How to create the worst online exhibition possible - in the best of intention[1]

by Werner Schweibenz

Abstract

Many museums and other cultural institutions offer online exhibitions on a regular basis; in addition to this hands-on experience there is a considerable amount of research literature describing the venture of creating exhibitions in the digital world of the Internet. Nevertheless, a handbook, guidelines or evaluation tools are still missing. Instead, there exist some popular rules of thumb, often considered to be tricks of the trade, which will not result in successful online-exhibitions but in really bad user experiences for virtual visitors. This article describes the major pitfalls that should be avoided in creating online exhibitions; it is based a review of the research literature covering a wide range of publications and studies in the museum field.

0 Outline

1 Introduction

"So You Want to Build a Web Site" titled an article in *Museum News* (Johnston & Jones-Garmil 1997) published in 1997 which explained how to create a successful web presence for a museum. Meanwhile, most museums have a website of their own and years of experience in being online. In fact, for most museums the Internet presence is an inevitable tool for marketing and outreach to the audience (Salsa 2009: 50). Some institutions consider their Website even as an additional site to the physical one(s) featuring a distinct and identifiable programme appropriate to the medium and access to the entire collection (Rellie 2004).

In addition to a website many museums and other cultural institutions offer online exhibitions on a regular basis in order to present their content and attract visitors, both real and virtual ones. In the context of this paper, an online exhibition is a presentation shown on the Internet regardless of having a physical counterpart or not (cf. Kalfatovic 2002: XV), the major difference between a digital collection and an online exhibition being the fact that the objects of the latter "are carefully chosen to illustrate a theme and tied together by a narrative or other relational threads" (Kalfatovic 2002: 1). These relational threads are important as they represent the value added by the museum and are indeed important points of intellectual access for virtual visitors because simply putting content online is not enough as will be shown later on. Successful relational threads can be at-

[1] This paper is a revised and extended version of the German language paper *Wie gestaltet man in bester Absicht eine schlechte Online-Ausstellung? Hinweise aus der Forschungsliteratur* published in the journal *Museumskunde*, Bd. 76, 1/2011. 90-99. Selected parts of this English language version were presented at the conference *Electronic Imaging & the Visual Arts (EVA), 4 - 6 May 2011, Florence*. The author is a member of the digital exhibitions working group of the project *Linked Heritage* (http://www.linkedheritage.org/).

tractive images that give a first impression of the online exhibition and arise curiosity, introductions in a plain and comprehensible language, a structured presentation of the content with introductory texts and explanatory object descriptions (cf. Caraffa, Reineke & Schweibenz 2007: 60).

There exists a considerable amount of research literature[2] describing the venture of creating exhibitions in the digital world of the Internet. Nevertheless, there is still a lack of research and/or publications on what factors make online exhibitions successful. While this question is still hard to answer it is comparatively easy to identify some pitfalls you should avoid if you do not want to create the worst online exhibition possible for your virtual visitors.

2 Some popular rules of thumb for creating online exhibitions

The research literature helps to identify some measures that result in really bad user experiences for your virtual visitors. All of them were indeed used by practitioners in the field – certainly not knowingly and deliberately but nevertheless quite effectively. So if you want to follow these bad examples, stick to this how-to-guide and its popular rules of thumb:

- Rely solely on your museum documentation database for the presentation of your content.
- Do not provide any guidance to your users, let them search and browse on their own.
- Allow as much interactivity as possible.
- Trust in the slogan "content is king".
- Serve your virtual visitors with one information design that fits all.
- Don't care for blind users; they can't see your online exhibition anyway.
- Use cutting edge or even better bleeding edge technology to attract virtual visitors.
- Make your virtual visitor's online experience an exclusive one.
- Expect your virtual visitors to be keen on participating and contributing.
- Expect your curators to be keen on allowing user contributions.
- Prevent digital vandalism by avoiding Web 2.0 elements.
- Increase the attractiveness of your physical exhibition by not putting all your content online.
- Consider the virtual visit as a secondary or surrogate experience to the physical one.

Some of these statements are exaggerated for the sake of stimulating a debate. You will find that the rebuttal of these popular rules of thumb is backed up in the following section by practical experiences from projects and results of studies published in the research literature.

