

## **Life After Death: Memorialized Social Media Accounts and Presence**

Cathleen Cusachs

College of Communication, Boston University

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Dr. James Cummings

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**Author's Note:** This piece was written as a research proposal for a hypothetical research study. The study was never conducted. Therefore, all sections following the Methodology section were fictionalized based on theorized results. This piece served as a final project for EM793: Psychology of Emerging Media at Boston University. It was intended to be a case study on specific media theories and causal relationships. The results were fabricated for that purpose.

Social media platforms have become an integral part of everyday life in the United States. Users of these sites can construct profiles, connect with other users, and view lists of connections made by others (Boyd & Ellison, 2007). A study conducted by the Pew Research Center found that seven-in-ten Americans use social media in some capacity (2021). This is a dramatic increase from 2005, when a similar study found that just five percent of Americans used at least one social media platform (Pew Research Center, 2021).

With a large population comes a large death number. One large-scale data analysis projected that if Facebook's user population froze in 2018, a minimum of 1.4 billion users globally would pass away before 2100 (Öhman & Watson, 2019). If the platform continued to expand at consistent rates, that death number would exceed 4.9 billion users. What happens to all those user-constructed profiles?

This research will look at two types of profiles owned by the deceased. On Facebook and Instagram, loved ones can submit proof-of-death to get accounts formally memorialized. This preserves past posts and sharing-to-timeline capabilities for "friends." Nothing related to the account or profile can be changed, and it is essentially frozen in time. However, this is not the only way accounts owned by the deceased can linger online indefinitely. Profiles not formally memorialized, but still owned by the deceased, will be referred to as "ghosts" throughout this proposal.

Research on memorialized and ghost social media profiles has perhaps never been more relevant. As of May 5, 2022, over 992 thousand people in the United States passed away from complications related to COVID-19 (*New York Times*, 2022). Over 694 thousand of those victims can be estimated to have used social media in their lifetime. The level of death related to COVID-19 has had cultural, social, and psychological impacts that will likely be researched for

decades to come. The proposed study will explore the psychological effects that memorialized and ghost profiles have on the living.

### **Literature Review**

Evidence and discussion around digital ghosts and virtual legacies date back decades. In 1995, the first website dedicated specifically to grief and death was launched (Gamba, 2016). Called World Wide Cemetery, the site's stated goal was to allow those grieving a place to establish a permanent, digital memorial. This was the start of a first wave of digital mourning, which Fiorenza Gamba (2016) categories into three features: the virtual video game, the virtual cemetery hypertext, and the virtual cemetery webpage. The second wave introduced social network sites (SNSs).

There are some digital mourning spaces that blur the lines of Gamba's (2016) categories. One such example is MyDeathSpace.com, a website created to archive the pages of deceased MySpace members (CBSNews, 2007). MyDeathSpace users locate ghost accounts across the once dominating social media platform and memorialize them on the site's forum. On July 29, 2007, when CBSNews reported on the website, it had about 2,700 deaths listed. Now, the website functions mostly as a chat forum for true crime and death fans.

Unlike the first phase (Gamba, 2016), SNSs were not originally created for mourning and memorialization. Rather, the utilization of these platforms in the grieving process was a user-driven phenomenon (Brubaker & Hayes, 2011). Facebook "groups," a platform feature that enables users to create a closed space dedicated to a set topic and/or community, have been commonly utilized in this way. Resembling virtual cemeteries dedicated to individuals— like planned cybermemorials or dynamic "guestbook" sites— these groups can produce organized memorialization.

Different from a group, Facebook user profiles have also been co-opted for grieving purposes (Brubaker & Hayes, 2011). User profiles, common across most SNSs, are assumed to be created by the user identified publicly as the owner. This relates to scholarship on perceived source, which will be discussed later. Profiles also can be “friended,” existing on lists and appearing in timelines of users who chose to connect with them. The owner of the account has complete control over these aspects and more. Therefore, users have the ability to control the narrative depicted on their profiles (Brubaker et al., 2013).

