

One Museum, Multiple Entrances - the Case of Living Cultural Heritage

Gerrit C. van der Veer
Dalian Maritime University
Dalian, China
gerrit@acm.org

Teresa Consiglio
Dutch Open University
Heerlen, Netherlands
teresaconsiglio@gmail.com

Selene Uras
OpenKnowledge
Milan, Italy
selene.uras@gmail.com

ABSTRACT

We define cultural heritage and we distinguish different types of stakeholders, their needs and the expected experiences. Collections of cultural heritage artifacts in time often move into departments of public museums that, consequently, have to cope with a growing variety of intentions and needs between culture scholars, amateur culture participants and tourists. Possible solutions are discussed in terms of museum business models and logistics, as well as the need for involvement of cultural heritage related communities

Author Keywords

Cultural heritage; living memories; private and public collections; amateurs, scholars, and tourists; temporary owners.

ACM Classification Keywords

H.5.1. Multimedia Information Systems; H.5.2. User Interfaces; H.5.3. Group and Organization Interfaces.

INTRODUCTION

In a set of rather different cultural contexts (a faculty of architecture in Italy, a course for consultants on the internet of things in the Netherlands, a computer science department in China) we teach courses on ICT design for cultural heritage, or “design for precious memory” as we label this [1], and we and our students are involved in maintaining collections of cultural heritage objects. We discovered that in this domain the curators of both private and public collections struggle with the challenge of accommodating the interests of the various types of “visitors” that comprise the public of their collection, and we are developing a way to handle this diversity in a way that supports the viability of this type of collections.

We consider our growing insight may be of benefit for other types of (museum) collections as well and we expect to learn

Paste the appropriate copyright/license statement here. ACM now supports three different publication options:

- ACM copyright: ACM holds the copyright on the work. This is the historical approach.
- License: The author(s) retain copyright, but ACM receives an exclusive publication license.
- Open Access: The author(s) wish to pay for the work to be open access. The additional fee must be paid to ACM.

This text field is large enough to hold the appropriate release statement assuming it is single-spaced in Times New Roman 8-point font. Please do not change or modify the size of this text box.

Each submission will be assigned a DOI string to be included here.

from confronting our ideas with those of other workshop participants.

CULTURAL HERITAGE

Uras et al [2] state: “*Cultures develop in societies, by people co-developing and sharing artifacts ... of many types: languages, rules, gestures, physical objects, documents, stories, etc. The artifacts are the product of the culture and, at the same time, the main way to keep the culture. As the people living in the culture will die, the artifacts are needed to keep the culture alive. They are inherited by new generations of members of the culture. Since the artifacts get used, and transferred, they change, get worn out, acquire additional meaning and lose some “previous” meaning, and finally may get lost, or lose their original function and meaning. After that, these artifacts are no longer cultural heritage but just heritage, and at the same time the culture may be in immediate danger of dying*”. Our concept of Cultural Heritage is based on UNESCO [3].

Our Ontology

Cultural heritage refers to tangible and intangible *artifacts* that are kept by (mostly temporal) *owners* (a person, institute, museum, or community).

Culture, in this respect, refers to the set of shared attitudes, values, goals, and practices that characterizes a community, and the integrated pattern of human knowledge, belief, and behavior of the Participants in the culture [4].

Participants in (or members of) a culture play one or more of several *Roles*: *Scholars* actively support maintenance and knowledge of the artifacts and their use in the living culture: collectors, restorers and curators, makers of facsimiles, expert performers, researchers of artifacts or of the history of the culture.

Amateur is our label for a member of the audience that is willing and able to take the role of member of the culture, knowing and understanding the culture and actively participating and supporting.

Participants in a culture mostly gradually develop into their role, based on living (or even literally being born) in a society where the cultural practices are still actively being performed and attended.

Especially in public collections like in museums there is a 3rd role indicating interested people who are not members or participants in the culture: *Tourists*. This audience might be

excited about inspecting objects that appear strange as well as intriguing or beautiful to them.

Cultural Heritage and Stakeholder Experiences

Scholars mostly consider their role to be a mixture of a profession or a mission. Their intention is to keep the culture alive, and to keep it integer, by both supporting development and maintaining authenticity. They live the culture, they continue to learn as well as to teach, to study and guard the artifacts as well as to provide responsible access to the amateurs in order for these to experience the true heritage. And they are aware that their continued devotion is required in order to keep the culture alive.

An amateur contributes to the culture in several ways, from being a sense making audience at events, to (financially or politically) contributing to a healthy context. Like scholars, amateurs will only continue to experience the living culture first hand as long as they remain open to learning as well as open to let their peers learn, and as long as they continue to attend and participate.

These two types of stakeholders in a culture may regularly shift between their roles of scholar and amateur: being authors of a novel and readers of other prose, one day a performer and the next day member of the audience, making a flute and then listening to someone else playing it.

Tourists, on the other hand, will aim at a completely different type of experience: The cultural heritage object collection is for them an opportunity to meet novel objects in an unknown context. If at first sight the context is attractive enough to them and as long as the encounter keeps them interested, they will start their exploration, be entertained and develop a rather new experience that may include (following the conceptual analysis of [5, 6]):

- Developing an understanding of functions and meaning of the artifacts and their cultural context;
- Acquiring an impression of the emotional values of the culture and its artifacts;
- Acquiring a tendency to act regarding the exposition (buying documentation, discussing with peers, leaving) and possibly to interact with it when appropriate and available; and
- Feeling attracted (or the contrary) to the culture as understood so far, which might even result in an attempt to learn more or join.

PRIVATE COLLECTIONS AND MUSEUMS

Cultural heritage artifacts originally are being developed in their culture, are being used for generations (hence “heritage”) and owned by successive individual amateurs and scholars or by a community of these. At a certain moment they are explicitly considered heritage, get the special treatment as such (their historic value is acknowledged, repair is now considered restoration, use is restricted or safeguarded in order to restrict wear) and they are carefully stored in safe climate conditions. Their use and their state is recorded (especially for intangible artifacts), and

copies of tangible objects are being made and used when possible.

Gradually these utensils develop into collection items, regarded as the authentic items of the culture that the scholars will need to study and the amateurs might be allowed to inspect and in special cases even handle in controlled conditions.

Most collections of cultural heritage artifacts originate in the original culture, and this is often needed to support the feeling of authenticity and the collective memory of the cultural stakeholders.

How to provide access and document a collection

Based on our teaching, and in fact on how our students developed their understanding of how to supply the knowledge of the cultural heritage objects to the stakeholders, we developed a structure where, for each artifact, at least three types of knowledge need to be available:

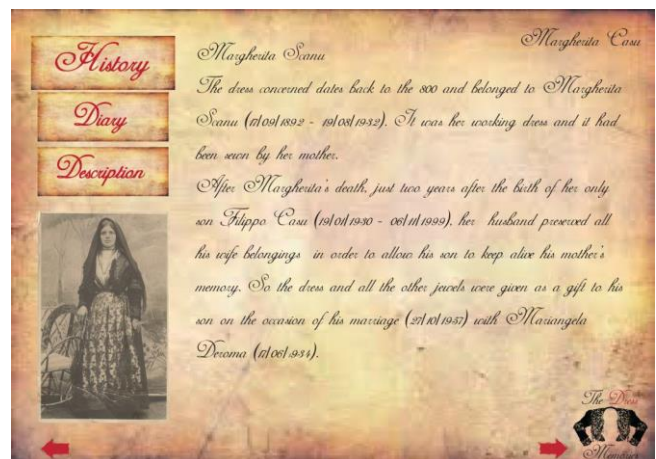
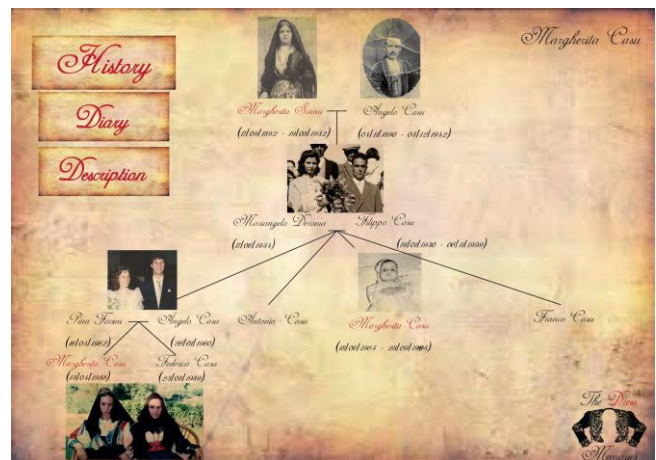


Figure 1. General representation of the history of one artifact, a historic costume (a) and specifics of a single period (b).

- A history of the object. Figure 1 shows samples of a student project on developing a not-public tablet tool for a cultural heritage community on historic costumes, which shows that even the general history may well contain private details referring to individual ancestors of current members of a culture. Inside the original culture this may not cause problems, though it could be inappropriate to provide these details to tourists.
- A description of the object (see Figure 2) seems relevant even for tourists, though the appreciated amount of details (and the size of pictures or video clips to be downloaded) may be different for different roles.



Figure 2. Description of one element of composed artifact.



Figure 3. Entry in a diary of a single artifact

- A diary of the activities related to the object as far as the current temporal owner is keeping it (see Figure 3). Diaries need to include all relevant knowledge needed to understand the actual state of the artifact at a given time as well as the background of all changes.

Consequently there will be data that contain private information on the current owner or keeper, or on others who manipulated the artifact (including amounts of money paid for services, people involved in cases of abuse). Often, diaries are at least partially considered to be for the eyes of the current keeper only, and a change to a new responsible stakeholder requires careful decisions on what to keep and whom to allow access to this on what date (Our courses contain a separate lecture entitled “What if the owner dies”).

For the collections that we ourselves are involved with, we often need more different categories of specific information, like restoration, multimedia, and a separate account of the original culture. Figure 4 shows an entry page of one artifact that allows authorized visitors to go to various categories.



Figure 4. Entry web page for a single artifact in a collection of historic musical instruments (for access a login is required).

Collections often Move to Museums

Cultural heritage collections require special logistics (space, climate and lightning control, timely maintenance, protection against damage and unmonitored manipulation), devoted curators, and documentation, as well as a stable financial base to guarantee continuity of all this.

In the course of time this often turns out to require too much from the individual volunteer stakeholders and even from the original cultural community if this is a private group. Hence, the collection is in danger to be corrupted, to be sold in pieces, or otherwise disappear. In that case, political or legal

bodies (a municipality, a foundation) may take over or may be constructed, and the collection develops into a public museum or is incorporated in an existing one. This seems to be the fate of many important and famous collections. In fact, most museums with collections of cultural heritage found their origin precisely in the mechanism sketched above.

Museums in Trouble

So far so good: Till a few decades ago, in the domains and museum practices we are aware of, there were many thriving examples where societies of friends of a culture supported the museums' activities (including performances by scholars of the domain attended by amateurs), where private collections were donated or sold for a token price, and where the curator collaborated in a responsible way with scholars who needed to manipulate the artifacts in order to support the living culture (e.g., for making valid replicas). The collections on display were intended for the original stakeholders, and so was the information available. If a tourist would enter the space, which was a relatively rare occasion, the visit would often be short though not much harm was done to the visitor since no expectations had explicitly be triggered.

However, political and societal situations change, and museums in many cases had to decide for a change in business goals and business models. In the last couple of decades we perceive a common view on how museums should serve the general public in all its variety (including children or enterprises), should aim for a profit, should advertise the cultural state and vision of the political body that controls them and of the corporate sponsors that are replacing the financial support of cultural communities. Museums, in this situation, should conform to new visions of what is a good balance and dosage of information, entertainment, esthetics, and variety.

In the domains of historic costumes and of historic musical instruments we have seen striking changes: rather complete costume collections, even if they may keep their fashion gallery, loose visibility to changing exhibitions in relation to temporary interests triggered by events other domains (London's Victoria and Albert Museum celebrated 100 years of Hollywood film making, and staged a film costume exhibition): exciting for the general public that discovered a relation to other simultaneous cultural events. World famous large and important collections of historical musical instruments in the same London museum and in the "Gemeente Museum" at The Hague completely disappeared: Parts were silently taken over by specialist museums, larger parts are supposed to be in store without a curator being in control and with information unreachable for scholars. These cases include large parts of the collections that originated from donated private collections that once belonged to their original living cultures.

New Venues bring Traffic Issues

These museums do not have a choice: The management needed to conform to the new political and cultural visions

of their authorities. Their new business models require them to provide opportunities for patrons to organize a reception in museum premises that should be exciting and fit for the occasion. They are supposed to provide an appropriate mix of learning and entertainment for families with children, and to provide accommodation for visitors to have a drink and a chat in an amusing environment [7]; all of this for a consumer price that allows a healthy financial profit.

