

Memorializing the Deceased Using Virtual Worlds: A Preliminary Study

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Abstract. Virtual worlds, for many users represent a very real space that intersects with aspects of real life. Time spent in these online environments represent extensions to everyday life, including our expressions and connections to other users. As these spaces become even more entwined into our way of life, there will be an increase of expressions being played-out in these environments. The focus of this paper addresses how memorials used for expression and remembrance of the deceased are represented in cyberspace. Several questions are posed concerning how virtual worlds can be used in this way along with a presentation of information collected from a preliminary survey. Our survey concentrates on user perceptions of various aspects of virtual world memorials.

Keywords: Memorials · Virtual worlds · Online legacy · Social networks

1 Introduction

Virtual worlds and social networking sites play an increasing role in our everyday interaction. These environments are becoming important venues for the expression of grief and for gaining support to cope with loss. Not only can these online spaces allow us to connect to other people in various ways; but, also to represent and memorialize loved ones that have died. Technology has influenced how we deal with and interact with death in many new and profound ways. In this project, we are in the beginning stages of investigating the application of virtual worlds in memorialization, for both in-world (virtual) and real-world deaths. In addition, exploring this technology can be used throughout the grieving process. This paper follows our previous research examining the education of users on the implications of social networking sites and virtual worlds regarding their own death [1–4]. Moreover, we discuss the results of data collected from a preliminary survey, which provides insights on user perceptions of various aspects of virtual world memorials.

Two main purposes of a memorial artifact are: (1) to serve as a reminder or representation of someone who is deceased; or, (2) to serve as a reminder or representation of an important event or accomplishment. In the context of the deceased, memorials can take many forms (i.e., gravestones, statues, elaborate monuments, etc.). While most memorials are constructed for long term use, they can exist in more temporary forms (i.e., arrangements of flowers, letters, items or candles on the road side). Variations of memorials are defined across cultures and religions purposes to fit many types of needs. Some memorials are well planned, while others are created more spontaneously depending on the circumstances (i.e., unanticipated or violent deaths) [5]. Similarly, online memorials can have several formats and exist over varying time frames. The construction of an online memorial can include a digital artifact in a 3D space; such as, a virtual world or in a virtual reality, or that of a website or other memorization through a social networking site.

As the prevalence of online memorials grow, so too does the ability to interact with these forms of remembrances of the deceased. Technological advancements allow for various types of interaction with digital memorials. There has been an increasing number of funeral homes not only using the web to advertise their services, but to also provide information on funeral arrangements, and, to serve as online memorials for the deceased. For example, websites like legacy.com offer an array of services and information ranging from assistance in searching for funeral homes, sending flowers, and, the ability to search obituaries and online memorials. There have been other technological influences like Quick Response (QR) codes that add features on some headstones [6]. Many users are also turning to social media sites (i.e., Facebook) to express grief [7] as well as other online technologies. For some, online technology is becoming a familiar mechanism to use in the grieving process. More precisely, we can say that thanatechnology is any technology that “Include[s] all types of communication technology that can be used in the provision of death education, grief counseling, and thanatology research” [8, p. 33]. It can be said that tools like social media and virtual worlds fall into that category when used for memorialization.

Another related issue is the use of these tools during our life time and how that can contribute to the data we leave behind when we die. Posts on social media inevitably construct a narrative of our life events [9], particularly if such use is over prolonged periods of our life. Posts across social networking sites, blogs, and other social media become (intentionally or unintentionally) become part of the online legacy one leaves behind. This is also true for interactions and created content in online virtual worlds. Previous research has proposed several key questions that one can use to assess content as they are posting or storing content online or on a social networking site, or even in the context of virtual worlds which include [3]: (1) Is this content something I’m alright with if it becomes part of my digital legacy? (2) Is this content something that should be protected if something were to happen to me? And, (3) If this content should be protected, how can it be protected? Posts on social media can have negative effects as well and cause feeling of regret after certain content has been posted, particularly if the content is very personal [10]. This could be particularly troublesome if content becomes part of someone’s digital legacy and content is taken out of context. Also, one should consider posts that may be viewed by unintended audiences [10].

