

# Connecting Generations: Preserving Memories with Thanatosensitive Technologies

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**Abstract.** Hand-written letters have morphed over the past two decades from the physical realm of ink on paper to digital text displayed on a digital screen, making emails the most common digital format for letters. Old shoeboxes were used as storage spaces for hand-written letters and photographs, bound together with ribbons or rubber bands. The shoebox would then be tucked away somewhere in the house, only to see the light of day years later after a vigorous bout of house cleaning, on a special occasion or after one's death. Since email archives are not the physical artifact of a shoebox of letters and photographs, it is much more difficult to bequeath them to an heir after death. Our proposal is the development of an application named Shoebox that will connect family and friends through the bequeathing of Gmail archives, Picasa photos and YouTube videos.

**Keywords:** Interface design, User-centered design.

## 1 Introduction

“Death makes us do strange things; hold on in ways we would not otherwise,” says Rev. Jennifer L. Hall, M.Div. our Subject Matter Expert (SME) for this project. “I have an email from my father, wishing me a happy birthday from June 2000. The message is short, just a few lines, hoping we can see each other soon and ending with the words ‘love, Dad’. It is the last correspondence I have from him. He died the following April.”

“Since that time, I have had many other email accounts with better spam filters and more up-to-date features, but I cannot bear to close the account that holds my father's final Happy Birthday message to me. I considered forwarding it to my most recent inbox, but it would not be the same. His name would not appear the way it does in that old discarded account. There is something important about seeing ‘John Hall’ in my inbox. It keeps me connected, somehow in touch with the man who was my father. Perhaps one day I'll be able to print the email, tuck it away in a file labeled ‘Dad’ and say goodbye to that account. Not yet, I still need to be reminded he was once alive and reached out to me.”

The culture and conditions surrounding end-of-life traditions in the United States has remained primarily untouched by technology until very recently. There is a growing need for more technology to be designed related to the distribution of one's digital assets upon death, since what happens to these assets remains ambiguous in most cases.

Thanatology [18] is the study of death among human beings. Designing thanatosensitive technologies is becoming an increasingly important topic for CHI, as our lives are becoming more involved digitally. Research on thanatosensitive technologies within the CHI domain has focused on memorializing the departed [1,8,9,14]. At CHI 2009, alt.chi, Massimi and Charise introduced the concept of thanatosensitivity [14]: to describe an approach that actively integrates the facts of mortality, dying, and death into HCI research and design. A technology heirloom, [8] targeting this definition, was introduced by Kirk & Banks at SIMTech '08, suggesting a way to pass down a physical object across multiple generations. With these works in mind, we have chosen to design a thanatosensitive technology for bequeathing email archives, photos and videos within the Google entities of Gmail, Picasa and YouTube.

### 1.1 Demographic Analysis

The population in the U.S., as well as around the world, is significantly aging [5]. The first of the Baby Boomer generation (those born between 1946 and 1964) will turn 65 in 2011 at the rate of 7,000 per day [11]. People at the age 65 and over are the fastest-growing group of people using social networking, followed by those ages 50 to 64, according to a Pew Research Center report [12]. Yet, this age group is considered under-represented in the field of human-computer interaction [5].

“Young adults continue to be the heaviest users of social media, but their growth pales in comparison with recent gains made by older users,” explains Mary Madden, Senior Research Specialist and author of the report. “Email is still the primary way that older users maintain contact with friends, families and colleagues, but many older users now rely on social network platforms to help manage their daily communications.” [12].

The Boomers have been trendsetting since they were born. As this is the largest and most diverse under-represented age group in the U.S. population, we have chosen to create our application to meet their needs while focusing on the user-centered design methodologies.

### 1.2 Problem Identification

Thinking of death and dying can present numerous emotions. Anticipatory grief is one emotion that can hinder the process of preparing for one’s own death [10]. In March 2009, Carroll and Romano, the authors of *Your Digital Afterlife*, co-presented a “Core Conversation” at the South by Southwest (SXSW) Interactive Festival called “Who will Check My Email After I Die?” [4]. This is a critical question and there is not yet a best practice for dealing with deceased users’ content [4]. To further complicate the situation, the law has been slow to keep up with the fast pace of technology [4].

