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Re-using the archive in video posters: A win–win for users and archives

ABSTRACT

Re-use of digital archival content means interpretation; and the ability to create new and original interpretations of cultural heritage materials constitutes necessary contemporary digital and media literacy skills for any (aspiring) scholar and, by extension, informed citizen. For archives, re-use of their content results in more accessible metadata, as user-generated content has proven to be a valuable addition to traditional catalogue metadata. The Carrot is a design concept for a tool that allows its users to re-use digital archival audio-visual content and create digital narratives with the material, thereby interpreting it and adding to our understanding of the original material. By creating these narratives, new archival material is added, and the archive is thus augmented, with both the narrative and user-generated metadata. Taking the Carrot as an example, in this article we argue that digital tools for re-use of archival content provide opportunities for both users and archives and should therefore be embraced by archives. In addition, actively participating in the development of these tools gives the archives the possibility to get more tailored tools.

KEYWORDS

digital literacy
user-generated
metadata
digital narratives
media literacy
user-generated content
digital archives
digital tools

INTRODUCTION

In 2001, Menne-Haritz argued that the focus of archives has shifted from storage to access. Fifteen years later we might argue that the focus has shifted from access to use: from access to the archive to the use of the archival material. Allowing users to re-use archival material not only helps them in their research efforts, it also helps them develop their digital skills, and it supports archives to augment their content with the users' creations, and their catalogue metadata with user-generated metadata.

One way to re-use digital archival material is to tell stories with it. By re-using digital material in a new narrative, the creator interprets this material and adds to our understanding of the original material. By creating such narratives, saving and sharing the results, new material is added to the archive and the archive is thus augmented. This new material also provides additional metadata.

Metadata define access to any archive. Menne-Haritz (2001: 63) explains the concept of access as 'a strategy that is neutral towards the content but passionate concerning openness and availability of information potentials and thus strictly user oriented'. Summing up, access is all about making materials available to users. But to become available, materials have to be findable. And for findability, metadata are crucial, expert metadata as well as user-generated metadata.

In this article, we hold the view that, with respect to audio-visual archival material, archives should embrace online tools that allow for re-use of their material. We will do so by discussing a design concept for a tool we developed within the EUscreenXL project, named 'the Carrot'. The Carrot facilitates the creation of video posters, in which videos or clips are combined with texts. Originally designed for use in an educational setting, the Carrot fosters both the development of digital media skills and the creation of user-generated metadata. The creation of video posters educates citizens in digital storytelling, augments the archive with user-generated content and in return facilitates retrieval through user-generated metadata, a win-win situation.

After an introduction to the Carrot and how it helps develop digital media skills, we will discuss the pros and cons of user-generated archival content and metadata and discuss why tools like the Carrot are needed to facilitate the creation of such content.

THE CARROT'S CONTEXT

The Carrot is a concept designed as part of the development of tools for the EUscreen portal (<http://www.euscreen.eu>) within the EUscreenXL project (2013–16). This portal was built by a consortium of European audio-visual archives, public broadcasters, academics and technical partners with the aim to make archival material of European public broadcasters available and accessible to researchers, teachers and the general audience alike. The portal serves as the audio-visual cultural heritage aggregator for Europeana, the principal site for European cultural heritage (<http://www.europeana.eu>).

There are many online tools available that allow for the creation of multimedia narratives. With the app PicCollage (<http://pic-collage.com>) users can create works with their photos, with texts and other images. The website Scalar (<http://scalar.usc.edu>) allows users to create a narrative using a variety of multimedia formats. However, users (at the time of writing) have to upload their own videos. This does not align with the policies that govern

portals like EUscreen and, for instance, the European Film Gateway, which do not allow for the download of their videos. Hence, using these videos is out of the question; users are not allowed to use EUscreen videos on a site like Scalar. Complex projects like EUscreen, with a variety of partners with different and sometimes competing interests, need to develop their own tools, amongst others because of the limitations set by intellectual property rights agreements. The development of the Carrot took place within this context.

