

“We will never forget you [online]”: An Empirical Investigation of Post-mortem MySpace Comments

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ABSTRACT

The proliferation of social network sites has resulted in an increasing number of profiles representing deceased users. In this paper, we present the results of a mixed-methods empirical study of 205,068 comments posted to 1,369 MySpace profiles of users who have died. Our results reveal interesting practices surrounding issues of authorship and audience, temporal patterns in posting, and continued social networking with the dead. These results suggest that post-mortem commenting behavior blends memorializing practices with existing practices and communication patterns for social network sites. We conclude by outlining future directions for research and implications for the understanding and use of social network sites in light of a deeper understanding of post-mortem comments.

Author Keywords

Death, bereavement, MySpace, social network sites, profile comments, cybermemorials, digital persistence

ACM Classification Keywords

H.5.3 Information Interfaces and Presentation: Group and Organization Interfaces (collaborative computing, computer supported cooperative work); K.4.2 Computers and Society: Social Issues

General Terms

Human Factors, Design

INTRODUCTION

Three years ago, Jessica¹, a student at Mountain Ridge High School, died in an automobile accident. Driving home from a friend’s house, Jessica lost control of her car when she swerved to avoid a deer in the road. While an obituary did not appear in the local newspaper for several days, within hours her MySpace page was flooded with messages from classmates, family members, and friends. Many comments expressed shock at her unexpected death. Some shared

memories and cited Jessica’s many virtues. Throughout were declarations of love and promises to always remember her. As her best friend Sarah wrote: “*We will never forget you...*”

Death and the associated grief, mourning, and memorializing of an individual post-mortem are important cultural phenomena. As social network sites (SNSs) grow in popularity, they are becoming a primary site for the kind of scenario introduced in our opening vignette. SNSs allow users to write messages to, share memories about, and otherwise memorialize the dead. Studying these practices enables us to interrogate the ways in which ICTs are inherently entwined in the personal and cultural experience of death. This understanding sheds new light on both the norms and mores of these sites and on the cultural production of engaging with the dead in modern Western societies.

In this paper, we present findings from an empirical study of comments posted to the profiles of now-deceased MySpace users. Specifically, we highlight issues of authorship and audience, the temporal patterns present in commenting behavior and content, and the practices of continued social networking with the dead in order to better understand the ways in which SNS use develops and changes in response to death. We also examine how the affordances, capabilities, and usage of these sites can impact the activities of survivors.

Utilizing a mixed methods analysis of 205,068 comments posted to 1,369 MySpace profiles of users who have been dead for at least three years, we demonstrate trends in commenting behavior, including a gradual decline in comment frequency following the death of an individual and commenting behavior associated with key dates including the death of a user, anniversaries of their death, birthdays, and holidays. A content analysis of comments also reveals hybrid practices that blend existing SNS-based communication patterns with new memorializing practices.

The remainder of this paper is structured as follows. We first provide some background information on grief, memorializing practices online, and on SNSs generally. We

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CSCW 2011, March 19–23, 2011, Hangzhou, China.

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¹ All names are pseudonyms.

also highlight some of the research that has been published by the nascent community of researchers in HCI and CSCW interested in death. We then describe the methods and results of our empirical study. We close with a discussion of important themes for future work and open research questions uncovered through our initial investigation.

BACKGROUND

Our experiences of grief and practices around death are deeply cultural [1]. In our sample, nearly all of the profiles and comments were in English and were created by Americans. Thus, we focus on literature on death and dying in a Western context, which points to two relevant and interwoven themes for our study: the process of bereavement and an ongoing connection with the memory of the deceased.

Kübler-Ross's model of the five stages of grief is arguably the most well known in the literature regarding a survivor's experience of death [15]. Her model includes five stages—*denial*, *anger*, *bargaining*, *depression*, and *acceptance*—and was originally applied to the terminally ill. She later extended this model to grieving the loss of a loved one [14]. Although Kübler-Ross acknowledges that her five stages are not prescriptive, this model can be seen as a loose pathway through the emotional process of coming to terms with and accepting death.

Survivors, however, may have prolonged attachments to the deceased [8,17]. "Continuing bonds" [13] contrasts with Kübler-Ross's staged approach by describing how individuals maintain a link to or even develop new relationships with loved ones post-mortem. Unruh [24] examined the kinds of activities that encourage attachment with the deceased, outlining four "identity preservation strategies" that enable survivors to maintain their attachment. They include reinterpreting mundane thoughts, memories or objects; idealizing the deceased by redefining negative qualities; continuing pre-death bonding activities such as annual vacations, purchasing theatre tickets, etc.; and sanctifying meaningful symbols, commonly including gravesites, but also objects or spaces that may signify the identity of the deceased (*e.g.*, a child's bedroom, or in our case, a MySpace page).

Some have argued that establishing a narrative and identity for the deceased can be an important step in the grieving process [9]. Wakes, candle light vigils, and other memory sharing practices have long been ways in which post-mortem identities continue to be crafted and preserved. Likewise, obituaries are one common example of how survivors formalize a life story for the dead. These written summaries serve to validate and memorialize the deceased relative to current social ideals and expectations [10].