Past research has explored how social media user profiles have been utilized in the grieving process. One study, using MySpace profiles obtained from MyDeathSpace.com, found the average ghost account received 149 post-mortem comments (Brubaker & Hayes, 2011). The authors of said comments included close friends, classmates, family members, and more casual MySpace “friends.” The frequency of profile comments was found to increase immediately following the death of the user, then gradually decreased over time. Spikes in comments were also noticed on relevant dates like birthdays and anniversaries.

In 2009, Facebook embraced mourning as a common use of their platform by introducing a memorial feature. In 2012, a study by Alice Marwick and Nicole B. Ellison explored the visibility of memorialized pages. Their research revealed two conclusions: 1. Those commenting struggled with both the publicity and privacy of the memorialized profiles; 2. In the absence of the deceased user, those commenting participated in management of the deceased’s representation (Marwick & Ellison, 2012). Therefore, unlike living users, the deceased lose control over the narrative told on their user profiles.

## **Grief and Rituals**

Grief for individuals deceased has been theorized, researched, and discussed seemingly since the dawn of humanity. R.J. Kastenbaum (1977) defines bereavement as the state that one exists in after a loved one has died. He defines mourning as a behavior or action done in reaction to a loss. His definition of grief is emotional reactions to loss, specifically of a relationship or attachment. However, more recent scholarship on grief has extended the definition to include physical, cognitive, behavioral, social, and spiritual reactions, too (Corr, Corr, & Nabe, 2006). Regardless of the concept being discussed, all relate to the loss of a relationship with another entity.

Common mourning behaviors are various bereavement rituals, including funerals, burials, and obituaries. In a review of research on bereavement practices, it was concluded that rituals are considered to aid in resolving of grief (Graves, 2009). If grief is not successfully resolved, the bereaved person may face negative outcomes, including health issues. This could explain why bereavement rituals have been practiced throughout history and cultures; In fact, there is evidence that bereavement rituals have been practiced since the Neanderthals (Solecki, 1975).

Past research has looked at how social media platforms might enable new rituals and lead to better bereavement adjustment. One study, by Karen Graves (2009), could not conclude that MySpace was beneficial for those grieving. However, Graves (2009) did find that in self-reporting measures, study participants reported positive outcomes. Participants also rated their online rituals to be roughly equally helpful when compared to more traditional, offline rituals. This suggests that users believe social media bereavement rituals are beneficial to resolving their grief, regardless of if they actually are.

Another piece of the bereavement adjustment process involves the relationship between the survivor and the deceased. Past scholarship frames this within a constructionist model of

grief (Bell et al., 2015). After the death of a loved one, survivors often continue to have attachments to the deceased (Unruh, 1983). Sometimes, these relationships are even redeveloped based on representations and belief systems internal to the survivor (Klass et al., 1996). David R. Unruh (1983) outlines four main strategies mourners use to continue bonds post-mortem: reflecting on thoughts, memories, and objects; idealizing the deceased; practicing pre-death ritual activities and traditions; and establishing meaningful symbols or spaces that represent the deceased's identity. Preserving social media profiles would fall into the last strategy.

In her exploration of the history and present of digital mourning, Fiorenza Gamba (2016) writes, "One of the most relevant keys to understanding the role of narrative in digital mourning is the connection that narrative fosters among the personalized expression of grief, the author's expression of identity, and the act of sharing with a grief community" (p. 6). Thus, focus will now be cast on identity, sharing messages, and perceptions of both.

### **Identity, Interactivity, and Source**

As scholarship on grief outlined, relationships between survivors and the deceased continue post-mortem. Therefore, while users craft social media profiles to represent their identities, they persist as representations of them after death as well (Brubaker et al., 2013). On ghost accounts and memorialized accounts, these representations are dynamic and ever-growing. Content is added to the profile, stories are shared without the subject's approval, and a story of the deceased is developed by their network. This can make it difficult to arrive at a single identity for the deceased, allowing for conflicting narratives. A participant in research by Brubaker et al. (2013) described these profiles as, "interactive digital tombstones" (p. 158).