The Carrot has been designed as a non-proprietary tool: the use and re-use of our (audio-visual) cultural heritage should, in our view, not depend on private ownership of tools. Private ownership not only commodifies our heritage, there is also the risk of companies changing their policies, or ceasing to exist, which would risk the heritage becoming inaccessible. This is why it is particularly important for public funded archives to support and participate in the creation of digital tools for the re-use of their content.

The design concept was developed and demoed in a Europeana E-Space hackathon in May 2015 (<http://www.europeana-space.eu/hackathons-home/>). The team that developed it was formed by an interdisciplinary group of scholars, designers and developers (two of whom are the authors of this article). Developing this application served to better define the scope and limitations of a larger toolkit we were developing and building for the EUscreen portal. Participating in this hackathon, in which the principal goal was to create new multi-screen experiences with a focus on digitized audio-visual footage, helped us to understand the practical use of such tools in concrete settings. The Carrot need not be limited to educational settings per se and can be used in other collectives or even individually.

1. In the educational setting, the teacher uses a specific interface that allows her to see all tags and follow students' activities.

HOW THE CARROT WORKS

The Carrot was originally designed as an educational tool for high school and university use. With this tool, teachers and students are able to collaboratively view, discuss and tag videos related to a specific topic, and then extract clips and produce digital multimedia narratives (video posters) as an assignment. The Carrot was designed to have students re-use audio-visual archival material through a multi-screen application. In this setup, the students work in a classroom, with their teacher. However, we consider that the Carrot can also be used in other settings, and therefore, we will describe it as a tool for more general use.

Starting from a (research) question or interest, a group of people (e.g. students, researchers or friends) watch a video collectively, in a plenary setting. In order to mark relevant shots and scenes, they add tags. These tags can be predefined, based on the theme or research question, so that the variety of tags might be limited. The concept allows the participants to tag via their mobile phones or tablets (see Figure 1).

The tags serve as indicators of participants' ideas in relation to the (research) interest. Tagging is an individual activity, so participants do not see each other's tags until the video is finished. This is to prevent them from responding to each others' tags.¹

The tags presumably invite a (plenary) discussion about which scenes are more and less relevant with respect to the (research) interest. Based on the tags and the discussion they foster, participants review the tagged scenes, select the relevant ones for their video poster and create clips. With these clips they create

2. In the original concept, focused on an educational setting, a second plenary session was planned, in which students present their video posters and the other students use the same multi-screen special spotting technique to indicate points for their peer feedback; for instance, they can point at a specific video or a text on which they want to give feedback. This would prevent interruption of the presentation as well as make it easier to remember which points required feedback. It also allows to aggregate feedback. Because this step in the use of the Carrot is less relevant for our current argument, and for the sake of clarity, it will not be part of the remainder of our article.



Figure 1: Smartphone displaying tags used during the Europeana E-Space hackathon.

their argument in the form of a video poster: a combination of video(s) and text(s), together forming an argument related to the topic (see Figure 2).

Rather than being just illustrative of a point made in the text, or serve as an example, the aim is to make the video part of the narrative itself. A number of such posters can be combined in a more complex or extensive narrative. See Salgado and Sanders (2015) for a more extensive description of the concept and its development during the hackathon.

The Carrot is an easy to use tool that cuts both ways: it helps users develop their digital media literacy, and it helps archives to increase findability of materials through user-generated metadata. We will discuss both points in turn below.

THE CARROT FOR USERS: DIGITAL MEDIA LITERACY

Referring to a 1993 media literacy conference, Livingstone (2004) describes media literacy as 'the ability to access, analyse, evaluate and create messages across a variety of contexts'.² Benmayor (2008: 195), with respect to digital

- Used within an educational setting, they will receive (peer) feedback and review their work accordingly.

