Using Frame of Mind: Documenting Reminiscence Through Unstructured Digital Picture Interaction

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Abstract

Mobile technologies have made family photo collections extremely portable. People can now carry all their pictures with them wherever they go and show them to others in any setting with smartphones or tablets. However, current options for portable photo viewing are not intended for in-person sharing and reminiscence. Frame of Mind presents a new way to interact with digital pictures on a touch screen that encourages storytelling through its free-flowing interaction using the metaphor of looking at pictures on a table top. This allows family reminiscence to be lightweight, portable, and more accessible by supporting photo viewing on tablets that can have access to complete picture collections. So Frame of Mind moves towards digital tools that support our current photo viewing and sharing activities.

Author Keywords

Digital storytelling; reminiscence; older adults; contextual inquiry; user experience design;

ACM Classification Keywords

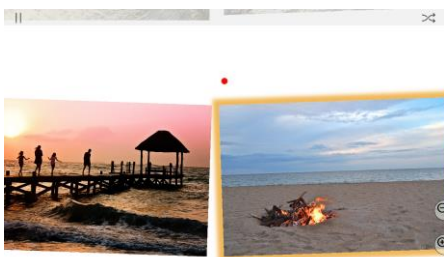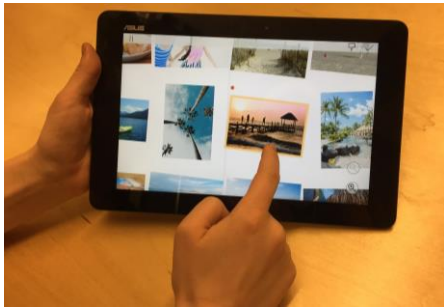H.5.2 [Information Interfaces and Presentation]: User Interfaces;

Figure 1: Screenshots of Frame of Mind; (from top to bottom) a. using Frame of Mind, b. the initial view of Frame of Mind, and c. a zoomed view during storytelling with selected picture.

Introduction

Digital storage has become the norm for family pictures, and it is becoming difficult to maintain paper collections of pictures. Availability of cloud storage means that tablets or smartphones have access to entire family collections of pictures no matter where they are. Despite the ease of access, these technologies do not support reminiscing from pictures the way photo albums or boxes of pictures do, and this limits how pictures can be shared. This is especially the case for older adults who want to share their stories, but are overwhelmed by the work of photo management.

Frame of Mind uses a new metaphor for digital picture interaction designed specifically to support reminisce from picture prompts. This design is based on how older adults are using their physical picture artefacts now. It prompts detailed and continued reminiscence through easy, unstructured picture interactions, and moves towards digital tools that support our current photo viewing and sharing activities.

Reminiscence is an important activity for older adults as it is associated with many health benefits, including reducing social isolation [3]. Older adults also find reminiscence enjoyable, but there are many barriers to motivating and documenting their memories [7] and they want control of their storytelling process and artefacts [5]. Memory triggers, like picture prompts, act as reminders of what they might want to share and help them to feel comfortable sharing [6].

Previous work on photoware and photouse has focused more generally on families' use of management and use of pictures. An early study into requirements for photoware shows that loose pictures prompt storytelling more often than albums or other storage does [2]. The more recent research [1,4] shows the complexities of managing digital pictures and especially of viewing or searching for pictures, which is often unsuccessful due to the size of modern picture collections.

Older adults' interaction with pictures for reminiscence and storytelling is not supported by currently available photo viewing solutions. They are frustrated by the time and effort needed to maintain paper collections, let alone doing the same work digitally. Frame of Mind is a new option for digital picture interaction that supports viewing and reminiscing activities as they are done with paper artefacts now. With this interaction, it is possible to move towards a complete digital solution that includes robust searching, management, and documentation of entire picture collections.

Design Development

The design of Frame of Mind was developed through interviews with nine older adults observing how they interact with their paper pictures and what they would want out of an equivalent digital tool. The four main design recommendations found from this study are:

1. Free-flowing interaction and movement between pictures so that memories are prompted easily.

2. No limited display of pictures so multiple pictures can be included seamlessly.

3. Natural interaction mappings that maintain picture context. Interacting with one picture should not remove or obscure the surrounding pictures.

Design Considerations in Frame of Mind

Unstructured Interactions:
The infinite table top allows users to move freely through their pictures to easily find whatever prompts a memory. This avoids the usual chronological sequence of pictures that is often unused and even can hinder storytelling.

Maintained Context:
Tapping on a picture mimics the meaning a tap to a paper picture. It focuses attention to that picture through a simple border highlight, but does not change the larger picture context.

Speech-Enabled:
Oral storytelling is our most familiar form of sharing family memories. By recording the audio, the memories are saved without the tedious manual documentation of each picture.

4. Speech-enabled storytelling to support a very common, comfortable, and easy way of sharing memories.

This interface has been assessed with seven older adults using their personal picture collections who found it an enjoyable way to share memories. It was also found to produce more detailed memories that included more pictures that when those same users reminisced from their current methods of picture storage.

