

On the Design of Technology Heirlooms

David Kirk & Richard Banks
Microsoft Research Cambridge
7 JJ Thomson Ave., Cambridge, UK
{dakirk, rbanks} @microsoft.com

ABSTRACT

In this paper we outline our current interests in the design and development of a form of technology which we refer to as technology heirlooms. In part, these might represent new devices but they also suggest a means by which existing mundane technologies such as digital files and data might come to be considered heirlooms and then require new forms of treatment and be associated with new forms of practice. We discuss ways in which we have and will be researching in this space to inform our design activities.

Author Keywords

Guides, instructions, author's kit, conference publications.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Death is intriguingly very much a part of life. It's something that we all experience, as either the bereaved, or someone approaching the end of their life. Often, we use objects and other things in the environment to help us deal with or relate to death. Objects have been discussed to be useful for the creation of identity [9] or ways of structuring or representing our relationships with the world [2]. It is also evident, though, that they can come to mediate our experiences of remembrance [6], to affect the ways in which we recall loved ones who are no longer with us, and can become the focus for our intentions of how we ourselves might wish to be remembered by future generations, as we consider what things we might leave behind or bequeath to others. In our modern world the nature of those objects has shifted somewhat with the rise of digital technologies. Now we have objects which are not just simply material they are digital and technological too. How might we relate to these in the face of our being-towards-death?

In this paper we wish to describe some of the work that we are starting to undertake in exploring some of these notions as they relate to the development of technology heirlooms. A technology heirloom is a technological/digital artefact that is designed with the intent that it might outlive its owner and come to be passed on, and that in some way either materially or conceptually it might carry with it an imprint or impression of the previous owner. It will in

effect become a memorial for that person passing it on and a means by which others might reflect on the life of or relate to the original owner. The very notion of having a technological/digital heirloom is intriguing for several reasons surrounding, fundamentally, our relationships to physical tools and artefacts and the ways in which we think about 'data' or the digital realm.

Firstly, and perhaps most obviously there is a notion that our current consumer culture develops objects for replacement. We have a strong culture of planned obsolescence for our objects. When we consider digital tools and artefacts we have come to assume that they are purchased with a view to being replaced within just a few years because their capacity will be diminished relative to the offerings available from the latest gadgets. Gone are the days when a tool was constructed of such quality that it was inconceivable that it would simply be thrown away and be replaced with a better model as soon as one was available. Such practices of replacement are now common place with the types of tools that we regularly use and which we might consider to be, for a time at least, constituent components of who we are.

For example, consider the mobile phone. It is a highly idiosyncratic device, often modified and affected such that it truly reflects the nature of the owner or at the very least aspects of the face that they want to project to the world [5]. It is also a very intimate object and one that is used frequently, held close to the person and in many respects might be considered even to be an extension of the person themselves [14]. Given this it would seem evident that such a tool could easily represent the kind of evocative personal object that Gonzalez considered when she began to explore how objects in a space come to represent their owners [7]. Yet, despite the highly personal nature of this object, it would be anathema for most people to keep their mobile phone for more than a few years. Technical upgrades, new abilities, better styling, all contribute to a desire to re-consume. And as such the digital technology is replaced and made to be replaceable.

Is it possible, though, to turn this notion of how we relate to digital technical artefacts on its head? Should we consider what it might mean to design an object that a person really would keep with them throughout their life, and bequeath to others when it comes to an end, just as they have done for generations with other physical artifacts? Would it be

possible to create technological artefacts that are used, resold, bequeathed or otherwise given continued life much as is done with antiques in our current culture?

Another reason why it might be interesting to explore the notion of virtual heirlooms, ironically stands at odds with the ideals of replaceable technology briefly discussed above. A virtue of the digital has seemingly always been that, with the separation perhaps of content and object, we can immortalize the content and save it from the ravages of time which plague the object. A book for example inextricably meshes content (the words and the messages contained within) with the material quality of the paper on which it is written. An e-book as a contrast however holds separate the physical book and the digital representation of the content (the words and messages). As such the content can be replaced, copied, moved and transmogrified, moving from object to object as the physical form deteriorates. In some cases the digital content may never even truly live *in* the object, as for example might be the case with cloud computing where the data *lives* somewhere else only *occurring* in the object as it is needed.