Scholarship on interactivity is varied, with multiple models proposed. This research will use Stromer-Galley's (2004) categorization of interactivity-as-product and interactivity-as-

process. The former relates to when technology offers user-to-system interaction, and the latter is when communication is interactive. Social media platforms have a semblance of both forms of interactivity. For example, users interact with the platform when performing tasks like posting and searching. Users interact with each other when performing tasks like viewing and responding to shared posts. However, when one user is deceased, and the interaction is with their social media profile, where does this fall in Stromer-Galley's (2004) model? Is the interaction between the living user and the deceased user? Perhaps, this interaction might exist between the living user and the system, classifying it as interactivity-as-product. Therefore, for the purposes of this study, interactivity as product or as process will be defined by participant perceptions.

Perceptions of interactivity might be influenced by perceptions of source. Similar to interactivity, definitions of this concept vary across scholarship. One model utilized by researchers outlines a relationship between the sender, the medium, and the receiver (Sunder & Nass, 2001). When the sender is clearly visible, the receiver perceives them as the source and the mode or technology as simply a medium. This framework is inherent to most SNSs, which clearly, visually attribute each post to the user that sent it. However, the model (Sunder & Nass, 2001) does not clarify perceptions of source when the sender is deceased. Do users perceive the source as different when the attributed sender is known to have passed away? When interacting with user profiles of deceased loved ones, who is perceived to be at the other end of that communication? Therefore, this study proposes the following research question:

*RQ1: Do participants perceive interaction with the deceased's profile as process or as product?*

A previously discussed 2011 study by Brubaker and Hayes documented linguistic patterns across post-mortem comments on MySpace ghost profiles. Their results found a practice

of addressing comments to the deceased profile owner. Over time, the profiles did not morph into a community forum to interact together, but rather seemingly continued to be a medium for communicating with the deceased. For example, one comment the study mentions reads, “Man what I would give right now to tell you I love you and say goodbye...” (p. 5). Other comments explicitly address the presence of the broader community, but still direct their messages to the deceased. This is consistent with longstanding bereavement rituals, like writing letters to the deceased or speaking to their gravestones (Hutchings, 2014).

Brubaker and Hayes (2011) caution that it’s unclear whether the authors of these comments expect the deceased to read or receive their messages. However, these interactions highlight the possible issues with both Stromer-Galley’s (2004) model of interactivity and Sunder and Nass’s (2001) model of source. Therefore, this research proposes the following question:

*RQ2: Will there be a relationship between perceived source and perceived interactivity?*

### **The Media Equation and Social Presence**

The theoretical framework of the proposed research engages with the Media Equation and Social Presence Theory. These theories not only work well together, but are inherently connected. Kwan M. Lee (2004) argues, “...studies of media equation are in fact studies of presence” (p. 497). In the same way that humans respond to virtual objects as if they were physically present, humans respond to virtual social actors as if they too were physically present. Therefore, people can feel social presence when interacting with virtual actors (Lee, 2004). This section will unpack these two theories, their relationship, and hypothesize the relevance to the proposed study.

The Media Equation, as established by Reeves and Nass (1996), argues that users equate mediated life with physical, unmediated life. It is subconscious and involuntary. Even when users intellectually recognize the difference between digital worlds and physical reality, they still emotionally respond to the digital media in the same manner (Reeves & Nass, 1996). For example, Tim Hutchings (2014) writes that emotions towards the deceased are often intensified during bereavement rituals. This is because memories of the dead can be triggered by encounters with familiar objects, belongings, and photographs. Because of virtual legacies and ghost profiles, he says we now must deal with similar reactions when viewing old emails, social media posts, phone numbers, etc.

Equating digital expressions of identity with embodied identities can also impact grief reactions. One example of this is shown in interviews conducted by Bell et al. (2015) on the creation of memorialized Facebook profiles. A subject, who memorialized her son's account because "I thought ... it'll be as though he's still here ..." (p. 381), was unable to access the profile for unknown reasons. Her grief, she reported, was made worse after losing the online identity.

