Capturing online cultures and storytelling as method[1]

Annet Dekker

Introduction

Much progress has been made in developing tools, models, strategies and other methods to preserve or document websites (for example, Brugger 2008, 2009 and Rogers 2013), but successful Web preservation also requires comprehending how the dynamic environment in which components thrive can be captured. To enable a future reconstruction of aesthetics, accountability or heritage, it is crucial to understand the context in which these websites functioned. Within the short span of a mere twenty years people have become accustomed to browsing the Web, finding all kinds of information by simply clicking from link to link. While information steams by, the context of how the information surfaces, what strata one search or the click on one link can cause is forgotten immediately since the new is there within milliseconds. The dynamics of the Web have become invisible to many of its users and the way data comes into being is forgotten. Focusing on the preservation of art on the Web, in what follows I will emphasize the importance of capturing the broader environment of platforms and social interactions in which many of these artworks thrive. Next to highlighting some of the difficulties in preserving these contexts, I explore storytelling as a method to develop and enrich a historic understanding of online cultures.

Capturing the Web

Several attempts have been made over the past two decades to document websites. One of the best known is the Internet Archive's Wayback Machine. The mission of the non-profit organization Internet Archive, founded in 1996 by Brewster Kahle, is to provide free access to all kinds of digitized and digital materials, including websites, software, games, music, moving images and books.[2] On 24 October 2001 the organization launched the Wayback Machine, a free service allowing people to access and use archived versions of past Web pages, because as they argue:

> Most societies place importance on preserving artifacts of their culture and heritage. Without such artifacts, civilization has no memory and no mechanism to learn from its successes and failures. Our culture now produces more and more artifacts in digital form. The Archive's mission is to help preserve those artifacts and create an Internet library for researchers, historians, and scholars.[3]

Looking more closely at the Wayback Machine shows they only capture time-stamped snapshots of websites. As such, it foregrounds 'single-site histories', which means that single pages in a website can be studied over time (Rogers 2013, 66). In some cases, this works without any problems, as, for example, Jill Lepore, reporter for *The New Yorker*, describes in her article on how to archive the Internet: 'The Cobweb. Can the Internet be Archived'. She references the MH17 Ukraine plane crash in June 2014 to explain the usefulness of the Internet Archive. A mere two weeks before the incident, a curator of the Russia and Eurasia collection at the Hoover Institution, at Stanford, had submitted to the Internet Archive, a list

of Ukrainian and Russian websites and blogs that ought to be recorded as part of the archive's Ukraine Conflict collection. They did this and managed to intercept and record a screenshot of a VKontakte (a social network) post by Strelkov (the field commander in Slaviansk) claiming that a plane had been shut down. The original post was removed within two and a half hours after the 'incident', but evidence of the original claim can still be traced in the Wayback Machine (Lepore 2015).