2 Toward Virtual Memorials

“Funerals, memorial services, and other post-death ceremonies can serve as meaningful times of coming together of family members to acknowledge and share the loss of a loved one” [11, p. 173]. This is also true in the context of virtual worlds or through the technologies afforded by such technologies. Virtual worlds can be defined as “an electronic environment that visually mimics complex physical spaces, where people can interact with each other and with virtual objects, and where people are represented by animated characters” [12, p. 472]. As technologies improve and as users gain more mainstream access, the prevalence and usage of virtual worlds and other social networking tools will continue to grow. Since virtual worlds mimic many aspects of real life, but without many of its limitations, it is not surprising that death and mourning and related elements find its way in. However, there are many questions related to virtual memorials, particularly with perception, how to interact with them and how they should be designed.

How should we represent memorials in a virtual world? How should we interact with these digital artifacts? As virtual worlds often represent a malleable but persistent environment, the possibilities of configuration and design could vary widely. However, the long-term sustainment of online memorials could raise concerns about costs depending on the virtual world, amount of space and length of time the artifact remain. Both the design and existence of a memorial within in a particular world dictates some of the interaction potential of the memorial as bound by the limitations of the environment. For instance, some virtual worlds allow for more possibilities and functionality for the user through the user’s avatar. There are many questions to be answered such as how a memorial should be designed, its function, location, timeliness, and its appropriateness for the deceased.

We are also interested in knowing more about how the manner of death may affect the virtual memorial design and desire for such an artifact. Using the NASH categories (Natural, Accidental, Suicide, Homicide) used for the classification of death on death certificates, we can begin to analyze and compare with memorial designs. Although the NASH categories can be obscure in some cases [13], they would lead to some preliminary insights. In addition to considering aspects of a user’s physical death, aspects of their virtual presence while alive is also important to consider. Did the user have a strong in-world virtual presence within a particular virtual world? Were they a prolific content creator or a designer for a virtual world? The users from that environment may be more prone to create a virtual memorial in remembrance.

Additionally, there are factors influencing comfort with the use of social media for grieving, including public versus private grieving styles [14]. Those not familiar with virtual worlds, virtual reality, social media or online gaming may have a very different view of the idea of virtual memorials and using technology during the grieving process. One’s level of comfort with technology is an additional factor. There also are cultural, social and other expectations during grieving that may influence the use of technology following a loss [14]. Comfort with using technology in this context can also be influenced by one’s resilience in coping or when dealing with complicated grief.

3 Preliminary Survey Results

To begin to answer some of these questions raised in this paper, we have adapted a previous survey that was used in a similar study aimed at examining the impact of social networks and virtual worlds related to preparation and education about one's death and digital legacy [2, 3]. This survey was more specific about perceptions and proposed design of virtual memorials. The survey was distributed electronically to students at a large community college at the end of the fall 2016 academic semester. Participants were selected from a limited number of technology courses such as introductory courses and various levels of computer programming courses. One main limitation of the survey used in the preliminary study is the limited number of respondents and high level of technology use of those participating.

Thirty-two participants responded to the survey which consisted of students primarily majoring in computer science, information technology and general studies. The average age of the participants was 23.06 years old and consisted of 68.75% male, 25% female and 6.25% that preferred not to answer. Participants reported spending a significant amount of time online each day actively using the internet with 10 (31.25%) reporting an average of 1 to 3 h, 9 (28.13%) 4 to 6 h, 9 (28.13%) 7 to 9 h and 4 reporting more than 9 h online each day. The survey did not specify how participants were connecting to the internet or what was considered as being online or connected (e.g. cell phones, wearable devices, laptops, tablets). Additionally, the survey asked participants if they currently had a profile on any social networking site and if so, to list website. Twenty-eight (87.5%) responded "Yes" and the remaining 4 (12.5%) responded "No". Those that reported which sites in which they are active included: Facebook (85.7%) Instagram (35.71%), Twitter (25%), Tumblr (10.71%), Snapchat (10.71%) and LinkedIn (3.57%). Participants could list multiple responses for this question.

