Life-Death Interfaces: Tangible Ways of Legacy-Making, Grief, and Remembrance

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Figure 1: *Memo*, a pillow that replays the voices of deceased friends and familiy members. It is operated by pulling out a cord.

ABSTRACT

In this paper, we present the results of a design project that investigated new ways of preparing for one's own death, of remembering loved ones and of joining others in grief. These ways include a pillow for remembering the voices of loved ones, an hourglass containing human ashes as a ritual object for grieving, an additive monument for collective mourning, and a set of nested gift boxes for staying present in the life of a loved one after one's death. We present our designs and initial user reactions. We discuss our findings, concluding that actively engaging with the difficult topic of death and dying can be rewarding.

CCS CONCEPTS

• **Human-centered computing → Interaction design**.

KEYWORDS

death, dying, grief, remembering, legacy

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1 INTRODUCTION

For a long time, humans have developed rituals that help them to cope with the topic of death and with their own mortality. Recently, digital tools – such as digital memorial walls – have been added to this repertoire. However, overlaps between these two areas - traditional ways of coping with death and mortality, and digital ones - have not been researched extensively. Given the emotional nature of the topic, providing embodied experiences through tangibility-oriented designs may hold particular potential, yet research in this area appears to be sparse. To remedy this issue, we set out on the 'Life-Death Interfaces' project. In this project, we aimed to revisit major aspects of death – preparing to leave, suffering through the pain of loss, and keeping memories.

2 BACKGROUND

Death is a topic currently of interest for research in the Human-Computer Interaction (HCI) community. Many studies propose to follow an active, integrative approach to coping with the loss of a loved one, as discussed by Stroebe and Schut [26], as well as Moos [19], Shapiro [25] and Wallace et al.[29]. HCI research in this context investigates, for example, how online communities cope

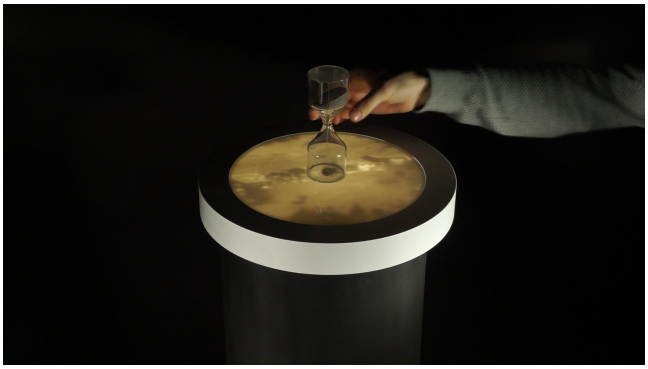

Figure 2: *Human Remains*: an hourglass for human ashes, setting a fixed duration for a moment of grief.

Figure 3: *Shards*: an additive monument for mourning at sites of mass killings.

with dying members [2, 20], especially among digital natives [14]. Others investigate the potentials for enriching the short time period between death and laying to rest [17] for the remaining family members. Kaptelnin proposes a 'digital afterlife' in his seminal work on existential HCI [9]. Furthermore, the introduction of thanatosensitivity (i.e., awareness of the inevitability of death) as a dimension of interaction design has been recommended by a number of studies [16], backed by an extensive body of field research [15]. Despite security and privacy concerns [12], it has been argued that grief therapy can benefit from support through digital tools [24], as can domestic memorialization [27, 28] and general bereavement [22].

This may indicate that coping with death and dying could be supported through digital means. Unfortunately, few projects engage with tangible artifacts to do so. In the 'Life-Death Interfaces' project, we set out to explore this topic further.

3 PROTOTYPES

In a 13-week design project, including a research phase, a concept phase, a design phase, and a documentation phase, we designed four objects. In the following, we present the objects and discuss our design rationales.