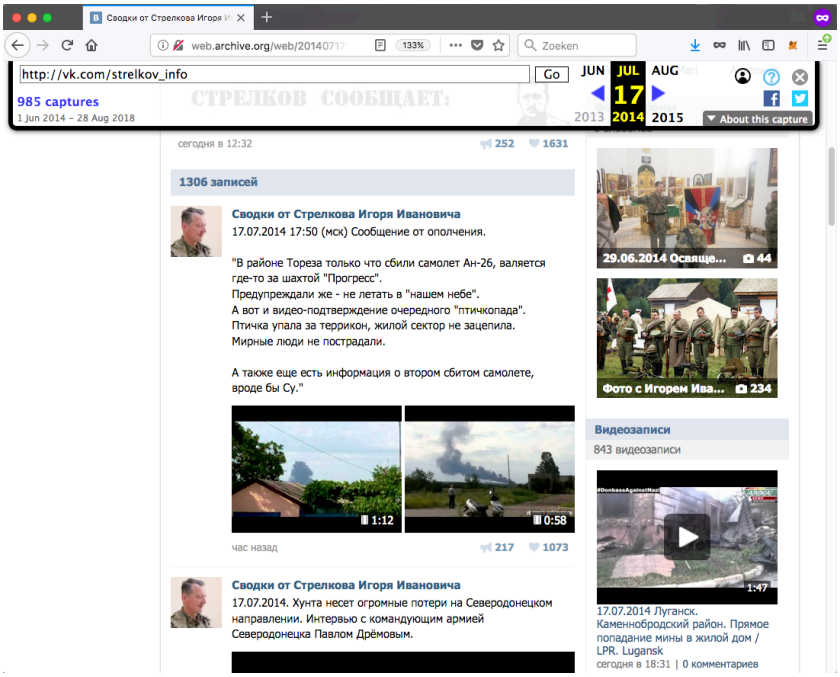

Fig. 1. Screencapture VKontakte, Wayback Machine

While this is a very good example of what a large institute can do, in most cases the Wayback Machine proves to be less reliable.[4] As also argued by Web historian Niels Brügger, an archiving process actively shapes and determines how a website is archived and hence what kind of reconstruction or analysis is possible (Brügger 2009, 126). Not only do websites, and their copies, often suffer from temporal or technical inconsistencies, but as Brügger argues 'the archived website is not an exact copy of the one on the live Web but a *unique version* as the result of the archival process' (Brügger 2008, 156). This uniqueness combined with the arbitrary crawls of the Wayback Machine and possible technical inconsistencies make it an insufficient tool for art historical analyses, let alone for the preservation of an artwork. For example, inconsistencies can be part of an artwork, but they may just be glitches, or a case of bitrot. What one does not see or know cannot be traced by looking at random crawls.

To overcome a single-page history the Wayback Machine introduced Memento, an API that allows you to move back in time.[5] The application allows users to see the page around the time it was made rather than the present time. In 2011 the Internet Archive began to use Memento, which makes it possible to use the Wayback Machine in an 'interactive' mode. In some cases this generates interesting results. For example, looking at the changes over time to the website *mouchette.org* by French artist Martine Neddam and clicking one of the links via the Wayback Machine on any random date shows a standardized answer with a link that

redirects to a random other part of the site and not necessarily to the one that it would normally go to (even in the past). In this case the misdirection is interesting because is has always been Neddam's desire to make navigating the website as convoluted as possible:

> I wanted to get the viewer lost in a very complex navigation, where the placement of the links was invisible or unexpected (Dekker 2008, 66-8).

Another example, for which I used Memento's ability to recall history, is the work by Slovenian artist Igor Stromajer. In 2011 Stromajer began to delete his earlier net art pieces. After annoucing the project *Expunction* on Facebook and other social media, some of the reactions expressed concern: 'Igor !!!!!!! Can't you do something else to go through your mid-life crisis ???? !!!!!'.[6] I tried to trace his deleted works in the Wayback Machine with Memento. With a few exceptions, I was redirected back to his present *Expunction* project page – even in that past I couldn't revisit earlier instances of his work. I was stuck in a circular present, no past, no memories. Such inconsistencies pose huge challenges to researchers who are unfamiliar with the documentation process, in particular around the nature of absences, redirections and the limitations of the techniques that are applied. Next to a critical assessment of the methods and tools that are used, as well as a thorough understanding of the interfaces in which history is viewed, researchers are advised to collaborate with Web archivists and Web users to create a socio-technical perspective (Jackson 2015, Meamura et al. 2018). A cultural perspective is just as important, in particular in cases where artists and other users have purposely obfuscated or misused a site's 'standard' functionality. This means involvement of the primary 'Web users' such as the artist(s), or creator(s), of a site.

In the case of Stromajer, his process of deleting many of his online works is well documented. All the conversations and the discussions around *Expunction* can be traced on Facebook. However, these discussions are not saved on the Wayback Machine, since Facebook is a closed system and the data of individual users cannot be cached.[7] To avoid the dependency on Facebook, Stromajer took screenshots of the discussions that are still available on his website. Recently, other tools have been developed to document social media platforms. One of them is the Webrecorder created by Rhizome, a non-profit organization based in New York. As Dragan Espenschied, one of the developers, explains:

> Current digital preservation solutions involve complex, automated processes that were designed for a web made up of relatively static documents. Webrecorder, in contrast, can capture social media and other dynamic content, such as embedded video and complex javascript (Espenschied 2016).

Indeed, Webrecorder is a good tool to capture social media platforms, it records the posts, the likes and the comments of other users, and the replay functions as if you're browsing the live site. But users cannot add anything or make any comments as one normally could do. For example, one of the recordings is of Amalia Ulman's project *Excellences & Perfections* (2014). For five months and in almost 200 posts, Ulman acted out a scripted performance that culminated into an extreme makeover, which she performed on Instagram

and Facebook. Playing on the cosmetics culture and as a comment on the demands social media makes on users' appearances and experiences, Ulman convinced many of her followers and (artist) friends that what she was doing was real. The Webrecorder team documented the entire Instagram performance, including the Instagram interface, to create a faithful re-performance of the context in which the photos and comments were embedded. At the same time, Ulman reposted everything to Facebook where the discussion and comments were more intense. As Amelia says in an interview:

> People got so mad at me for using fiction. That was the main critique: 'It wasn't the truth? How dare you! You lied to people!' (Smal 2015).