In some cases, competing narratives of the deceased exist. For example, Martin [18] explains how the mothers of murdered gang members describe their sons in very different ways than police reports and newscasters.

Survivors must negotiate these disparate narratives in what Martin refers to as "post-mortem identity-contests." Previously, survivors from separate social spaces may have developed these narratives in relative isolation. The SNS profile, however, often cuts across different facets of the deceased's life, increasing the probability that survivors will encounter multiple parallel depictions of the deceased. In this way, SNSs prompt new questions about ownership of the identity and the technological ability to negotiate different narratives for the deceased in one shared, albeit virtual, space.

Death and CSCW

In recent years, CSCW and HCI researchers have begun to engage with death as a novel space for understanding how people relate to and appropriate technology. For example, Bell [2] details the inclusion of technologies into traditional patterns of engagement between the living and the dead, from the creation of online "shrines" for deceased friends and family, to the incorporation of digital technologies into traditional funerary practices.

In addition to the study of the integration of technology and experiences around death, a variety of projects have engaged death and bereavement as sites for technological design [5,11,12,19,20,21,25]. For example, Massimi and Charise [20] detail a number of practical and ethical concerns when researching death. They argue that mortality, death, and dying are important, but often overlooked during technology design. Additionally, Massimi and Baecker [19] outline specific technology-related challenges that survivors experience when making decisions about the technological belongings of the deceased. They outline several opportunities for design pertinent to this work, namely, designing for inheritance of digital data, reconciling the individual represented by these data and the survivor's understanding of the deceased, and the opportunity to use these data to remember the deceased post-mortem.

In Odom *et al.*'s study of bereavement, they outline two related concerns for technology-focused researchers: the moral endurance of archives and the need for richer forms of contextualization [21]. Both of these themes are salient for the consideration of SNSs as users must negotiate systems whose designs are not attuned to issues of mortality. Rather, post-death, profiles are repurposed into ad-hoc memorials, an issue we engage more fully in the results of this work.

Memorializing the Dead Online

Using the Internet to memorialize the dead is not a new practice. "Cybermemorials" (also called web memorials) and "virtual cemeteries" have received attention in the literature on death and dying. Roberts and Vidal [22] note that as early as 1996, four large memorial websites existed, and have examined both static content (memorials that resemble an obituary) and dynamic content ("guestbooks" that allow visitors to add content to the site). Roberts [23] found that the majority of memorials are written in third

person about the deceased, ostensibly addressing other. Entries posted to guestbooks, meanwhile, are often written by the memorial author and commonly address the deceased.

More recently, DeGroot [4] examined grief-related communication on Facebook groups created to memorialize the dead. These groups, specifically established by friends or loved ones, exist separately from the deceased's profile and resemble cybermemorials. DeGroot notes that like traditional cybermemorials, many of the messages on these pages are directed towards the deceased, an issue to which we will return in discussing our findings from MySpace.

Finally, some research has considered the possible benefits of using SNSs during the grieving process. In a study of MySpace and bereavement, Graves surveyed users who had recently lost a friend in order to determine if interacting with the deceased's profile helped adjust to bereavement [7]. Users reported that the site was useful, but Graves found no measurable impact on their levels of grief.

Despite these initial forays into the experience of death on SNSs, post-mortem use of profiles and profile comments remains under addressed. Specifically, due to the popularity of sites such as MySpace and Facebook and the presence of post-mortem practices in otherwise living networks, investigating these spaces is important. The deceased profiles and comments analyzed in the work we present here differ from cybermemorials and memorial groups in two important ways. First, SNS profiles are created by the deceased instead of by a third-party. This raises questions about management of the account and symbolic ownership of the space. Second, profiles retain their place in users' friends lists and online social networks even after they die, raising questions about the ways in which users continue to engage with their deceased loved ones via these profiles.

While survivors may find SNS profiles useful, death prompts questions about the role of profiles that represent the deceased and the various uses of SNS profiles by those other than their owners. In Odom *et al.*'s [19] consideration of HCI and bereavement, they highlight a number of challenges that communication systems can present when they are unaware of or unable to account for changing social circumstances such as death. In this paper we build on this work to look at the ongoing engagement of survivors with the SNS profiles of the deceased.

METHODS

We conducted a mixed-methods empirical study of MySpace comments posted to the profiles of dead MySpace users. Launched in August 2003, MySpace was the most popular SNS until Facebook outpaced it in 2008. MySpace includes common SNS features such as profiles, friends, blogs, and user groups. Central to this paper is the "comments" section of a MySpace user's profile. This section allows friends to leave publicly visible notes on another user's profile, much like Facebook's "Wall." MySpace users can delete comments, or optionally require

that all comments be approved before appearing on their profiles.