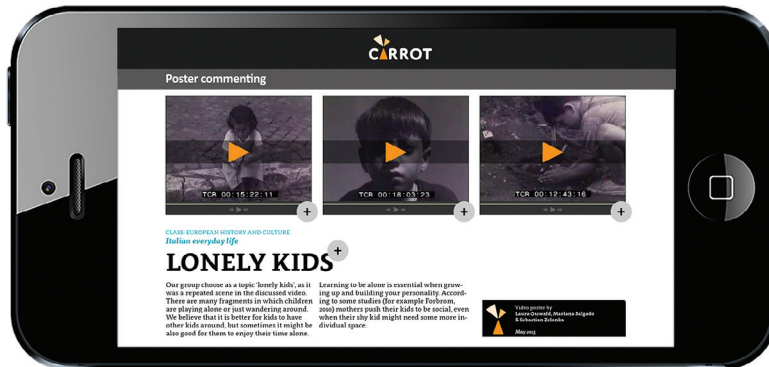


Figure 2: Video poster designed in the Europeana E-Space hackathon.

storytelling skills, refers to ‘the skills of conceptualizing, writing, performing, selecting, imaging, integrating, and signifying’ when making digital stories. These are skills most people learn with respect to writing. But with respect to digital media, learning them is no matter of course. Livingstone (2004) describes the four components – access, analysis, evaluation and content creation – as constituting ‘a skills-based approach to media literacy’.³ The components are complimentary to each other and together form a ‘non-linear, dynamic learning process’: to create helps us to analyse, and the skill to analyse and evaluate helps to increase use and access (Livingstone 2004: 3). Creating metadata for the audio-visual archives can work to promote media literacy if the audio-visual resources are easy to retrieve and users can use them to express their views and ideas.

In the case of media scholars, analysis and evaluation have traditionally happened in the form of writing. However, the proliferation of multimedia communication is slowly finding its way from people relating their everyday lives (through social media such as Facebook, YouTube and Instagram) to academic audio-visual productions (in online academic journals and platforms such as VIEW, <http://viewjournal.eu>; Audiovisual Thinking, <http://www.audiovisual-thinking.org>; and Vectors, <http://vectorsjournal.org>). See Sanders and Hagedoorn (2014) for a more elaborate discussion of publishing academic research with audio-visual material online. The creative use of audio-visual material is a growing practice in academia (see Benmayor 2008 and Sample 2012).

According to Burgess, learning to tell digital stories combines formal with informal learning:

They include not only ‘learned’ skills like the ability to conceive and execute an effective narrative and use a computer, but also the more intuitive modes of collecting and arranging textual elements (as for scrapbooking), the oral performance of personal stories (learned through everyday social interaction), and the combination of sonic and visual elements to create televisual flow [...].

(Burgess 2006: 210)

This televisual flow is, according to Burgess (2006), learned by watching television and films. Although we question whether students learn to create

media with a televisual flow by merely watching television, as Burgess seems to suggest, we do not question that students feel increasingly comfortable as media-creators, expressing their views and ideas in different ways. Therefore, digital multimedia literacy should be part of their curriculum. In other words: Re-use and interpretation, the ability to create new, personal and original interpretations of audio-visual cultural heritage material, constitute necessary contemporary digital and media literacy skills for any (aspiring) media scholar and, by extension, informed citizen. Livingstone (2004) discusses three additional arguments in favour of media creation by students. First, children learn best about products through making them – which might be true for people in general with respect to media (this is the pedagogical argument). Second, the expanding information sector needs people with new media skills (the employment argument). And third, citizens are entitled to self-representation and cultural participation (the cultural politics argument).

Sample reminds us of the provenance of the word text from *textus* ‘meaning “that which is woven,” strands of different material intertwined together’ (2012: 404). He proposes ‘Let the warp be words and the weft be something else entirely’ (2012: 404), with which he suggests to use and combine different modalities of human expression.

