The Influence of Beliefs and Death Taboos in Modeling the Fate of Digital Legacy Under the Software Developers’ View

Abstract
Taboos and beliefs on death are eventually an integral part of the construction of the culture of life in society and may affect, for instance, system development. Conceiving that people might record their posthumous wishes in their software is also to cogitate the recodifications death taboos have been undergoing in different societies in modern times and, more specifically, in the Internet era. A research with software engineers is analyzed here considering taboos and beliefs over death, which can condition the proposal of solutions to the digital legacy. Seven categories were generated and discussed, according to the software engineers’ opinions.

Author Keywords
digital legacy, beliefs and death taboos, posthumous interaction

ACM Classification Keywords
H.5.m. Information interfaces and presentation: Miscellaneous.
Introduction
In the Internet, especially in the Social Web, by interacting with systems and with other users, users create all sorts of data, such as texts, photographs and videos, which many times live beyond the death of their owners. Such data allow for posthumous interaction, in case users have not previously defined the fate of their digital assets [6] or come to opt for it. However, the post-mortem digital legacy fate divides opinions. According to [11], the so-called “deletionists” advocate that the Internet still has to learn to forget. For the “preservationists”, the legacy has to be passed on to the descendents. Nevertheless, both positions involve a discussion of death and of its representation to Internet users, which, however, are faced with users’ and also software designers’ taboos.

Despite the sciences advancements and the understanding of the biological phenomena regulating the vital cycle, the tragic idea of death is present in many cultures nowadays, even if symbolically represented in different ways. Dying is actually a theme that, directly or indirectly, has a significant share in human reflections and activities, and for [10] is what made humans move from the natural state to the cultural one, with the first funerary rite. Yet it is a theme largely marked by symbolism and fears, frequently associated to taboos and beliefs. These guide people’s views concerning the end of life and what is left beyond it, as well as the way according to which the living interact with the dead by means of what the latter have left behind, be it virtually or materially.

Hence, conceiving that people might record their post-mortem wishes in their software is also to cogitate the re-codifications death taboos have been undergoing in different societies in modern times and, more specifically, in the Internet era. Re-codifying, in this case, means re-thinking, altering symbolisms and, above all, facing the very finitude of life. An ultimately philosophical activity, here research is a task of understanding modern humans taboos concerning death and their legacy in the Internet. It is therefore close to what was said by Montaigne, paraphrasing Cicero: “philosophizing is nothing but preparing to die” [1].

Hence it can be observed that the Human-Computer Interaction (HCI) community cannot let a more and more asked question go unnoticed: to what extent are software engineers, when thinking of users’ digital legacy fate, by means of predefined clauses embedded in software, influenced by their own beliefs and taboos about death?

The question is ratified by a recent research, discussed further on in this paper, in which Maciel [6] proposes that the different software, especially the Web ones, should provide options in their configuration for users to determine their wishes concerning their digital legacy. That is, users would start to have decision powers as to the fate of their digital legacy when faced with this delicate, but unavoidable phenomenon: death.

To support this discussion, some social sciences and philosophy elements are presented herein to discuss the problem, going deeper into the data collected in a field research into taboos and beliefs concerning death and religious aspects confronted with the volitive possibility of the different software previously studied by [6].

Beliefs and Taboos on Death
Western societies, in general, currently treat death as a taboo, avoiding the subject even though it happens to be a lifecycle common to all. In the last five decades,
the capitalist industrial society has witnessed a curious phenomenon: sex is no longer a forbidden or feared theme; however, death took this place and turned into something inominable in many situations. Children used to be told they had been born from cauliflower plants, but they were allowed to attend the farewell rites round a dying person’s bed (GORER *apud* [2]). Today, children know for sure they were not born out of cauliflower plants, but they seem to believe in the stories told by adults that old people disappear among flowers, set out for a long trip or turn into stars.

For Freud [5], a taboo is something one avoids mentioning, touching or even seeing, which should be excluded and segregated from human coexistence for carrying an unimaginable, corrupting power. Such dangerous corruption would consist in mixing instances that should keep separated, such as those of clean and dirty, of sacred and profane, of existence and non-existence. Thus, everything that breaks these classifying boundaries, such as body excretions (concomitantly associated to hygiene and filth), heresies (which profane the sacred or defy the non-religious) and death itself (representing the passing, or *transitus* [3], between what there was and what ceased to exist) are treated as taboos.

"Death implies the elaboration of exclusion mechanisms and their boundaries, in different cultures, and are marked by the boundaries between the sacred (the world of the dead) and the profane (the world of the living). This duality rules the collective imagination and creates a parallel world (the invisible) to the order of life events. The society of the dead denies the society of the living and, at times, is hostile to it by robbing it of its members." [12].

An unwritten code, taboo is the oldest legislation form in existence, dating back to a period preceding religions [13]. Serving to keep order, taboos provide and ban behavior, people, institutions and substances, in order to ban ambivalences and decree ordination and actuation parameters in society. In this sense, the very creation of the taboo concept derives from the human rationalist practice, which cannot be dissociated, as related to this research, from the definition of asset and fate of a human being’s legacy. After all, if a taboo establishes what can or cannot be said, and what can and what cannot be done, it is also, as a cultural practice, what defines the assets that can or cannot be incorporated by others or be silently destroyed, when its owner dies.