Creating Memories with Frame of Mind

Looking at family pictures together is a commonplace activity for many. The pictures bring many different memories to surface to be shared and passed on. This is an easy way to hand down family memories, but digital picture viewing does not encourage this type of interaction. Frame of Mind brings family picture reminiscence into mobile spaces. Frame of Mind runs as a universal Windows app, so can be used on any type of Windows tablet or phone. This portable format means that family members can bring their picture viewing with them when visiting other family in a way that is not practical with physical storage.

Pictures in Frame of Mind are presented as subsets of a whole collection, similar to albums or boxes. Each subset contains a related set of pictures (e.g. by event, location, or time). Once selected, a subset is shuffled and spread out onto the metaphorical table top in a rough grid (Figure 1b). Users can move freely through these pictures in any direction and the grid loops on every side to create an infinite space of pictures (Figure 1a). This endless, free-flowing interaction allows for easy movement between pictures without unnecessary

navigation such as flipping back and forth between album pages.

While browsing through the table top, users select whichever picture prompts a memory they would like to share (Figures 1c, 2a). As they share, they continue to select whichever pictures prompt or continue their reminiscence and build a longer story. There is no limit to how many pictures can make and a story, and the same picture can be selected multiple times over the course of a story. The currently selected picture is highlighted, but the larger display of pictures remains unchanged so the larger context of their storytelling is always intact. In this way, tapping on a picture is the same as tapping on a picture in an album; it puts a focus on that picture to establish or strengthen the current context without changing the larger storytelling space.

While sharing, the story is being recorded so that the memory is documented and can be shared again. This recording is demonstrated to the user as a small blinking red recording dot that stays next to the currently selected picture (Figure 2a). This is a gentle reminder and reassurance that the recording is working.

Replaying Memories

When they are done sharing, their story is saved as a simple, animated slideshow of their synchronized pictures and speech (Figure 2c). All these saved stories can be reviewed and shared again (Figure 2b). The playback combines the enjoyable experience of sharing memories through speech and the time-consuming, difficult task of documenting the stories in family pictures. With the stories preserved as speech and
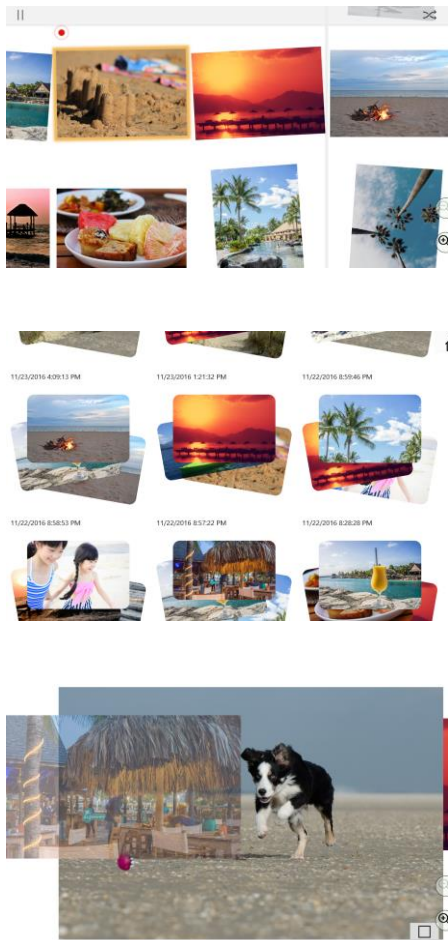
Figure 2: Screenshots of Frame of Mind; (from top to bottom) a. storytelling on Frame of Mind with recording indicator, b. list of completed stories to be played back, and c. the animated slideshow playback.

associated with their related pictures, memories are easily documented along with the context surrounding each picture that is otherwise not visible when just viewing it.

These saved stories can also be shared outside of Frame of Mind as videos. These can be shared through email or Facebook, for example, and expands the potential reach of reminiscence.

Conclusion and Future Work

This new digital picture interaction is a first step towards a complete digital option for family picture management and documentation. The simple interaction encourages natural reminiscence and storytelling, while documenting the story with a simple audio and picture slideshow.

The saved stories are easy documentation of family memories, but in order to be a usable method of documentation, it will need to be much more robust. Participants in the assessment of the interface suggested many possibilities for editing completed stories including using a timeline to rearrange pictures and audio, both during and after storytelling, and collaboratively editing or adding to stories. Future work will seek to understand how to support easy to use editing of stories that provide these wanted features. Especially of interest is collaborative creation and editing of stories by distant family members.

The speech of the stories produced by Frame of Mind is more detailed than the captions written onto pictures that often only include facts like dates, people, or locations. Learning about the pictures from the stories instead of from simple captions will offer new

possibilities for automatic organization and management of pictures. This would greatly simplify this work that is currently too much for both paper and digital formats.

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