Due to less privacy-friendly settings in Facebook, Ulman felt reluctant to record those statements: 'No one really knew I was performing (…) It would be really complicated to archive that and keep the privacy of people' (Goel 2014). The decision to record only the actual performance and not all the discussion around it is understandable from a privacy point of view; however, an important part of the work – her comments on the conventions on many social media platforms – can foremost be found on Facebook, but is likely to be lost soon.

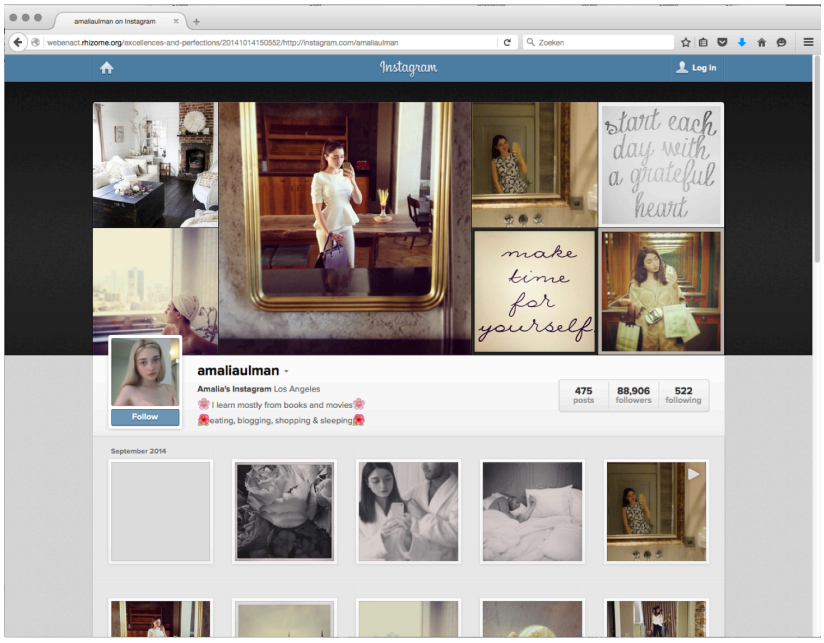

Fig. 2. Screencapture Amalia Ulman's *Excellences & Perfections*, captured by Webrecorder

'Amateur' examples

Stromajer documented the context of his project *Expunction* as best as he could by making screenshots and copying the comments that were made on his process; these can now be found on his own website. With initiatives like Webrecorder anyone can now document all kinds of (privacy-sensitive) data. Potentially this could serve as a way to capture the context of online projects as well as the performance, which means a broader and more 'democratic' view on art history.

In the past several attempts were made to capture the context of how users experience the Web. For instance, the *NetArtDatabase* project, initiated by Robert Sakrowski and Constant Dullaart, aims to move beyond the technical specifications and the interaction model of the artwork. They try to capture the reception of net art in the environment where it was originally perceived. As Sakrowski explains, 'the context, the private atmosphere, and the hardware interaction defines a large part of the "net art activity"' (Spreeuwenberg 2011, 4). The project makes clear that documentation needs to move beyond a single method of photography or video and that one should focus on various points of view to illustrate what net art is. Although attention is given to the 'natural' environment where one interacts with net art, the formal requirements for the set up are very static, leaving little room to manoeuvre.

Capturing net art activity also takes place in other ways, for example, in the project *One Terabyte of Kilobyte Age* (2011–ongoing) by Olia Lialina and Dragan Espenschied. With this project Lialina and Espenschied take up the challenge of finding new archival methods that reflect the way archival content was created: the captured universe of Geocities. Geocities was a free Web hosting service founded in July 1995. It soon emerged as one of the most popular and inhabited places on the Web and remained so until the late 1990s. At the peak of the dot.com fever in January 1999 Yahoo! purchased Geocities for 3 billion dollars. However, Geocities soon became synonymous with old-fashioned aesthetics and basic bad taste. At the same time people drifted to social network profiles. In April 2009, Yahoo! announced that it would shut down Geocities in six months. During these months the *Archive Team*, with the help of about 100 people, managed to rescue almost a terabyte of Geocities pages. And on 26 October 2010, marking the first anniversary of Geocities' closing, the Archive Team released a torrent file archive of 641 GB, containing approximately 1.2 million accounts. As mentioned by digital archivist Jason Scott:

> Geocities arrived in roughly 1995, and was, for hundreds of thousands of people, their first experience with the idea of a webpage, of a full-colour, completely controlled presentation on anything they wanted. For some people, their potential audience was greater for them than for anyone in the entire history of their genetic line. It was, to these people, breathtaking.[8]