The use of audio-visual data is on the rise in general (Smith 2013), and the open data movement is pushing towards the free and open availability of audio-visual resources (e.g. OpenGLAM, <http://openglam.org>, part of the Open Knowledge Foundation, has been active in many European countries such as the Netherlands, Denmark and Finland). Openly accessible audio-visual data facilitate and expand the scopes and fields in which such data interact and are being re-used. More inclusive ways to create metadata for the audio-visual archives makes such re-use findable and accessible for others as new data. If the audio-visual resources are easy to retrieve and users can use them to express their views and ideas, media literacy is promoted and metadata for the audio-visual archives are created in one go. Literacy is widely regarded as a condition for participation in society at large. Nowadays, as Livingstone (2004) argues, media literacy should be recognized as such, and we would even say digital media literacy should be.

Digital infrastructures – or hardware – increasingly are part of our educational environment, but at the same time digital curriculum material seems less widely used (Säljö 2010). As noted above, it is not easy to change the tradition of written papers and essays as ways of conveying academic knowledge and include other narrative forms, such as videos or video posters, as legitimate academic forms of knowledge.

The Carrot offers the possibility to create video posters, which are a non-linear form of representation (a reader can start to watch the movie or start reading the text as s/he pleases, though most occidental readers will probably start from left to right). The Carrot promotes media literacy because it allows the creation of multimedia narratives through access, analysis, evaluation and content creation (Livingstone 2004). Users have to navigate within the content of the archive and make their own informed choices. They have to interpret, analyse, evaluate, select, build and argue. Interactive narratives that provide for random navigation nowadays are common in audio-visual presentations in museums and also in interactive documentaries (such as *Soul Patron* by Frederik Rieckher 2010); to create them is something different entirely. The Carrot motivates participants to combine ‘learned’ and intuitive skills (Burgess 2006) for the production of a video poster, which is one of many formats in

which digital storytelling can be created. User-friendly tools that facilitate the creation of interactive narratives, such as the Carrot, therefore promote media literacy, which is a vital condition for participation in society at large.

4. See <http://beeldenvoordetoekomst.nl/en/activities/waisda-video-labeling-game.html>.

THE CARROT FOR ARCHIVES: USER-GENERATED METADATA

Like any online archive, EUscreen uses metadata to enable content identification, improve the search function and the possibilities for users to discover material. The EUscreen metadata schema is based on EBUCore (see <https://tech.ebu.ch/docs/tech/tech3293.pdf>). The EUscreen metadata provide a 'consistent uniform information structure to support overall data management and exchange of audiovisual content online' (Oesterlen 2015: 3). Being the domain aggregator for Europeana, EUscreen has adopted the Europeana data exchange agreement policy, which makes the metadata on the portal 'freely available under the CC0 Public Domain Dedication' (Oesterlen 2015: 4).

Countering the formal classification of archives and their taxonomies, folksonomies are classification data generated by users (Matusiak 2006). Matusiak (2006: 287) prefers the term *social classification* 'to emphasize the collaborative nature of user-generated tags and their use in social context'. Other synonyms include folk classification, ethnoclassification, distributed classification, open tagging, free tagging and faceted hierarchy (Hammond et al. 2005).

When users create digital narratives with audio-visual cultural heritage materials, they inevitably add data to the online archive, and therefore they also add metadata. In the case of the Carrot, this happens in the form of texts (or key terms in the texts), tags and use-data. Other ways to promote the creation of user-generated metadata include offering games, such as Waisda?, a game that was initiated by The Netherland Institute of Sound and Vision, a cultural archive and museum.⁴ This game motivates users to add metadata to the archival collection (Noordegraaf 2011).

Van Hooland et al. (2011: 708) relate folksonomies to 'the idea of self-regulating markets where demand directly influences supply as users/consumers are empowered to decide what information is of use', to the commodification of culture in general and to the way digitization is financed on a project-by-project basis, often demanding immediate and short-term impact as a condition. At the same time, folksonomies have something to offer to archives. Such user-generated metadata are complimentary to the archival 'formal' metadata provided by the archive catalogue in a number of ways. First, they are more precise; second they facilitate more intuitive searches; and third, they allow for more diverse, up-to-date and democratic representations. Let us go into these points into more detail.