We collected all comments from 1,369 profiles of deceased users obtained using MyDeathSpace.com (MDS), a website dedicated to connecting obituaries and/or news of deaths to existing MySpace profiles. Started in 2006, the MDS directory contains more than 15,000 user-submitted entries, as well as comments on individual entries, including additional research and/or links to other online content (*e.g.*, newspaper articles). We limited our sample to users who had been dead for at least three years in order to observe commenting patterns across time. Additionally, we limited our sample to users that lived in the United States and whose profile pages and comments are publicly visible. Additionally, two types of profiles were omitted from our sample: those belonging to celebrities (*e.g.*, Elvis) and profiles that had been repurposed into "issue-profiles" (*e.g.*, those focused on issues such as substance abuse or war rather than on a specific individual who had died from causes related to those issues). Although these profiles are interesting, they are significantly different from the rest of our sample as to merit separate study.

On average, profiles had 149 post-mortem comments, although this number varied substantially ($SD=222.26$). Profiles predominantly belonged to young users ($M=21.3$ at time of death; $SD=6.01$), and of the profiles that included gender information ($N=1340$), 29.8% of the deceased were female and 60.2% were male. At the time of analysis, profiles had an average of 105.9 friends ($SD=129$), however, this number may not be representative of the number of friends at the point of death as friends' accounts may have been deactivated since and third parties (*e.g.*, a parent or spouse of the dead user) may have added or removed friends from the deceased's account post-mortem.

We generated descriptive statistics to detect patterns across the comments in our sample. We first visualized the aggregate commenting frequency across the sampled profiles. Specifically, we examined temporal patterns relative to two dates we hypothesized would be important *a priori*: the day the deceased died and the deceased's birthday. Additionally, we examined commenting trends during the calendar year in order to detect seasonal changes and/or specific dates that receive a large number of comments. These results indicated trends such as holiday and birthday commenting that merited further in-depth qualitative analysis.

Our qualitative analysis consisted of an iterative examination of comment content using inductive methods to detect common themes and patterns. During our first pass at the data, we performed a thematic analysis on a subset of the comments, identifying emergent concepts and grouping them into themes such as "sharing memories." We then produced a set of memos that pinpointed demonstrative comments and detailed these themes. Utilizing these memos, we conducted a series of discussions in which we

returned to the larger dataset in order to evaluate our themes, resulting in further clarification and higher-order categories such as “post-mortem social networking.”

In this paper, we focus on an analysis of the frequency and content of comments left post-mortem. Any number of factors may motivate the behavior we observed on MySpace, and in places, we use existing literature to provide potential explanations for some of the phenomena we observed. However, understanding the motivation of commenters and their experience is not fully in scope here and requires further research.

RESULTS

Three consistent themes emerged from our analysis. We start by considering issues surrounding the authorship of content and comment audiences now that the profile owner is deceased. We then outline the impact of temporality we observed as users left comments in response to specific events and at certain points during the year. Finally, we examine the ways in which commenters continue to interact with the deceased online by highlighting post-mortem social networking behaviors that endured across the three year period we observed. We detail these themes in more detail below.

Authorship and Audience

MySpace, like other SNSs, is a semi-public forum through which people can address a community of individuals—the other “friends” of the individual on whose profile they are commenting. In practice, these comments are rarely addressed to this community, but are instead addressed to the profile owner. One might imagine that this practice would change post-mortem, with profiles morphing into forums through which commenters communicate with each other and mourn their loss. Our data, however, demonstrate that comments continue to almost exclusively address the now-deceased profile owner as opposed to addressing other commenters and profile visitors.

Shortly after the death of his friend, for example, one commenter wrote: “*Man what I would give right now to tell you I love you and say goodbye...*” (Profile #965; P965). Another comment acknowledges the presence of other commenters and a larger reading audience, but still addresses the deceased friend:

Ashley...you can see already how much you've meant to everyone....there are so many people who cared about u....look at all these comments.... (P763).

Although comments are directed toward the deceased, whether authors expect the deceased will receive their messages remains unclear. For example, one user wrote about the posts left since the deceased’s death: “*I bet they have myspace in heaven so you can see all of this awesome stuff*” (P1001).

Some users suggest that comments can be read in heaven, even though the deceased can no longer login to MySpace: “*Even though I don't think you will be using your myspace*

anymore... I just thought I would leave you a comment” (P1496). In contrast, other comments acknowledge a perceived futility in attempting to communicate with the dead via MySpace. “*I know you'll never read this, but I'll miss you man,*” wrote one (P1218). And:

Betsy, my love, my twin, my sister...I know you're never gonna see this, but you were and always will be the best sister ever. I love you so much and miss you more than words can say. (P1455)

Whether or not the deceased will see the comments left on his or her MySpace page, many commenters indicate a belief that the deceased is aware of their activities and is metaphorically “looking down from heaven.” For example, one friend noted:

I know you are in a good place watchn down on me and keepin all your close friends and family safe. (P1497)

Other comments make requests of the deceased, some of which suggest a heavenly omnipotence:

watch over me and try to keep me out of trouble ok?? (P597)

I really miss you. Help keep Katie's dad healthy. I know you are helping everyone in every way you can. (P481)

Comments addressing the community are rare, but do exist. They typically appear very early after the death and often ask for logistical details about events including funerals, viewings, wakes, and vigils. Some comments ask for readers to write the author directly, as was the case for one woman who asked readers to send photos via email for a digital album she was compiling on a different website. Friends also use MySpace to share death related information (e.g., an official obituary, remarks from a funeral, etc.), albeit rarely.