The digital then theoretically offers curious qualities of lasting, of permanence, dodging the bullets of time and entropy. At least this seems to be the assumption. Already, though, people have seemingly begun to realise that given the nature of the digital, one must always have both the 'data' and a means for understanding how that data should be interpreted. We have cases, for example, of libraries of data being lost because the means of interpreting it digitally have become obsolete and unsupported, rendering it locked in unreadable file formats [10]. Despite this, which is in itself a source for some concern, there still appears amongst regular users a firm belief in the everlasting nature of the internet. In our own research [11] we have encountered people with more than a decade's worth of email, stored in GoogleMail. It is kept with complete conviction that it doesn't need backing up because it is saved to the internet, which people seem to conceive of as a repository that *cannot* die. This offers intriguing possibilities for how people might relate to information that will represent or be concerned with them after they are gone. Will digital representations of ourselves outlast us? Should they? How will those left behind relate to the digital, and can we have the kinds of emotional relationship with digital artefacts or digital memories, if you will, that we might currently have with artefacts of the physical world?

All of these considerations are driving our research program to explore how one might design and build technologies which are either from inception considered to be heirlooms or are imbued with a quality such that they might attain that kind of status. The former point in particular is somewhat challenging given the way in which objects tend to be polysemous, embedded within a complex ecology of the home which can render some fundamentally mundane objects as powerfully evocative whilst others perhaps initially considered evocative can recess from affection in a

largely unpredictable fashion. This point is clearly raised, for example, in studies of the disbandment of homes amongst the elderly, when children return to the family home and rediscover all kinds of mundane items which suddenly become powerfully evocative pieces [4].

In constructing such technology heirlooms it is evident that we must not only design for the digital technology as an object, a device, a tool, but also for a future of digital content that might be associated with, or intriguingly, be derived from, interactions with it (the technology), this digital information in its own right being the artefact of sentiment that might need to be preserved.

A NOTE ON PREVIOUS WORK

The work that we are beginning in this space stems in part from the ecological imperative to design for sustainability rather than planned obsolescence, but it also largely builds on a line of research we have been cultivating which considers the relationship between people and sentimental artefacts. This began with an exploration of the practices surrounding various types of media in the home, photos and videos, in particular [13, 12].



Figure 1. The 'Family Archive'

This work underlined for us the importance of both the digital and the physical and the ways in which they might be treated differently, but also the importance of aspects of physicality in the use of the digital. Building on that work we then spent some time exploring how people relate to and interact with physical sentimental objects in the home. The everyday, possibly mundane items, which might recede into the background but in reality evoke a rich emotional fabric of the home [11]. This work highlighted many of the ways in which people structure their domestic arrangements in response to the significance of objects. It showed, for example, why an object is on display as opposed to being up in the attic in a box and what this might mean for how people interact with it. Whilst sometimes at face value only being of pragmatic purpose, these structures can often be quite revealing of the relative social status of the inhabitants of the home [see also 8] and their practices of common association. Through this investigation we have started to develop an understanding of the qualities of interaction with an object that might imbue it with significance.

After having explored these different relationships to objects, and having understood something about the practices of organizing the digital as well, we built a technology device, which we have used to probe the relationship between the physical and the digital in domestic sentimental lives. The device, referred to as the ‘family archive’ (see figure 1), is a means through which everyday objects in the home can be simply digitised and have a digital trace created of them. The trace, although just a simple digital photograph placed on the interactive surface, which has then been segmented (to remove the edges of the photo leaving only the captured object and not the background), gives us a digital imprint that in some way feels qualitatively different to a simple digital photo.