Van Hooland (2006) evaluated the comments in the image database of the National Archives of the Netherlands with respect to their relevance to the user community by confronting user queries with user comments. He found that both were predominantly motivated by specific interests. He also found that the largest share of comments were corrections of existing metadata. Apparently users acknowledge the value of formal metadata as they are willing to spend time and effort to comment and correct them. According to Noordegraaf,

[...] professional cataloguers at audiovisual archives usually make detailed descriptions of select, highly valued categories of material (news, actualities and sports) and create only general, item-level descriptions of other categories (such as talk shows, reality TV programs, quizzes and other entertainment programs). (2011: 113)

Professional cataloguers use *controlled vocabularies* (Stvilia and Jörgensen 2010). Users have much more freedom to add terms and descriptions that provide more detailed information about individual items. This helps making metadata descriptions added by professional archivists more precise.

McKee (2011) compared searching YouTube with searching the Australian National Film and Sound Archive (NFSA). He found distinct differences in the quality of the two. YouTube is much more accessible and more user-friendly than the NFSA, serves better to find popular Australian television history, has more clips of 'important moments' and more surprising and unexpected material, and has a more reliable catalogue and more intuitive metadata. The NFSA is stronger in current affairs and older programmes, and provides more metadata that will be relevant to researchers, such as production and broadcast data. As Trant, with the participants in the *steve.museum* project (2006), explains: user-generated tags can help bridge the semantic gap between the discourse of professionals and the popular language of users. By closing this gap, material becomes searchable with popular terms rather than formal qualities and thereby better intuitively searchable for general users.

According to Peterson (2006: 2), 'The acceptance and prioritization of the author's intent as the way the item should be understood and therefore classified have traditionally been part of the practice of cataloguing'. The bridging of this semantic gap also allows for a more diverse, up-to-date, democratic and inclusive representation of identities, views and experiences. User-generated data allow for a user's perspective to be added to the catalogue. With respect to their comparison between the Library of Congress Subject Headings and LibraryThing user-generated tags for transgender books, Adler (2009) argues that the latter allows for a multiplicity of gender expressions not found in formal categorizing systems and possibly not known to non-members of specific communities. Matusiak (2006: 294) noted with respect to her research on the tagging of photos that 'User-generated metadata reflect an increasingly multilingual and multicultural web audience'. Srinivasan et al. (2009) argue that, apart from bridging the gap between professional and layman user, 'social technology practices' also allow for contradictory perspectives (see also Eveleigh 2015). Huvila (2008: 18) justifiably reminds us that archivists and archival items are not neutral: 'Archivists, archival records, and users represent a plethora of viewpoints, which all contribute to the formation of common and individual understanding of archives and archival materials'. In addition, user-generated tags allow for more flexibility and can quicker express changes in popular discourses (see also Matusiak 2006). Users update and add categories that transcend the formal categories used by professional archivists and allow for the connection of items to the grey spaces in between. User-generated metadata, to sum up, result in a representation that reflects lived cultural identities.

In the Europeana E-Space hackathon, we used videos of children in the streets of Italy to talk about feelings and everyday life experiences, using tags such as 'city play', 'emotions' and 'interaction' (see Figure 1). These topics would probably not have been used to classify this movie, from the point of view of the archivist. This shows how tags can provide fresh perspectives on archival content. We added a text about lonely kids and we noticed that in the video, children in the city often played alone; we added the observation that this might also be beneficial for them, thereby allowing for competing interpretations and opposing views.

Scholars in general agree however that user-generated metadata are not sacrosanct or a panacea in any way. Matusiak (2006) discussed some of the problems with user-generated metadata: they differ in their level of description, in accuracy and consistency. Users add synonyms, and these are not controlled, nor is the use of both singular and plural. They also contain spelling mistakes. User-generated metadata are often found to be messy, according to Matusiak, resulting in meta noise (Peterson 2006). Matusiak concludes that because of the problems mentioned above, social classification has limitations for effective retrieval. Adler (2009) likewise argues that folksonomies, because of their lack of control, hinder findability of material. In addition, Van Hooland et al. (2011) point to future users as well: cultural heritage organizations not only need to satisfy current audiences and users, but also future generations, and they might need other (meta)data.