3 Why these popular rules of thumb do not work out

At the first glance, these popular rules of thumb may sound good and convincing but in practice they do not work out. On the contrary, they might provoke quite the opposite effect. A review of the research literature explains why you should not follow them.

[2] As an example see the INDICATE project's handbook on virtual exhibitions and virtual performances (2012).

3.1 Rely solely on your museum documentation database for the presentation of your content

The major advantage of a museum documentation database is in fact that the information inside the database is collected, structured and enhanced by comments (Wohlfromm 2002: 8). Therefore it seems reasonable that the well-known computer scientist Lev Manovich (1998: WWW) considers the database to be "a new symbolic form of a computer age" and the ideal instrument to manage cultural content because it "can be accessed in different ways: chronologically, by country, or by artist". Well, this is true – but do virtual visitors who are laypersons and not subject specialists really want to search a database using highly specialized vocabulary? Do they have the necessary subject knowledge, especially in terminology, to create successful queries? Do they have the knowledge to create appropriate database queries by using for example Boolean operators? It is obvious that they do not. Therefore many museum experts deny that the database model is an adequate means of access for the general public (Barton 2005: 150; Davies 2001: 286f; Donovan 1997: 128; Greenhalgh 1989: 33; Nietzky 2005: 27; Norris 2010: 25ff; Streten 2000: WWW; Schweibenz 2008a: 45, 101; Wanning 1991: 59). Therefore Fiona Cameron (2001: 309) stated rightfully with regard to the museum database: "Generally this solution is more useful to specialists who have an interest in fielded data. Without a clear understanding of the information available, the way data is modelled, and the search terminologies used to access material, an approach such as this is of little use to non-specialist users." This statement is supported by Ben Booth (1998: 149) who claims that "direct public access to raw data poses technical problems in the design of access and interface software, while the data itself may in part be unsuitable for public access if its primary purpose has been to aid collections management or if it has been compiled as a specialist resource rather than for the general user." Likewise, these statements are supported by the findings of Sam Hastings and Victoria Kravchyna in a study for the *U. S. Institute of Museum and Library Services*. In this study, Hastings and Kravchyna (2002: WWW) came to the following conclusion: "Museum collection databases often do not provide profound intellectual information for the users." This statement is supported by the findings of *steve.museum* (Trant 2008). In this project some 1,780 digital images of artworks from renowned museums such as the *Guggenheim Museum*, the *Metropolitan Museum of Art*, and the *San Francisco Museum of Modern Art* were tagged on a project website by more than 2,000 participants using about 37,000 tags. Afterwards the user tags were compared to the keywords used by museum professionals. The interesting result was that the intersection of user tags and profession terminology was only 14 per cent (Trant 2008: 37). This figure suggests that professional museum terminology is not an adequate means for users searching for museum content due to the discrepancy in terminology of professionals and laypersons (Trant 2008: 45).

The lack of intellectual accessibility is only one problem of the database. The other problem is that the database can only provide access to a specific piece of information but does hardly provide the required contextual information and definitely not a high engagement or a flow experience. Therefore, searching a database will not result in an experience comparable to the physical museum experience as Klaus Muller (2002: 27f) points out. The database model gives access to isolated pieces of information but cannot create a high engagement (cf. Soren 2005: 139ff) or a flow experience that is important for involvement and learning (cf. Csikszentmihaly & Hermanson 1995). Therefore other forms of information presentation should be considered, for example narrative approaches by telling stories that put objects and information in context as Kevin Donovan (1997: 130) recommends: "Instead of leading with the object, lead with the story of the culture, historical context, people and places and their importance. Tell engaging stories with objects woven through them." This statement is supported by the findings of user studies on online exhi-

bitions conducted by the Virtual Museum of Canada (Dalrymple, Shaughnessy, Soren & Wolfe 2004: WWW).

A very interesting example for such a way of narrative presentation is the online exhibition *Raid on Deerfield, The Many Stories of 1704* (http://www.1704.deerfield.history.museum, for further information see Spichiger and Jacobson 2005). The website presents the story of an English settlement that was raided during the French and Indian War using 23 fictitious narratives of involved people with different social and cultural backgrounds. The website won the 2005 Museums and the Web Award and the 2005 American Association of State and Local History Award.