In current museums different types of visitors will meet quit different types of traffic: The fashion gallery is most of the time rather empty, but the thematic exhibition on movie costumes is crowded. The more a (often temporal) exhibit attracts the general public, the more space and routing is an issue, and at the same time, the more the exhibit could be in danger regarding climate conditions and damage.

Historic textiles and historic artifacts with certain types of coloring and dyed decoration may be deteriorating if light is too strong for a long period, but visitors should be able to see what is displayed. With heavy traffic these conditions are contradicting each other.

DEALING WITH DIFFERENT STAKEHOLDERS

As soon as the authorities that are responsible for the business goals and business processes are no longer mainly the community of members of a culture, we need to design solutions. Museums and comparable institutes that keep cultural heritage collections need to maintain a long term survival strategy.

This includes a sound financial support model (which may well be based on a mixture of corporate sponsorship, corporate sponsorship, entrance fees and commercial activities, and support from culture members (individual or as a culture focused society)).

Preserving cultural heritage may for many modern museums be a secondary task, often inherited from a different business model in the past – this is why this types of collections disappear without a trace or are explicitly repelled. In this case the original culture needs to act, negotiate with the sponsors, and find a way to make the authorities accept maintenance and support to allow the members of culture access to whatever they need is a specific task.

Different stakeholders need different types of experience

The general public in a museum (often literally tourists), including families with children, school groups, corporate sponsors and their guests, all expect something amusing and entertaining.

- This includes the opportunity to get some easy explanation in order to understand exciting unknown things as well as things that are supposed to be new or hot; to interact with artifacts, the context, and with people like themselves; to get a scent of emotions that might be appropriate regarding the exhibit and the context, and to have a generally enjoyable time during their stay.

- In addition, they may well feel the need to build some memory of this occasion: a souvenir, a picture, some easy documentation or even a pointer to what more could be found in this building might be highly appreciated and, if needed, paid for.

Regarding each collection of cultural heritage (a museum may well have a variety of collections in their premises) the members of the culture will have very different expectations and needs.

Scholars will need, both:

- Hands on experiences: measurements, actual use, maintenance and restoration – all of which should be carefully monitored by a responsible curator, documented, and restricted to the bare minimum. The good news being that there will be a restricted number of scholars who need this, that they may collaborate and cooperate (providing each other with measurements taken, attend a joint session of actual use, and document this on multimedia);
- Access to documentation regarding each artifact as sketched before (e.g. related to figures 1-4) – history, complete description, restoration reports; etc. as well as access within reason regarding the diary information. On the other hand, scholars should understand, and can be requested, to provide any available new insights, findings, recordings, and references;
- Access to the full collection, including whatever is stored in depot.

Amateurs will expect the true experience of the living culture.

- This includes at least the opportunity to inspect the original artifacts as well as documentation as far as there are no privacy issues regarding the current owner. They will understand restricting issues regarding climate control, damage prevention and lighting regulations.
- This also includes the opportunity of participating, as a knowledgeable audience, in actual use by scholars – performances where dresses get used in a relevant context (e.g., a staged ceremony) or musical instruments are being played in a concert.

Split the venue, keep the richness of multiple resources

It seems inevitable there is a need for diverse spaces with functions that match the needs and intended experiences of the various visitors and stakeholders.

- A museum shop seems to be relevant for almost any type of visitor. Providing easy to understand and appreciate souvenirs will mainly serve tourists and corporate sponsor guests. Though, once in the shop they can be seduced to browse and may well discover there is more in the collection, and even consider the status of amateur to a culture that seems to be exciting enough (CDs and well-designed books may be a first step to embracing a culture)

- Food, drink, reception, and meeting facilities, first of all for various types of tourists, for families with children, and for special events organized by corporate sponsors. Museum management might have good reasons to be less nervous if the drinking crowd is not too close to the most well-known painting in the collection.
- For members of a culture, there is a need for entrance to a library of archival material and documentation. Some types of access (related to the state and possible sensitive content of the documents) may need to be monitored or restricted to certified scholars.
- As far as space can be made available, scholars and amateurs will be able to walk their dedicated galleries, mostly without the need of a guide (whether audio or human). On the other hand, a tourist who happens to enter such a specialist room might feel the need and will appreciate a guidance that highlights “specialties” which may be either artifacts that look “extreme” or that are related to a well-known story (the hat worn by Napoleon at Waterloo, the largest violin in the world). This way there is no need to prevent disappointment and restrict access of these collections.

For running these types of access, professionals and experts are needed. e.g., for the shop, for the library, as guides or for monitoring the audio guides, for monitoring manipulation by scholars. Maybe not all of these need to be (full time) employed by the museum organization: in the case of cultural heritage collections the original community may well be able and willing to provide recognized scholars that volunteer or are in other ways working on behalf of the interested community. These volunteers often will be happy to work, both, for the benefit of their living culture, and for developing appreciation for their culture from tourists.

Different doors (and routes) with united management

Our students did the exercises: they suggest that (at least conceptually) a museum could have separate doors:

- Tourists may be served best by providing them with a nice and smooth route along exhibits and installations that are easy to appreciate and that are safe for crowds. Obviously, food and drinks, as well as the shop should be strategically located in this tract.
- A separate and appropriately indicated VIP door could lead to special event facilities, designed for the purpose and, at the same time, making specific use of the museum context (some special exhibits, the newest sponsored acquisition).
- Amateurs will often enter especially for “their” section. Make sure they will be able to find it immediately (also on the museum website: try to locate the historic costume collection for the Victoria and Albert museum). They will not expect a nice route, just as many objects with appropriate information as can be made available.
- Scholars will sometimes need access to artifacts in store, as well as to the archive and library. Guided by them, this will also be the case for amateurs.

For the display of cultural heritage objects, the main question is what is safe to be responsibly made available, and in which environmental conditions (humidity, temperature, lightning). Members of the culture will understand the restrictions in this respect.

For amateurs, some examples of cultural heritage objects will often be appreciated, though in their route this could well be copies that show how the objects originally looked: They will be happy to experience what people in the old days had available. Often copies are fine, and for some types of experience they may even be handled: Some museums successfully provide look-alikes of historic costumes for making pictures, or copies of musical instrument mechanics to allow touching and sounding.

In the same way new technologies can be applied: even the concept of mummification (whether this is in fact still cultural heritage or just a far cry from a past culture) can now be studied through a video clip [8] that gradually show the unpacking of a mummy till the bare bones and beyond: just the metal amulets. And, in the same domains, [8] shows how kids may get a feel of the practices by or even practiced by children based on a Barbie doll [9]

Providing access to these technologies in the route that is dedicated for amateurs will certainly support the intended experiences. Moreover, techniques like augmented reality with the use of the omnipresent smartphone will allow visitors to find vivid references to (use of) the exhibits in the past. Museum websites could contain additional information specifically intended for members of cultures related to the cultural heritage collections, like illustrated before. This information could, obviously, be password protected as far as only qualified scholars should have access.

By designing separate routes and indicating them carefully for the diversity of visitors, both the crowds and the specialists may be served better and with much less frustration, which will, in the end, hopefully provided arguments for the various stakeholders (from authorities to cultural communities to sponsors to tourists) to provide more support, financially as well as by explicit opinion, to maintain museums and collections to serve everyone.

CONCLUSION

In our current world, even when cultures vary, the business models of many (public) museums has to change towards decreasing focus on maintaining cultural heritage en increasing priority for entertainment and education of the general public and provision of accommodation for corporate sponsors.

Communities of people united by their living culture, and consequently motivated to keep their cultural heritage, are increasingly situated amongst a heterogeneous mixture of other types of cultures (professions, social networks, political and religious movements). People move, people live in social media and become aware of a growing diversity of cultural movements and make choices about what cultures

they want to actively belong to and to support. The geographical community is no longer by default the supporter of their cultural heritage

Members of a culture related to a cultural heritage collection have decreasing possibilities to find support for their “own” collections, since their specific culture is increasingly hidden to the general public in their context. Only actual authorities with financial power and a value system that includes the goal to support cultural heritage can decide to take a role in the business goals and business models of museums.

EXAMPLES OF CURRENT PRACTICE

Our suggested solution will require a change of attitudes and values, both for the original culture communities, for museum management, and for authorities and sponsors.

We will find many examples of museums where only the tourists are served: an exhibition in the History Museum in Puertollano in 2005 commemorated the musical culture from the time of Don Quijote (a roman written in 1605) by showing historic pictures of period Spanish instruments and rather simple “reconstructions” of the instruments depicted: certainly interesting for the general public but definitely disappointing for amateurs and scholars who knew quite well that many actual music scores of that time and context existed as well as original instruments, and were well aware of performances and recordings by groups like those lead by Jordi Savall based on original manuscripts and performed on original instruments or faithful copies. This exhibition only had a single door: for the tourists.

On the other hand, we find the Horniman Museum in London that, next to an easy entrance for tourists that allows access to a selection of the collected items, provides scholars with facilities like clearly described procedures to access the many artifact in the depots, and even policies and procedures to request a loan – a second, if not physical, door to the collections. For the amateurs there is a 3rd door through the internet, where all artifacts in the collections are visible (though only with very small pictures lacking any relevant details), and these are often randomly categorized (e.g., there are 32 “traverse flutes” and 12 “flutes” that are in fact traverse flutes) and descriptions often lack relevant details and the indication of whether some of them are on display often incorrect.

Some cultural heritage collections in the domain of music are part of institutes for professional music education, like the Museum of musical instruments at the Royal College of Music in London. The museum shows in fact nearly all its cultural heritage artifacts, in a display that clearly aims at the students and staff, an audience that is mostly of the category “amateur”. Tourists will not find in this display and content too much to be excited about, but for scholars the curator is most of the time available to provide additional access and information. The same situation is the case for the Musical instrument Museum in St Cecilia Hall, part of the University of Edinburgh. Amateurs and Scholars will find a rich

collection with a lot of exemplary documentation, and a helpful curator to provide access whenever needed and at all possible, where tourists will probably never know about it and would not be challenged to enter, browse, and study. This types of specialized museums seem able to survive financially because of their relation with an educational institute in a related domain, and, consequently, shape their “door” to fit the intended specialized audience.

In the same domain of musical cultural heritage the Markneukirchen musical instrument museum seems to mainly aim at amateurs, providing over 3000 historical instruments and related artifacts, though, in one of the buildings (in fact with a separate door) there are bizarre exhibits like the largest tuba in the world, the largest accordion in the world and the largest violin (14 feet) – complete irrelevant for amateurs but a favorite background for tourist selfies.

We are currently developing our own example of a website for musical cultural heritage where at least amateurs will find relevant information including audio and video of actual use by scholars, and where scholars will be able to apply for actual access to the physical artifacts. Though this activity currently does not focus on the (largest) tourist category, we intend to consider educational entries (mainly by website access) to provide adequate learning opportunities that provide an experience that should be positive enough to create basic understanding of a cultural context that is currently not encountered by the general public.

ACKNOWLEDGMENTS

We thank our students, and the scholars and amateurs involved in the cultural heritage collections that we were allowed to analyze.

REFERENCES

1. Teresa Consiglio, Selene Uras, Gerrit van der Veer. 2015. Teaching Design for Living Memory. HCITOCH 2015, Human-Computer Interaction, Tourism and Cultural Heritage.