From the above, it seems that users might have relevant contributions to make and therefore the inclusion of user-generated metadata might be encouraged. Research indicates that material found through formal search efforts (search engines and subject directories) as well as through folksonomies is regarded as more relevant than material found by either one (Morrison 2008). This is another reason why user-generated metadata are a valuable addition to formal metadata and should be welcomed by online archives. Also researchers agree that a combination of formal, institutionalized metadata and user-generated metadata works best to make archival content available for diverse user groups and user habits. Getting users to add their content in the form of tags, comments or re-use, is not a matter of course. Users need to be motivated to do so. We will discuss this challenge and how the Carrot addresses it next.

ENGAGING USERS

Researching motivation for online contribution is complicated because contributions come in various shapes and forms; motivation is often complex; researchers use different conceptual frameworks; and it is difficult to operationalize motivation and related concepts (Eveleigh 2015). In an exploratory study, Eveleigh researched crowdsourcing by investigating professionals, participants and users in the United Kingdom, Australia, the United States and the Netherlands, using both cognition versus affect and social versus individual participation as a framework. She found that apart from an interest in the topic or theme, it was belonging to a community, sharing and collaborating in knowledge production, personal challenge and entertainment, feedback, competition and exploration that contribute to the motivation of online contributors.

Based on two Dutch case studies, Noordegraaf et al. (2014) found that one condition to engage users durably for crowdsourcing activities is the option to engage in tasks of different levels of complexity. Van Hooland et al. (2011) claim that tagging does not really constitute proper engagement with cultural heritage material, whereas commenting does, resulting in a critical reflection by contributors on the formal metadata they encountered.

Noordegraaf (2011) also found that user-generated tags in the catalogues of heritage institutions are not merged with the professional metadata but remain recognizable as non-professional data. This confirms their specific value. Salgado (2009) has worked with visitors creating content (labels and comments that were later displayed as part of a museum exhibition), and the

results showed that if users' metadata creation is acknowledged and valued, users invest more time, commit to contribute and feel responsible for the content. In addition, it allows for a deepening of the relationship between visitors, the museum and its staff. Hence, user-generated metadata are not only beneficial for improving the archive metadata, but can also motivate users to appropriate the archive.

Matusiak (2006: 294) concludes that '[l]ibrarians also need to create an encouraging environment, where users become interested in participating'. In the digital environment, this of course is no longer the sole responsibility of librarians. They depend on developers and designers to help them create such an environment. And this is exactly how the Carrot was conceived: in close cooperation between content experts, designers and developers. Before the hackathon started in which the Carrot was developed, the team met and discussed what they wanted out of the tool, from the different perspectives of media scholars, designers and developers. To engage users, collaboration was an important aspect of the design idea, as well as dynamics between individual and collective tasks (see Salgado and Sanders [2015] for a more extensive description of this process).

THE CARROT AND USER ENGAGEMENT

The Carrot answers to the need to motivate users in different ways. Addressing the points Eveleigh (2015) sums up, the tool allows for collaboration as users can use it as a group and make video posters together. They can also share the results, thereby collectively producing knowledge about the theme they are working on. Competition is not part of the design of the tool as such, but it is easy to see how a sense of competition to create the best video poster might be part of the exercise. Finally, we hope users will find making video posters with the Carrot just fun.

Although the Carrot is not aimed at crowdsourcing as such, different levels of complexity might help keeping users engaged with it (see Noordegraaf et al. 2014). The Carrot allows for different levels of complexity by offering a number of different video poster formats, varying in number of videos and text boxes and in ways these are related. In addition, by combining various video posters, a more complex narrative can be constructed. Hence, users can create increasingly complex posters and narratives. Making video posters, creators both tag with respect to a specific interest and write text in relation to the poster as narrative. This demands a proper engagement with the material: searching, viewing, analyzing, selecting and constructing (Van Hooland et al. 2011).