Since email is the “master key” as Carroll and Romano phrase it [4], it is of utmost importance to name a digital executor(s) and keep an inventory of your digital assets. The most influential piece of your digital estate is your email account since it controls access to all other online accounts. Even with a digital executor, each email provider or ISP has a different set of terms and conditions to which you agree each time you set up an account. Some accounts, such as Gmail, have instructions for gaining access to a deceased user’s account. Others, like Yahoo!, have a non-transferability clause

that does not allow the account to be bequeathed to an heir. Herein is the most troubling problem. When a user dies and no one has been named as a digital executor or has access to the departed user's account, the account simply remains active for an undetermined amount of time. If a death certificate is produced, then the account will be deleted, not archived or transferred.

### 1.3 Design Concept

Email, as well as other digital media, is quickly replacing the physical artifact of the shoebox storage and retrieval system. Storing and retrieval now occur through virtual folders, files, tags and even the virtual trash or recycling bin.

Family and friends connect with one another on a daily basis through the exchange of emails and other online social media and networking sites. In 2009, almost 70% (or 215 million people) of all U.S. American adults sent or read emails [15]. This large number contributed to the 90 trillion emails sent worldwide in 2009 [16]. According to the 2011 Statistical Abstract, more than 1.7 million U.S. Americans aged 65 and over died in the year 2007 [17]. An estimated 375,000 active users [13], out of the 500 million [6], Facebook users will die this year. These data indicate that our target age group of users over the age of 65 uses email more than other social networking sites. Therefore, we envision the first part of our solution to be a 3<sup>rd</sup> party application for Google's Gmail, Picasa and YouTube accounts, for the account owner to tag each file with instructions on how the digital executor will bequeath data. The account owner will tag files based on following some rules for automation to make the process less tedious. We based the options of the Shoebox application within Gmail on a chart describing instructions of what an account owner should do in preparation with a digital executor for the bequeathing of digital data.

As the second part of the solution, we also propose an interface for the heir(s) to view the Gmail archives, Picasa photos and YouTube videos within a timeline-based environment. The timeline-based interface is designed for use on a touch screen mobile device (such as the Google Nexus, iPad, Galaxy Tab, or other smart device) that family and friends can view together to connect and share stories. Google TV would also be a viewing option for those to spend time together sharing. The application will also run on a desktop computer or laptop with an Internet connection. If the account owner chooses to provide Shoebox with a handwriting sample, the archived emails can be displayed in the owner's handwriting.

Since data is stored in Google's cloud, Shoebox will simply act as an archiving and viewing tool for the account owner until the time of death. Once the digital executor provides a death certificate, the Shoebox archive will be bequeathed to heirs.

Longevity and diversification are important to the designing of any thanatosensitive technology and Google is proving to be both financially and globally stable in the realm of cloud computing [7].

## 2 Existing Work

The Digital Beyond Web site, co-created by Carroll and Romano, lists 26 online services to manage your digital assets [3]. Some of the services are offered free for a

basic account, but most charge a fee for premium services such as notifying a beneficiary after your death. Our hope is by integrating the Shoebox application within the existing Gmail, Picasa and YouTube interfaces, that your digital emails, photos and videos will be secure and accessible to your beneficiaries. In terms of socioeconomics, this application should be included free of charge to users with Gmail accounts.

### 3 Conclusion and Future Work

Ethnographic research needs to be compiled to determine specific user needs for this application and responses to such an application. Also, further research into the legalities of estate planning and the digital realm need to be analyzed. Possible limitations of the application are working within established user agreements when a user signs up for Gmail or adds the Shoebox to his or her account. Current user agreements may not be suitable and may need revision in order for the application to be added.

Privacy and security should be held at the utmost importance for this application and it is our intent that Gmail's existing standards would be applicable to the Shoebox.

Our current and future work includes (1) obtaining IRB approval to conduct user-centered evaluations of users age 65 and over, (2) developing other consistent and complementary visualization and interaction techniques for the Shoebox and (3) extending the Shoebox to integrate more complex digital file types and applications such as blogs (i.e. Blogger).

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