As a symbol of the 'amateur' Web, Geocities is a trace of how the Web was used at the time. This was one of the main reasons why on 1 November 2010 Lialina and Espenschied bought a 2-TB disk and began downloading the largest bittorrent file of all time.[9] They started unzipping the first files in January 2011, a process that ended in March 2011. After downloading, storing and sorting the 16,000 archived Geocities sites, which took another year, they started redistributing screen captures of the Geocities homepages through the Web. As Espenschied remarks:

> 'Content' that is isolated, de-contextualized and shuffled around in databases of social networking sites is the main form of communication; to be useful an artifact

> has to work as a 'post', it has to become impartible and be brought into a format that is accepted everywhere. And that is a screenshot (Owens 2014).

The circulation was done in different ways: they opened an automated Tumblr blog that every twenty minutes uploads a new screen shot of a Geocities homepage; the screen captures are liked and reposted by the Tumblr followers, and the most reposted or liked are then presented next to related research on their blog *One Terabyte of Kilobyte Age* while at the same time distributed through Twitter.[10]

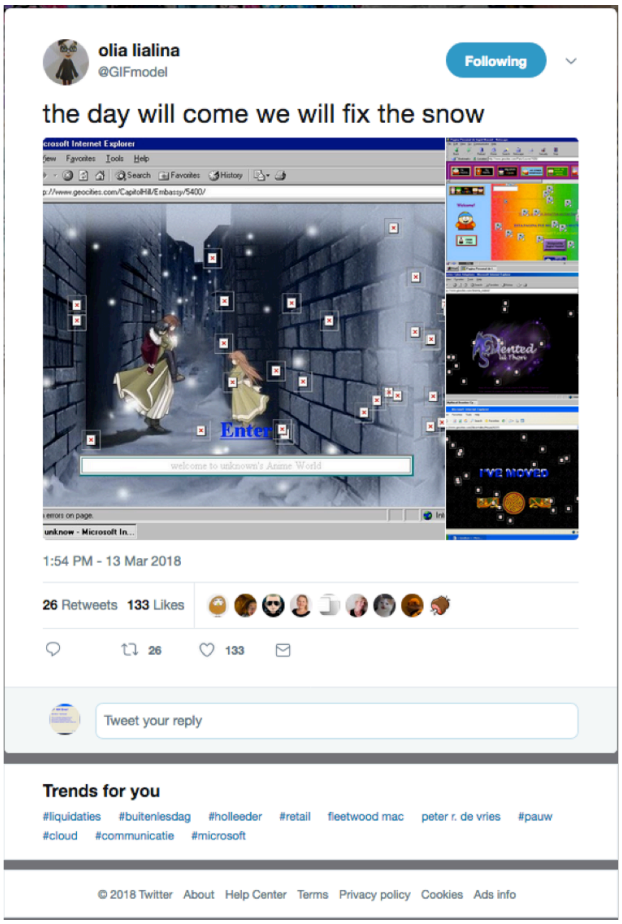

Fig. 3. Screencapture of reposting *One Terabyte of Kilobyte Age* on Twitter

The Geocities archive became a spiral in which Lialina and Espenschied reflect on the Tumblr archive of the torrent archive of the Geocities archive, people reblog, retweet, like and save the posts, and it just keeps going on. While Geocities was almost a forgotten world on the Web, due to several enthusiasts and thousands of followers and users it became not only visible but also an important marker in the Web's history, and through liking, sharing and redistribution Geocities keeps circulating and popping up in new contexts. Next, the project introduced a whole new folksonomy through tagging – for example, 'alive' and 'under construction' – of how this new archival material could be categorized and analyzed (Lialina 2017). Lialina and Espenschied's project provides all kinds of information on how Geocities was used and misused, in terms of frames, banners, navigation elements, GIF's etc.

One Terabyte of Kilobyte Age provides a means of archiving over 500,000 screenshots of homepages, and (re-)viewing the home pages through contemporary interfaces says much about the humour that drives online culture – at least in those days. Instead of purely collecting the material for the purpose of preservation the project became about questioning what 'archive' could mean in the context of making work accessible. The artists specifically chose to represent Geocities' history as a dynamic and still evolving project, rather than have it exist as static 'back log' of data. As described by Espenschied this form was explicitly selected as a curatorial and conservation method, because

> Digital Culture is Mass Culture; it is also more about practices than objects. In order for artifacts to survive culturally, they need to become useful again in contemporary digital culture (Espenschied in Ownes 2014).