3.2 Do not provide any guidance to your users, let them search and browse on their own

Supposedly the database model allows your virtual visitors to search all your digital collections and find what they are interested in. Additionally, users of museum websites prefer searching over scanning a page – if the home page is rich on text (Haynes & Zambonini 2007: WWW). Allowing the virtual visitors to search a website and follow links is often considered to be the best way of information presentation because it follows the Internet's doctrine of interactivity. But instead of fostering interactivity, this technique leaves the virtual visitors "interpassive" because they usually do not know the content of the website and are not offered any support in discovering it. But instead of being left on their own, virtual visitors prefer some guidance in discovering content, as the results of a study suggest.

The study *Less Clicking, More Watching*, conducted by IBM's *Thomas J. Watson Research Lab* (Vergo et al. 2001), investigated different ways of information design for cultural websites in order to find the ideal method for the presentation of cultural information online. The goal of the project was defined as follows: "Users were to be attracted by enabling entertaining and educational experiences similar to those provided by visiting a museum, attending a performance, or watching a cultural TV program. The success of the web site would be measured by its popularity and, specifically, by its rate of return visits." (Vergo et al. 2001: 24). The focus of the study was the acceptance of guided tours introducing the content of the website to virtual visitors. A major finding was

"... that most of the participants did not express interest in web sites that involved active interaction with the content or other people, such as when using a filtering system, creating a notebook, or chatting. The multimedia prototype was clearly the best received among the design ideas. Among the existing web sites, there was a preference for sites where the user was guided through an experience or discovery process ..." (Vergo et al. 2001: 27).

Apart from positive comments on guided tours, some participants complained about difficulties in using the application and the effort necessary for finding information – most interestingly some virtual visitors considered interactivity to be hard work and not a pleasure at all. The authors of the study emphasized:

"Test results indicate high user satisfaction with the tours. Users interacted relatively infrequently with the tours, and the less they interacted, the more they reported feeling engaged and entertained by the experience. This supports our initial hypothesis that the tours are most entertaining when they are experienced as they were designed to be; that is, watched as a TV-like experience. The results

of the usability study give support to the contrarian 'less clicking, more watching' design approach identified in the discovery phase." (Vergo et al. 2001: 30)

Although the results of the study *Less Clicking, More Watching* are very interesting, the problem of this study is that it is still quite unique concerning both its scope and its extensiveness as far as the depth of usability studies are concerned. It would be helpful to compare the results of this study with similar reports. Regardless of its singularity, the study seems to have some influence on the policy of the *U.S. Institute of Museum and Library Services* (IMLS) concerning the financial support for online exhibition projects (cf. Hastings & Kravchyna 2002: WWW).

3.3 Allow as much interactivity as possible

The Internet is supposed to be an interactive medium. But what does interactivity really mean? This is hard to define as Maria Economou (2008: 137) shows in her paper *A World of Interactive Exhibits*. No matter which one of the many definitions you want to adhere to, interactivity is more than allowing your virtual visitors to click on links and let them find their own paths through your Web of content. From an educational perspective, interactivity is closely related to meaning making because interactivity is not only a physical process of clicking but also – and even more – a mental process of connecting to the content that is presented in an online exhibition. At this point it is necessary to realize that interactivity can prevent meaning making on the side of the virtual visitor if it is used in inadequate ways.

The results of the above mentioned study *Less Clicking, More Watching* suggested that virtual visitors prefer guided tours to self-guided discovery. This may be surprising as the Web is considered to be an interactive medium. But if we take into account the process of meaning making, this conclusion is much less startling as meaning making requires that the virtual visitor reconstructs the information presented and relates it to his or her previous knowledge. In this context, George Hein (1998: 151) emphasizes the importance of the narrative as a means to present different meanings of an object. In doing so, the narrative offers different points of access for the virtual visitor and offers a cognitive structure for intellectual access and meaning making. If we consider reconstructing a narrative also to be a way of becoming interactive without clicking, we recognize that virtual visitors can be busy without being active in an observable way (cf. Murray 1997: 38; Spierling 2005: 257). In this process of being mentally active, enforced interactivity in an online exhibition can be harmful because it can have a negative effect on the meaning making on the side of the virtual visitor.