2. Selene Uras, Teresa Consiglio, Gerrit van der Veer. 2015. Keeping Cultural Heritage Alive – Opportunities with ICT. HCITOCH 2015, Human-Computer Interaction, Tourism and Cultural Heritage
3. UNESCO: definition of Culture. Retrieved April 23, 2013, from www.unesco.org/new/en/culture/themes/movable-heritage-and-museums/unesco-database-of-national-cultural-heritage-laws/frequently-asked-questions/definition-of-the-cultural-heritage
4. Merriamwebster, an encyclopaedia Britannica company: definition of Culture. Retrieved January 7, 2016, from Merriamwebster website: <http://www.merriam-webster.com/dictionary/culture>
5. Dhaval Vyas and Gerrit van der Veer. 2006. Rich Evaluations of Entertainment Experience: Bridging the Interpretational Gap. Proc. of ECCE-13. ACM Digital Library, 137-144.
6. Dhaval Vyas and Gerrit van der Veer. 2006. Experience as Meaning: Some Underlying Concepts and Implications for Design. Proc. of ECCE-13. ACM Digital Library, 81-91.
7. V&A, Victoria and Albert museum. Eating and drinking page, Retrieved January 7, 2016, from V&A museum website: www.vam.ac.uk/visiting/visitor-information/#eating-drinking
8. New Scientist.2014. Mummy X-rays let you peel its body to reveal insides. Retrieved January 8, 2016, from www.newscientist.com/article/dn25619-mummy-x-rays-let-you-peel-its-body-to-reveal-insides/
9. Kidsactivitiesblog. 2012. Mummification: Let’s Mummify Barbie! Retrieved January 8, 2016, from kidsactivitiesblog.com/9140/mummification-lets-mummify-barbie

Teaching Design for Living Memory

HCITTOCH 2015, Human-Computer Interaction, Tourism and Cultural Heritage • Sep 20, 2015

Authors: Teresa Consiglio, Selene Uras, Gerrit van der Veer

Experience heritage is to a large extent materialized in artifacts of many different types: physical objects, scripts, stories, archives, traditions, collections. Living experience heritage, however, lives because communities of aware people maintain, cherish, relive, and contribute to the heritage. Current IT and the availability of social media provide potential support for stimulating and maintaining living heritage. We show how teaching interaction design can be specialized to focus on the integration of artifacts with IT support to develop an attitude as well as a supporting environment to better safeguard a shared living memory.

Teaching Design for Living Memory

Teresa Consiglio

Selene Uras

Gerrit van der Veer

Dutch Open University
Heerlen, The Netherlands
teresaconsiglio@gmail.com

OpenKnowledge
Milan, Italy
selene.uras@gmail.com

Dalian Maritime University
Dalian, China
gerrit@acm.org

Abstract.

Experience heritage is to a large extent materialized in artifacts of many different types: physical objects, scripts, stories, archives, traditions, collections. Living experience heritage, however, lives because communities of aware people maintain, cherish, relive, and contribute to the heritage. Current IT and the availability of social media provide potential support for stimulating and maintaining living heritage. We show how teaching interaction design can be specialized to focus on the integration of artifacts with IT support to develop an attitude as well as a supporting environment to better safeguard a shared living memory.

Keywords

Cultural heritage; experience; living memory; teaching design.

Introduction

People create or collect, maintain, and share artifacts of many different types: physical objects, scripts, stories, songs and traditions, as well as archives, and collections of these artifacts. In some cases the reason for the collection, sharing, and maintenance is not (only) for pragmatic reasons, but (also) because this helps maintain and support memories of valuable experiences. People not only live through experiences, they keep them, think back, and re-live them (we keep the portrait or the diary of a loved one). Positive experiences develop into precious memories that are cherished with the help of representations (pictures, diaries) and shared with friends. Memories sometimes develop a life of their own: Once shared, they become part of shared knowledge of a community: a group, family, tribe, or culture that tends to attribute value to the related artifacts “for old times’ sake”. Such a community applies the artifacts to help tell the stories and experience them, they are considered symbol as well as proof of the original events, contexts, and times that originated the group memory that can now be kept and re-lived. That is why many societies keep, store, maintain, and re-live these artifacts. Following the UNESCO ontology [UNESCO, 2013] we label these “cultural heritage” objects. The activities related to keeping the culture alive often change the artifacts (through cleaning, repair, restoration) and add new artifacts (history of use and

maintenance, documents on past events and processes in which the artifacts were used). Artifacts and the related shared experiences often suffer from wear and from loss of memory. Hence, heritage-aware communities try to keep track of the history of the artifacts and their story, the changes, uses and the people involved. Moreover, they may spend considerable effort to maintain the heritage for future generations, by careful storing, keeping records of events and processes related to the artifacts. Modern information technology provides various opportunities to support this, though design needs to consider the context, the culture of use, and issues related to privacy (of the individual people involved) and property (of artifacts and of related records of use). There will certainly be novel opportunities: allowing people any time and at any location to explore the visual aspects of an artifact in 3D, including zooming in on details that would not be visible in real exhibition, viewing and hearing samples of storytelling, music, musical instruments being demonstrated, comparing artifacts that are physically not co-located, studying references and descriptions with the artifact in view, witnessing traditional events, etc.

Why do we bother

The authors are involved in developing teaching and (internet based) learning environments [Consiglio and van der Veer, 2013]. Recently we were invited to create and teach a new course, “Design for living memory”, as part of a final bachelor project in (industrial) design, at the University of Sassari, Sardinia, situated in an area with a strong awareness of local history and culture. The total project aimed at the concept of “souvenir”, and the focus of the current course was inspired on one of the authors’ expertise in collecting, maintaining, and documenting artifacts related to the history of western instrumental music (1650-1800), in that realm collaborating with professional musicians, restorers, makers of facsimile instruments, museum curators, and authors. During the next year we taught the same course in China, at the Dalian Maritime University, as part of a curriculum in Human-Computer Interaction and Usability Engineering.

We have been teaching other design courses to the same student groups, for which we created a structure of part time face-to-face meetings, individual tasks of analysis (envisioned users and context of use, suitable design techniques), group design projects for real clients, and in general a situation where students developed learning material based on growing understanding, and where a dedicated course website grew during the course with contributions from all stakeholders. The authors mainly monitored quality, provided and adjusted structure, and stimulated discovery learning. Our official aim for the course was for students to understand and practice how new technologies can be used to design support to enrich and to share memories related to historic artifacts, at the same time considering privacy, intellectual property, and temporality of social relations.

Our concern, based on our previous experiences, is that historic artifacts survive (if at all) their “owners” or guards. Artifacts, whether physical in nature, or kept in existence by (oral or written) transfer, are subject to change because of many causes: climate influences or wear, adjustment to changing context (re-tuning of pipe organs,

translation of stories), restoration to undo past changes or additions. Knowledge of all these changes as well of relevant events (instruments being used in performances, sound spectra being analyzed, scores being compared to newly discovered variants) often are not (well) documented or documents are not kept connected to the related artifacts.

The context of the students we were teaching was in fact exemplary for this type of issues: At Sardinia, regional costumes are still visible at festivals where traditions are being shared between generations, in the Dalian region the living memory is not yet corrupted by commercial intentions to attract tourists, and families still cherish their inherited objects and their traditional religious habits.

Ingredients of our course

After introducing the need for supporting memories by keeping, maintaining and documenting artifacts we covered the following topics:

Authentic experiences may develop into precious memories that are cherished with the help of artifacts and representations (pictures, diaries) and shared with friends. Memories sometimes develop a life of their own (we keep the ring, a portrait, or the diary of a loved one).

When announcing the course, we asked each student to find several examples of ways to keep precious memories in their home: precious artifacts, pictures, stories that parents tell, arrangements in or around the house that should not be changed, and we asked to bring a picture or description of these to the first course meeting.

We refreshed previously taught knowledge of Psychological notions related to human memory, including valid knowledge of human memory mechanisms. In this section we covered basic understanding of relevant state of the art Psychological concepts and notions on human memory. We mainly focus on working memory, long term memory, encoding, storage, retention, retrieval, changing memory, and reconstruction.

Memories of precious experiences are cherished. We aim at understanding how people keep their memories alive, by collecting cherished artifacts that are often mainly understood as such by a person who has relevant knowledge and wants to remember, and in the right context.

The artifact can be of many types: physical object, picture, diary, story, street name, and recently even electronic record or a developing system like a blog). These artifacts are chosen, collected, or created to support the need for (re)experiencing a precious memory or a valued event or state.

We introduce the ways in which memories are “materialized” in order to store, manipulate, change, re-live, and share them, how these material artifacts initially acquire their meaning, and how the goals for maintaining them may develop and change, and the variety in development of souvenirs. Design students should understand the change in intended and perceived rights regarding sharing and ownership.

At this point we additionally point to the concepts of diary, story, album, in memoriam, monument, etc. We discuss that in many cases artifacts are shared: with a small number of explicitly indicated intimate friends, or with the world; for a restricted amount of

time, forever, or for a future occasion or period; for use in a well defined context or without care and concern.

New technology for support “in the cloud” provides additional opportunities for sharing, re-experiencing, as well as enriching cherished memories. It also changes traditional concerns regarding privacy and property. At this moment in the course we challenge our students to start envisioning new support, as teams of 3 or 4 students, aiming at one of the examples one of them contributed at the beginning.

We ask the design teams to envision the future live(s) of a cherished artifact and to apply this analysis to the actual souvenir and the support designed in the previous phase of this section of the course.

Students should now understand how artifacts in physical locations (including historic objects, souvenirs, pictures in rooms, monuments in public spaces, street names) may support living memory, as well as be (on purpose or by faulty design) misleading. This should also be understood for social media and Internet support for living memory that, as well, may support or be (on purpose or by faulty design) misleading.

Individual “owners” will die though the community may survive. Designers should be aware of what happens to living memories after the originator (original owner) or the keeper or caretaker dies. In addition, design should consider the occasion where a living originator might want to withdraw an artifact or withdraw from a shared memory support. We aim at a design that provides clear measures to handle a stakeholder’s dead or wish to disconnect.

How we Teach

Cultural heritage becomes in this way a multidimensional concept which needs explanation, for which we will use examples from an ethnographic study conducted with students of courses. In both Universities the course aimed at designing ICT support for personal heritage objects that are in the possession of individual people or families, that are considered worthwhile to keep and cherish since they represent precious events, episodes, friends or family members, and that are (intended to be) handed over to new generations in order to preserve the family history and cultural heritage.

In Italy the class consisted of 28 students, in China there were 8 participants. At the start of the course the teacher introduced the concept of personal and family cultural heritage by telling the stories and showing pictures of some objects in his own home that he inherited or acquired from dear friends, and that he considered valuable to preserve and that he intended in the future to transfer to a heir. He showed how the story is as important as the physical object itself and that the combination in fact allows it to be considered (family) cultural heritage. The teacher then challenged each student to bring pictures to the following session and tell the related stories. Without exception all students complied and revealed private individual memories related to objects that were precious because of this. Based on this student input, in both courses the students formed design teams of about 4 students that chose one of the artifacts as the base for a subsequent design project.

For the teacher, who is one of the authors, both cultures (China, Italy) are alien regarding family owned possessions, their meaning for the family history and the transfer of the objects and their stories. Consequently, our observations taken during the course may be considered an ethnographic exercise, where we collected experiences and growing understanding of the phenomena related to the domain as it exists and the use of new technologies to support the maintenance of the objects, the related stories and knowledge and the social sharing within the communities of relatives and friends. Our observations regard:

- The concepts described in the UNESCO ontology [UNESCO, 2013] will regularly be found within the domain of personal and family cultural heritage as well. Family members or intimate friends will take the role of learners and teachers often repeatedly changing between scholar and amateur, and outsiders that visit the home and are curious may take the role of tourist. We noticed that objects (clothes, jewels, bullets...) inherited from old relatives follow a well-defined line before arriving to his/her actual temporary owner. The passage of ownership arrives at a certain age, or in a peculiar moment and while the object is transmitted its value is underlined. For, instance, when one of our students was considered adult enough, her parents gave her a portrait (see Fig.1) representing her mother and her when she was a little baby. This portrait was made on order of her grandmother. The student declared that after this episode she started to look at family portraits in a new way.

The transmission always causes changes in the transmitted artifact and once modified, the artifact is no more the same: a transmitted artifact could be managed in two opposite ways: preserving it versus daily using it. For instance, when students presented their artifacts to be preserved, immediately a relevant difference emerged. The inherited objects are perceived as stable because they always remain the same object that a special person has decided to give you. These artifacts become holy in a certain way, their use is quite restricted or there is no actual use at all, even if they are objects created to be used, like pearl necklaces, knives or musical instruments. On the other hand, objects accidentally found and recognized by the finder immediately are experienced as being precious and may be considered a sacred talisman with good luck power for the finder. In that case the finder-owner may decide to frequently use this object (at the same time paying a lot of attention to avoiding to lose it). For instance, a student in Sassari reports “I found this spiral ring (shown in Fig.2) at a music festival in which I participated this summer in Spain. The discovery of this object was a wonderful thing, both considering my passion for rings and spirals, and the circumstances in which I found it. There was a really crowded place with thousands of people, pieces of glasses, bottles and who knows what else, where it was impossible to feel anything under your feet but I felt something and it was my ring. I think the situation had a great influence on that experience, and from the day the ring became my good luck charm that I never take off.”