Interesting questions arise concerning traditional concepts such as provenance and authenticity. As Espenschied also acknowledges, the screenshots have 'authenticity issues', but he goes on to say, 'this is greatly outweighed by their accessibility and therefore impact' (Owens 2014). The other way to experience the online archive would be to emulate the Netscape browser, but this would be costly and require complex emulator setups. While accepting the losses, applied in a generative and circulatory way, *One Terabyte of Kilobyte Age* keeps creating new forms and interpretations, at times pushed forward by humans, at other times by bots (Twitter is supposed to have millions of bot accounts, comprising at least 15% of all its accounts). In this way, the digital archive becomes a carefully designed mass re-enactment. The light interface allows for easy re-circulation, snd allows ever more forgotten moments and new experiences to resurface.

The project is driven by a desire to use technology as a tool to make visible and open up content or conduct that is neglected, forgotten, discarded or deliberately concealed. In this way, it makes sense – as also pointed out by Bethany Nowviskie, director of the international Digital Library Federation at CLIR – to 'take the notion of cultural heritage not as content to be received but also as technology to be used'. This means that artefacts and events are no longer merely about the past, but are tools that can be used to imagine alternative pasts and futures (Nowviskie 2016). What does this say about the feasibility of preserving online cultures?

Online cultures and the value of storytelling, or storytelling as method

Jill Sterrett, head of conservation at SFMOMA, proposes an approach to the preservation of complex artworks that is based on 'planting finds', which she describes as documents with information value. Since the material of artworks has changed, she suggests that museum professionals need to adapt to a new situation:

> Taking into account the transitory nature of ephemeral materials, built-in physical variability and the performative elements that characterize so much of the art of the last fifty years, the work of a contemporary art museum is not business as usual (Sterrett 2009, 227).

Sterrett was inspired by methods in archaeology, where 'finds' are constantly and repeatedly placed in new context. However, she suggests using the 'find' mechanism in reverse – not as an end point for something new to emerge – but as a method to trace the engagement with an artwork and to reveal its life over time. As Sterrett says, it enables 'seeing and seeing anew' (Sterrett 2009, 227). This is similar to storytelling: relations and recognisable patterns in information create meaning and understanding, and while some things stay constant, other elements may change depending on the time, place and person. It's important to stress that I'm not only referring to linear storytelling in which a plot develops based on certain events and culminates in a final message. Rather I'm interested in storytelling as an ongoing cyclical structure that links events and actions, which can occur simultaneously, and lacks a clear ending.[11] In other words, storytelling in the digital medium provides new modes of conceptualising and ways of thinking. Similar to the transformative force brought about by the invention of writing and print, online storytelling affects modes of understanding.[12] In this sense storytelling accounts for the variables – or malleability and instability – that are inherent qualities of many contemporary artworks. Potentially this could lead to a new situation where museums would need to re-assess their 'finds' each time. What does it mean when the preservation of artworks is thought of in terms of (re)production or creation systems instead of 'fixation'?

The work *The Outage* (2014) by Erica Scourti shows the relevance of storytelling as a method, in particular in relation to preserving context. In an attempt to capture her online footprint Scourti asked a ghostwriter to write her (online) memoires. It was a first attempt to assess her digital material – from URL histories to Amazon recommendations, Facebook archives and all the other information that is freely available online – and see how her online identity was constructed through various machines. Each millisecond, numerous digital documents are sent between e-mail servers or shared on social platforms. Aided by cheap data storage, easy access and distribution mechanisms, these acts of blogorrhea – the excessive, compulsive or stream-of-consciousness blogging about trivial things – provide unprecedented access to private lives, and enable the bringing together of large digital collections. Scourti wanted to understand the influence these often-invisible computational systems have over her data. The result was the novel *The Outage*, short blurbs of texts interspersed with screenshots of online material, which combined form a narrative that involves the death of the protagonist. For Scourti the entire process provided a lot of insights into what happens to someone's online data, while leaving her feeling uncomfortable:

> It was a feeling that I had been objectified, made into an image that I wasn't in control of; and as the book's narrative involves a sort of death, there was a feeling that 'my' data body had been killed off in some way, an experience that was both exhilarating and stressful (Dekker 2016).

Employing an outsider to speculate on and fabricate their 'version' of her biography, also reflects Scourti's interest in life-writing as essentially a performative rather than a descriptive act:

> we don't just tell *the story* of our lives, as if there is one singular story that exists prior to its representation in literary or photographic form, but through the telling of that particular story, make it a reality (Dekker 2016).