The video posters that users create can, as mentioned above, be saved and shared with other users. To answer to the need for acknowledgement of the user-generated content (Salgado 2009), video posters might be published as part of the digital archive, for instance through an editorial workflow. This currently happens with video posters made on the EUscreen portal.

In terms of an encouraging environment (Matusiak 2006), the design concept included a graphic design for the posters and the interface. The interface is designed to be user-friendly and intuitively usable, without any need for tutorials. There is no accounting for tastes, but we hope the design will appeal to users. Of course, if the tool will be developed for real, this will be done in close cooperation with prospected users as well.

THE CARROTS AND USER-GENERATED METADATA

User-generated metadata appear in different forms in the case of the Carrot: in the form of tags, in the form of texts and in the form of use-data. While watching the video collectively, participants can add individual, time-based tags to the video (see Figure 3).

In the original concept for the Carrot, this happens in the classroom, and the tags are predefined by the teachers and/or students, to avoid a proliferation of tags and keep the work focussed. In other contexts, it is of course possible to let participants add tags freely. The tags are saved, and not only their number and content are informative as metadata, but also their place on the timeline: it shows how a certain video relates to a certain topic. This way of tagging is particularly useful for searching because a person can use a search engine that includes these tags and shows where in time they are placed. One of the most time-consuming activities in searching in audio-visual archives is going through the audio-visual material to find relevant scenes. By providing tags attached to certain scenes, the search is facilitated and speeded up.

When creating a video poster, participants add text to the video poster in text boxes. Technically, the whole text can serve as metadata. However, a lot of words, such as articles and numerals, are so common and often used that they will not serve as useful metadata. Therefore, it makes sense to select keywords from the text as metadata. Specific filters could be used to semi-automatically do this work so that archive's resources need not be spent on this.

Use-data can also serve as metadata in the form of the most often used or most often tagged video or clip, most often used tags, data about the use of videos or clips and other data about the use of the collection or archive. The possibility to search most popular or often used material is a common feature on portals (e.g. Flickr, YouTube) and lowers the threshold for new users to engage with a portal.

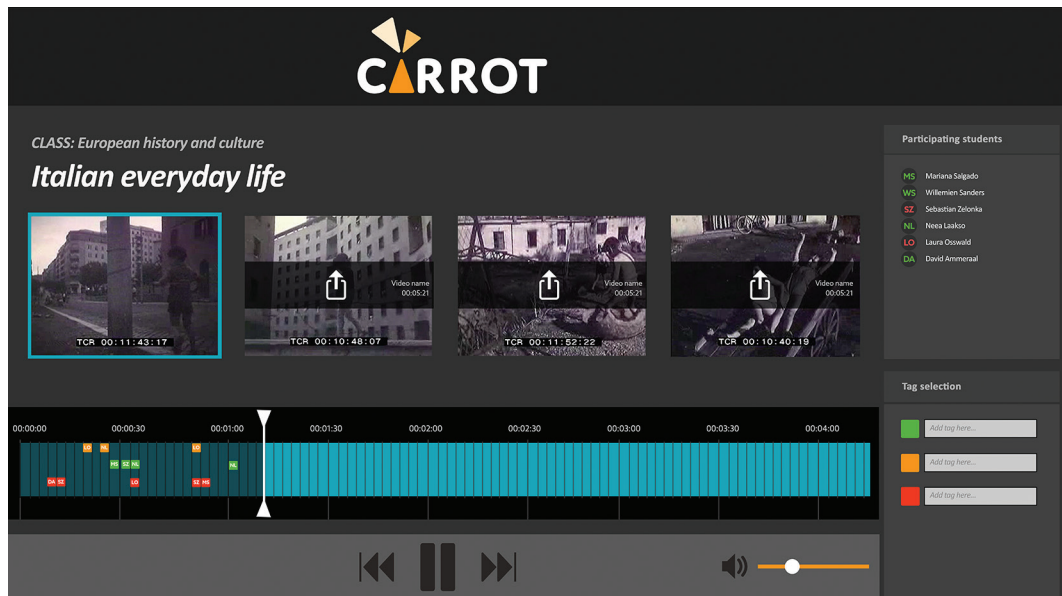


Figure 3: Timeline tagging interface designed in the Europeana E-Space hackathon.

