increase users' engagement with the moments of taking pictures and the memories from them. We focused on examining new aesthetics in interacting with digital photography and creating new user experience by maximizing those digital characteristics.

Exploratory user discussions were conducted with open-ended questions about usual photography experience. Based on the analysis of the discussion, design workshops were done to generate conceptual ideas by brainstorming and visualizing user scenarios.

As a result of the study, we suggest conceptual digital camera and photo frame that enable tangible manipulation of digital pictures. Motivations and rationales of concept development were described with a set of research questions about the influence and user response to the conceptual ideas. Interactive prototype implementation and user study will be followed as future work.

Keywords

Interaction Design, Experience Design, Concept Design, Design Methods (Design Rationale, Design Process, Claims Analysis, Scenarios, Storyboards)

Project/problem statement

Photography continues to be an important medium to record moments and to share memories. However, due to developments in digital technology, the experience of photography has been largely changed. First, as people take more shots without worrying about film, casual moments are captured more frequently and people have more opportunities to practice professional photography. Second, digital pictures can be more easily edited and shared. Although this may reduce authentic quality of memorable moments and originality of pictures, it surely has brought new experiences such as popular use of digital photo editing applications and online photo sharing sites.

Based on these changes, we focused on two potential issues for designing new user experience of digital photography. First, compared to the excitement and engagement present the moment a picture is taken, most memories are easily forgotten afterwards as pictures are digitally filed away in computers. Although users may browse digital images, instances of *felt-experience* [8] traditional to photography, such as touching and engaging with printed old photos, remain largely absent. Second, in spite of introduction of various digital devices, aesthetics in interaction with digital technology has not been fully explored yet [7]. While there have been many research and development projects to improve efficiency of current use [2], most user interactions are still limited to computer screens and the Internet. For digital culture to mature, new aesthetics of use, not only of forms and performance, must be explored [3]. In this study, we aim to suggest new photo application concepts by reflecting those issues of using digital technology. As in design sketch, we will cover the stories of exploring and specifying

design concepts with expected user responses toward them.

Background

Team members, and their roles

Two graduate students led the study advised by a professor. With background in Human-Computer Interaction (HCI) Design, we collaborated on managing user discussion, conversation analysis and conducting design workshops for new concept generation.

Project dates and duration

As a sketch of conceptual ideas, this study took two weeks (May, 2007) including three sessions of user discussion and two sessions of design workshop. It excludes the time for reviewing and analyzing current photo applications, which is represented in our previous study [5].

Context of project

This study is about suggesting and specifying design concepts for new digital photo applications. As a foundation of this study, we previously suggested a framework of digital photography experience by reviewing current photo applications covering the entire process of photography- from capturing and editing to displaying and sharing [5]. Additionally, this study was concerned with the comparison between film and digital photography to find emerging issues from the transition of photo application technologies. As an extension of the previous study, we present sketches of explored design concepts with a set of research questions about the influence of and user response to these conceptual ideas. Motivations and rationales of concept development were described in regard to the results

from user discussion and design workshop. Rather than considering practical problems and solutions, we focused on exploring new aesthetics of digital photography to create new values of user experience.

Challenge

As our focus shifted away from designing practical applications, we encountered difficulties in rationalizing our decision-making for concept development, particularly regarding our subjective interpretations of whether a certain interaction is interesting or engaging. Initially, we obtained inspirations from *technology for ludic engagement* [4] and *transfer scenarios* [6] to start from insightful design ideas and then to explore users' response later. Without any reference to compare our new concepts to, it became difficult to estimate if we explored meaningful dimensions of aesthetics in using digital technology. Our study represents an overall process to explore new design space with consideration of the influence on following user experience, not being limited to specific design concepts selected among many alternatives.

Solution

A. Process (methods, tools, procedures, influences): Three sessions of user discussion were conducted to understand usual photography experience and to get insights for concept ideation. Each session took about two hours and was run by four participants and a coordinator. As exploratory interview, it was different from defining practical problems of current applications, placing emphasis on finding potential opportunities for new applications that can enrich users' affective engagement with photography. We prepared several questions covering the whole process of photography-

capturing, editing, displaying and sharing. However, the discussion was improvised with immediate topics guided and inspired by the following questions.

- How much do you take pictures? (Including purpose and context)
- How do you manage your pictures? (Including editing, keeping, displaying, and sharing)
- Do you use any photo sharing sites or photo frames? Do you carry any of them with physical objects?
- In which course of photography (capturing, editing, displaying and sharing), do you feel the most excited and engaged in the moment?