Permeated by sometimes tragic and sometimes purifying symbologies, in the history of humanity, death is considered by [10] the fact that marks the transition from the natural state to the cultural state. In the cult to the dead, in the funerary rites or in the discussion of the assets, men leave behind the mere instrumentality for the first time, providing things with a symbolic dimension, be it of mourning, of joy or even of tribute.

Under this condition, death is a subject avoided in day-to-day discussions and even in individual reflections, as an event which one does not wish to plan for. Thus, even will issues in real life are usually postponed to someone’s life “final years” and, in general, are often conducted by means of acquired rights.

As states [4], we have not yet learned that life and death are occurrences inherent to living beings in general and to humans, particularly. Admitting death as an inevitable event may lead humans to the ethical reflection on “how one should live”. The latin expression *memento mori*, which means “remember you will die”, by the Renaissant Durer [1], is a warning for us not to forget of the transience of

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"Death is rest, but thinking about death disturbs all rest."

Pavese

"Yes, we take nothing from life with us. But it is formidable to have many things to say goodbye."

Millòr
life. Such a warning also corroborates the idea herein discussed, that we should not forget to define the fate of our digital legacy. Moreover, humans’ vision of death is permeated by a set of religious beliefs, varying from culture to culture, but can basically be grouped into two large categories: the materialistic and the idealistic ones. Materialistic beliefs do not separate body and soul, as in the pre-Socratic Greek thought, whereby each human being was an indivisible whole. Idealistic belief, in turn, widely disseminated in Western society by means of Christianity, advocate the permanence of the soul (or of any incorporeal equivalent) after the death of the flesh, as it advocates the division of the human being into a mortal, corporeal part and an immortal, incorporeal one.

Anyway, both perspectives impact the idea of a post-mortem digital legacy, once it is already linked to the user’s afterlife conception that may exist in the virtual world, in a digital soul condition [11]. Again, as a cultural component, religiousness directly affects software engineers, inasmuch as it influences their view on life and death. Undoubtedly, the theme triggers deep investigation and extensive researches. Despite the vast material available about the death theme, its discussion concerning the digital media is quite recent. According to [8], facing death is never an easy experience, and this is certainly also valid for HCI designers and researchers. However, the end of life is an attractive research area for different reasons, owing to the multidisciplinary, social and cultural aspects, and for the technological challenges in the treatment of this issue. Due to the relevance of the theme, in 2009, [9] introduced the thanatosensitivity term concept to describe an approach that actively integrates the facts of mortality, dying and death into HCI research and design.

Being born, developing and dying are natural events in the life cycle of any human being; in the Web environment, modeling the evolution of these events is not that simple. Hence, virtual communities can be affirmed to have differentiated aspects in relation to the real communities, in what concerns modeling life cycles [6]. In this sense, we stress the need of there being greater concern with modeling life cycles in computational systems, on the part of software engineers and HCI professionals.

**Methodology**

Initially, a field research was conducted, with a qualitative approach, so as to investigate the possibilities concerning the fate of users’ digital legacy, especially in the Social Web [6]. 83 (eighty-three) software engineers from the city of Cuiabá, in Mato Grosso, participated in the research, most of whom also Web services users. In a form with a single question, the participants recorded their opinions concerning the possibility of configuring, via system, users’ wishes as to their digital legacy fate. This method was selected so as not to provide the research subjects with many elements on the theme, letting them free to discuss the theme. In the analysis, the responses were identified by the letter “E” followed by the participants’ number. Maciel [6] discusses, as from the participants’ responses, four macro-possibilities for planning the design solutions of the post-mortem legacy:

a) attributing password power to third parties, while alive or in a will, attesting the wish for posthumous interaction;

b) having a registration number of the digital legacy in other equipment or in the network, so that a login is not necessary for access;
Maciel’s [6] focus lay on the design of volitive aspects (option d) applied to the Social Web, listing a number of requirements, under the functional and non-functional point of view, which can provide users with the fulfilling the functionalities necessary for implementing the posthumous services. After that, possible actions were specified for the account owner users to previously configure the fate of their digital legacy. At a second moment of the research participants’ response analysis, their manifestations were perceived to be permeated by taboos and beliefs over death, which conditioned the proposal of solutions to the digital legacy. Given the need of acknowledging how these social aspects may influence the solutions for thanatosensitive design [7], a new analysis of the participants’ discourses was performed. This time, seven categories were generated contemplating taboos and beliefs concerning death, implicit or explicit in the software developers’ suggestions. These categories are discussed as follows.

### Data Analysis

The categories generated as from the analysis of the data originated in the questionnaires applied provide interesting observations about software developers’ taboos and beliefs. Table 1 summarizes these data, providing the percentile of manifestations in which each of the categorized taboos occurred, considering the 83 interviewees.