Outside of these logistical and funerary related comments, community-addressed comments are extremely rare (less than 0.1%). Users may feel it is inappropriate to address the community directly and even enforce that position by reprimanding those who do. For example, in one exchange, a user addressed the community to share a life event that caused her to think about the deceased (P434):

For those of you that didn't know. I am having a baby. The crazy thing is my due date is Jan 18th. It is one day after Brett's birthday. It just happens to be a boy and in pictures of my ultrasound he is laughing. Crazy huh. He will be a Brett #2. Obviously can never replace #1. Brett really wants to come back huh?

Following which, another friend, Maura, posted:

Yo Brett... When did this turn into Carrie's myspace page?

This response elicited an additional comment from Carrie, apologizing for her message. In Maura’s comment we see how users communicate with each other through the deceased while also reinforcing the deceased’s continued symbolic ownership of the profile.

There are multiple potential explanations for the authoring behavior we observed. The continued practice of addressing comments to the profile owner evidences the strong norms associated with the use of MySpace comments. This practice indicates that the ongoing engagement with the MySpace community and the common practices and behaviors of its members may overcome any other kind of pressure that an individual might feel to change his or her comments to talk *about* a person rather than *to* them. In other funerary settings, friends commonly talk about the deceased with each other, but reserve comments directed towards the deceased for more intimate moments [26], such as at the side of the casket, or when alone. The use of MySpace to speak with the dead is distinct in that individuals publicly post what are traditionally private comments. This raises questions about the impact of computer-mediated communication on the bereaved, and the ways in which the design and use of MySpace shapes the loss of a friend.

Temporal Patterns

In much of the literature on grief, particularly in the modern Western context, grief and bereavement are described in terms of a process with clearly delineated steps or stages and a strong sense of progress over time (e.g., [14]). Thus, in our work, we were interested in understanding the temporal patterns in comments posted to post-mortem profiles. In particular, we observed spikes in the number of comments relative to the death of an individual, anniversaries of that death, birthdays, and popular holidays. Additionally, the content of the comments on those dates reflected relevant themes (e.g., “Happy Birthday” or “I can’t believe it has been a year since your death”). In this

section, we describe trends in comment frequency, variety of individuals leaving comments, and content of the comments relative to these trends.

Immediately After Death

The frequency of profile comments increases substantially following the death of a profile owner. Posts remain high, but the frequency quickly slopes down over the 10 days following the death, at which point comment frequency slowly declines (See Figure 1).

When examining a user’s profile, it is striking that comment content changes to memorialize the deceased while the profile structure and content at least initially remains the same. The MySpace interface continues to perform the deceased’s identity, inviting visitors to send messages, view pictures, and read comments from other friends. Comments responding to the owner’s death, meanwhile, are immediately preceded by more casual messages that reference lived interactions and events.

Thematically, most comments during the first 10 days are marked with expressions of shock and disbelief. “*i don't even know what to say ryan.. i can't believe you're gone,*” writes one commenter (P411). Many of these comments are short: “*I got the message this morning, and lost it.*” (P481) or, “*i can't beleive this. this is crazy.*” (P597). These comments may be demonstrative of Kübler-Ross’s “denial” stage [14]. Other comments acknowledge the death, often with a simple “RIP”, but otherwise provide no insight into the emotional state of the commenter.

Most commenters only post one comment during this initial period. Comments are posted by a wide range of persons, including close friends, classmates, family members (some of whom have never used MySpace), and casual MySpace “friends.” In our qualitative analysis, we found comments from some surprising authors. In particular, classmates and teammates with non-existent or antagonistic relationships

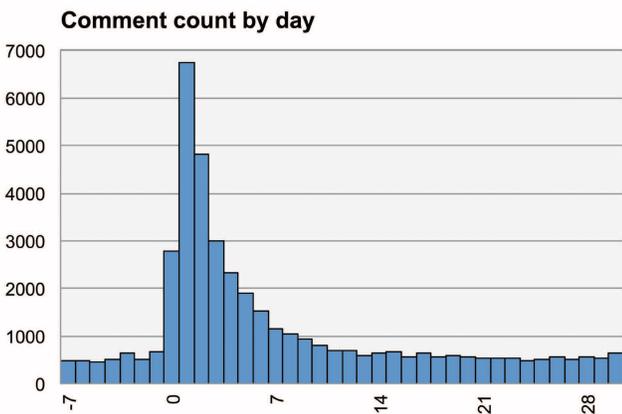


Figure 1. Aggregated count of comments by day across the sample between 7 days prior to and 30 days following death. The frequency of comments spikes following the death of a user and then quickly declines.