Through the survey, we wanted to capture information regarding the type of content that was posted on the participant's social networks to gain insight into usage. Table 1 illustrates the responses to the survey question asking about the types of content posted. Participants could select more than one response. Those choosing "E. None" commented that they primarily chat and read other user's posts. Following the question regarding content, the survey asked participants to rate the importance of the personal content that was contained on their social networking sites. The results of that question are summarized in Table 2.

Table 1. Type of posted content

Choice	Total (n = 30)
A. Pictures	26
B. Text based posts	23
C. Video	14
D. Music or other audio	7
E. None	3

Table 2. Content ratings

Rating	Total (n = 32)
A. Not at all important	4
B. A Little important	9
C. Somewhat important	11
D. Very important	3
E. Extremely important	5

Additionally, participants were asked if they knew anyone that had died but still had a present/active profile on a social networking site. From the responses, 22 (68.75%) reported “Yes” and the remaining 10 (12.25%) reported “No”. Next, the participants were asked if they would want their social networking page to remain active after their death. Interestingly, 20 (62.50%) responded “No” and 12 (37.50%) responded “Yes”. They were also asked “What types of digital assets do you currently have online that need to be protected after your death?”. This was a multiple choice question, where more than one answer could be selected. A summary of the responses can be found in Table 3.

Table 3. Digital assets that need protecting

Category	Total (n = 32)
A. Photos	11
B. Documents	5
C. Music	5
D. Video	4
E. Intellectual property (i.e. things that you or others have created)	9
F. Personal information (i.e. tax documents, addresses, financial data etc.)	21
G. No response	3

Following the question about the general protection of content, participants were asked “After your death would you want your digital content to be deleted, preserved with restrictions or remain the same (as it is currently)”. All 32 participants responded and 8 (25%) reported “deleted”, 17 (53.13%) reported “preserved with restrictions” and 7 (21.8%) reported that their final wishes would be for their site to remain the same as it currently is. Eight participants noted additional comments in regards to the restrictions they wanted to be in place. This primarily included wishes that only friends and family would continue to have access or someone specifically designated to facilitate the account of whom was designed prior to their death. One participant noted a time frame for friends and family to have access, but only to save pictures that they would want before the account and content would be removed. They were also asked if there were files or other content that they would want erased so no one would know about. Eighteen (56.25%) reported “Yes” there is content they would want erased, and the remaining 14 (43.75%) reported “No”.

More specific questions were then asked in the survey regarding virtual worlds and online games as related to virtual memorialization. When asked “Do you play online games or use virtual worlds?”, 23 (71.88%) responded “Yes” and 9 (28.13%) responded “No”. Next, the survey asked “Would you want a virtual memorial when you pass away? (For example a permanent 3D memorial in an online world or game?)”. Fourteen (43.75%) of the participants said “Yes”, while 18 (56.25%) responded “No” to this question. There were some interesting comments from those expressing that they would be interested in a 3D memorial. In this case they were asked to comment in a few words, what their idea of a virtual 3D memorial would look like.

The majority expressed interest in having a small permanent space or object that would represent aspects of their real life that other users or players of the world could visit. This majority noted including having interactive components that would allow for the viewing of picture slideshows or text that described their life. Other comments included having a 3D avatar that would look like either their real life self or a replica of their in-game avatar where others could visit. Three comments noted to recreate a virtual graveyard that is similar to how it would exist in real life. One interesting comment was to create an in-game quest that would lead players in the “ghost at the gravestone” of the person that was deceased. Additionally, one other comment asked for the creation of a world that would contain everything that the person had wanted, loved or valued in their real life as a representation.

Following was a very similar question that asked participants to comment on their idea of what an “online” memorial would be or look like. The majority of the comments are summarized in Table 4 from 16 participants. The remaining 16 participants had no comment or left the question blank.