Fig. 1. Family portrait



Fig. 2. The spiral ring

- cultural heritage is created, kept by, and transferred between temporal owners: if artifacts are well-preserved they are almost eternal, so they pass from a temporal owner to another one. In that way, the owner plays the role of the keeper, which implies a deep level of involvement and attention. A student from Dalian university was not able to provide a picture of his important memory artifact because it concerns his religion. The cult of Buddha was handed down in his family but it is considered disrespectful to take pictures of the divinity' altar. The student prepared an oral presentation explaining that the altar was built using objects inherited over ages and passed from one family head to another, and in each generation objects are explicitly created for the altar, like pictures of family members (see Fig.3) in order to eventually be integrated in the altar with the other precious memories;
- artifacts reinforced by direct evidence/experience are more precious: when students described their personal experience with some objects related to facts that had a high personal impact, it was clear that the strength of the feelings and the experienced importance of the object were increased. A student, for instance, reported to have received a ring from a friend who shortly afterwards died. The student never will stop wearing the ring because it reminds him of the time period shared with his friend and, thanks to all marvelous experiences, the ring has magic power like a talisman (see Fig.4);

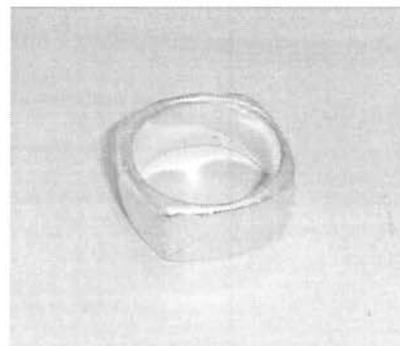


Fig. 3. A picture taken for the altar

Fig. 4. The talisman ring

- the interaction with the artifact: Giaccardi [Giaccardi 2011] asserts that pause and duration are relevant “to distinguish between a single point of interaction with heritage and the creation of heritage over time, through repeated and multiple experiences”. This suggests that the concept of heritage implies a continuous or a repeated interaction in a long amount of time. If you inherited a collection, you are responsible for it and are supposed to prosecute it over the time. So, it will be a continuous interaction with your artifacts to look for and get new ones. Collecting is often related to a passion in real life: one of the authors is a temporary keeper of a collection of historic western musical instruments, some of our students develop collections, e.g., of concerts tickets, coasters, or coins and banknotes (Fig.5 to Fig.7). Collecting those peculiar objects is a daily aspect of the collector’s life, each collection continually grows and the scope develops each time new understanding of the domain is reach or a new artifact is inserted and cherished;



Fig. 5. Concerts tickets collection



Fig. 6. Money collection



Fig. 7. Coasters collection

Example design case from our course

At the start of our course the students were asked to bring authentic experiences regarding precious artifact related shared memories from their family home.

One student presented pictures and a story of a collection of Sardinian costumes and associated jewelry, originally belonging to her great-grandmother who, late in the 19th century, as a young girl received a working dress and a party dress from her mother who created them in the then common traditions (Figure 8). The dresses and the jewels that belonged to them (Figure 9) were kept in the family and were inherited by one of the daughters or nieces, remarkably mostly by girls with the same first name, as far as the dresses fitted them. The student and her sister, who is the current “owner” of the inheritance, regularly participate in folklore events wearing the outfit.



Fig. 8. Work dress or widow dress (left) and party dress

During the course, one of the teams adopted this example. They managed to collect relevant stories from several family members (including when and how the dresses were repaired or adjusted in length) and why they were inherited by the various temporary owners. A rather complete family tree could be reconstructed with dates and many pictures in costume of all who possessed the dresses for some time. From the current owner a detailed “diary” of the dress in use since 2001 could be retrieved.

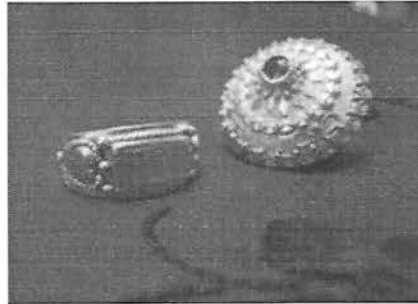


Fig. 9. jewelry belonging to the dresses

The design team decided to develop support for the diary of the dress through a website. They created three sections: history of the dresses and the owners (from 1892), diary (since 2001), and description of the artifacts. Figure 10 shows the history home page from where the history of the various owners can be reached (Figure 11). The description entry provides details of the dresses and jewelry as well as of their maintenance and changes in the past.

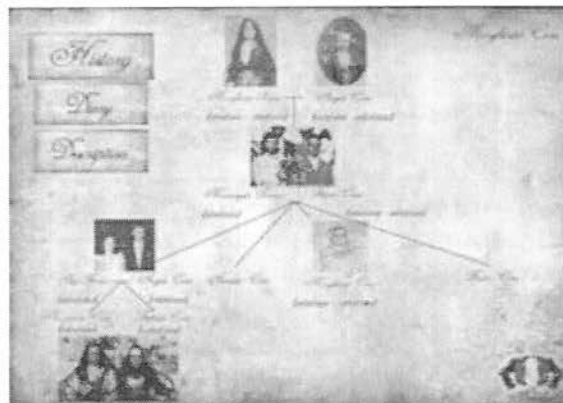


Fig. 10. History homepage

The design envisions that in the future each subsequent owner will maintain the diary as well as update the history



Fig. 11. History of one of the owners

The look and feel of the design (background colors, character type) is chosen to match the subject and to support the experience of looking into a history that started long ago. The diary section (Figure 512) shows event descriptions where the dresses were used.

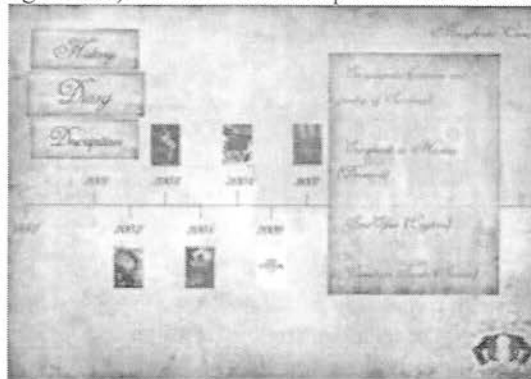


Fig. 12. Diary page for 2007

Living a culture means experiencing it (and experiencing is an activity)

Based on previous research [Dhaval and Van Der Veer 2006; Dhaval 2011], we consider that the aspects we have mentioned before are directly connected with the concept of experience. Some authors [Dewey 1934; Wright, Blythe and McCarthy 2006] define experience as the sum of all human's interaction with an object, experience is also defined as something which is deeply subjective and "irreducible totality of people acting, sensing, thinking, feeling and making meaning in a setting" [Dhaval 2011], and "experience meaning attitude emotions tendency to act" [Dhaval 2011]. Dhaval and Van der Veer [Dhaval and Van Der Veer 2006] show that

“experience can be understood in its natural settings and how it can be supported by technological means”.

Moreover in their framework, these authors [Dhaval and Van Der Veer 2006] link experience to some aspects that we found in dealing with Cultural Heritage:

1. *experience is context dependant*. In the central part of Sardinia there is the tradition of pattadese. It is a handmade knife that is still owned by many men. The first knife of anybody is generally given by the father to the son at the start of adolescence. One of our students in Alghero started a collection in this way (the first knife he received is shown in Fig.13);
2. *the level of involvement* (entertainment, satisfaction and safety, perceived challenge and personal freedom) can affect a keeper’s subsequent feelings (pleasure, fun, amazement). The most precious memory of one of the students in Dalian are three calabashes (one is in Fig.14). It is a sweet memory because calabashes were bought during a traditional trip to Penglai at the occasion of his parents’ 20th wedding anniversary;

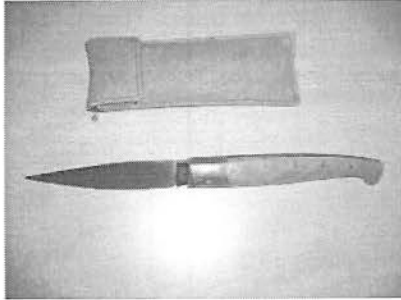


Fig. 13. Pattadese knife

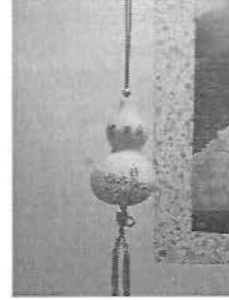


Fig. 14. One calabash

3. *Previous experiences affect future experiences*. The armchair, shown in Fig.15, built by the grandfather of a Dalian student, is rather uncomfortable but it was in his parents’ home since his childhood so when he moved to University he decided to take the armchair with him. He has never used his armchair but he is in its company always remembering his family;
4. *experience includes the way the artifact is understood in its environment*. A student in Alghero has inherited a bullet, shown in Fig.16, which has a strong emotional value for him. This student’s grandfather fought in the Second World War and took back that used bullet from the frontline in order not to forget how lucky he was to be still alive. The bullet became a tangible celebration of that man’s survival. For that reason the bullet is stored as an heirloom and inherited from father to son in this student’s family.

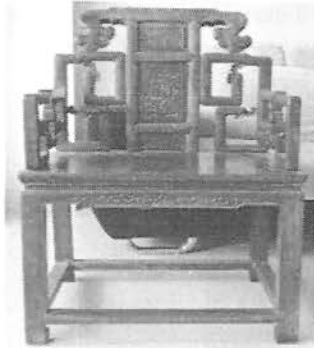


Fig. 15. Grandfather's armchair

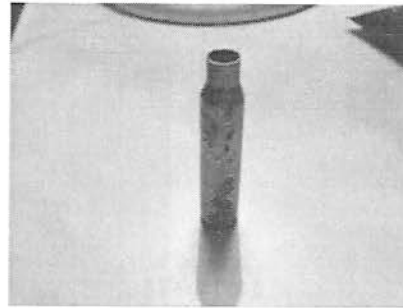


Fig. 16. Grandfather's bullet

5. *experience includes socially built interpretation.* In our ethnographic research we have seen various examples of collections consisting of different artifacts. Sometimes these artifacts are ordinary objects with special value added through socially created meaning. In Jewish mourning tradition, for instance, people put small stones on the graves in order to leave a memento of their visit. But if someone who does not know this tradition passes by those small stones are seen only as pebbles without any meaning or religious value;

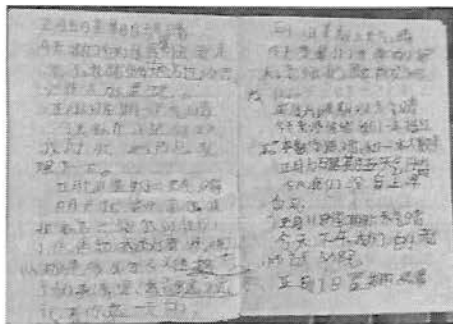


Fig. 17. The diary that had disappeared

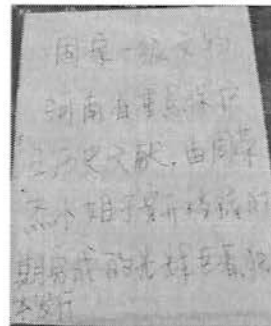


Fig. 18. The sister's letter wrapped around the refund diary

6. *people construct their meaning, and consequent their ways of interacting, basing on experience.* A student in China used to keep a diary during her childhood but at a certain moment the diary disappeared and the student was very disappointed to be unable to find it. When she was at university her sister found the diary and send it to the student wrapped in a very personal letter (Fig.17 and 18).
7. *experience consists of four interrelated and inseparable forms: sensual, cognitive, emotional and practical* [Dhaval and Van Der Veer 2006]. A student in Alghero collects the travel guides she has been using, shown in Fig.19, after coming back from a trip, in order to remember the various sensations related to the travelling experiences. When she flips through guidebook pages that still contain small objects (receipts, addresses, small coins, postcards...) or annotation, the memory of the trip

is alive because these transitional objects recreate memories and emotions related to specific facts (a new friend, a discovery, a pleasant view, a smell...).



Fig. 19. Travel guides collection

In this section we have shown there is a strong connection between Cultural Heritage and experience and that the value of the artifact for the keeper is to have access to previous experiences and re-live them.

Conclusion

The example shows our students' understanding of what we aimed at: applying new technology to support keeping historic artifacts and knowledge about their lives connected to living experiences of members of a community that cares about these artifacts. Our growing understanding is so far based on ethnographic observations during teaching in two rather different cultural contexts (Sardinia and the Dalian region). Our knowledge will need validation by collecting experiences from education in different contexts, as well as by applying our design ideas in commercial design situations for cultural domains like IT support for museums and for cultural events.

Acknowledgements

We thank our students who learned with us and co-developed our understanding, especially Sara Bartesaghi, Elisa Bua, Federica Casu, and Silvia Ucheddu.