3.1 Memo: a pillow that replays the voices of deceased friends and familiy members

The aim of this object is to create a dedicated place, posture and ritual for remembering a deceased loved one. The result, *Memo* (Fig. 1) is a soft pillow that helps people to grieve by letting them listen to the voices of their deceased loved ones. Its core mechanism resembles a musical lullaby toy, activated by pulling out a winding cord. While the cord is retracting, the device plays voice samples of a deceased person which have previously been uploaded to the device. Once the cord is fully retracted, the voice playback stops. The device's design is based on the idea of limitation: grief need not be unlimited, but our lives, too, are limited. Technically, the prototype consists of a repurposed lullaby musical toy mechanism, which is connected to a microcontroller via a potentiometer. A nearby computer receives the 'play' signal from the microcontroller and plays a randomly selected audio file through a speaker which is also built into the pillow.

Our prototype is functional, but only when wired to the nearby computer. The finished product would include a set of instructions for attaching a piece of textile (e.g., from an emotionally important piece of clothing which belonged to the deceased person) to the pillow. Its design builds upon Kleinberger et al.'s work on integrating memory support into toys [10] and Johansson's approach of leveraging the intuitive understandability of toys [8]. It combines these approaches with Myojin et al.'s concept of using spatially restricted audio to foster remembrance [21].

The final design was chosen for its affordance of cuddling: both hands can be slipped inside, which fosters a feeling of hugging.

3.2 Human Remains: an hourglass for human ashes

The aim of this object was to embody the fact that all things can last only for a limited time - this applies to life, but it can also be applied to grief. The result, *Human Remains* (Fig. 2), is an hourglass filled with the ashes of the deceased person. It is used to ritualize and encourage moments of grieving by setting a fixed duration.

Its design is based on the idea of helping people who are afraid of grieving due to its (apparent) endlessness, by empowering them to find a beginning – inverting the hourglass – and an end for their moment of grief – the ashes ceasing to run through the hourglass. Technically, it consists of a glass hourglass, filled with human ashes.

The prototype is also conceptualized to control, via NFC tags embedded in the hourglass's top and bottom covers, a projection of pictures of the deceased person. Currently, this projection is controlled manually, Wizard-of-Oz style. Its design builds upon Hayashi et al.'s concept of physicalizing passing time [6] and Zuckerman's approach of restricting activities to a specific time and place, via physically present visualizations of passing time [30]. It is also inspired by Häkkilä et al.'s interactive gravestone display [5]. Choosing to use actual human ashes for the hourglass filling led to several lengthy discussions about the ethics of the concept. In the end, we considered it acceptable, as engaging actively with the remains of a loved one might be desirable for both the deceased and the grieving person – a controversial design choice that will, it is hoped, spark future discussion about its ethical, legal and social implications.

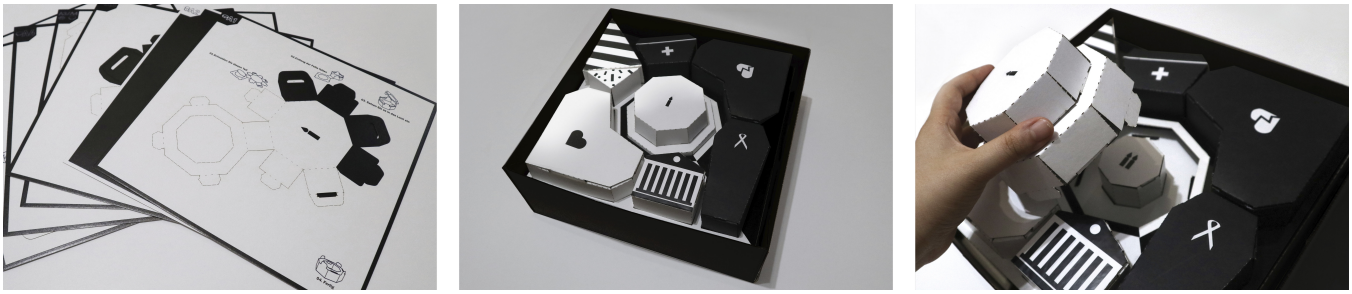

Figure 4: *LiebeBox*: a laser-cut cardboard DIY kit for a time capsule of matroshka-like nested gift boxes that hold gifts for major life events of a loved one, after one's own death. White boxes are meant for happy occasions, black boxes for sad occasions.