Table 4. Summary of comments for online memorials

Comment summary
Having a website that contains the majority of one’s social media and general information
Website similar to “online memories” and comments from a funeral message board
A photo stream or video that would show positive moments and life events.
A digitized version of a guestbook
Online obituary
Art or other works memorialized in an online format

The survey also asked: “Have you ever seen or encountered an online or virtual memorial?”. From the 28 participants responding, 18 (64.29%) said “No”, while 10 (35.71%) said “Yes”. Next, the participants were asked “Do you currently have any documentation dictating your final wishes for your online content”. From this question: 31 participants responded, where one (3.23%) person reported “Yes” and the remaining 30 (96.77%) reported “No”.

Participants were asked to rank categories using a Likert scale based to 1 (low) to 7 (high), their feelings in three categories related to virtual memorials or social networking sites. Table 5 describes the results from 31 participants.

Table 5. Rating for virtual memorials

Rating	Freq.	Rating	Freq.	Rating	Freq.
<i>Disrespectful</i>		<i>Not important</i>		<i>Useful</i>	
1	3	1	5	1	7
2	1	2	7	2	2
3	3	3	4	3	6
4	4	4	5	4	4
5	6	5	3	5	6
6	6	6	4	6	3
7	8	7	3	7	3
<i>Respectful</i>		<i>Important</i>		<i>Not useful</i>	

Twenty-eight participants responded to the next questions which asked: “Do you think the idea of having a virtual memorial in an online game or virtual world would be beneficial?” From the respondents, 11 (39.29%) reported “No”, 10 (35.71%) reported “Yes” and the remaining 7 (25%) responded as “Maybe” or “Unsure”. The survey asked: “Would you feel better about your own death if you know there would be an online memorial dedicated to you?” From this question, Twenty-nine participants responded, where 17 (58.62%) responded “No”, 10 (34.38%) “Yes” and 2 (6.90%) as “Undecided”. We also asked “If you had an online memorial, what would you want it to represent about you?”. Table 6 summarizes the responses. Participants could list more than one response.

Table 6. Summary of comments for representation

Comments (n = 27)	Frequency
Information about me/my past/my interests/my life	18
Accomplishments	9
Pictures	8
Family information	3
People’s lives that I have impacted	1

Interestingly, in regards to pictures, all participants noted that they either wanted positive pictures that illustrated them with someone they loved or doing something they loved or something that represented something about their lives. The survey also asked the participants: “Would you want to setup your own virtual memorial before your death so that you can control the content or after your death, where someone else controls the content?” From the responses: 19 (59.4%) responded “before their death” and 12 (37.5%) responded “after” and 1 (3.1%) did not respond. Lastly, the participants were asked: “Would having a virtual memorial (in a 3D world/game or social networking site) help you cope with the death of loved one?” The majority of the participants 12 (37.5%) responded “No”, 10 (31.3%) responded “Yes”, 6 (18.7%) were undecided, 1 (3.1%) could not make an informed decision due to not experiencing a loss of a loved one, and 3 (9.4%) did not respond.

4 Discussion

Even though the survey was preliminary, the data is useful in providing some insights. Most of the participants noted that they knew someone that had died, but there still exists a present or active profile on some social network representing that person. It was unknown if it was a social networking page that remained active after the person's death or if it was created purposefully as a memorial. When asked if they wished to have a virtual memorial when they themselves died it was relatively divided with fourteen (43.75%) stating "Yes", while 18 (56.25%) responding "No". Investigating deeper into this question could reveal interesting results as the view and understanding of virtual memorials at the time of the question was unknown. Although the survey asked participants to self-identify as "gamers", there was not a clear distinction between gamers and virtual world users or how this could influence the results of this question. Additionally, different types of online games could affect the perception of online "death" and the perception of the legitimate use of a virtual memorial in the grieving process.