Next, the categories are described and exemplified by the participants’ mentions.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Mentions</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Non-profaneable legacy</td>
<td>14</td>
<td>16,8</td>
</tr>
<tr>
<td>Funeral rites</td>
<td>13</td>
<td>15,6</td>
</tr>
<tr>
<td>The immaterial beyond death</td>
<td>27</td>
<td>32,5</td>
</tr>
<tr>
<td>Death as an end</td>
<td>30</td>
<td>36,1</td>
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<tr>
<td>Death as adversity</td>
<td>12</td>
<td>14,4</td>
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<tr>
<td>Death as an interdiction</td>
<td>8</td>
<td>9,63</td>
</tr>
<tr>
<td>The space required by death</td>
<td>7</td>
<td>8,43</td>
</tr>
</tbody>
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| Table 1. Categories generated concerning taboos and beliefs concerning death |
deceased user profile as a form of afterlife and even of eternity. E83, by saying that “social Web applications can be associated to an extra-carnal life”, and E14, by referring to the “life that still existed in the Web”, reveal the conception that there is a carnal life and a spiritual one, the latter going beyond the former, similarly to digital life. Hence, the interaction with this dead user’s profile could keep occurring posthumously, being an abstract representation of that very individual, when, for instance, E74 suggests that “the family ends up using this profile as a refuge to find their loved being”.

4. Death as an end

Conversely, materialistic conceptions of life define death as the end of an individual, which is not left with any incorporeal part. The web profile, in this case, is not seen as a part of the user, but simply as an account, or an asset, as expressed by E71: “I think an account is an asset”. The same view is expressed by E29, who expresses the religious bias of this discussion: “There are those who do not accept any post-life involvement. It may just be a question of logic and dependence: users die, their content goes with them”.

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5. Death as adversity

Even though death is an inevitable fact in every human being’s life, tragedy and adversity feelings are frequently associated to it [4], giving this phenomenon a negative, symbolic charge. For instance, several terms employed by the participants to refer to death can be mentioned, such as “problem” (E7), “we are, unfortunately, just passing in this world” (E24), “fatality” (E36, E81, E68), “adverse aspects” (E60) and “the unexpected” (E78).

6. Death as an interdiction

In the taboo condition, for many death is a theme to be avoided or hidden (GORER apud [2]), which is associated to fears of contamination [5] between the living and the dead. E60, for instance, observes that “the next of kin could have the right of not wanting other users to learn about the demise of a relative”. The digital legacy privacy would be extended to the very death in this sense, treated as a private order affair. Besides, the interdiction character given to death, as something to be avoided in speech or in sight, is treated by E60 as a concern to the social networks: “The implementation of something posthumous in social networks would cause the possible migration of users”. Taboo, in this case, could lead to an emptying of the networks, for the users’ personal restrictions related to the contact with the profiles and with dead individuals’ assets.

7. The space required by death

In the real world, the discussions on the removal of cemeteries or the space corpses and coffins require in the urban territory are quite usual, which is related to the conception that the deceased sometimes take up a space that could be used by the living. Likewise, the space in servers was considered an important issue by the participants. In this sense, E68 states: “everyone will die some day and their accounts in the social networks will keep active, taking up space in the servers of companies providing the service; these users’ accounts should therefore be deactivated”. Reiterating the idea that the data of the deceased should give room to the data of the living, E67 draws an even more radical prognosis:
“there would be a storage problem, since I believe the number of profiles of the deceased will outnumber that of the living”.

**Conclusions**

The idea of passing away is not well solved among people due to the strong bonds of affection and friendship established between them along their coexistence and by the influence exerted by culture. Discussing the *post-mortem* digital legacy is to think of death and its inevitability, rethinking values and analyzing the social consequences of using technologies. In this sense, HCI designers and researchers have special relevance.

Never have we imagined how difficult it is to discuss the inevitable. Taboos and beliefs on death end up being an integral part of the construction of the culture of life in society and may affect, for instance, system development, once they are designed by individuals who carry their own conceptions about death.

In this first critical analysis of software developers’ discourse concerning their expectations before the *post-mortem* digital legacy, their communications were observed to be permeated by beliefs, moral, religious and ideological values, which may influence the development of thanatosenitive design solutions. For a more in-depth study, field researches with Social Web users must be conducted, so as to investigate such issues from a different point of view. Again, analyses of systems currently proposed by organizations to deal with issues related to death can be carried out based on the reflection proposed herein. Also, digital will issues, many of them detected in the investigated subject speeches, need investigation.

For future works, the aim is also to identify the semiotic codifications different cultures apply to the representation of death, of the deceased and of their legacy, which will form prototypes of adequate solutions to the demands of the imagetic representation of death in different societies, in order to generate an iconographic set representative of death.

To conclude, this paper intends to contribute to the problematization of the posthumous interaction concept, which postulates the idea that individuals, even though dead, can keep interacting with others by means of the data of their digital asset, especially considering the possibility of the users having pre-configured clauses for the destination of their legacy in the very software. Again, it is worth stressing that the profiles of dead users mixed with those of the living are a challenge for the systems interaction, mainly in social Web applications.

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**References**