3.3 Shards: an additive monument

The goal of this object was to create a community of mourning people, helping them to perceive that they are not alone in their grief. *Shards* (Fig. 3) is a monument to be set up at the site of preventable (e.g., politically motivated) mass killings. Friends and family members of the victims can add pieces to the monument. They can choose between circles and triangles by 'voting': circles express peacefulness and solidarity with the group of victims and their beloved ones, while triangles express hatred for the perpetrator. Although each of the pieces can snap into any other, circular pieces have more connectors and will thus contribute to the stability of the monument. Too many triangles (i.e., too much hatred) will make the monument collapse. The design of the monument is inspired by the idea that an important aspect of the aftermath of mass killings is a choice between, on the one hand, hatred, and on the other hand, peaceful solidarity among the victims' beloved ones. Technically, *Shards* consists of acrylic splinters, circular ones and sharp, triangular ones. The pedestal underneath is bottom-lit and doubles as a dispenser for the shards, which can simply be taken out by people coming to mourn at the site of the killing.

Its design is also inspired by Häkkilä et al.'s [4] digital cemeteries, Offenhuber's autographic visualizations [23] and Lockton et al.'s [13] approach to tangible thinking. It builds upon Moncur and Kirk's concept of collaboration in the creation of digital memorials [18], applying it to a physical memorial. Earlier versions included only circular shards, but the voting mechanism of hatred versus solidarity appeared to be a valuable addition to the experience of collective mourning.

3.4 LiebeBox: a DIY kit for personalized, matroshka-like nested gift boxes

This object pursues the goal of helping people who know that they will die soon to create a collection of small gifts for their loved ones, to be received over the course of their lives.

LiebeBox (Fig. 4) is a DIY kit for personalized, matroshka-like nested gift boxes that are filled by a dying person with legacy gifts for a loved one's important life events. Its design is based on the idea of a cardboard set, similar to Nintendo Labo [11]. Once built, each box is filled with a small gift. Some boxes are placed inside one another: the 'When your first child is born' box is placed inside the 'When you meet the person you love' box. Technically, it consists of a set of laser-cut cardboard sheets. Early versions included only white boxes. The final design, including black and white boxes, was chosen for its richness in contrast: White boxes are meant for positive events in life, black for negative ones. This symbolizes that positive and negative events in life are both bound to happen.

In future versions, *LiebeBox's* fold sheets are envisioned as being custom-made, with the boxes' meanings and nestings tailored to the user's needs (e.g., having a set of nested legacy boxes for each of one's children). This would also lead to a unique *LiebeBox* set for each user. Its design is inspired by Chaudhari et al.'s approach of creating a physical box to 'contain' memories [1] but augments this concept with two new ideas: proactive legacy-making in the digital age, as discussed by Gulotta et al. [2, 3] but with physical artifacts as posthumous messages, as discussed for their digital pendants by Jamison-Powell et al. [7].

4 USER REACTIONS

The concepts and prototypes were informally evaluated in brief user tests. All participants were resident in Germany.

Memo was presented to 13 people (7 female, 6 male, aged 21-73) in an informal setting. They were handed a questionnaire, based on which a semi-structured interview was conducted. 12 of the 13 expressed interest in listening to the voices of deceased loved ones, and five reported having done this consciously before. Many also noted that crossing their arms, as the pillow encourages users to do, would give them a feeling of hugging and being hugged. Some concerns were raised regarding the positioning of the pillow as a 'regular' pillow on one's couch, as listening to the voices (and thus initiating a moment of grief) would not be appropriate for all situations.

Human Remains was presented to 23 people (12 female, 11 male, aged 18-65) in an informal setting, with wood ash inside. Before handing them a questionnaire and conducting a semi-structured interview, we asked the participants to watch the ash run through the hourglass for its duration of two minutes. Interestingly, they felt that the projection of pictures was irrelevant, as they would not need 'support' in remembering the deceased person. They liked the fact that 'the memory, not the loss' was brought into focus through the object. They expressed practical, emotional and ethical concerns, for example the need to divide the ashes of the deceased between several hourglasses for different people.