Since we were interested in how the participants viewed virtual memorials and their construction, the responses to several questions were helpful. Several respondents seemed to view a virtual memorial within the same physical limitations in design as one would in real life (e.g. 3D avatar "statue", having a permanent space or object). While others noted using the technology in ways to interact with users, display photos and video streams etc. Much of the comments on the perception of a virtual memorial was based on web based designed. Likewise, the summary of comments revealed that the majority of the respondents would want their memorial to contain information about themselves such as general information, past, interests and their life overall. This was followed by lists of accomplishments, pictures, family information, and impacts. Interestingly when asked "Would you want to setup your own virtual memorial before your death so that you can control the content or after your death, where someone else controls the content?" The majority, 59.4% responded "before their death" and 37.5% responded "after" with 1 (3.1%) not responding. As the importance of digital legacy grows (either through virtual worlds or social networking sites) users may want or need to have more control and input on the digital artifacts that represent them after their death. However, respondents viewed having a virtual memorial was respectful and useful, but not generally important. When asked "Would you feel better about your own death if you know there would be an online memorial dedicated to you?" 58.62% responded "No", 34.38% "Yes" and 6.90% as "Undecided". This seems to coincide with the view on memorials and the general misgivings on death overall.

The results of the survey provided interesting insights on the view of virtual memorials, but much more research is needed to begin to answer some of the questions raised in this paper. We are only beginning to understand how a virtual world based memorial should be designed, represented and interacted with. Previously [1] noted that there are four types of users as related to death as viewed in Fig. 1. Type A represents users who are physically alive and maintain an active presence in an online environment (such as a virtual world or social network). Type B includes users who are also alive, but who do not have a presence in any virtual or online space. Thirdly, type C users are those

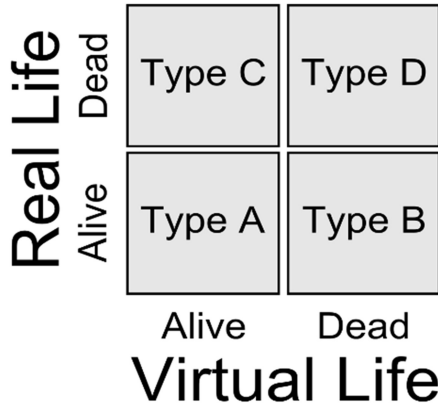


Fig. 1. Four states of being [1]

who have physically died, but have an active virtual memorial or social networking site. Type C users would include those who have died, and someone else created a memorial on their behalf, hence still having an active online presence. Type D users represent users that have died, and have no online presence or memorial. The online persona of a type D user could have been erased or taken down after their death.

Type B users may have either never had a presence in a virtual world or social network, or may have chosen to delete their account at some point. There is also a growing trend for users to have online “funerals” to commemorate the deactivation of an account or avatar.

5 Summary and Future Work

In summary, we have discussed how memorials are viewed and can be used for the remembrance of the deceased in cyberspace. Several questions were posed concerning how virtual worlds can be used for memorialization and presented information collected from a preliminary survey. Our survey focused on user perceptions and design issues in a preliminary fashion, to help guide future work and additional surveys. There is a great deal of research that still needs to be conducted to answer many of these questions. We are planning several additional studies to address this in future research. In addition, we plan to conduct field work in virtual worlds such as Second Life to gain further insight into these questions, particularly related to interaction and design. There are still many questions that need to be explored such as the role of attachment to one’s online persona, time spent online, avid gamers and more distinction between online versus virtual memorials. Do gamers or heavy computer users feel differently about online memorials?

Two major limitations to this study were the low number of questions covered in the survey and a small sample size and participant selection. To gain a much deeper insight, a much larger and diverse sample population needs to be evaluated. One of our main questions is to understand the design and interaction potential for virtual

memorials, which would require a richer survey to be administered to a much larger population. As virtual worlds, become increasingly mainstream, realistic and used for many aspects of our daily lives, the importance of virtual memorials will also increase. Having a virtual memorial to represent one's self or a loved one has far reaching implications and can serve as a rich form of expression and representation of one's digital legacy.

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