The act of storytelling as a way to preserve and pass on information, customs and cultures from generation to generation has a long history. Also in preservation several people have argued to include methods from oral cultures and ethnography in practice, in some cases, to capture the expedience of an artwork (Muller 2008, Roms 2008), in others, to communicate and decide on what strategies to adopt (Wharton 2012). These practices underscore the importance of methods from oral traditions, and more generally, of audience participation in the practice of preservation.

Another way to use storytelling as method to preserve the context of a work is by making the context part the work. To remain with the example of Scourti: inspired by the result of *The Outage*, in her project *Dark Archives* (2015) commissioned by Het Nieuwe Instituut as part of the research project *New Archive Interpretations*, Scourti explored the (im)possibilities and effects of online archiving using various narrative methods. Speculating on what a future, or rather present, online archive could be, for the project she uploaded her entire fifteen-year personal media archive of daily photos, videos and screenshots to Google Photo. Next to archiving users' photos, Google Photo uses Assistant, an application that searches for similarities in someone's photo collection. For example, people often take several photos of the same moment or object; Assistant traces all these instances, and collates them in an animation. It also can detect images that overlap and when possible stich them together to create panoramas. Of course, nowhere it is explained what is done to detect and browse the images, and none of the other things the programme may have done are made explicit either. The collection is then parsed by auto-editing, classification and tagging software, resulting in many automatically generated videos, collages and animations. Interestingly, *Dark Archives* draws not only on the Scourti's individual collection but implicitly also on the millions of other user media in which her images and videos are tagged or linked.

In general the term 'Dark Archive' is used to indicate a repository for information that can be accessed as a failsafe during disaster recovery – it is a copy of an archive but one that consists only of metadata and is not for public use. However Scourti, is particularly interested in another type of Dark Archive, the information in an archive that cannot be seen. For example, Amazon could be seen as a very 'light' archive. Their business model is based on retrievability, which means that everything can be found and is accounted for. Amazon has to battle against the forces of darkness, which threaten to make things in the archive un-findable. This could be spam or things that have very similar titles; such duplications are rapidly increasing with algorithmically produced content. Thus, there is a need to keep things retrievable otherwise the content of the archive can fall into darkness: items are available but one cannot find – or sell – them anymore.

Scourti is particularly interested in how visibility and invisibility – or darkness – relate to archiving and archives. After producing the automatically generated videos her final step was to involve elements of staging, scripting and fictionalizing. She invited a group of writers to speculate on and caption what they imagined to be the missing set of media that somehow evaded classification within the archive; the false negatives, the misclassifications, the media that fell outside of Google's definition for that search term. By asking the writers to imagine the way an algorithm works, she was trying to get at the core of what perhaps a non-human way of thinking or logic could be. These captions were used to create a new series of videos to feed into the work that visitors can access on their smartphones. This relates to identity and memory and Scourti's interest in what and how others can see things she doesn't, 'and how the technologies that we are entangled with are recording and archiving our lives' (Dekker 2016). On the one hand, it refers to notions of how identity and memory are constructed, as well as to how knowledge is inscribed in different ways. In other words, 'these online platforms offer us new ways of constructing ourselves, [and] they are equally reworking the ways in which it is possible to do so' (Shaw and Reeves-Evison 2017, 43).

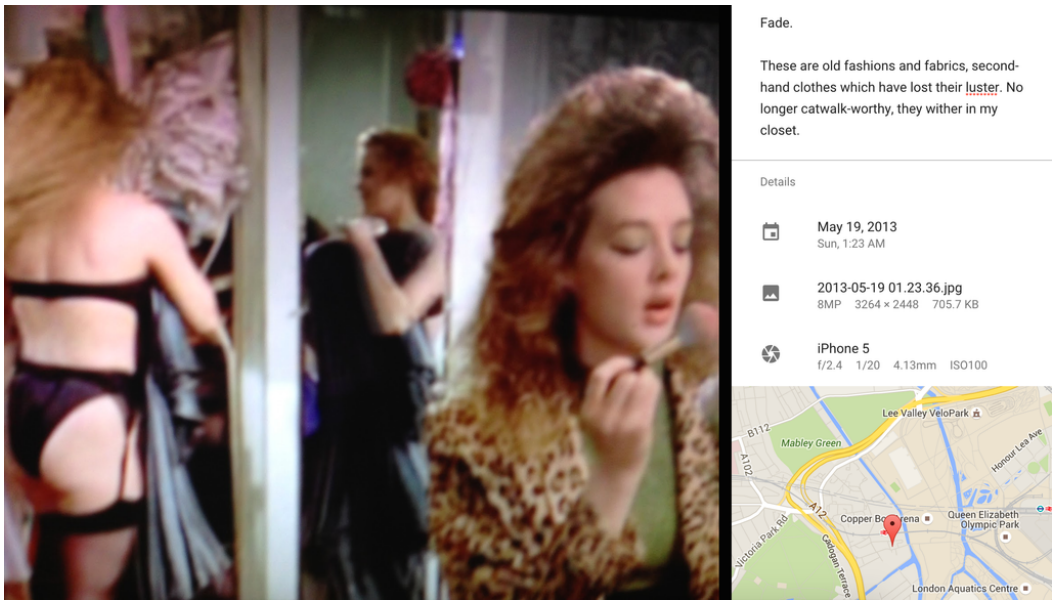

Fig. 4. Still from Erica Scourti, *Dark Archives* (2015)