That digital traces of physical objects might compensate for the loss of physical artefacts through time seemed like a tension worth exploring, although of course it raises the spectre of the loss of aura of the original object rendering the resulting artifact less significant but perhaps more available [1]. The system also offered means through which our physical records of sentimental artefacts might come to be kept with our digital records and the two collected archives brought together in ways not previously possible. The uses we observed of the system however suggested quite different actions to that which we had hoped for. Admittedly some of this was due to technical limitation, the scanning not being optimized for the task that some of our participants might have wanted to engage in and the fact that practices of scanning for sentimental objects may well be tied to stages in life-cycles that we missed among our participants. Similar to practices with video [12] in which camcorders are purchased at times such as the near birth of children, decisions to archive often happened at certain developmental points, a baby’s first shoes being boxed when they aren’t needed anymore etc. Because of our sample we simply did not hit any of these points. What we did consistently find however was that the digitisation process created new forms of record that were perhaps previously unavailable and this was something that was valued. The ability to form new kinds of record that felt somehow different was clearly relished.

Whilst paper-based objects were maybe seen as things which could be replaced in some way, there being little relative attachment to the physical implementation it was never really a common belief that many physical objects could be ‘scanned’ and be *replaced* with a digital copy. This then raises questions of whether it is possible that we can have the same kinds of emotive relationship with a digital object that we can with a physical one and makes us question what the fundamental difference is between a physical object and a digital object. What were the values to the physical perhaps not present in a digital copy?

TOWARDS TECHNOLOGY HEIRLOOMS

Understanding some of the relationships that people have with both the physical and the digital, as we have begun to

do from the studies highlighted above, points us towards some new specific research questions which we feel it would be profitable to explore if we wish to pursue notions of designing technology heirlooms and understanding what they might be as a form of interactive technology.

One of the first areas we feel it is important to understand further is the relationship between people and their digital data and digital data that pertains to or comes from others. We’ve already seen evidence of people becoming attached to digital items. Bizarre as it may sound we have found people who are nostalgically engaged with old desktop environments on their old laptops, and we are observing a rise in interest in the notion of online digital memorials, and the development of ritual practices of burial in virtual online communities such as Second Life. It seems that little is understood about how people form relationships with digital content, with digital representations of themselves or others. It is possible that the relationship we might have with such digital artefacts is similar to the relationships we might have with physical artefacts generated in the same means, such as items being bequeathed by a loved one. But the very nature of the digital being different in materiality seems to suggest that we might need to find new ways of interacting with this content once it becomes memorialised. For example, a Word document is just a Word document. It’s copyable, it’s deletable, it can be stored in many profane ways and places. But what if the Word document is the last thing written by a deceased loved one? Would that then give it the status of technology heirloom? If so, would we need to find new ways of treating that object – does it matter that it can be instantly copied and if it is copied does that then *feel* the same? Is it still the original object?

Equally, if there are digital environments in which we spend significant amounts of time, how might they generate nostalgia? If we feel nostalgic for an environment, perhaps a desktop, a regularly visited website or a virtual world, do we have the means of capturing aspects of that experience such that we might relive them? Currently we do this in the physical world by capturing snapshots or videos, practices which can be replicated (or even surpassed) in the digital. Perhaps now we should be thinking of how we might create technologies that enable those kinds of practices for people.

Consequently with these themes in mind we are thinking of engaging in some fieldwork to begin to approach some of these key issues and to build on our previous work. Three target areas for enquiry have been suggested.

Online Memorials – there are a growing number of sites (such as <http://www.remembered-forever.org/>) where people are able to create an online memorial for a loved one. Exploring the uses of these spaces, the relationship people have to them and the types of content they choose to upload to them seems terribly important if we want to understand the process by which mundane items such as digital photos, videos, Word documents, html code or other simple technologies might be rendered as heirlooms. And

consequently then how this affects how people feel they should be treated.

Bequeathing of Content – we are at an intriguing point in time, as large numbers of people will find that when a loved one dies they are bequeathed large amounts of digital artefacts (digital content). We have practices for dealing with the physical ephemera of a life. And we can see and have come to understand how this is dealt with, but we have little idea of how this will happen for the digital. Do people form attachments to the content because of the association? Does its mundanity make it more or less sentimental and should we develop ways of dealing with this kind of data? Our research will consider how rituals of death apply in the digital but also how the elderly make preparation as they approach the end of their lives. Will there be requirements for putting your digital life in order before you go – and how will this be done? Equally processes around burial, the will and so on, all have implications for digital data and how this is handled and we will begin to examine these.