3.4 Trust in the slogan "content is king"

A well-known slogan states that "content is king" and your institution's database definitely offers a lot of it. But is it really content the virtual visitors are looking for or is it rather content in context? The fact that your database contains information that is collected, structured and commented (Wohlfromm 2002: 8) by subject specialists for subject specialists does not make this information intellectually accessible for the general public nor does it necessarily provide the relevant context for a heterogeneous audience that consists of diverse target groups. In order to make the information accessible, virtual visitors need access points they can refer to and activate their background knowledge or previous experiences. In other words, they need context to relate to. Therefore not "content is king" but actually "content in context" is in demand.

To provide context for a heterogeneous group of virtual visitors is quite a difficult endeavour as different groups have different backgrounds and previous knowledge. Nevertheless, it should be undertaken because "access to information [...] entails both making information readily available and ensuring that its users have the ability to comprehend it" (MacDonald & Alsford 1991: 307). A promising way to provide context for museum information is digital storytelling, as Andrea Witcomb points out:

"The best sites are those which go beyond simply making their collection management databases available to the general public, thinking of the Web instead as an opportunity to manage information content. A basic step in this shift is the recognition that it is not enough to simply provide information. Rather, the museum must interpret the information or , [...], add value to the information it possesses. The most straightforward way of achieving this is to become involved in storytelling rather than simply providing lists." (Witcomb 2003: 121)

Storytelling is a comparatively new method in museum education although it has been advocated for several years (cf. Dietz 1999; Donovan 1997). The advantage of storytelling – both in the physical and the digital world – is that stories were and still are used for knowledge transfer between individuals, groups and generations in every culture using each and every medium ever invented (Spierling 2005: 255). On the one hand, stories do not only include factual knowledge but also implicitly include cultural values, hints for problem solving, and emotions. On the other hand, stories follow a traditional dramaturgy that is rooted in ancient myths and appeal to basic emotional needs of human beings. Moreover, stories are very effective in making information memorable and significant as they are vivid, engaging, entertaining, and easily related to personal experience (cf. Lesser & Prusak 2004: 189). Another aspect that makes stories attractive for the audience is the factor of immersion, i.e. the sensation of being surrounded by a completely other reality (Murray 1997: 98). Traditional storytelling can be transferred to the digital realm using the advantages of multimedia tools that can amplify the effects of narration and increase immersion (Spierling 2005: 249).

Storytelling is only one of many means for creating context. No matter which method you are going to use, it is important to weave some context around the object information you offer online in order to allow your virtual visitors to connect to the content more easily.

3.5 Serve your virtual visitors with one information design that fits all

"One size fits all" might be an adequate guideline if you happen to sell baseball caps, it is definitely not very helpful if you try to serve a heterogeneous audience in the field of cultural content. In her essay *Museum Communication*, Eilean Hooper-Greenhill (1994: 11f) suggests to talk no longer of the audience in general but instead to refer to target groups as in marketing and communication studies. If we consider the concept of target groups to be valid for online exhibitions, we should take into account to provide a different information design for each target group or at least for the most important ones.

The idea for fitting the information design to the needs, interests and goals of different target groups was introduced into software design by Alan Cooper (1999). He used a concept called personas, i.e. archetypical representations of specific user groups, to make the needs, interests and goals of selected target groups easier to understand, to communicate, and to implement during the design process of a project. Each target group is represented by a (stereo)typical representation that

can be based either on experience or data; each representation is given a name, a face and specific attributes which makes it a so called persona that can be used to role-play various scenarios for this persona. In this way this persona becomes a concrete and credible representation of an abstract segment of the audience in the design process. Thus it is more understandable and therefore more "actionable" than abstract statistical data about target groups. Each persona might need a separate information design to meet the needs, interests and goals of a specific target group. An example of how personas can be used to tailor the content of a cultural institution towards the needs of specific target group is provided by Werner Schweibenz (2008b) in his paper *Know Thy Visitors: Personas for Visitor-centered Museums*. Apart from content related information design issues, personas can also be used to meet the specific needs of people with disabilities (Schweibenz 2006: 22f).

