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Disposable Technologies: The Halfwayness of USB Portable Hard Drives

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Abstract:

This article draws from a pilot study examining people's use of portable hard drives and USB sticks in Melbourne, Australia – an important initial step in identifying the ways in which USB portable hard drives hold enduring personal, social, and economic significance. We explore this significance through reluctances to dispose of USB portable hard drives, partly for environmental reasons, but also because of concerns over the data stored on them. In direct tension to these concerns is an ephemeral sense of ownership, where USB portable hard drives are always disposable from the moment of acquisition. We also explore views on, and negotiations of, these paradoxical issues in regards to the disposability of USB portable hard drives.

Like old art, old media remain meaningful (Gitelman 2014, 4).

Introduction

As Charles Acland (2007, xix) identifies, the myth of the new is that it ruptures technological change from the context of “historical processes”. New technological developments do not lead to the immediate redundancy of existing technologies, yet a

preoccupation with new technologies fails to account for the continuity of existing technologies. Critical attention towards historical processes often situates technologies as 'old media' (e.g. Davis 2007), and as waste (Sterne 2007; Muecke and Hawkins 2003).

As Lisa Gitelman (2008, 4) demonstrates, established technologies (those objects, devices and services that have been 'domesticated' and integrated in our day-to-day lives) may be situated as contemporary subjects by examining current practices of personal use. There have already been efforts in this regards in relation to mobile media and portable music storage devices (Bull 2008; Magaudda 2011; Sterne 2012), yet one particularly ubiquitous form of portable technology has been overlooked: USB portable hard drives.

The listing of over 120,000 USB portable hard drive products through online mega-retailer Amazon (U.S.) is indication that USB portable hard drives are indeed ubiquitous and presently still in demand. USB portable hard drives emerged onto the consumer market in the early 2000s as an alternative form of data storage to 3.5 inch floppy disks and CD-ROMs. They consist of an integrated Universal Serial Bus (USB) plug either soldered to the device or as an external cable through which the device can be connected to a computer, and a NAND flash memory chip with the capacity for multiple read/write cycles. Since their introduction, USB portable hard drives have dramatically increased in capacity and reduced in price. To give some perspective, when one of the authors purchased their first USB flash drive in 2004, it had a capacity of 128MB and cost approximately AUD\$65 (USD\$46). Given the duration of these devices in the market,

and their established place in data management practices, it is remarkable and significant that practices of their use have not been examined. While the USB flash drive has so far outseen competing technologies, their place in personal data management practices is threatened by the rise in cloud computing, signalling a narrowing window in which to conduct this research.

This paper draws from a pilot study we conducted to examine people's use of USB portable hard drives in Melbourne, Australia. Our analysis is based on fourteen in-depth interviews with users from a range of professional backgrounds of USB portable hard drives (the term we are using to capture a range of portable hard drives and USB powered data storage devices). All interviews were conducted in person, between October 2013 and March 2014, in Melbourne, Australia. Because the participants were recruited according to convenience sampling (drawing on professional and personal networks of contacts) and snowball sampling, the study sample is not considered to be representative. Nonetheless, we are able to clearly identify practices of use associated with these devices. The data used in this paper comprises transcripts of semi-structured interviews, photos of USB portable hard drives to document their material form, and screen captures of folder structures on said devices elicited through a "show and tell".

Our study is an important step in identifying the ways in which USB portable hard drives hold enduring personal, social and economic significance. One of the main underlying arguments of this paper is that it is important that the field of media studies "consider 'little tools of knowledge'", such as USB portable hard drives, "in addition to larger, glitzier – that is, more intensively capitalized – forms" of media (Gitelman 2014,

19). We explore this significance through reluctances to dispose of USB portable hard drives, partly for environmental reasons, but also because of concerns over the data stored on them. In direct tension to these concerns is an ephemeral sense of ownership, where USB portable hard drives are always disposable even at moments of acquisition. We explore views on, and negotiations of, these paradoxical issues in regards to the disposability of USB portable hard drives.