Besides challenging notions of data collecting, shared authorship and individual memory, using her own life and documents as an example, Scourti explored the (im)possibilities of online archiving and how this relates to the way identities are constructed, while questioning the optimalisation of online production and distribution. The project demonstrated how the significance and meaning of identity and memory derive from technical infrastructure and production. It also showed that an online archive is never stable – especially when using automated editing systems or certain platforms. The archive and the potentially limitless constellations within it are now expanded by contextual framings that provide additional unfinished or semi-fictional qualities. The project clearly brings out the challenges preservation is facing. Rather than worrying about missing information and dark

holes, such ‘loss’ may generate a productive quality that focuses on retelling, which, in the process, might also do more justice to the artwork.

To be continued …

It is clear that preservation is no longer merely an act associated with the power of institutions and authority, as is evident from the shift to artists, audience members and all kinds of technologies that are actively archiving online culture. This new situation necessitates taking seriously the tension between using complex emulation, virtualization or interactive documentation methods and the time and labour required to generate or capture ‘original’ cultural data. As well as accepting that online culture is no longer object-based, and therefore cannot be preserved as conventional objects, it should also be treated as a network of (inter)connected links and dependencies that are prone to constant change with each archival method that is used. To understand the provenance and context of such an unstable environment means considering online culture as the way through which to preserve it. This requires other forms of knowledge, methods and practices, and, I argue, storytelling as method could facilitate a linking of disparate elements while inciting new potentials of participation. Such a perspective considers preservation not as following the conventional ideals of completeness and objects, but emphasizes the production of knowledge that appears through acts of copying, circulation, repetition, reflection, reuse and retelling. Preserving online cultures could benefit from disciplines and practices that are already invested in managing change by applying storytelling as method, in addition to the well-know examples of many indigenous cultures, for instance in musicology (Bosma 2017) or contemporary dance and performance through documentation (Bay-Cheng 2012). Similar to such events, most online cultures are detached from the notion of a discrete and autonomous object, since they are shaped and constructed by (non)human processes that together form a connected network of information with multiple access points. Storytelling provides a dynamic concept that is produced and productive and as such can be thought of as a tool for transformation that extends the radical unknowability of the future.

Bibliography

Bay-Cheng, Sarah. 2012. “Theatre is Media: Some Principles for a Digital Historiography of Performance.” *Theater*. Vol. 42, No. 2, pp. 27-41.

Bosma, Hannah. 2017. “Canonisation and Documentation of Interdisciplinary Electroacoustic Music, Exemplified by Three Cases from the Netherlands: Dick Raaijmakers, Michel Waisvisz and Huba de Graaff.” *Organised Sound*, Vol. 22, No. 2, pp. 228-37.

Brügger, Niels. 2009. “Website History and the Website as an Object of Study.” *New Media & Society*, Vol. 11, No. 1-2, pp. 115–32.

Brügger, Niels. 2008. “The Archived Website and Website Philology: A New Type of Historical Document?” *Nordicom Review*, Vol. 29, No. 2.

Dekker, Annet. 2008. “In Search of the Unexpected.” In *Navigating e-Culture*, edited by Cathy Brickwood and Annet Dekker. Amsterdam: Virtueel Platform, pp. 65-73.

Dekker, Annet. 2016. “Archiving Our (Dark) Lives. Interview with Erica Scourti.” *Het Nieuwe Instituut*, January. http://archiefinterpretaties.hetnieuweinstituut.nl/en/archiving-our-dark-lives-interview-erica-scourti.

Dekker, Annet. 2018a. *Collecting and Conserving Net Art. Moving Beyond Conventional Methods*. London/New York: Routledge.

Dekker, Annet. 2018b. “Between Light and Dark Archiving.” *Media Art Histories / Leonardo*, forthcoming.

Espenschied, Dragan. 2016. “Rhizome Releases First Public Version of Webrecorder. A New Perspective in Web Archiving.” *Rhizome*. 9 August. https://rhizome.org/editorial/2016/aug/09/rhizome-releases-first-public-version-of-webrecorder/.