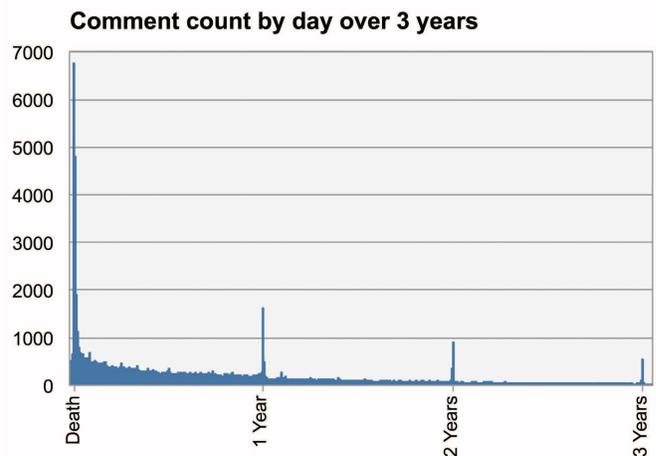


Figure 2. Aggregate count of comments by day over 3 years. Following the death of a user, the volume of posts continues to spike on yearly intervals as users memorialize the anniversaries of their dead friends.

with the deceased posted comments that publicly acknowledged interpersonal tension or expressed remorse at not knowing the deceased better.

Funeral and Beyond

Following the initial period of shock, comments begin to include details from the survivors’ lives. One common theme was that of the deceased not being present in their daily lives: “so today was pretty awful, im not gunna lie. it was really hard at school” (P1496). And: “it’s going be so hard to sit in classes next to your empty desk and know that you should be there, hating school with the rest of us” (P509).

Unsurprisingly, memorial services and related events are frequently the subject of comments:

DAKOTA LET ME TELL YOU SOMETHiNG i SEEN YOU TODAY AT YOUR ViSiTATiON AND YOU LOOKED BEAUTiFULL♥ iT WAS REALLY HARD FOR ME THO JUST SEEiNG YOU LAY THERE BECUZ iM SO USED TO YOU ALL HAPPY AND JUMPiNG AROUND. AND ii GAVE YOU A GOODNiGHT KiSS BE4 ii HAD LEFT ♥ (P1022)

Some comments express thoughts and feelings not demonstrated publicly (“I know you never saw me cry at your funeral, but it was there, deep inside.” (P1497)), while others have a sense of finality:

They put you in the ground today, with your mom. I know you were already with her though, but it was hard seeing you go. I realized today that this was all real. Everything is going to be hard without you. (P1497)

Comments such as these reflect norms associated with death and bereavement. Namely, that expressions of grief

are often expected to be private and that the bereaved are to eventually accept their loss. However, while many individuals use MySpace to say their last goodbyes, others utilize the site to maintain relationships with the deceased, particularly on memorable dates.

Memorable Dates

Generally, the frequency of comments falls over time (see Figure 2). However, the quantity of comments and unique posters both spike dramatically on the anniversaries of a user’s death, the deceased’s birthday, and on notable holidays during the calendar year.

Comment content during these spikes often addresses the passage of time, particularly on anniversaries. For example, on a first year anniversary, one author commented on the passage of a year and her memory of her friend’s death:

we miss you alot. its still so hard to believe. one year ago today i was sitting in casey[’s] car at buger king. your mom called me. wow it feels like so much longer then a year zach it really does. i hope your okay up there. (P7)

On a second anniversary, one author reflected on the continued presence of the deceased in his life:

well it’s been 2 years since you died bud, and i still think about you all the time. love and miss you bud and i can’t wait to see you again. (P509)

Each subsequent anniversary tends to be marked with fewer comments. There are two likely explanations for this trend. First, as people progress through the grieving process, they may dedicate less and less time to grieving, memorializing, and other activities that would result in their interacting with the deceased’s profile. Second, our data include profiles of users who have died in the last three to four years. During this time, there have been changes in the