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The Ubiquitous USB

Increasing affordability and capacity for storage has driven the ubiquity of the USB. As our participants attest, since USB portable hard drives came onto the market they have transitioned from being costly luxury items to becoming disposable, throwaway items. Charlie, a project manager for a large utility company, remembers how her first purchase of a USB hard drive felt significant compared to regular purchases she makes now:

They're so cheap these days. Do you know, when I first got my one it was like a couple of hundred bucks, like years and years ago. Now they're like, I don't know, ten bucks. (Charlie, utilities project manager, 2014)

Even when newly acquired, the relatively low investment marks them as disposable. As Edith, a lecturer in health sciences at a Melbourne university describes:

Over the years I have had an awful lot of USB flash drive thingies, USB keys. I tend to be pretty hard on them and lose them, don't keep really good track of them. I've had ones where they've just given one to me at a conference and said, "Here's a USB key". (Edith, health sciences lecturer, 2014)

Their value, then, is fluid and subjective, derived from the content on the device rather than the materials. It is not until personal data is stored on the device that it becomes significant. One participant describes her use of USB portable hard drive for storing family videos and photographs, quoting the manufacturer's advertising slogan to describe the intrinsic role of the device in holding precious memories: "saves your life apparently, according to the instruction booklet" (Charlie, utilities project manager, 2014).

Such sentimental attachments are tempered by the predicted failure of such devices. While the flash memory chip itself can function through thousands of read/write cycles, the casing and plug of the devices are generally less robust:

[T]his is one I've had for ages, I stuck it together with sticky tape because it's actually split, so I find sometimes it doesn't work very well and I thought, "Well, this is stupid, Jackie, continually using this" and when I take it to the photo place, it sometimes doesn't get recognised, the disk. (Jackie, community development worker, 2014)

[Insert image: kennedyandwilken_image2]

The expectation that devices will eventually fail or break does not foster concern for their care. Instead, their treatment actually speeds their likely demise. Asking participants where USB portable hard drives were typically kept, a common answer was at the “bottom of bags”, or other more precarious locations. Of those we interviewed, Edith identified herself as particularly careless:

I’ve had a couple break, I’ve sent a couple through the wash. I have a lanyard for my keys so I used to have one on that and that was one of the ones that broke, possibly because I wasn’t paying any attention at all to throwing it around and stuff like that. Obviously they’re supposed to be resilient but at the same time it was getting smashed around a lot. (Edith, health sciences lecturer, 2014)

It seems that USB portable hard drives are destined to be trash. And, yet, our participants’ relationships with their USB portable hard drives were revealed to be rather more complicated than the apparent fragility of these devices would suggest.

Tensions Between Materiality and Ephemerality

Where USB portable hard drives typically come to be considered trash is at the point where the data on them is no longer accessible, whether because the device is corrupted or, more commonly, because the hardware is broken. For example, Daniel, a graphic designer for an engineering software company, has multiple hard drives that no longer

function. Yet he keeps hold of them, signalling a reluctance to consign them totally as trash:

I do have a box of dead hard drives. I don't know why I don't throw them out. You just sort of don't for some reason. I've gone through – I only buy WD hard drives now because Seagates are just – they don't work. They die. ... I've got a box of dead Seagates and a bunch of working WDs. ... They just stopped working. The computer won't recognise them. You know they're working but it always seems to be a USB problem because if you pull it all apart and put it into a USB cradle it'll work. So it's got something to do with the USB. (Daniel, graphic designer, 2014)

While the drives are dysfunctional, the data is still potentially valuable. Herein lays a crucial issue with USB portable drives: the tension between the materiality of the hard drive and the ephemerality of the data. Across our interviews, participants debate whether hard drives that can no longer be accessed still hold value, and yet express their reluctance to part with them:

I'm sure there's stuff on my old ones. I'm not that concerned. I've really got hard drives from like – old towers just piling up in there. I can't even access the data. I have no idea how to. I've tried. Because I'm sure there's stuff on there that'd be very interesting to look at, but they're from like when I was 16 or something, so yeah. No. I'm sure I'll get rid of them, recycle them one day or something.
(Daniel, graphic designer, 2014)

At some point they just picked up some viruses, and I've had friends run programmes through to clean out the viruses and stuff, and still you put something on there and it doesn't seem to just work. So, they kind of just sit around my apartment. I haven't thrown them out, but they're of absolutely no value to me. (Jacinta, charity coordinator, 2014)

Motivations for Retaining USB Portable Hard Drives

Many participants expressed uncertainty as to why they held onto devices that they knew to be inaccessible. From these interview discussions, four main reasons emerged for holding onto USB portable hard drives, which we explain in turn below.