Shards was shown to six people (4 female, 2 male, aged 24-58). Their responses were collected in an informal setting through a

semi-structured interview. The users appreciated the idea of being 'part of the monument' and, thus 'part of the grieving process', mentioning the similarity to actively taking care of the plants at the grave of a loved one. Users also noted it as positive that they would join a 'community' of people in grief, creating a 'lasting', jointly created symbol of remembrance. Notably, it was pointed out that the 'activeness' would be something they would perceive as 'calming'. Other participants noted that they liked the fact that one of the effects of such a monument would be that people who were not involved in the incident would be made aware of it. However, there was criticism that 'no information about the tragedy' is integrated into the monument, which is something they would wish for, especially in the context of raising public interest in it. They also mentioned that a ritual could be established, e.g., for people to meet at the monument – however, the anonymity of the current concept was also appreciated. Lastly, it was pointed out as positive that *Shards* 'does not imply any religious belief' and that it does not 'judge the amount of grief'.

The concept of *LiebeBox* was evaluated in two online surveys. One (18 participants, 10 female, 8 male, aged 20-60) was conducted about *giving* a legacy box of small, nested gifts to their children, the other (16 participants, 10 female, 6 male, aged 7-29) was conducted about people's interest in *receiving* a box of gifts from their parents, filled with surprises that would be unpacked after their deaths.

The participants in the first survey appreciated the idea of small surprises which they could leave for their children. Asked about the kinds of gifts they would want to leave, many replied with 'letters', 'a ring', and 'a necklace'. Most also applauded the idea of a DIY kit which they would assemble themselves.

The participants in the second survey liked the idea of having something joyful to look forward to after a parent's death. They also appreciated the idea of having themed boxes for different life events, so they would know when to open which. Lastly, they enjoyed the idea of a 'matroshka'-style nesting of gifts, adding a second and third level of surprise to the boxes. One idea raised was even to include boxes that would be opened by the two succeeding generations, thus turning the *LiebeBox* into an heirloom, the contents of which would be revealed generation by generation.

5 DISCUSSION

Each of the four objects presented proposes a new way of, or ritual for, dealing with death and mortality. Often, death, grief and legacy are considered 'taboo' topics, or at the very least, subjects to be avoided in everyday conversation. This project, however, has shown that revisiting these difficult topics from a constructive, design-oriented perspective holds great potential: redesigning moments of sadness and loss in reflected, conscious and even surprising ways is a worthwhile undertaking.

In general, users appreciated the active approach to coping with loss and grief that these concepts and prototypes encourage: by *triggering* the replay of a deceased loved one's voice by pulling the cord of the pillow, knowing that it will come to a defined end; by *taking* time to remember a loved one, seeing their ashes run through the hourglass while being inspired by a projection of a photograph; by *becoming* an active part of a mourning community after a mass killing by contributing an emotional vote to an additive monument; and by *preparing* surprises for one's children to be received at their major life events, even if they occur long after one's own death.

Nonetheless, the fact that we collected only informal, initial user reactions makes it impossible to estimate how the objects presented would impact on *real* grieving or on those coming to terms with the end of their own lives – they could, after all, make it *harder*.

6 CONCLUSION AND OUTLOOK

In this paper, we presented new, tangibility-oriented interfaces for the end of life. We proposed a new way of preparing for one's own death by making a legacy of surprises.

We proposed a new way of joining others in their suffering after a mass killing, setting an emotional statement through a dynamic monument. We proposed a new way of ritualizing remembrance, through an hourglass that is filled with the ashes of the deceased loved one. We proposed a new way of listening to the voices of friends and family members who have passed away, while feeling the coziness of a firm hug.

For us, revisiting the topic of death from a design perspective was an inspiring and discussion-provoking endeavor. A long-term study, in real situations of grief and mourning, appears to be necessary – but that is, unfortunately, beyond the scope of this project. That is why we hope that this project will inspire many researchers after us to investigate this topic further. Leaving something behind that matters for others is, after all, part of what makes us human.

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