Fitzpatrick, Kathleen. 2011. *Planned Obsolescence: Publishing, Technology, and the Future of the Academy*. New York, NJ: New York University Press.

Goel, Vindu. 2014. “A Dynamic New Tool to Preserve the Friendsters of the Future.” *The New York Times,* 19 October. http://bits.blogs.nytimes.com/2014/10/19/a-new-tool-to-preserve-moments-on-the-internet/?_r=0.

Hayles, Katherine N. 2012. *How We Think. Digital Media and Contemporary Technogenesis*. Chicago: University Press.

Lepore, Jill. 2015. “The Cobweb. Can the Internet be Archived?” *The New Yorker*, 26 January. http://www.newyorker.com/magazine/2015/01/26/cobweb.

Lialina, Olia. 2017. “Still There. Ruins and Templates of Geocities.” In *Lost and Living (in) Archives*, edited by Annet Dekker. Amsterdam: Valiz, pp. 193-210.

Mackenzie, Adrian. 2005. “The Performativity of Code: Software and Cultures of Circulation.” *Theory, Culture & Society*. Vol. 22, No. 1, pp. 71-92.

Muller, Lizzie. 2008. “Towards an Oral History of New Media Art. Montreal: Daniel Langlois Foundation.” http://www.fondation-langlois.org/html/e/page.php?NumPage=2096.

Nowviskie, Bethany. 2016. “Speculative Collections.” http://nowviskie.org/2016/speculative-collections/

Ong, Walter J. 1982. *Orality and Literacy. Technologizing of the Word*. London: Methuen & Co. Ltd.

Ownes, Trevor. 2014. "Digital Culture is Mass Culture: An Interview with Digital Conservator Dragan Espenschied." *The Signal*, 24 March. https://blogs.loc.gov/thesignal/2014/03/digital-culture-is-mass-culture-an-interview-with-digital-conservator-dragan-espenschied/.

Rogers, Richard. 2013. *Digital Methods*. Cambridge (MA): The MIT Press.

Roms, Heike. 2008. *What's Welsh for Performance? An Oral History of Performance Art in Wales*. Cardiff: Samizdat Press.

Shaw, Jon K. and Theo Reeves-Evison. 2017. "Introduction." In *Fiction as Method*, edited by Jon K. Shaw and Theo Reeves-Evison. Berlin: Sternberg Press, pp. 5-72.

Smal, Rachel. 2015. "Amalia Ulman." *Interview*. 14 October. http://www.interviewmagazine.com/art/amalia-ulman/#.

Spreeuwenberg, Kimberley, ed. 2011. *Documenting Internet-based Art. The Dullaart-Sakrowski Method. Culture Vortex. Public Participation in Online Collections*. http://aaaan.net/wp-content/uploads/2015/09/Documenting-Internet-Based-Art_FINAL.pdf.

Sterrett, Jill. 2009. "Contemporary Museums of Contemporary Art." In *Conservation Principles, Dilemmas and Uncomfortable Truths*, edited by Alison Richmond and Alison Bracker. Oxford: Butterworth-Heinemann in collaboration with Victoria and Albert Museum London, pp. 223-8.

Wharton, Glenn. 2012. *The Painted King: Art, Activism, & Authenticity in Hawai'i.* Honolulu: University of Hawai'i Press.

[1] This article builds on earlier research on the preservation of net art, and some parts were previously published in Dekker (2018b).
[2] For more information see, for example, https://www.uibk.ac.at/voeb/texte/kahle.html.
[3] https://archive.org/about/faqs.php#21.
[4] For more information about the challenges of Web crawling, especially the impact and interactions of contextual factors see, for example, Meamura et al. 2018.
[5] For more information see, http://mementoweb.org/about/ and http://timetravel.mementoweb.org/about/.
[6] Annick Bureaud, https://www.facebook.com/intima/posts/144916102244400.
[7] See: http://www.techcomet.com/2011/05/facebook-profiles-alternative-to.html.
[8] See, http://ascii.textfiles.com/archives/2720.
[9] For more information about their research and findings, see Lialina (2017).
[10] For the Tumblr page see http://oneterabyteofkilobyteage.tumblr.com/, the blog http://blog.geocities.institute/, and the Twitter page https://twitter.com/geocities_txt.

[11] This resembles oral traditions that are characterized by less clear divisions between main and subtopics; details can convey implicit meanings and in the retelling (a process of repetition and reflection) consistency and value perdure (Dekker 2018a, 11).
[12] For more information see, among others, Ong (1982) and Hayles (2012).