References

- Teresa Consiglio and Gerrit C. Van Der Veer. Electronic learning environments – worlds behind screens. Proceedings of ECCE 2013. ACM digital library
- John Dewey. *Art as experience*. Perigee. 1934. London 1999.
- Elisa Giaccardi. *On pause and duration, or: the design of heritage experience*. Proceedings of the 25th BCS Conference on Human-Computer Interaction. British Computer Society, 2011.

- UNESCO: definition of Culture. Retrieved April 23, 2013, from Unesco website: www.unesco.org/new/en/culture/themes/movable-heritage-and-museums/unesco-database-of-national-cultural-heritage-laws/frequently-asked-questions/definition-of-the-cultural-heritage
- Dhaval Maheshbhai Vyas. Designing for awareness: an experience-focused HCI perspective. University of Twente, 2011.
- Dhaval Maheshbhai Vyas and Gerrit C. Van Der Veer. *Experience as meaning: some underlying concepts and implications for design*. Proceedings of the 13th European conference on Cognitive ergonomics: trust and control in complex socio-technical systems. ACM, 2006.
- Peter Wright, Mark Blythe and John McCarthy. User experience and the idea of design in HCI. Interactive Systems. Design, Specification, and Verification. Springer Berlin Heidelberg,

Keeping Cultural Heritage Alive – Opportunities with ICT

HCITOCH 2015, Human-Computer Interaction, Tourism and Cultural Heritage • Sep 20, 2015

Authors: Selene Uras, Teresa Consiglio, Gerrit van der Veer

Cultures develop in societies, by people co-developing and sharing artifacts. These artifacts are of many types: languages, rules, gestures, physical objects, documents, stories, etc. The artifacts are the product of the culture and, at the same time, the main way to keep the culture. As the people living in the culture will die, the artifacts are needed to keep the culture alive. They are inherited by new generations of members of the culture. Since the artifacts get used, and transferred, they change, get worn out, acquire additional meaning and lose some "previous" meaning, and finally may get lost, or lose their original function and meaning. After that, these artifacts are no longer cultural heritage but just heritage, and at the same time the culture may be in immediate danger of dying. In this paper we will discuss the issue of keeping cultural heritage, of maintaining its integrity along its use and meaning of a living culture. We will show how new technology might help solving some of the dilemmas and support healthy survival of cultures and their heritage.

Keeping Cultural Heritage Alive – Opportunities with ICT

Selene Uras

OpenKnowledge
Milan, Italy
selene.uras@gmail.com

Teresa Consiglio

Dutch Open University
Heerlen, Netherlands
teresaconsiglio@gmail.com

Gerrit van der Veer

Dalian Maritime University
Dalian, China
gerrit@acm.com

Abstract.

Cultures develop in societies, by people co-developing and sharing artifacts. These artifacts are of many types: languages, rules, gestures, physical objects, documents, stories, etc. The artifacts are the product of the culture and, at the same time, the main way to keep the culture. As the people living in the culture will die, the artifacts are needed to keep the culture alive. They are inherited by new generations of members of the culture. Since the artifacts get used, and transferred, they change, get worn out, acquire additional meaning and lose some “previous” meaning, and finally may get lost, or lose their original function and meaning. After that, these artifacts are no longer cultural heritage but just heritage, and at the same time the culture may be in immediate danger of dying.

In this paper we will discuss the issue of keeping cultural heritage, of maintaining its integrity along its use and meaning of a living culture. We will show how new technology might help solving some of the dilemmas and support healthy survival of cultures and their heritage.

Keywords

Cultural heritage; experiencing; living cultures; teaching; time capsules.

1 Cultural heritage

1.1 Cultural heritage presumes there are still heirs

Culture lives as long as there are people living the culture together. If the understanding, and the practice, and the participants, of a culture disappear, the culture gets lost and the cultural heritage changes into intriguing but mysterious artifacts.

Rongorongo [Bernard et al. 1996], for instance, is a real mystery, even for anthropologists. It has been found in Easter Island and consists of a series of glyphs

that are supposed to be symbols of a language. But nobody is able to understand and decode them because there are no people alive able to write and read Rongorongo.

1.2 Historically, heirs apply “traditional” techniques that change the heritage to keep it alive

In the Archaic and Classical Greece (8th - 4th century B.C.), in absence of written forms, literary heritage was orally transmitted by anonymous cantors: the aoidos [Lord 2000] (cantor) or rhapsode (who sews songs together). They used to be hosted by aristocrats during public holidays, religious occasions and poetry challenges.

This kind of *face to face communication* was mediated by participation of the audience which was relevant to make people aware of achievements and facts that happened all over the country [Lefkowitz 2012].

There were peculiar formulas (e.g. repetitions, *oi topoi*, patronymic) explicitly created to help the aoidos to remember the exact series of the facts. However, due to the nature of oral transmission it was common to have quite different versions of accounts of the same events. Homer was the most famous aoidos and he is known as “the teacher of the Greece” [Heubeck 1990] thanks to his consistent work in preserving cultural heritage artifacts, that consist in this case of orally transmitted history of Greek culture.

1.3 New techniques provide new opportunities

In earlier times, these supporting techniques were scarce and different between cultures and even between time periods in a living culture.

IT and Communication Technology could help culture to survive, by providing a growing set of tools and techniques to support the preservation of the artifacts that are the core of a living culture: recordings, documentation, social media, search, multimedia descriptions, etc.

1.4 An ontology of cultural heritage

Our concept of Cultural Heritage is based on Unesco [Unesco 2013] and refers to categories of heritage: tangible (movable: paintings, sculptures, coins, manuscripts; and immovable: monuments, archaeological sites, shipwrecks) as well as intangible (stories, performing arts, rituals) *Artifacts* that are both the product of, and support the continuation of a culture.

Heritage implies temporal *Ownership*, indicating that a person, institute, or community (family group or tribe) may at a certain time be considered and considering itself to be the keeper of the artifact, taking responsibility for its integrity, maintenance, safety, responsible use, as well as the conservation and development of related history, knowledge of the related culture, rites, and eventually transfer to new ownership.

Culture, in this respect, refers to the set of shared attitudes, values, goals, and practices that characterizes an community, and the integrated pattern of human knowledge, belief, and behavior of the Participants in the culture (based on several definitions [Merriamwebster 2013]);

Participants in (or members of) a culture play one or more of several *Roles*:

Scholar is our indication for the role taken by a person (or institute) that is willing and able to actively support maintenance and knowledge of the artifacts and their use in the living culture. This category of stakeholders include restorers and curators, makers of facsimiles, expert performers, researchers of artifacts or of the history of the culture, and documentalists. This category also includes dealers and collector of cultural heritage objects, as far as these explicitly aim at preserving and supporting the culture. Some museums and private collections are in this category, others aim mainly at “tourists” or are dedicated to a culture that is not in any way endangered and where heritage is (not yet) an issue;

Amateur is our label for a member of the audience that is willing and able to take the role of member of the culture, knowing and understanding the culture and actively participating and supporting. An amateur contributes to the culture in several ways, from being a sensemaking audience at events, to (financially or politically) contributing to a healthy context.

“Scholar” and “amateur” indicate roles. Stakeholders in a culture may shift between these (being authors of a novel and readers of other prose, one day a performer and the next day member of the audience, making a flute and then listening to someone else playing it).

Our efforts are not intended to serve the interest of a third potential audience, *Tourists*, even though this audience might be excited about inspecting objects that appear strange as well as intriguing or beautiful to them.

2 The Dilemma: To Live means To Develop means To Change

Cultures change, and people living the culture are instrumental in these changes. This phenomenon has serious implications for the existence and meaning of all cultural heritage artifacts, as we will discuss in this section.

2.1 Participation in a culture means to live the culture

The previous example taken from the Archaic Greece is relevant to bring to light some, apparently conflicting, issues related to cultural heritage. Roles are well defined but participants can change their interpretation and add their personal contribution, whether they are aedos or audience; there is the necessity of transmitting relevant information in the most efficient, widespread and detailed way in order to preserve the common knowledge but, hence, the information is no more the original but a new version based on the previous as well as on the interaction between aedos and

audience; the artifact object of the transmission in this case is immaterial (an oral account) but, in other cases, could be also material (e.g. a physical object); there is a procedure (use of fixed figure of speech) to follow in order to transmit the material in the proper way.

2.2 Artifacts are unique

In a newer era (there are controversial sources [Plutarch a I-II sec. A.C.; Phillips 2010; Donaldson and Donaldson 1983, Al-Qifti and Ad-Din 1903] about the exact date), the library of Alexandria was completely destroyed causing an enormous cultural disaster. It was the most important library in the world because the entire written knowledge was there, on papyrus drafted by grammarians and philologists. At that time, people were unable to reproduce the library so that immense heritage was lost forever.

Alexandria's accident is useful in pointing out other aspects related to cultural heritage. The artifact is unique and not replaceable at all. If the artifact is destroyed there are no possibilities to get the original back though copies may exist. The problem with copies is that these are created by a scholar who tries to interpret the original by applying the best skills and understanding in the new context. Even if the maker of a copy is the same person as the creator of the original, the culture is developing and the copyist's interpretations will develop with it. Painters (van Gogh creating a series of sunflower paintings), musicians (Bach re-writing many of his church cantatas) or violin makers (Stradivary developing at least 5 shapes of violins during his 70 years of active work) never create "identical" work because they changed with the cultural context they were living. The farther a copyist is from the original event of creation, the more new heritage is being born and, and the larger the difference with the cultural essence of the original.

2.3 Cultures may develop awareness of (and respect for) other cultures

It is well documented [Haskins 1959] that archaeology in Russia was born during Peter the Great. In fact, Nicolaes Witsen, who was a Dutch statesman and one of the mentors of Peter the Great, suggested him to keep and preserve Siberian jewels instead of melting them down to obtain the gold, underlining these jewels' intrinsic and irreplaceable value. Peter the Great was so enthusiastic of this suggestion that, when Witsen died, he tried unsuccessfully to take possession of the deceased's personal collection.

2.4 Using things means changing them

A copy is not the original, like a time capsules is. Time capsule are supposed to be an untouched, preserved and unchanged world when they crop up after many years. But, being by definition completely untouched, time capsules do not keep a culture alive.

During one of his expeditions, in Grand Conglouè, Jacques Cousteau found an ancient Roman trade vessel with various amphorae containing wine. As Cousteau was very curious to taste the immaculate wine, the more disappointed he was in discovering that the wine tasted like garbage. This illustrates four other aspects of cultural heritage: i) since you modify a time capsule, it is no more an untouched world but a contaminated and manipulated one; ii) even untouched by human hands, time itself may change a cultural artifact; iii) people's tastes are socially and culturally influenced and consequently (the aesthetics of) cultural artifacts are appreciated depending on the distance of the observer to on the artifacts' original context and culture, iv) keepers of cultural heritage should keep in mind they are only temporary owner/ keeper of the artifact, that should be safeguarded in order to be inherited by future "generations" of participants in the culture.

As a further illustration of the issues of using cultural heritage, we refer to the history of Theseus' ship. Theseus was considered an hero in ancient Greek and after his death there was a strong cult around him. The ship used by Theseus for the Crete expedition was part of this cult and it has been preserved by the Athenians for a quite long time (Crete's expedition was in 1265 B.C. and we have the testimony of Demetrius Phalereus who lived from 350 to 280 B.C. [Plutarch b I-II sec. A.C.]). This ship was also the focus of a philosophical debate. In fact, as soon as some old planks decayed these were replaced with stronger timber. Philosophers were fascinated by the (il)logic behind that: people taking care of the ship wanted to protect and preserve it but doing so the ship became a completely new one, rather different from the original [Plutarch b I-II sec. A.C.]. For that reasons, the story of Theseus's ship is also known as Theseus' paradox.

2.5 Time capsules still tell a story

The first sovereign of the "whole" ancient China was Yu [Roberts 1999]. His dynasty has been ruling for fourteen generations but, despite a vast oral tradition, the accounts of this dynasty have afterwards been taught to be a legend [Qian 1959] until the '50s, when in Erlitou important archaeological remains were found [Liu 2005]. The recovered foundations of huge buildings explained the existence of a state organization, basing on the use of coercive methods with manpower and on the highest hierarchy of the society, represented, among other evidence, by the difference in dimensions between tombs and buildings.

2.6 Culture could be killed on purpose

After having beaten Qi, Ying Zheng unified the whole China and assumed the title of first emperor of the Qin dynasty [Wood 2008]. In that way, he challenged the tradition because the terms that he chose to define himself were suitable only for ancient emperors and illustrate his claim that he did not need the tradition to legitimate his power. He, then, reorganized the Chinese political and social system, adopting a unique currency, a unique writing style, a widespread road network and he suppressed aristocrat privileges. In order to prevent citizens to invoke the old

traditions and to doubt his authority, he ruled that all previously written texts, apart from those of purely scientific and technical interest, had to be burnt.