Therefore, relating to past scholarship on source and interactivity, this proposed research hypothesizes that when engaging with profiles of the deceased:

*H1: The perceived source will be strongly associated with the level of grief reactions felt.*

*H2: The level of perceived interactivity will be strongly associated with the level of grief reactions felt.*

Interactivity is also discussed as a key feature in developing social presence, which can be defined as, "the feeling of being 'with' another mediated being" ((Skalski & Tamborini, 2007, p. 386). Some factors that might affect levels of presence are: the objective quality of

technology, user differences and preferences, and social characteristics of technology (Lee & Nass, 2001). Therefore, mediated communication of various modalities can enable physically absent individuals to gain some social presence (Licoppe, 2002). This substitution can coexist with non-mediated interactions, developing one seamless relationship.

Past research shows that digital communication can also give the deceased a sense of presence that lingers after their death. For example, Brubaker and Hayes (2011) also documented the content of post-mortem comments on MySpace. After the initial period of shock, many comments related to the deceased's absence in the survivors' daily lives. For example, one comment read, "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" (p. 7). Brubaker and Hayes (2011) concluded that many used MySpace to maintain relationships with their deceased loved ones.

Posthumous representations allow surviving loved ones to keep their dead feeling alive in a sense (Unruh, 1983). Their bond with lingering digital personas, like ghost profiles, are experienced as real, and there is a genuine fear of that bond being broken (Kasket, 2012). This relates to the Media Equation and reacting to mediated stimuli naturally. One example of this is also shown in Bell et al. (2015), where a participant's motivation for creating a memorialized Facebook profile "was 'to keep him alive, to ... still be able to talk to him, his friends' and also so that his friends could keep in touch with him – which they still do, three years on" (p. 380). This mourner not only believes the profile keeps her deceased alive, but she also believes it allows communication with him. This connects to past discussion on perceived source and perceived interactivity. Therefore, this proposed research hypothesizes that when engaging with profiles of the deceased:

*H3: The perceived source will be strongly correlated with the level of perceived social presence.*

*H4: The level of perceived interactivity will be strongly correlated with the level of perceived social presence.*

### **Methodology**

To summarize, proposed are two independent variables: the perceived source of messages on social media and the interactivity of the platforms. The proposed dependent variables are sense of social presence and grief reaction levels. Appendix A. includes a visualization of the hypothesized relationships. To test these variables, a two-part, mixed method data collection will be utilized.

Recruitment will be difficult due to the sensitive nature of this project. Participants must have lost a loved one within the last two years. This is because past scholarship has suggested engagement with ghost or memorialized profiles decrease gradually after death (Brubaker & Hayes, 2011). For the purposes of this research, a loved one is defined as a parent, sibling, cousin, aunt, uncle, grandparent, or a close friend of at least 5+ years. Finally, the deceased loved one must have left behind a Facebook or Instagram profile that is still accessible by the participant.

Past studies on grief, presence, and digital media have utilized content analyses (Marwick & Ellison, 2012; Kasket, 2012; Brubaker & Hayes, 2011), interviews (Kasket, 2012; Brubaker et al., 2013; Bell et al., 2015), and experiments (Skalski & Tamporini, 2007) for data collection. Each form has limitations. This proposed research will use interviews and an experimental survey.

The experimental survey was chosen to introduce some quantitative data and allow for control. Participants will be asked to complete a pre-test questionnaire before browsing the social media profile of the deceased. After a five minute browsing period, participants will be asked to complete a post-test questionnaire.

Interviews will also be conducted with an equal pool of participants. This is because of the sensitivity of the research. Some participants might be more willing to discuss with a human interviewer instead of a survey. Also, the questions used in the survey might prove limiting, since grief is complex and often difficult to self-report. The process for conducting interviews will be the same as the survey.

Perceived interactivity and perceived source will both be measured using a 7-point Likert scale in the post-test questionnaire and open-ended questions in the post-test interview. Participants will be asked to report what sort of entity they believe they are interacting with when browsing a profile and the role they perceive the platform to play in that interaction. They will be also asked to report what source they perceive the posts to be from.

To measure social presence, a 7-point Likert scale will be used in the post-test questionnaire and open-ended questions will be used in the post-test interview. Nowak & Biocca (2003) developed questions to measure social presence that include, "How much did you feel like you were 'with' your loved one?" and "How 'real' did your loved one seem?" This method will be utilized in the proposed study.