Environmental Concerns

Participants described a reluctance to dispose of non-functioning USB portable hard drives based on environmental concerns, and a general reluctance to generate waste:

I'm a bit concerned of throwing something. Unless I completely stripped it, which I couldn't be bothered doing, I don't want to toss this in the rubbish because it's not very environmentally cool but then I wouldn't want to give it to a digital recycler either because who knows what happens to the data. So, yeah, I reckon I'd probably keep them. (Alex, web manager, 2014)

I'm pretty big on not wasting things, so I probably wouldn't actually get a new one unless this is broken or something. (Jacinta, charity coordinator, 2014)

Both these participants were reluctant to contribute to what media theorist Jussi Parikka describes as a further, and especially problematic, “afterlife of the machinic” (Parikka 2013b), whereby USB portable hard drives become one part of “the growing waste piles that are the true leftovers of ‘dead media’ – the residue of our expired industrial equipment and personal devices” (Parikka 2013a). Conscious of the environmental impacts of e-waste, these participants preferred to retain their USB portable hard drives, despite discontinued use or the devices being broken.

Data Security

A second reason for holding onto old devices, as alluded to in the first of the two passages above, was concern over the security of data still stored on them. Although many of the participants who expressed this concern were unable to retrieve the data themselves, there was an expectation that someone else may be able to should they come across the device – concerns that are shared by computer scientists (Garfinkel and Shelat 2003; Bennison and Lasher 2004).

Investment

A third reason relates to investment, which can be understood in a number of ways. There is the issue of the initial financial outlay. With earlier devices more costly than

their subsequent replacements, the amount spent on earlier storage devices meant that they retained some value. And, in at least one case, even though our interviewee made no financial outlay of their own, the storage capacity of the device (and its gifting) warranted retaining it: “A friend gave it to me and told me to keep it. It’s eight gig and I love it.” (Jodie, yoga instructor, 2014)

Participants also talked about investment in terms of time and labour, and the effort required to manage the files still stored on the device meant that they hadn’t truly exhausted the possibility of retrieving data from it.

They just sit in my drawer until I work out there’s stuff on there which I don’t need. So, at some point in time, and it’s one of the tasks I’ve got, is to go through my hard drives and work out, “Okay, I don’t need those files”, and I just erase them; and, then I’ll, I don’t know, I may either ditch that hard drive or I’ll find a use for it. Yeah, I think that as hard drives come down in cost and come up in how much space that they store, the little black ones which I’ve got, this is perhaps their last few months of life. Yeah, it is time, because in the old days, the old days like four or five years back, one external hard drive could not hold all of your stuff, so you had to kind of share it amongst two, so one of the things why I haven’t got that task done yet is because I’ve got to, you know, take these two hard drives and look on one and see whether that’s on that one and then compare the two hard drives and then compare onto my actual laptop as well and see well is that file on my actual laptop. It just takes time to work between three things.

(Daniel, graphic designer, 2014)

In addition to highlighting the challenges of managing data on older media, this rich passage also draws out a number of themes that are crucial to understanding these “little tools of knowledge” (Gitelman 2014, 19): the unruliness of data (the difficulties associated with managing files on and across these devices); the proliferation of devices (the difficulties associated with keeping track of multiplying USB drives of variable age and states of disrepair); and, tensions between materiality and immateriality (the difficulties associated with ephemeral technologies housing often precious data), which were most evident in relation to “divestment practices” (Gregson, Metcalfe, and Crewe 2007a), where USB portable hard drives are presented as affordable, capacious, and disposable, but viewed by our participants as of enduring significance and worth keeping.

Conclusion

To conclude, in this article we have argued that, despite their ephemerality and apparent fallibility, USB portable hard drives continue to matter for the participants in our study. These “old media”, in short, “remain meaningful” (Gitelman 2014, 4), with participants reluctant to dispose of faulty or little-used devices. In this respect, our study builds on earlier work in other disciplinary contexts that has examined “divestment practices” in relation to the movement of objects in and out of domestic homes and which calls for a focus on “actions not things” (Lepawsky and Mather 2011), and for greater consideration to be paid to the human relationships that bind us to, and the complicated meanings associated with, consumer objects, rather than “focusing on the trajectories of

the objects themselves” (Gregson, Metcalfe, and Crewe 2007b). Extending these insights, we would do well, we suggest, to approach USB portable hard drives as part of “a fullness of cohabitations involving human and non-human agencies, and as part of an ongoing flow of appropriation, accommodation and divestment” (Gregson 2007, 6). Such an approach could prove productive in better understanding the “halfwayness” (Sterne 2007, 23), or longer lives, of established media technologies such as USB portable hard drives, and in grasping their enduring personal, social, technological, and economic significance.

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