2.7 False history creates a suggestion of Cultural Heritage

The Shi Ji (“Records of the Grand Historian”) is a forged history opus started by Sima Tan and finished by Sima Qian, his son [Sima 1994]. This opus, regarding the Chinese history starting from the Yellow Emperor and ending at the time of Sima Qian, pretends to contain only strictly documented facts. All these facts, in fact, are strongly over-detailed to suggest that they are based on eyewitness reports.

3 A passionate debate: Live the culture or Teach the world

Nowadays, we witness a passionate debate concerning the structure, organization, provision and information and content (the primary artifacts) of museums and collections of cultural heritage. In fact, there are two main and opposite approaches which split the community of experts and propagators of culture.

Collections of cultural heritage tended to be the *playground of the actual (living) culture*, the temple, workshop, or theater were the participants of a culture created, performed, learned and taught, applauded and criticized, maintained, documented and improved, the artifacts that were instrumental in the culture they considered theirs.

According to the ancient definition and the etymology, the Greek word Μουσείον (Mouseion) denotes a place dedicated to the Muses (the patron divinities of the arts in Greek mythology), and hence a building set apart for study and the arts. Muses used to sing about the past, present and future. So it can be said that they performed many ancient “divine operettas” [Jumum 2013]. In the Renaissance, a well known institute was the Wundekammer [Wikipedia a 2013] where amateurs and scholars met to experience (among other things like natural heritage objects) cultural heritage artifacts, to enjoy, discuss, learn and teach, as well as to keep the heritage and its related knowledge for future generations.

Modern museums are frequently moving to another model, with the explicit goal to “*exhibit to the public for their enjoyment*” [ICOM 1990], which means that “*museums exist not only for academic study for school children, scientists and curious persons, but also for the delight of the general public. Also museums include a wide range of enjoyable facilities which keep living things and rear them*” [Iguchi 2005]. In fact, some museums now operate as a tourist business, including stunts with 80% reduced access prices [Uitmetkorting 2013], and opportunities for packet lunches [V&A 2013]; examples from two museums that both since 5 years closed down access to their large collections of historic musical instruments that are considered unique among scholars worldwide.

Currently we experience a global change in perception of museums. They are not only considered *places of culture* but also fashionable settings suitable to promote social activities, to host renowned restaurants, and to encourage creativity in children. In that way museums have passed from the role of culture-centered holy places dedicated to experts or people *forced* (in the book “A room with a view” [Forster 1908], for

instance, it was mandatory to visit churches and museums because knowing art was considered fundamental for young ladies at that time) to go there for social pressure to fashionable, glossy and sparkling places where exhibitions are no more organized following timelines and cultural meaning related to the history of the exposed objects but where the purpose is to spend pleasant time.

Scholars would like to preserve the original organizations of museums, while most of today's museum curators move into a management role and want to enlarge and increase museums' potential audience to make more money and spread culture over the majority of people, with the final aim to transform the experience of museums, and art in general, towards daily and common experiences as, for instance, proposed by Pop art. In fact, Pop art artists used normal and in serie produced objects to create anonymous artistic artifacts in order to be understood, appreciated and known by a large number of people.

It is important to underline that preserving Cultural Heritage is the responsibility of expert scholars in the culture concerned who, thanks to their job, can not only maintain and preserve relevant artifacts but also allow tourist access to meticulously documented and selected material. In fact, it is scholar's role to be responsible for what is safe to touch and what to leave, operating on a strict and proficient choice among artifacts.

If museums are aimed to serve only tourists there is the risk to offer only a spectacular but rather partial vision of a phenomenon. Bianzhong [Wikipedia b 2013], for instance, is an old Chinese musical instrument consisting of a series of bronze bells which, if properly played, produce two different musical notes each. Bianzhong as a set of many (7 over 40) bells, is an ancient, valuable and rare musical instrument, so most of the time it is shown in museums in pieces: a single bronze bell for a single museum, without relevant documentation, let alone a sound track available. In that way a tourist will certainly misunderstand Bianzhong's working principle, have a wrong perception of the instrument and its composition in relation to the original culture, and never experience it playing.

In order to serve both the scholars and amateurs, and the tourists, a museum that wants to be worth its name will need two entrances as well as two different business models, each with its own tools. This way, the museum may have a business model that allows it to survive in the current economic climate, and at the same time keep its function of being a key location for living and maintaining a culture.

4. Experiencing Cultural heritage

Cultural heritage is an artifact created by a culture to practice the culture and to preserve itself alive. It concerns artifacts inherited from past generations and to be preserved for future ones, as a Native American quote says "Treat the earth well: it was not given to you by your parents, it was loaned to you by your children. We do not inherit the Earth from our ancestors, we borrow it from our children" (Old Cherokee legend). The inheritance of artifacts comes with issues of preservation and use:

- the chosen way of transmission influences artifacts' preservation: aedos in ancient Greek and the first emperor of Qin dynasty are good examples in providing what

transmitting and preserving a culture means. In fact, for opposite reasons, they found the best way to transmit their own culture at their times. They were able to manage the way of transmission and they were completely aware that transmitting means preserving because if people are informed they will keep in mind the facts;

- the object of the transmission could be material or immaterial: The nature of the artifact influences also the ways to preserve and interact with it. Every single artifact includes various meaning such as emotions (joy, melancholy, happiness), memories (childhood, historical events, concerts), episodes, situations, people related to, perceptions (smell, scent, taste), behaviors, activities, and interpretations (magic, special, unique). There are some health problems that occur over generations. Keeping trace of the transformation of the health disease could be helpful for next generations; this is a peculiar heritage: health heritage;
- the artifact is unique and not replaceable at all because once missed an artifact is missed for ever: as soon as all the books of Alexandria library were irremediably lost forever, it was clear that the entire written knowledge was lost, although there were some copies of the original manuscripts, which had then a priceless value;
- the cultural value of an artifact is a culture-mediated process: dealing with cultural heritage arises various issues often a bit contradictory, controversial, and doubtful as only dilemmas could be. In fact, “living a culture” means working with and on it, implies preserving something which becomes different because you are trying to preserve it, involves to take care of something that it will be yours only for a certain amount of time, signifies the willing to stop modifying something that needs to be alive to participate to its own culture. At first glance, artifacts could be perceived only as objects without any specific meaning. The meaning, in fact, is a process which involves artifact’s main characteristics, the value (both financial and cultural) assigned by the community, the cultural value assigned by experts/ lovers community, the bond between the artifact and stakeholder(s) taking part in preserving process. In 1600 in the Netherlands there was the first economical bubble of the history: the tulpenmanie [Dash 1999]. It implied that the costs of tulips’ bulbs enormously increased day by day due to a challenge among the aristocrats people to obtain the rarest tulip bulbs. The cost of the tulips’ bulbs was so unpredictable that many people lost their house.
- the level of involvement is strongly connected with the interaction with the artifacts. To be involved with an artifact implies to understand its meaning in the culture of use and to be able to interact with it meaningfully, which, consequently, depends on how the object can be inserted in the life, the ideals and motives of the temporary owner, and whether the object and its culture is perceived close and living. A student of a class we taught in Sassari, Italy, reported the history and narrated experiences of Margherita Scanu, shown in Fig.1. The costume was sown in early 1900s by Margherita’s mother and it was her working dress; also preserved are a set of matching jewelry and a mourning dress. According to the family tradition Figure 3 shows the various temporary owners of the Scanu family. The outfit was due to be inherited by Margherita II, granddaughter of the first Margherita, but she was too tall and the outfit went to the daughter of her brother, again named Margherita, who is tinier. Remarkably, the family tradition tells us the outfit has only been officially owned by women named Margherita. There have

been periods in between where no one of that name was alive and the costume was kept by the family waiting till another potential owner would be available.



Fig. 1. Margherita the ancestor



Fig. 2. Margherita the great-granddaughter

In the 2000's Margherita Scanu's outfit is no more used in daily life. In this family, as well as in the culture of experts on local dress history, it is considered extremely precious. It is regularly exhibited and used in folk festivals where participants wear their traditional clothes. Margherita III loves to participate to this kind of events and was disappointed to not being able to wear her ancestor dress so it was decided to adapt it to her shape. Once being the legitimate owner of the outfit, Margherita started to collect information concerning the history (and the previous owners) of the dress and to keep a diary about the events the outfit participate in. The level of involvement of Margherita III is quite high: in fact she is involved in planning the events, she takes care of the outfit, and she keeps detailed diary notes of the occasions she and the outfit participate in. This loving care depends on family values and the current owner's interest in events that allow meeting of scholars and amateurs of ancient outfits. In Fig.3 Margherita III is wearing the adapted outfit.

Considering artifacts inherited in familiar contexts, Reeder [Reeder et al. 2013] assert that "the object must be meaningful to both the older and the younger generations", indicating that passing over the generations the object needs to find a new (symbolic and/or practical) value in order to be still alive and relevant in family's life. At the same time, it is not possible to "assume that all the individuals who engage with their family heritage will want to contribute in the same manner. What people choose to share may depend on relationship, life stage, content and the context in which they are" [Reeder et al. 2013]. All those aspects can be found in the history of Margherita Scanu's outfit.

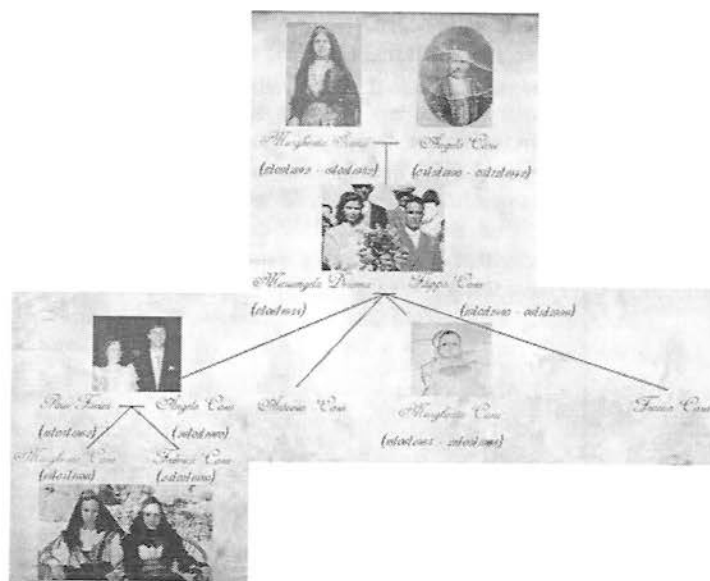


Fig. 3. Margherita Scanu's family tree, with successive temporary owners indicated in red

5 WHAT ARE WE KEEPING

Johan Sebastian Bach (1685-1750) composed 6 sonatas for unaccompanied violin and a comparable set for cello, between 1703 and 1720, see Fig.4. The sonatas are preserved in several manuscripts written by the composer and by members of his family. They were first published in 1843. For over a century expert musicians were unable to understand the meaning: there are many parts that seem to require 4 parts sounding at the same time, which is impossible to be played on a single violin as constructed in Bach's time, and impossible to be played on a (acoustically rather different) modern violin. Most experts considered these compositions "theoretical" writing. Others presumed Bach intended them to be played with a special bow that allowed 4 strings to be touched at the same time on occasion and only a single or two strings at other moments in the same piece of music. Technicians invented various types of "Bach bows" which were not based on any evidence for literature, pictures, or remaining artifacts.

Mid 20th century, scholars outside of the official music expertise domain started to read and interpret again books like Leopold Mozart's *Violin School* ("*Versuch einer gründlichen Violinschule*"), and re-discovered a way of playing that allowed sounding the score on historic original violins using original 18th century bows. This playing turned out to trigger at the audience the experience of up to 4 parts sounding at the same time. For over a decade this way of playing Bach and teaching to play to

professional violin students was not allowed at most music academies. On the contrary, technology that was novel at that time (the use of tape recorders that allowed recording multiple tracks and merging them later) was used by some of the internationally most famous professional players to record the music sounding as played by four players. On retrospect, the expert listener (the amateur of the original culture of 18th century violin playing) really enjoyed being able to listen to a 4-part phrase when evidently this was not acoustically sounding. Listening to the “perfect”4-part playing by the record from the famous soloist completely spoiled the experience. It made the listener consider that Bach had an abundance of capable violin players at his disposal and would have written for four violins if he aimed at this sound.



Fig. 4. Bach sonata for violin solo, autograph 1720

Now, what is the artifact in this case: the paper score as hand written? The score in modern music notation as may be bought now in any music shop, the funny engineered recordings from the 60's, a performance with 4 violinists or rather one using original 18th century instrument and bow, or in fact the experience of a real amateur understanding Bach's violin culture and listening to a performance while reading the score?