3.6 Don't care for blind users; they can't see your online exhibition anyway

The latter part of this statement is certainly true but even if blind users might not be able to see your online exhibition, they can nonetheless appreciate it as the examples of the founding Director of the *Accessibility Institute* at the University of Texas at Austin, John Slatin show. In a very illustrative way he describes how he as a blind person tried to access and experienced the websites of notable museums such as the *Smithsonian Institution*, Washington, DC, or the *Metropolitan Museum of Art*, New York (Slatin & Rush 2003: 153-199).

When creating online exhibitions on the Web, you should consider that the constitutive idea of the Web is to serve all users regardless of their abilities: "The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect", as Tim Berners-Lee, W3C Director and co-inventor of the World Wide Web, states on the Homepage of the *Web Accessibility Initiative* (WAI). This organisation is part of the *World Wide Web Consortium* (W3C) and advocates the needs of users with disabilities such as people who are blind or have low vision or colour blindness to mention just one of the many existing disabilities (for details see the WAI homepage where extensive information and scenarios are available of how people with disabilities use the Web). In many countries exist laws (for an introduction to the legal situation in the European Union see Schweibenz 2006: 20f) regulating the issue of Web accessibility and its technical implementation as described in the *Web Content Accessibility Guidelines* (WCAG).

In consideration of the costs and the expenditure for creating accessible websites, one should take into account, that they do not only serve people with disabilities but have also positive effects for all users. This can be illustrated by an example from daily life: the curb cut - a scooped out piece of the sidewalk. This curb cut is essential for wheelchair users but its benefits extend to people with walking frames or baby buggies, delivery workers, bicyclists, and roller bladers. In the same way, accessible websites support the assistive technologies used by people with disabilities and at the same time a broad range of user agents such as various types of web browsers (e.g. Chrome, Internet Explorer, Firefox, Opera, Safari), all the search engines which identify Web content in the same way as the access tools of blind users do, and numerous kinds of mobile devices, e.g. personal digital assistants and mobile phones. This makes accessibility not only a legal or technical matter but "an aspect or quality of the individual user's experience of the Web site" (Slatin & Rush 2003: 7).

With regard to accessibility issues, an interesting online exhibition is *Munch und Berlin* (http://www.munchundberlin.org/), a cooperation of the *Kupferstichkabinett der Staatlichen Museen zu Berlin* and the Swiss initiative *Web as Dialogue* in 2003. The goal was to realise a de-

sign that met both the aesthetical needs of an art exhibition online and the requirements of screen reader software as applied by blind users to understand the information structure of the page and to listen to its content. In order to support blind users, the HTML code that is read out loud by the screen reader software in a sequential manner, has to be clearly structured and organised in a specific way as described by Angelo Capodieci et al. (2004); in addition, all the images have to be described verbally in order to make the content comprehensible for the blind. Developing such verbal descriptions is not quite easy, however Adam Alonzo (2001) states that *A Picture is Worth 300 Words* and demonstrates how the writing of visual descriptions for an art museum website can be done.

3.7 Use cutting edge or even better bleeding edge technology to attract virtual visitors

The Web is a medium where technology changes at an incredible pace. In order to be up to date it seems important to offer applications that use cutting edge or even better bleeding edge technology. This might be true for some Web genres like advertising or marketing but it does not hold true for museum websites as a wide range of examples show. Therefore you should be careful to avoid cutting edge technology in order not to hurt yourself by excluding potential virtual visitors from accessing the content of the website due to technological barriers you built into your website.