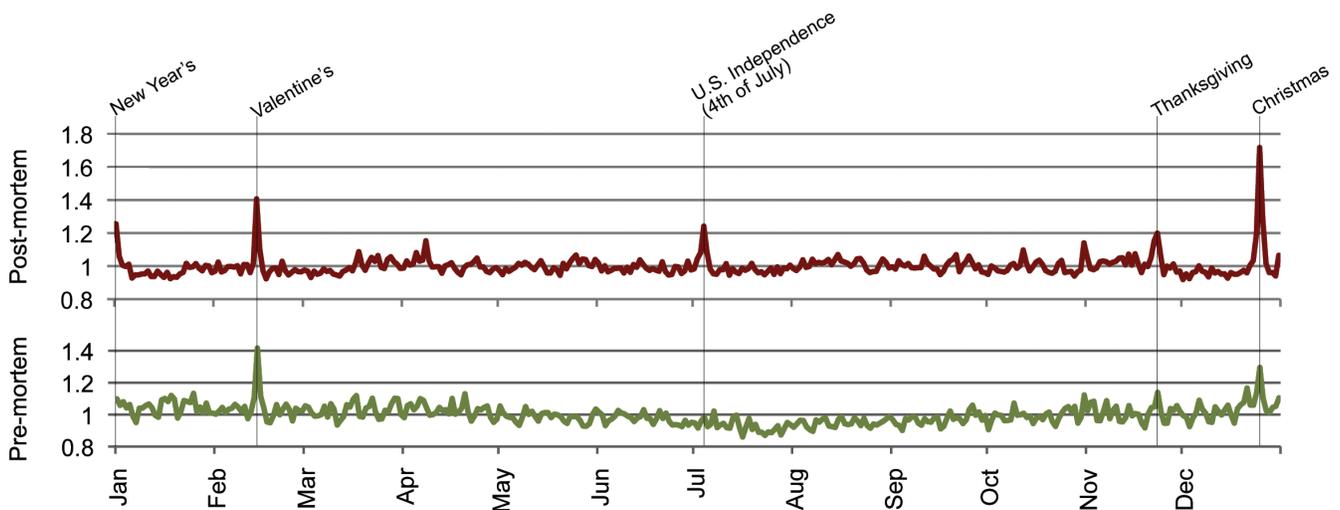


Figure 3. Pre-mortem and post-mortem comments by day of year, displayed as a relative proportion of total comments where each day is scaled to 1. Post-mortem profiles continue to be involved in commenting practices surrounding Valentine’s Day and Thanksgiving, receive a greater proportion of comments on Christmas and New Year’s Day, and evidence new posting patterns on U.S. Independence Day.

usage patterns on MySpace, thus, these profiles should be monitored further as 4th and 5th year anniversaries pass.

Comment frequency increases at specific periods during the calendar year. This is particularly evident around Christmas, and to a lesser extent on Valentine's Day, U.S. Independence Day (4th of July), and New Year's Day (See Figure 3). Frequency also increases on Thanksgiving, although this is a floating holiday, thus comments appear more distributed. Comparing these frequencies to pre-mortem rates, we see the continuation of posting on Valentines and Thanksgiving, a greater proportion of comments on Christmas and New Year's Day, and the emergence of a new posting pattern on U.S. Independence Day.

Holidays may be times at which people are reflecting on the loss of loved ones. In our content analysis we observed a mix of non-date specific content, and those that reference the holiday specifically:

MERRY CHRISTMAS MATTY!!! ♥ We all love and wish you were here this Christmas. We love you Matt! (P511)

Happy 4th! You will have a great view of the fireworks! (P1301)

A wide range of individuals leave comments on Valentine's Day, with messages often including references to love (e.g., "love ya!" (P387)). Longer comments on Valentine's Day often were left by former romantic partners:

hey baby, I love you happy valentines day. I miss you so so bad, i know you were with me last weekend i saw you in our pictures?! You would love the snow we are getting tonight! if you were here you and I would be out on the 4 wheeler like we were last year with your swimming goggles on! lol. I love you so much hunnie and god do i ever miss you... (P847)

Comments such as these are particularly demonstrative of the kind of enduring connections that survivors sometimes maintain with the deceased.

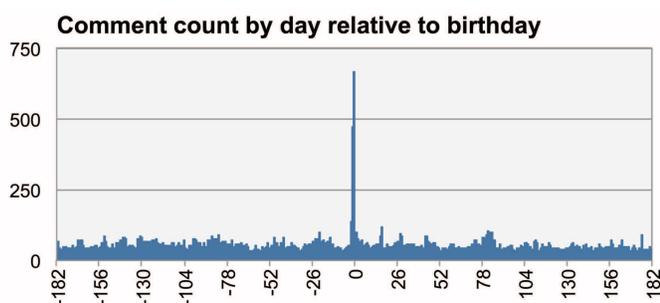


Figure 4. Aggregate count of posts by day relative to the deceased's birthday (Profile N=100). The rate of birthday comments is likely influenced by the birthday notifications that MySpace continues to send the deceased's friends post-mortem.

Automated MySpace features can also influence ongoing relationships with the deceased, as is the case with birthday-related comments (See Figure 4). Because MySpace profiles display the ages of users, but not a full date of birth, birthdays were coded for a subset of the total population (N=100) by examining comments mentioning the profile owner's birthday pre-mortem. Posting birthday wishes on friends' profiles is a well-established practice on MySpace that continues post-mortem. This is assisted, however, by automated birthday reminders that MySpace provides to friends. Unaware of a user's death, MySpace continues to inform friends of the deceased's birthday. While we saw no evidence of users distressed by these notifications, we expect that reminders of the dead are upsetting to some.

When considered together, the temporal trends observed here indicate that some of the patterns of a Western notion of progressing through grief impact the use of MySpace. However, they also demonstrate how MySpace may enable prolonged connections to the deceased, particularly in relation to life events that might prompt a survivor to reconnect (e.g., anniversaries) and circumstances in which automated system features continue to connect survivors to the deceased (e.g., birthday notifications). In the next section we share behaviors observed across these trends.