Professional musicians are yet not all scholars in the culture of Bach, however. Currently the most famous piano soloists sometimes travel the world playing (accompanied by comparably famous symphonic orchestras) Bach's "piano concertos" on a piano. These concertos were composed for keyboard, which in the culture of playing with orchestra in Bach's context could have been either organ or harpsichord, though the speed of playing required would first of all point to harpsichord. On a well preserved 18th century German harpsichord, all tones have the

same loudness. And in many cases the score visually seems to show two melodies. Being played on the intended instrument, however, one of the two melodies turns out to trigger in the (amateur) audience the experience of up to 3 or 4 parts that are interwoven. This experience is comparable to the one mentioned above: the listener is aware of the active interpretation, and, moreover, when listening to the same piece again (whether the same recording or another performance) the listener may well discover new voices. Well, our famous piano players are well able to put dynamic loudness variations in their performance, skillfully showing the multiple voices as build in the single melodic line, cleverly convincing the tourists of their ability and at the same time spoiling the fun of the amateurs.

We have defined Cultural Heritage as a multidimensional concept and the aspects listed in the previous section suggest several dilemmas arising from this field. For instance, is not a bit bizarre that, nowadays, to preserve something immaterial, like a score of music, it is necessary to convert it in a file? Or that inheriting something means to have received a thing in a certain moment, which implies that this thing is not steady over times but is in a continuous process of changing? In fact, when a precious object is restored the object stops to be what it used to and becomes a new old and restored objects. Moreover, it is clear now that, if we want to approach to this issue in the proper way, it is necessary to provide some guidelines helpful to reduce confusion and to answer to the eternal unsolved question: “What in this land is the most preserved artifact of all?”

6 Temporary keeping time



Fig. 5. Temporary keepers of the “same” artifact of cultural heritage, living in different times and different cultural periods.

In a certain time phase a culture arises and produces its artifacts which, to be preserved and transmitted, need someone to take care of (Figure 5). It is important to consider these three aspect together because they are tightly related. The caretaker or owner enters contact with a culture in a certain time and at a later moment transfers ownership, or dies or leaves the culture.

The role of keeper or owner is only a temporary one (see Figure)and this temporariness is mostly quite predictable, based on, for instance, medium human life span, or survival expectations of an institute like a museum, legal body, or foundation, so the tasks of a keeper are well defined and concern only a certain period of time. However, the time length in which a culture lives and survives is quite unpredictable. because it depends also on transfer between people living it (e.g. nowadays nobody is able to understand Rongorongo), on the ability and willingness of people, societies, or institutes preserving it (temporary keepers) to continue

keeping the culture alive, and on the amount of change in the culture: the change over time may be so large that it in fact is disruptive for the original culture and consequently the meaning of cultural heritage objects may disappear – they become mere relict of a period that is considered closed.

Sometimes, a gap occurs and for a certain period of time there is no temporary keeper at all. For instance, in the internal part of Sardinia there was the tradition to interlace carpets with specially handcrafted wooden looms. During late '70s those handcrafted looms were replaced with industrial ones. Carpets makers discovered that with new machines it was no more possible to create some traditional patterns. Recently various folkloristic events were organized and natives discovered the old patterns that were considered lost so they decided to built new handcrafted wooden looms. In that way, old ladies started to teach to new generations to interlace carpets using wooden looms. And there was a novelty in reintroducing the lost tradition: at men also was allowed to create the carpets.

Culture could be also split up. Immigrants, for instance, are a good example. Some sociological studies have focused their attention on social identity in immigrants [Peirce 1995]. In fact, for those of them who live away from the native land and feel strictly connected with it, a good way to celebrate this link consists in maintaining and exacerbating traditions.

Researchers have found archaic and forgotten dialect's forms in those communities, uncontaminated recipes and rituals kept unchanged or adapted to the new settings. The most typical Italian dish, for instance, was born thanks to various cultural influences: tomatoes come from America, spaghetti from China and basil from India but it is inescapably the most known Italian recipe. Or, concerning music, we have the pleasure to listen a peculiar combination of early Baroque music mixed with Native Americans sounds, thanks to the first Jesuit fathers who tried to convert Native Americans to the catholic religion, offering them a new divinity, clothes and musical instruments.

7 No human life without a culture

When we proposed to teach our course “design for precious memory” in the University of Dalian, China, our host told us: “Our student will not be interested”. We found out the contrary was the case. Wherever we teach we ask our students to consider artifacts and collections that survive in their families or social communities, and they always come back with private experiences in this category. They show us these artifacts represent values in their family culture, that make it worthwhile to keep them, and that are considered essential for maintaining the inherited experiences.

7.1 Cultural Heritage is like a language

Each language is an artifact and a cultural heritage, implicitly or explicitly developed. Any object of Cultural heritage can be compared with a language, as it has its own words or concepts with meanings that are context dependent, is used with specific rules, understood only by people who are born in it or have mastered its meaning in

practice, is based on personal experiences and memories of this (including sounds, sensations, feelings, and images), and has been created, acquired, passed on and shared with others.

7.2 Cultural heritage is part of our daily life

Most of our insight is based on teaching about this topic in various cultures, most recently in Sardinia (a group of 30 University students in the faculty of Architecture and Design in Alghero, Sardinia) and in China (a group of 12 Masters and PhD students in a faculty of Computer Science in the University of Dalian). Obviously we were interested in cultural differences between the two environments from where the students come. Sardinia is an island, quite impenetrable by external influences while Dalian (8 million inhabitants) is the third most important harbor city of China, where the citizens are accustomed to many and international visitors and cultural exchanges. We certainly found differences when students choose their memories. Chinese students presented memories directly related to their family, while Italian students contributed also memories related to friends and strangers they met during travels. Some studies [Rapoport 1969] assert that the Western perception of the time is linear and deterministic while Eastern perception is circular, considering events to be in a chain without starting and end point. This aspect may influence the way of constructing and interacting with spaces and objects. We can find this aspect in some examples of memories brought by our students: For Italian students it is important to tell the episode behind the chosen object, its story, their way of interacting with it. In that way the artifact is not just an object, but a relic with additional value added by the experience, by the fact that it really took, and continues to take, part in the person's life. Sometimes adding this personal perception to the immaterial value of the object means also conferring it a sort of magical power, so it becomes a talisman. Chinese students, on the other hand, prefer to choose objects whose *attachment value* is immediately understandable. In fact, these objects belong far-back to their families or are directly related with an important family event or a phase (e.g. childhood) and these linked objects are directly related to their personal story which is the clue that makes them relevant to be preserved.

When the sister of the Chinese student found her lost diary, she not only sent it immediately to her sister who was away from home, but she accurately wrapped it in order to protect it, and wrote a letter accompanying the diary imagining the surprise and the joy of her sister for receiving such a precious and unexpected gift.

Chinese students have the tendency to take care of the precious memories preserving and keeping them even if they cannot use them (the uncomfortable armchair built by student's grandfather), while Italian students prefer to preserve objects that they can use, sometimes also forcing this process (the dress fitted for new well-built generations). If it is impossible to any more use the artifacts, Italian students tend to find a replacement use, e.g., to show and consult them often (a collection of concerts or football matches tickets) in order to keep alive the experience.

Concerning familiar traditions in both countries, it is interesting to observe that whether an object is considered a heritage of the whole family there is always one

who is considered, and feels, more responsible and, consequently, is the most proactive keeper.

8 Technology can help culture to survive

Technology could be helpful not only to preserve culture but also to improve the continued use of original artifacts.

Wilbert Hazelzet, a Dutch collector of historical flutes, involved an engineer to search new methods and solve the eternal dilemma “is it better to preserve old flutes or build new ones basing on the original?” In fact, flutes are quite fragile instruments: it is not safe or even damaging to play a historic woodwind for more than ten minutes because of the moist the player pushes in it, and played flutes are continuously subject to the process of shrinking and expanding and, hence of distortions and wear.

Thanks to engineer’s collaboration, Hazelzet discovered that the cavity of many original flute is not conical as it was supposed to be, but irregularly conical with some protrusions which influences the pitch of individual tones. This discovery (thanks to new and high technologically advanced tools) may help preserving ancient woodwind playing as a living culture. This fact, considering that played woodwinds are subjects to continuous shrinking/expanding, suggest the need for any historic type of woodwind (whether new copies or old originals) when regularly played to be (re)adjusted in order to produce the right tone pitches again. Obviously this brings another dilemma to the originality value of these artifacts as heritage of a living culture.

We are temporary owners of the artifacts we take care of . But as scholar or amateur we are conscious of the value of our artifacts and, sometimes, we become collectors of these objects. Then, it becomes fundamental to keep trace of every single artifact, its story, its value in the culture as well as its economic value, the history of use and of previous owners etc. in order to be ready to eventually pass the baton to the next temporary owner.

Example 1: the “old style” museum revised

Museology is the study of the museum in its various aspects ranging from the political and social to economical, as a means for cultural production and promotion. In fact, besides to represent a collection of objects or documents, the museum is different from a simple archive or library because it has many other features and peculiarities that make its role unique. A museum has the function of retrieving, restoring and protecting artifacts by implementing all the appropriate measures to the preservation and development of them. It plays a role in cultural dissemination and transmission of information through the dissemination of materials either informative or didactic suitable to arouse interest and curiosity.

In a museum the collections should be placed, localized and contextualized in the optimal way to create and send cultural messages to the visitors. Moreover a museum carries an educational role addressing both general public and specific categories of users, proposing special sections, customized paths and encouraging opportunities for interaction and

debate on various issues and topics. Finally, it has a specific public character unlike collections, which are private.

One of the author is a collector of ancient playable musical instruments and shares this passion with his wife. They decided to use ICT to preserve and share the culture of their collection and the instruments they love. On this purpose two of the authors designed and created a website whose development is still in progress. The idea and the challenge behind the project is to digitize the collection and to show it in a new context, maintaining in the virtual collection the same criteria of exhibition adopted for the physical collection.

In order to show artifacts in a physical museum, the first step is to start with the history and the context of origin of the collection. Then follows the selection of the core of interest to generate a link to the other elements. The construction of adequate formats to display the collection in the right way is needed with the implementation, for example, of showcases and paths that enhance the different cores of the exhibit.

The last step is the implementation of procedures for communication and dissemination of content in order to transmit information that could facilitate the understanding, context and the curiosity of visitors.

A website of this type is in fact a virtual museum, which completes, improves and enhances the museum experience through the use of interactive media, which enrich and personalize the content of the museum. It is different from a digital archive: the virtual museum is to be accessible to the public, allowing the dissemination of knowledge related to the collections and to organize the systematic presentation of the objects retaining them for a long time from degradation (see Figure 6). Virtual museums can be a digital expression of a physical museum or they can be made independently but even in the first case the structure of a digital museum cannot be a duplicate of a physical one.

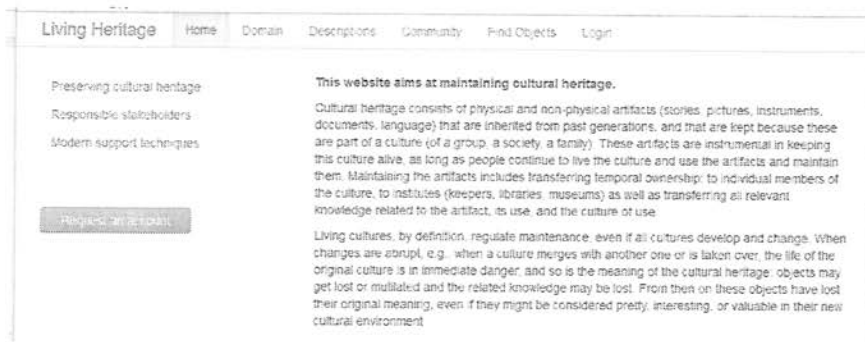


Fig. 6. General part of the website.

In our case, we want to show the whole collection and not just a part with the aim to improve the number of visitors stimulating their curiosity in

seeing the real museum exhibit, for example. For doing this, we specified the structure of the content by grouping the instrument from the real collection adapting this to the criteria of usability and information architecture that are needed in a user-centered web design.

Making multimedia information (Pictures, video clips) on this collection on the public domain didn't cause copyright issues as the (temporary) owners are the main instigators in widening the access through the use of ICT. The website is organized in a public and in a private area.

Some content and tabs are accessible from both areas. When logged in, the user, as part of the private community, can see additional tabs, information, pictures, audio and videos. The tabs of the main menu contain the aim of the website, a description of the domain and of the collection, the way we describe each instrument, and the categories of people who can access the information.