Two design workshop sessions followed. For the first session, we analyzed video recordings and sketches completed during discussion sessions. In the next session, we brainstormed and visualized new application concepts and relevant user scenarios.

While most participants mainly use online photo-sharing sites to manage their pictures, they also adopt different kinds of physical items to display and carry their pictures. For example, the kitchen refrigerator represented one of the most popular places for casual display of pictures. Some participants remarked they simply hang their pictures on the string to decorate rooms. The personal wallet was also frequently used to carry pictures of families, lovers, pets or themselves. Photo frames were typically reserved for more meaningful or artistic pictures. Some considered frames as important as the picture itself, particularly if they got it as present or it embodies special stories. Underlying reasons for why participants use different physical

objects provoked interesting comparisons. For example, most people complained of the difficulties attributed to managing vast amounts of intangible digital pictures. Their explicit mention of using various physical items to store and manipulate photographs, gave us insights to conceive alternative physical interfaces to interact with digital photography through.

In terms of photography process, we found that people feel most engaged when handing the camera and looking at pictures together from the digital camera screen immediately after taking them. They also enjoyed individually browsing others' photo blogs, as well as reading and adding comments to posted pictures. However, they felt more engaged when gathering around the screen and talking about pictures in person. Although connected-ness and interaction through pictures have been facilitated more through online sharing, we found that people require more deeply textured felt experience from digital photography, representing another potential opportunity for our concept generation.

Based on the analysis of discussion, we developed new application concepts with focus on users' engagement with digital pictures through tangible manipulation [1, 9, 10, 11]. We set following issues as design objectives:

- Capture excitement and engagement of moments and how to reflect them in pictures.
- Keep those memories alive and vibrant afterward.
- Offer opportunities for tangible manipulation of digital images.

B. Solution details:

We suggest conceptual digital camera and photo frame that enable tangible manipulation of digital images. To maximize users' engagement at the moment of taking pictures, we conceived a digital camera that blurs or pixelizes images according to users' squeezing and shaking [Fig1]. The more people squeeze and shake the camera while handing directly after taking pictures, the more the image becomes blurred and pixelized. Those digitalized images can be displayed in a digital photo frame and dynamically visualized as users approach or touch the frame [Fig2].



Fig1. Concept sketches of tangible digital camera

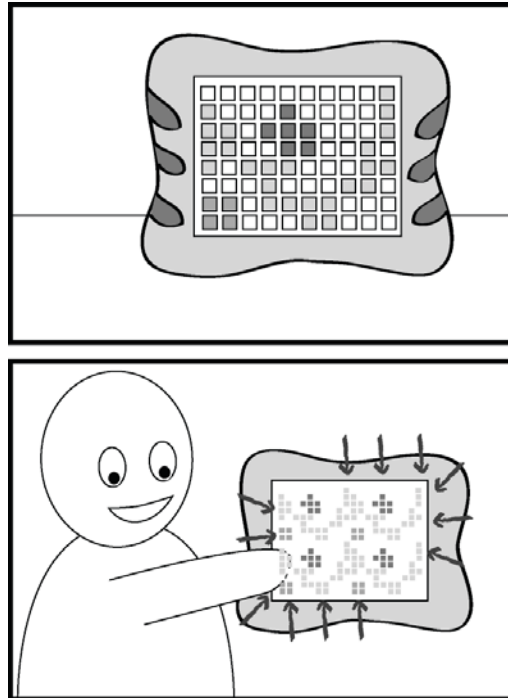


Fig2. Concept sketches of tangible digital photo frame

Various types of tangible manipulations and visual effects- more than squeezing, shaking, blurring and pixelizing, can be adopted as alternative interaction styles. Proper coupling between manipulation and visualization should be further studied through testing different versions of prototyping. Also, appropriate forms of new digital camera and photo frame should be explored so that they can well represent its conceptual idea and afford proper user manipulation.

C. Results (measured against goals)

We expect that our approach to explore new aesthetics of interaction with digital photography will provide meaningful implications for other photo applications and contribute to the maturing culture of digital technology design. For future work, we plan to implement working prototypes and conduct additional exploratory user studies with following research questions:

- How much will people feel engaged with digital photography and past memories through tangible manipulation of pictures?
- How will people consider digitalized abstract images comparing to original ones? Will they appreciate new aesthetics of digital visualization or refuse them as inferior replications?
- How will the visual manipulation influence photography experiences? Will times of watching pictures increase? Will users be reminded of more memories from their interactions with pictures? What kinds of emotions will it evoke?

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