Digital Patina – Our third area of investigation is an exploration of the temporality of artefacts. From the fieldwork we have noticed people valuing aspects of objects such as the way they have been crafted, their build quality or ephemeral fragility, the way an object has a history imbued in it and the way it might have become patined. This is not entirely surprising of course, and other researchers have elegantly observed how the processes of decay (for this is in many respects an underpinning aspect to the values highlighted above) can come to redefine our relationship with artefacts [3]. As DeSilvey argues [3] there is a value in the decay which renders an object something more or something different, which is to be cherished. For both the technology devices that might become heirlooms and the digital artefacts that are associated with them this raises questions as to what might happen if there are means by which patina, or the accretion of information of use of an artifact (an additional way of thinking about patina) might be used to modify the artefact over time thus playing on issues of its temporality and offering new layers of value to mundane artefacts.

DESIGNED HEIRLOOMS

We are engaging in a process of designing and developing a series of objects which reflect the values highlighted above. These objects will help us to explore what happens when digital technologies behave in a way which reflects the more obvious physical sentimental artefacts we have. By designing objects for example, that might decay, that might offer physical temporality along with a retention of their digital advantages, we might see new reflections on how digital/technological artefacts can be made to embody a sense of 'heirloom-ness' and then reflect on how this impacts the relationships people have with these objects. We will create a series of these provocative objects which we will then expose to users for the purposes of reflection.

CONCLUSION

Our intention in the design of technology heirlooms is to explore the relationship between people and the physical and digital with an eye to enriching the interactions we have with technological experiences. To do this we intend to continue to explore both mundane objects and the ways in which they come to be part of the rich emotional fabric of the home and also to build provocative technologies which test notions of how mundane physicality might be imbued in the design of the digital, therefore transforming the relationships we have with our digital artefacts and the artefacts of others.

REFERENCES

1. Benjamin, W. (1936) *The Work of Art in the Age of Mechanical Reproduction*. Penguin
2. Csikszentmihalyi, M., Rochberg-Halton, E. (1981) *The meaning of things: Domestic symbols and the self*. Cambridge University Press.
3. DeSilvey, C. (2006) Observed Decay: Telling Stories with Mutable Things. *Journal of Material Culture*. 11, 318-338
4. Ekerdt, D. J. and Sergeant, J. F. (2006) Family things: Attending the household disbandment of older adults. *Journal of Aging Studies*. 20, 193-205
5. Goffman, E. (1959) *The Presentation of Self in Everyday Life*. Penguin Books
6. Gonzalez, J. A. (1993) Rhetoric of the Object: Material Memory and the Artwork of Amalia Mesa-Bains. *Visual Anthropology Review*. 9 (1) 82-91
7. Gonzalez, J. A. (1995) Autotopographies. In G. Brahm Jr. and M. Driscoll (Eds.) *Prosthetic Territories. Politics and Hypertechnologies*. Westview Press, pp. 133-150.
8. Hendon, J. A. (2000) Having and Holding: Storage, Memory, Knowledge, and Social Relations. *American Anthropologist*. 102 (1), pp.42-53
9. Hoskins, J. (1998) *Biographical Objects: How Things Tell the Stories of People's Lives*. Routledge
10. <http://news.bbc.co.uk/2/hi/technology/6265976.stm>
11. Kirk, D. & Sellen, A. (2008) On Human Remains: Excavating the Home Archive. *Microsoft Technical Report*. MSR-TR-2008-8
12. Kirk, D. S., Sellen, A., Harper, R. and Wood, K. (2007) Understanding Videowork. In *Proceedings of CHI Conference on Human Factors in Computing Systems*, ACM: San Jose, CA, 61-70
13. Kirk, D. S., Sellen, A., Rother, C. and Wood, K. (2006) Understanding Photowork. In *Proceedings of CHI Conference on Human Factors in Computing Systems*, ACM: Montreal, Canada 761-770
14. Wilson, R. A. & Clark, A. (2008) How to Situate Cognition: Letting Nature Take its Course. To appear in M. Aydede & P. Robbins (eds.) *The Cambridge Handbook of Situated Cognition*. Cambridge University Press.