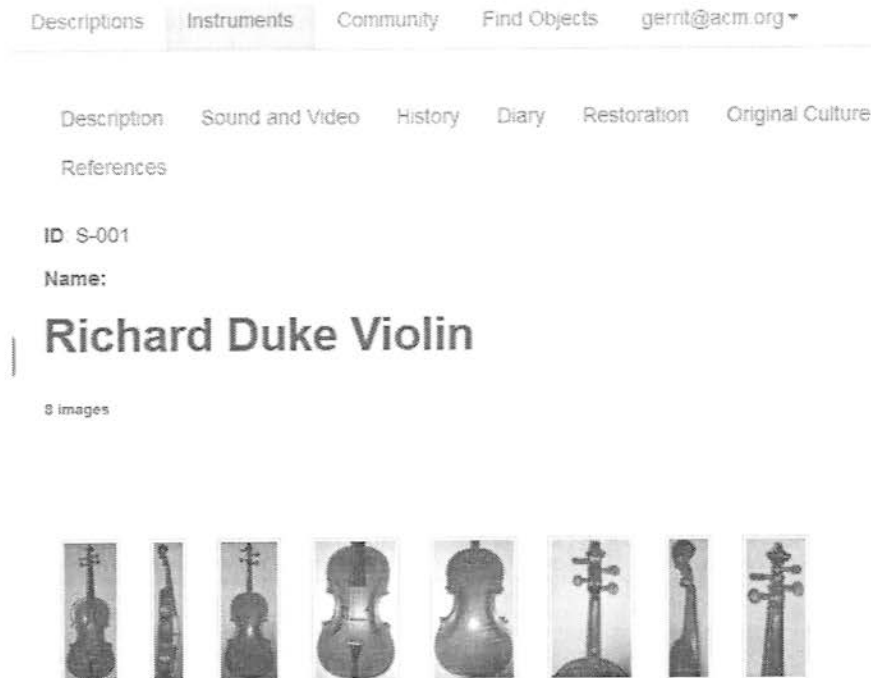


Fig. 7. Entry page for a selected instrument (a registered user needs to be signed in).

In the items of the different submenus we can find a more detailed description of the collection, the masterpieces, their ages and geographical origin, and a thumbnail picture of the instrument. In the private area the user can find much more (Figure 7), like important historical facts related to the instruments with their makers and the culture and context of origin and use. The menu item *restoration* provides the user with detailed restoration reports, evidences of previous restorations and certificates.

Several and detailed pictures of the instruments are shown each with the description and, where available, there are sound samples and videos of professional or amateur musicians playing them.

The website also features a specific section dedicated to the community of scholars and amateurs who want to exchange information, opinions and suggestions about the instruments, their makers, their cultural background, and the way to preserve and keep them alive. New insights and technologies can help an artifact's curator to share knowledge with other experts, to keep information updated and to correct information based on new evidence (comparing restored musical instruments from different collections sometimes allows to re-interpret historic traces about dates, makers, and use).

The private area is supposed to host sensitive information (that the owners prefer to, temporarily, keep for themselves): financial aspects of acquisition and maintenance, value estimation for insurance purposes, and details of living previous owners. Further material is available for scholars and amateurs in relation to specific request. The collectors propose also, alongside the traditional Hornbostel-Sachs classification, a classification based on use of the instruments in the original playing culture.

The project is in progress, we are compiling interesting and encouraging exchanges of opinions with other scholars: collectors, restorers, expert players, who experienced the use of this environment.

Example 2. keeping and saving experiences in a virtual museum concept

In front of the Amsterdam house that in World War 2 secretly hosted Anne Frank and her relatives there was a tree. Anne used to write about the tree in her famous diary, so for visitors of the house it became a symbol. In August 2010 Anne's tree was destroyed by a storm so museum curators decided to keep the tree alive in the web [Anne's Frank tree 2013]. They have created a website in which a visitor, no matter where he/she is, can chose a leaf of the tree and write on it a thought for a better world. This business model certainly does focus on the tourist, including the goal to sell something: a message about war and peace, human value and the danger of ethnocentrism.

These rather different examples offer only a glance of the opportunities of modern technology for the preservation, maintenance, and opening up of cultural heritage. But the possibilities seem endless.

For instance, 3D models are helpful to study and manipulate facsimiles of physical objects without compromising the original's integrity or to (re)locate ancient artifacts from their original environment; thanks to recent techniques it was possible to discover that Leonardo da Vinci personally created his colors using common and perishable materials (such as eggs and plants) with the consequence that his frescos can be both represented in their original appearance, and the objects better restored; new projection techniques allow to add (reconstructions of) lost parts in mosaics or paintings, giving us the perception of the entire object.

It is important to underline that, concerning cultural heritage, technology has to be used as a tool which is the link between the past, the present and the future to preserve, remember, and spread the knowledge on cultural issues, not as a way to improve the original artifacts to fit in modern culture.

Discussion

In our domain, the word *interaction* means *mutual transfer of information* and, hence, *experience*. It is composed by the prefix 'inter' which indicates something located between two points and the name 'action'. Then, its etymological meaning underlines that it is not possible to perform, study and create any kind of interaction without considering the phenomenon while happening and its development process.

Since interaction is the language in which people express their relation and emotional attachment to the artifact, it is fundamental to manage this language in order to better preserve Cultural Heritage. One preliminary step could consist in defining Cultural heritage grammar rules: kind of artifact, time, events. Considering contemporaneously these three aspects, in fact, it is possible to analyze the relationship between the temporary owner and the artifact and, consequently, identify the best way to preserve the artifact.

There is no univocal method to preserve an artifact because it is a context dependent phenomenon, where *context* means people, rules, roles, feelings, culture and ethics. In the case of the inherited dress, for instance, maintaining a website is a good way to keep the artifact alive.

The website consists of three different sections: history, diary and description. History concerns the women of the family who have inherited the dress over generations, diary contains the folkloristic events at which the dress participated, and the description contains all the different pieces (jewels, shirt, apron...) composing the whole dress.

The website so organized is an effective tool to support Cultural Heritage because the artifact is still living, the reported experiences define and suggest new settings, and the description could contain also information concerning the artifact needs and maintenance (in the case of the dress, for instance, how to wash and iron it). A temporary owner who wants to preserve the artifact needs to have access to all these information, otherwise the artifact could be compromised or not used in the proper way. For instance, to play the harp it is necessary to wash the hands quite often otherwise the substances secreted by the hands can ruin the instrument. If the diary is kept, a subsequent owner can continue the work of previous temporary owners and add experience, discoveries, and techniques to prolong the life of the artifact.

Dealing with artifact preservation is a dilemma because preserving something means to change it, no matter whether preserving signifies keeping the artifact unmodified and untouched, or continuously exhibited and used. It is questionable whether *temporary owner* is the right term to designate people in charge of preserving an artifact. There is a sense of possession which is in contrast with the idea of transmission that cultural heritage implies. The right interpretation of what be a temporary owner means has been given by UNESCO. Based on UNESCO's ontology we can establish temporary owners of a site, indicating people who are responsible and who preserve those sites for all citizens of the world. The difference between *temporary owner* and *being responsible for* is well illustrated in the case of the Similaun mummy. Oetzi, also known as the Similaun mummy, was found in a mountain area between Austria and Italy and the scientific community was not able to study him till the two countries agreed on who was his owner.

Inserting the artifact in a timeline is also a controversial issue: time is measured in predefined units (months, years, decades...), but when dealing with an artifact what really matters are events, specific moments related to facts and experiences, and not predefined, and impersonal numbers that may contribute to the risk to miss the meaning of an artifact and reducing it to valueless information. For instance, while visiting a museum it is quite common to have different preferences from the ones established by museum's curators (more time to stay in front of a painting, more biographical information about the author, more understanding of the artistic creation process). If a visitor decides to experience a museum these preferences could be perceived as odd and bizarre (one of the author has the tendency to observe the paintings from really peculiar point of views; the other has gone to the same museum three times in the last month to observe the same Chagall's painting and after that she went away without looking at any other artistic creation), and museum guards look in a suspicious way.

REFERENCES

- Ibn Al-Qifti and Jamal Ad-Din. *Kitab Ikhbar Al-'Ulama bi Akhbar Al-Hukama*. 1903.
- Anne Frank Museum. Anne's Frank tree. Retrieved April 23, 2013, from Anne Frank museum website: <http://www.annefrank.org/en/Subsites/AnneFrankTree/>
- Bernard Comrie, Stephen Matthews and Maria Polinsky. *The atlas of languages: The origin and development of languages throughout the world*. Facts on File, 1996.
- Mike Dash. *Tulipomania, the story of the world's most coveted flower and the extraordinary passions it aroused*. Cf. also EH Krelage. *Bloemenspeculatie in Nederland, de Tulpomanie van 1636-1637 en de Hyacintenhandel 1720 1736: 1940-1942*.
- Norman Donaldson and Betty Donaldson. *How did they die?*. Greenwich House, 1983.
- Edward Morgan Forster, *A room with a view*. 1908.
- John F. Haskins. *Sarmatian Gold Collected by Peter the Great: VII; The Demidov Gift and Conclusion*. *Artibus Asiae* 22.1/2: 64-78, 1959
- Alfred Heubeck. *A Commentary on Homer's Odyssey: Introduction*. Vol. 1. Oxford University Press on Demand, 1990.
- Jack Hiroki, Iguchi. *Museum Education: Part 1 - Definitions of Museum*. Retrieved April 23, 2013, from Glocom website: www.glocom.org/special_topics/colloquium/20050105_iguchi_museum
- ICOM, International Council of Museums. *Statutes 1990: 3*. Retrieved April 23, 2013, from uitmetkorting website: www.uitmetkorting.nl/gemeentemuseum-den-haag
- Jumum: definition of Museum. Retrieved April 23, 2013, from Jumum website: <http://www.jumum.eu/en/index.php/museum>
- Mary R Lefkowitz. *The lives of the Greek poets*. Johns Hopkins University Press, 2012.
- Li Liu. *The Chinese Neolithic: trajectories to early states*. Cambridge University Press, 2005.
- Albert Bates Lord, Stephen Arthur Mitchell, and Gregory Nagy. *The singer of tales*. Vol. 24. Harvard University Press, 2000.
- Merriamwebster, an encyclopaedia Britannica company: definition of Culture. Retrieved April 23, 2013, from Merriamwebster website: <http://www.merriam-webster.com/dictionary/culture>
- Heather Phillips. *The Great Library of Alexandria*. Library Philosophy and Practice. University of Nebraska-Lincoln. 2010
- Bonny Norton Peirce. *Social Identity, Investment, and Language Learning*. *TESOL quarterly* 29.1 (1995): 9-31, 1995.
- Plutarch. *Parallel lives: Life of Caesar*. I-II sec. A.C.
- Plutarch. *Parallel lives: Life of Theseus*. I-II sec. A.C.
- Sarah Reeder, Jodi Forlizzi, and Steven Dow. *Family health heritage: sharing and withholding across generations*. *Interactions* 20, 1, 22-25, 2013.
- Sima Qian. *Shiji*. Beijing: Zhonghua, 1959.

- Sima Qian, William H. Nienhauser, and Tsai Fa Cheng. *The grand scribe's records*. Indiana University Press, 1994.
- Amos Rapoport. *House form and culture*. 1969.
- John Antony George Roberts. *A Concise History of China*. Harvard U. Press, 341 pp, 1999.
- UNESCO: definition of Culture. Retrieved April 23, 2013, from Unesco website:
www.unesco.org/new/en/culture/themes/movable-heritage-and-museums/unesco-database-of-national-cultural-heritage-laws/frequently-asked-questions/definition-of-the-cultural-heritage
- V&A, Victoria and Albert museum. Eating and drinking page, Retrieved April 23, 2013, from V&A museum website: <http://www.vam.ac.uk/content/visit-us/eating-and-drinking-at-the-vanda>
- Erich M. von Horbostel and Curt Sachs. 1914. Systematik der Musikinstrumente: Ein Versuch. Translated as "Classification of Musical Instruments," by Anthony Baines and Klaus Wachsmann, *Galpin Society Journal* (1961), 14: 3-29.
- Wikipedia: definition of Bianzhong. Retrieved April 23, 2013, from Wikipedia website:
<http://en.wikipedia.org/wiki/Bianzhong>
- Wikipedia: definition of Cabinet of curiosities. Retrieved April 23, 2013, from Wikipedia website: http://en.wikipedia.org/wiki/Cabinet_of_curiosities
- Frances Wood. *China's first emperor and his terracotta warriors*. St Martins Press, 2008.