Tagging and adding text provide different ways of engaging with the audio-visual content. Tagging is quick and serves as a first response to certain scenes. It happens nearly unconsciously, while the video keeps running. Adding text is more elaborate as people need time to choose the vocabulary and compose the text according to their task (creative or academic), their audience and their desired way of communicating.

CONCLUSION

In this article, we discussed how re-use and interpretation of the content of digital archives not only provide opportunities to develop media literacy for users; they also provide opportunities for augmentation through user-generated content and metadata for archives. Although user-generated data can be messy (Matusiak 2006), research has shown they are a valuable addition to traditional, expert-generated metadata because they allow for corrections, additions and diversity (Adler 2009; Van Hooland 2006; Huvila 2008; Matusiak 2006; McKee 2011; Noordegraaf 2011; Srinivasan et al. 2009; Trant with the participants in the *steve.museum* project 2006).

The Carrot, a design concept for a tool that allows for the collaborative creation of video posters through tagging, selecting and making clips and combining video with texts, was designed for use in education, to teach (media) students contemporary digital media skills. But in a broader context, with respect to audio-visual cultural heritage, such as television archives, the Carrot allows users to create interpretations through re-use, augmenting the digital archive with much-needed user-generated metadata in the process. These metadata take the form of tags, texts or their keywords, and use-data.

The Carrot could be used for auto-ethnography reports, for commenting on news, for creating audio-visual essays and in any other creative way. People nowadays share their news and create publications on social media but mainly on an individual basis, as an individual act. A person sees something interesting and shares it, or makes a video or picture and shares that. The collaborative making of a media narrative, such as a video poster, will foster critical thinking through discussion and feedback. Therefore, it helps develop digital media literacy.

So while the Carrot teaches users digital storytelling skills, it also provides archives with additional metadata, which in turn will make it easier for future users to search and find material that is relevant to their needs. It also results in a more democratic archive, representing more diverse groups of people in ways they associate themselves with. It bridges the gap between archivists and users but also between possibly unnuanced dichotomous categories used for classification.

Embracing a tool like the Carrot can be done in a variety of ways: following the development of online tools and learn from best practices in the field; applying for funding for the creation of online tools for the archive's website or for the joint development of online tools with other archives and institutions; participating in international projects in which tools are developed; and joining events in which developers, archivists and designers work together, such as hackathons.

There are two main reasons why archives should become involved in the development of online tools. First, it is important to align tools with an archive's content, possibilities and mandate. This way, the tools will become

more useful for the archive and easier to integrate into the archive's website. Many details in the functionality of these tools can make a difference in terms of creating and selecting metadata (for instance, there is a difference between tags and comments as metadata, as discussed above). Second, it is important for archivists to understand how these tools work, and how users might work with them. As archives strive to be meaningful to their users and communities, they need to reach out to communities of interest that gather around their content. Conceptualizing, developing, testing and spreading tools are all effective activities in which to collaborate with these communities, and build a trusting relationship that could enrich the collection and make it significant to its users.

Eveleigh considers the long-term effect of online participation and contribution:

[...] perhaps the outcome of online participation in its current phase should be simply the recognition of emerging new equilibria, or rebalancings: between participation and use, online and offline, professional and 'user', users seeking facts or building narrative, juggling structure against ambiguity, recognising variability or craving fixity – and so forth. (2015: 260–61)

She sees this as an opportunity to align contemporary practices and values with changing archival practices and uses. We think this is inevitable. Promoting digital media literacy through re-using archival content in digital storytelling increases archives' accessibility and usability, and makes archives more relevant and democratic. That is why digital archives should embrace tools that facilitate user-generated content and specifically why digital audio-visual archives should embrace a tool like the Carrot.

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