Hogan et al. (2001) introduced the Hogan Grief Reaction Checklist, which outlines six categories of grief reactions: despair, panic behavior, blame and anger, detachment, disorganization, and personal growth. A 7-point Likert scale was designed based off of this checklist and includes statements like "I agonize over my loved one's death," "I am stronger

because of the grief I have experienced,” and “I feel a heaviness in my heart” (Carmon et al., 2010). In both the survey and interview collection format, this method will be used pre-test and post-test. The wording will vary between the two instances, and the responses will be compared to measure grief reaction levels associated with the social media profile browsing.

### **Discussion**

The hypothesized results of this research suggest that social presence and grief reaction levels are related to perceived interactivity and perceived source. It also suggests that there is a relationship between perceived interactivity and perceived source. The implications of this research are broad, ranging from the practical to the theoretical. However, further study is needed to unpack the relationships more comprehensively.

### **Limitations**

The biggest limitation this study has is in the self-reported nature of its data collection. Because grief is a complex emotion with a range of reactions, it might be difficult for participants to accurately report their reaction levels. This problem was minimized by the two-fold design and the Hogan Grief Reaction Checklist (Hogan et al., 2001), but cannot be guaranteed to be absent. Future research should explore other forms of data collection to test the validity of these results.

Also limiting the study’s external validity is the context of the social media profile browsing. Participants were asked to interact with their deceased loved ones’ accounts for five minutes, in between two rounds of questions. The effects of that interaction might be different in a more natural, organic setting. For example, users might experience a higher level of grief reactions or social presence when browsing from the deceased’s old bedroom. On the other hand, actively calling their attention to the profile might increase the effects.

The social media platforms used was another controlled context. Facebook and Instagram accounts were chosen because of their “in memory” features. However, the experience might be different on other SNSs, such as Twitter or the visually rich YouTube. Mediated communication on non-social media platforms should also be researched. For instance, reading archived emails from deceased relatives might generate other results.

The research also only measured a limited number of factors. Other information might influence the relationship between the variables. For example, the cause of death might impact the kind of grief reactions felt by the surviving loved one. The deceased’s level of social media activity prior to death might affect the sense of social presence generated by their profile.

On the other hand, the factors measured might interact in ways that were not considered. A relationship between social presence and grief reactions might exist. In fact, some past research suggests that higher levels of social presence might increase emotional reactions. Future studies should consider other relationship pathways, such as this.

### **Implications**

Despite its limitations, the implications of this study are grand. On the surface, it provides Facebook and Instagram with data on how users utilize features like memorialization and profiles. This information could be used to improve user experience, which could lead to higher retention rates. It could be used in the creation of future platform features, as well.

The results also contribute to scholarship on grief and how digital media can impact the bereavement process. Past research has shown personal preference influences grieving preferences, such as a participant in Bell et al. (2015) explaining how her grief was eased by Facebook, but other family members' felt their grief worsened. Establishing relationships through

variables relating to both technological features and individual perceptions, instead of either/or, can better reflect personal preferences and the varied responses.

This study suggests the future of digital legacies and virtual gravesites is extensive. Some companies are already exploring this space. For instance, Eterni.me uses artificial intelligence to construct a virtual representation of a person that can exist post-mortem (Meese et al., 2015). The AI avatar is trained by the individual pre-death to perfect its resemblance and enhanced with data collected from social media platforms, emails, photos, video, and more. Products like Eterni.me could enable surviving loved ones to further sense the social presence of the deceased.