Post-Mortem Social Networking

In our data, we identified three categories of behavior that endured over the three years we analyzed: commenters use MySpace for *sharing memories* of the deceased, *posting updates* from their own lives, and leaving comments that evidence a desire for *maintaining connections* with the deceased. In contrast with the decline in comment frequency we demonstrated in the previous section, post-mortem social networking behaviors evidence ways in which SNSs provide a platform through which the deceased continue to play a role in the practices of the living. Sharing memories serves to elaborate the deceased's identity by providing otherwise unavailable information from the deceased's life. Personal updates, meanwhile, share information with the deceased (and the reading audience) from the ongoing lives of the living. Finally, many comments speak to an ongoing presence of the deceased in the authors' lives as well as attempts to maintain connections post-mortem. In this section, we elaborate on each of these themes in turn.

Sharing Memories

Although the total number of comments posted to profiles decreases over the three years following the owner's death, users continued to post memories of specific events from the past and their memories of the deceased. For example, one former classmate writes:

I remember in 8th grade, with Mrs. DeWerff's science class. We had to do measurements on a bicycle tire, and we couldn't figure it out for our own good. Haha. We measured it 3 different ways and just added them all up. Needless to say- we were wrong. Haha. (P481)

Comments often focus on qualities of the individual rather than specific events: “*you were always making me laugh and were always teasing, doing something to make me smile!*” (P779). These memories often include an evaluation of the commenter’s relationship with the deceased: “*you know you were like my little brother*” (P847).

Compared to pre-mortem comments, memories shared post-mortem are somewhat reserved. This may be out of respect for the deceased or, as noted earlier, the various social groups that may see these comments. Given the profile’s role in preserving a narrative of the deceased, the memories shared (and those that are not) raise questions about the ways in which memorializing practices on MySpace are shaped by larger social and cultural norms [10] and to what extent SNSs might influence these norms over time.

Posting Updates

Commenters continue to keep the deceased informed about their lives through personal updates even years after death. These comments were common in our dataset, including major life events such as graduations, weddings, and births:

i wish you could have met my baby nephew. he's beautiful. i know you wanted to see him, but you can see him now anytime you want from up there! (P481)

Updates often evoked related memories as well. Take Andrea, for example, who over the four years since one of her friends died often returns to this friend’s profile page to post updates on her life. What starts with posts of mourning and loss give way to updates about a new love, an engagement, and eventually a wedding:

I can't help but think back to when we were kids. You're supposed to be one of my bridesmaids. Me, you, jessica, and dana are supposed to sit up all night the night before and talk and giggle. (P99)

Posting updates to friends' profiles even after they are dead evidences the important ways in which technological systems structure user behavior and their potential impact on post-mortem relations.

Maintaining Connections

Many authors post comments that suggest a desire to maintain connections with the deceased. Some resemble the type of comments one might expect from friends who have not talked recently: “*Hope everything is going well up there...*” (P822). Others are short emotionally laden statements that indicate the ongoing presence of the deceased: “*I miss you and see something everyday that makes me think of you and smile*” (P387). These types of MySpace comments highlight the potential of SNSs for developing and maintaining “continuing bonds” with the deceased [13].

Many of these comments appeared to negotiate barriers in effectively connecting and communicating with the deceased. Some commenters requested that the deceased

say hello to someone else in heaven (often a dead relative, typically of an older generation who might not have a MySpace account). Others, like this comment, indicate requests given to the dying:

before my grandma died over the summer, i told her to tell you hey for all of us down here. She better have told you hey (: haha i love you (P857)

For some, the ability to communicate via the deceased’s profile, while knowing they will not receive a response, appears to be a source of pain:

I still cry for you all the time. Everyone says it gets better, but it does not. I miss you more and more[...] I wish they had myspace in heaven so you could respond. It would still suck because we couldn't see you, hold you, or hear you[...] But at least we could still have communication with you. (P850)

Implicit in these comments are attitudes about the continued use of familiar communication systems post-mortem [21]. One commenter expressing her continuing grief over the two years since the death of her boyfriend, explains the importance of MySpace, even while negotiating the very public nature of her comments:

I just can't tell you how hard it is to not think of you or something that reminds me of you everyday. I know people read these comments and think I am weird to post stuff like this, but this is the only [way] I feel like I can still connect... (P434)

Comments such as these contrast with research examining the potential benefits of SNSs during the grieving process [7]. For distressed users, MySpace may have a more nuanced role in their ongoing relationships with the deceased. Particularly because bereavement and grief-related practices are culturally based, assessing the impact of new ICTs on norms related to bereavement merits further investigation.

DISCUSSION

The death of a user challenges many of the assumptions we hold for social network sites and social media more generally. SNS profiles remain active even after their owners have died. The persistence of MySpace accounts after death allows survivors to appropriate the space to express their grief, share memories, and maintain connections with the deceased. A key contribution of our study is the demonstration of commenting behavior on post-mortem profiles. A second contribution is to show how SNSs influence existing and enable new practices associated with grief and memorializing the dead.

Shortly following the death of a user, friends express shock and grief. Survivors continue to write comments for years after the death of their friends, sharing memories, and personal updates, and connecting to the deceased. Post-mortem comments demonstrate attempts by users to

continue connecting with the dead, at least on some level, and resemble a variety of other communication practices with the deceased, including Ouija boards, letters, and private journals.