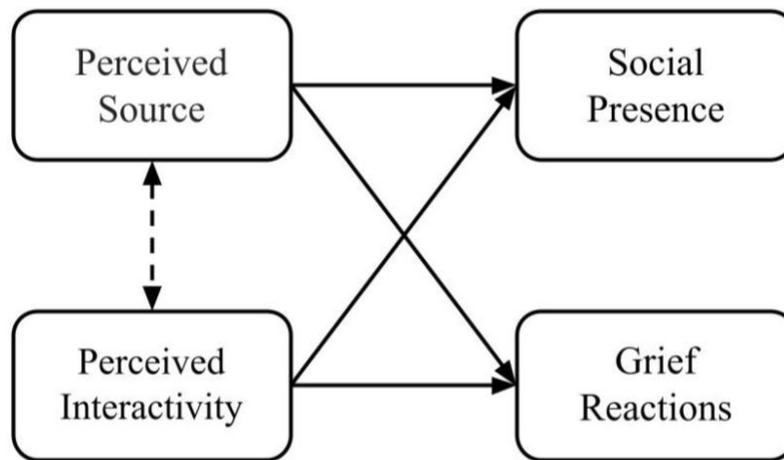
Other products, like Death Switch, allow users some control over their digital legacy and post-mortem narratives (Meese et al., 2015). The program sends regular emails asking users to confirm they are still alive. When a response is not received, a pre-planned course of action is deployed. This can include the sending of scripted emails to chosen recipients, the deletion of selected files, etc. The product aims to give control of posthumous digital assets back to their original owner.

Though the potential technology is seemingly endless, this research does have ethical implications, too. Previous scholarship has discussed how personal narratives and identities can continue to be dynamic after the death of their initial embodiment. In a social media context, this can look like enemies sharing false accusations on the public profile of the deceased or once private information being shared publicly. These examples alone raise multiple questions around consent, control of narrative, and the right to defend oneself.

Many people join SNSs, such as Facebook, because their friends and family use it (Stillman & Cann, 2014). This motivation of conformity suggests that individual decisions of consent are limited at best, and nonexistent at worst. User profiles require users to consider what

forms of their identity they want to make public and what they want to maintain as private. Still, despite the control that platforms provide, the realization that others can view and objectify can be shocking (Stillman & Cann, 2014). Users interact with platforms privately, without awareness of simultaneous, synchronous presence of others. Sudden awareness can be jolting.

Ethical dilemmas also exist in regards to the preservation of personal data and information. If consent around public and private personas is confusing, then consent around posthumous personas is definitely in doubt. The true motivations of those interacting with ghost and memorialized accounts can never be completely predicted or guaranteed (Stillman & Cann, 2014). The indefinite lifespan of a digital persona might also go against the wishes of the deceased. This relationship is akin to that of celebrity in that it is asymmetrical, spanning unknown boundaries, and impossible to manage (Stillman & Cann, 2014). It raises the question: What level of control should one have over their own digital legacy?

**Appendix A.**

A visual diagram representing the proposed relationship between variables.

## References

- Bell, J., Bailey, L., & Kennedy, D. (2015). 'We do it to keep him alive': Bereaved individuals' experiences of online suicide memorials and continuing bonds, *Mortality*, 20:4, 375-389, DOI: 10.1080/13576275.2015.1083693
- Boyd, D. M, Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), Article 11.
- Brubaker, J. R., & Hayes, G. R. (2011). We will never forget you [online]: An empirical investigation of post-mortem MySpace comments, *Proceedings of the ACM 2011 Conference on Computer Supported Cooperative Work - CSCW '11*.  
<https://doi.org/10.1145/1958824.1958843>
- Brubaker, J. R., Hayes, G. R., & Dourish, P. (2013). Beyond the grave: Facebook as a site for the expansion of death and mourning. *The Information Society*, 29(3), 152–163.  
<https://doi.org/10.1080/01972243.2013.777300>
- Carmon, A. F., Western, K. J., Miller, A. N., Pearson, J. C., & Fowler, M. R. (2010). Grieving those we've lost: An examination of family communication patterns and grief reactions. *Communication Research Reports*, 27(3), 253–262
- CBS News. (2007, July 29). MySpace pages of deceased frozen in time. *CBS News*. Retrieved from <https://www.cbsnews.com/news/myspace-pages-of-deceased-frozen-in-time/>.
- Corr, C. A., Nabe, C., & Corr, D. M. (2006). *Death and dying, life and living*. Thomson/Wadsworth.
- Hutchings, T. (2014). Death, emotion and digital media. *Emotions and Religious Dynamics*, Ed. Douglas Davies and Nathaniel Warne.
- Hogan, N. S., Greenfield, D. B., & Schmidt, L. A. (2001). Development and validation of the Hogan Grief Reaction Checklist. *Death Studies*, 25(1), 1–32.