While comment content changes immediately to reflect the death of the profile owner, practices related to authorship and audience remain. Commenters write to the deceased, often on meaningful dates, and rarely engage other readers directly. Nevertheless, users may still perceive a benefit from participating in a community of grievers [7,22]. Comments serve to connect individual users with others who are grieving, but the impacts of these connections and their meaning over time remain underexplored. In particular, the practice of directing comments to the deceased in front of a larger audience should be explored.

Post-mortem profiles are emotionally laden spaces negotiated by a wide variety of individuals. Prior to SNSs, various social groups from the deceased's life may have grieved in relative isolation. Comments, however, are inherently shared, possibly raising some contention over what kinds of posts are appropriate, and what norms will govern the comment space. This negotiation is related to the post-mortem identity contests described previously [18]. After death the comments section of the profile continues to change. In the absence of profile owners to choose what aspects of their lives they want shared, commenters can share stories of which other survivors or even the deceased themselves might not have approved.

Ownership of these profiles is ambiguous, both in practice and legally [16]. Issues of ownership and the negotiation of multiple groups deserve further research. Unlike obituaries, cybermemorials, or Facebook memorial pages, post-mortem profiles are not created by a loved one in order to honor the dead. They were created by the dead and are appropriated by potentially diverse groups of survivors with disparate needs.

The sensitivity of death may exaggerate previously noted problems associated with the negotiation of unknown audiences [3]. As we saw in Maura's response to Carrie's personal use of the deceased's page, commenters are expected to adhere to the wishes and expectations of others. This may be particularly difficult given that death results in a temporary increase in individual authors and frequency of comments.

Of course, MySpace is not the only communication network involved following the death of a friend. The lack of details about the death and logistical information in post-mortem comments suggests the importance of other invisible communication practices. One potential explanation holds that private communication, such as MySpace messages rather than comments, may be considered more appropriate when asking for details about the cause of death or memorial services. Another potential explanation is that survivors are relying on non-SNS forms of communication (*e.g.*, telephones, text messages, and

face-to-face) when informing others of the death of their friend. Because SNSs often replicate existing offline social networks [6], MySpace may serve to augment, rather than replace, communication patterns surrounding the death of a loved one. The missing logistical information and details about the death may be conveyed via these other channels. The absence of this clearly relevant information from the comments space should be explored further through interviews with commenters and other survivors.

Furthermore, while the deceased is in essence frozen in time, often at a very young age, commenters age and change over time. By continuing to be a part of this social community, the deceased's identity maintains a life post-mortem. For example, as comments migrate from updates about prom or a party to marriages and births of children, the deceased is positioned within a social community of adults rather than teens. These kinds of changes might be more or less profound depending on the age at death, gender, cause of death, or other profile attributes of the deceased. However, in this study we limited our focus to post-mortem comments. The relationship between commenting behavior and various profile attributes should explicitly be explored in the future.

Because the motivation for commenting and the larger role these spaces play in the grief process remain unclear, further research should be conducted on how survivors understand their use of these spaces. The comments shared in this paper evidence a tension between cultural expectations that survivors move through the stages of grief and accept the loss of a loved one, and the desire to maintain a bond with the deceased. SNSs provide a platform both to express grief and by which survivors can maintain connections with the deceased. This is particularly true given that SNS users must take explicit action if they wish to remove the deceased from their list of friends.

Many users choose to maintain SNS friendships with dead friends. Profiles of the deceased remain in users' social networks, listed amidst friends who are still alive. We see a set of new memorializing practices in comments that continue to situate the deceased in the lives of their authors. Users drop by their deceased friends' profiles to share the latest news, say how much they were missed at last night's party, and to keep their memories alive.

CONCLUSION

In this paper, we have demonstrated usage patterns and content themes in comments posted to MySpace profiles following the death of the profile owner. We highlighted issues associated with authorship practices and perceived audience. We described temporal patterns in comment frequency, including the emergence of new patterns (*e.g.*, in response to death), and the continuation and amplification of existing patterns (*e.g.*, posting on memorable dates and holidays). Finally, we enumerated post-mortem social networking practices including *sharing memories*, *posting updates*, and *maintaining connections* with the deceased.

Post-mortem comments blend cybermemorial-like practices with communication practices common on SNSs pre-death. The way in which post-mortem comments adhere to existing practices in SNSs demonstrates the importance of technology in both shaping post-mortem practices, and in turn, our experience of death. The primary contribution of this work lies in our deeper understanding of the use of SNSs post-mortem and the ways in which people negotiate ownership, symbolic and otherwise, of online spaces. Furthermore, this work opens new spaces of inquiry important to the CSCW community, including a better understanding of the motivation and experiences of commenters and readers of post-mortem profiles.

ACKNOWLEDGMENTS

This work was conducted in collaboration with Janet Vertesi and Paul Dourish. We also benefited greatly from discussions with Ellie Harmon, Margarita Rayzberg, Sen Hirano, and members of LUCI. This work was supported in part by the National Science Foundation under EAGER #1042678.

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