- Gamba, F. (2016): Coping with loss: Mapping digital rituals for the expression of grief, *Health Communication*, DOI: 10.1080/10410236.2016.1242038
- Graves, K. (2009). Social networking sites and grief: An exploratory investigation of potential benefits. Indiana University of Pennsylvania.
- Kasket, E. (2011). Being towards death in the digital age. *Society for Existential Analysis Annual Conference*.
- Kastenbaum, R.J. (1977). *Death, Society and Human Experience*. St. Louis, MO: Mosby.
- Klass, D., P. R. Silverman, and S. L. Nickman. 1996. *Continuing bonds: New understandings of grief*. Philadelphia, PA: Taylor & Francis.
- Lee, K. M. (2004). Why presence occurs: Evolutionary psychology, media equation, and presence. *Presence: Teleoperators and Virtual Environments*, 13(4), 494-505
- Licoppe, C. (2004). “Connected” presence: The emergence of a new repertoire for managing social relationships in a changing communication technoscape. *Environment and Planning D: Society and Space*, 22(1), 135–156. <https://doi.org/10.1068/d323t>
- Marwick, A., & Ellison, N. B. (2012). “There isn’t wifi in Heaven!” Negotiating visibility on Facebook memorial pages. *Journal of Broadcasting & Electronic Media*, 56(3), 378–400. <https://doi.org/10.1080/08838151.2012.705197>
- Meese, J., Nansen, B., Kohn, T., Arnold, M., & Gibbs, M. (2015) Posthumous personhood and the affordances of digital media, *Mortality*, 20:4, 408-420, DOI: 10.1080/13576275.2015.1083724
- New York Times*. (2022, May 2). Coronavirus in the U.S.: Latest map and case count. *New York Times*. <https://www.nytimes.com/interactive/2021/us/covid-cases.html>.
- Notopoulos, K. (2020, April 22). Instagram is rushing to roll out a memorial account feature because of Covid-19 deaths. *Buzzfeed News*.

<https://www.buzzfeednews.com/article/katienotopoulos/instagram-new-memorialization-feature-coronavirus>

Nowak, K. L., & Biocca, F. (2003). The effect of the agency and anthropomorphism on users' sense of telepresence, copresence, and social presence in virtual environments. *Presence: Teleoperators and Virtual Environments*, 12(5), 481–494.

Öhman, C. J., & Watson, D. (2019). Are the dead taking over Facebook? A Big Data approach to the future of death online. *Big Data & Society*, 6(1), 205395171984254.  
<https://doi.org/10.1177/2053951719842540>

Pew Research Center. (2021, April 7). Social media fact sheet. *Pew Research Center*.  
<https://www.pewresearch.org/internet/fact-sheet/social-media/>

Reeves B. & Nass C. (1996). Chapter 1: The media equation. *The Media Equation: How people treat computers, television, and new media like people and places* (pp. 3-15). New York: Cambridge University Press.

Skalski, P., & Tamborini, R. (2007). The role of social presence in interactive agent-based persuasion. *Media psychology*, 10(3), 385-413.

Solecki, R. S. (1975), Shanidar IV, a Neanderthal flower burial in Northern Iraq, *Science*, Volume 190, Issue 4217, pp. 880-881, <https://doi.org/10.1126/science.190.4217.880>

Stillman, A., & Cann, C. K. (2014). *Digital death: mortality and beyond in the online age* (C. M. Moreman & D. A. Lewis, Eds.; pp. 43–86). Praeger.

Stromer-Galley, J. (2004). Interactivity-as-product and interactivity-as-process. *The Information Society*, 20(5), 391-394.

Sundar, & Nass, C. (2001). Conceptualizing sources in online news. *Journal of Communication.*, 51(1), 52–72.

Unruh, D. R. (1983), Death and personal history: strategies of identity preservation, *Social*

*Problems*, Volume 30, Issue 3, Pages 340–351, <https://doi.org/10.2307/800358>