A good example for using cutting edge technology regardless of the consequences for the intended audience was the German website *LeMO – Lebendiges Museum Online* (http://www.dhm.de/lemo/), a joint project of the *German Historical Museum* (Deutsches Historisches Museum), the *Foundation Haus der Geschichte of the Federal Republic of Germany* (Haus der Geschichte der Bundesrepublik Deutschland) and the *Fraunhofer-Institut für Software- und Systemtechnik* (ISST) starting in 1997. The website offered a virtual tour of German history of the 20th century using digital objects (texts, images, sound and movies) and 3D animations in Virtual Reality Markup Language in order to present the information in a lively and attractively way. But at the time of the implementation this technology was too advanced and needed too much bandwidth to be used properly. In this way many potential virtual visitors were excluded because at that time they did not have the necessary bandwidth, computer equipment and technological background knowledge to appreciate this kind of content online (Schuck-Wersig 2000: 14). The LeMO website contained a note that it might not be accessible at reasonable speed for users of modems. But instead of relying only on high speed access, the LeMO team should have offered a low-tech version for less privileged virtual visitors. Other online exhibitions offer both a high-tech and a low-tech version, for example *Bhutan - Fortress of the Gods,* the winner of the 2001 Museums and the Web Award (for further information see Breiteneder, Platzer, Hitz & Stockinger 2001).

A study conducted by the *National Gallery of Art* (NGA) in Washington, DC, indicates that a coexistence of high-tech and low-tech content is appreciated by virtual visitors and can increase their number significantly. In parallel to an exhibition about Vincent van Gogh, the NGA created a digital representation of the ten exhibition rooms online. To see this virtual reality online exhibition on the Internet, a specific plug-in for the Web browser was required that could be downloaded from an external website. An analysis of log files during a reorganization of the website showed that 70 percent of the virtual visitors left the homepage of the online exhibition, obviously because their Web browser did not have the necessary plug-in (Johnson 2000: 67). In order to increase the number of online visitors to the virtual exhibition, several measures were taken. For example, a list of Frequently Asked Questions (FAQ) was created, the plug-in was offered onsite, and a low-tech

version of the online exhibition was produced that could be viewed without plug-in. Within a short time, these measures showed positive effects, the number of virtual visitors to the online exhibition increased by the factor three while the number of users of the high-tech version remained stable (Johnson 2000: 69).

Although the example of the van Gogh online exhibition demonstrates that plug-ins can be a barrier for virtual visitors, ambitions projects continue to use them. For instance, the website of the *Experience Music Project* (EMP) in Seattle confronted its virtual visitors with a wide range of different plug-ins and in this way created a challenge for many users or even excluded them from appreciating the audio and film clips, as Fiona Cameron (2001: 310) explains. Other projects were more sensitive toward technological barriers and avoided plug-ins or special downloads by formatting all multimedia for default media players taking into account that the end result was not a flashy site but easy accessible for a wide public (Dalrymple, Shaughnessy, Soren & Wolfe 2004: WWW).

Examples like the one's presented in this section illustrate the well-known paradox of usability: "The functionality exists. But building functionality into a product, however, doesn't guarantee that people will be able to use it", as the usability specialists Joseph Dumas and Janice Redish (1994: 4) state, emphasizing that "[a] product by itself has no value; it has value only insofar as it is used. Use implies users." To follow a user-centered approach is especially important on the Web where the audience is very heterogeneous and cannot be expected to have all the fancy tools available that designers might love to use for creating technically sophisticated virtual exhibitions. Neither can average users be expected to have the technical knowledge (not to mention the lack of rights to administer a computer in the computer lab of a university or in a cultural institution) to install the latest plug-in or browser version that is required by cutting edge technology. That does not mean that you should refrain from using advanced technology for your online exhibition but you should apply it reasonably. Moreover you should keep in mind those virtual visitors that only have low-tech access and provide an alternative version for them.

3.8 Make your virtual visitor's online experience an exclusive one

The Web is supposed to be a social medium, especially with the advent of Web 2.0. Therefore it seems self-evident that common experiences for virtual visitors should be the goal of interaction design for virtual exhibitions. Unfortunately, there is still little museological research available regarding the technical support for social interaction between virtual visitors and the facilitation of online experiences. From the research concerning interactive exhibits in museums we can learn that applications for visitors often allow only an exclusive interaction between the visitor and technical device instead of interaction between several visitors (Lehn, Heath & Hindmarsh 2002: 20f; Lehn & Heath 2003: 10). As Laia Pujol-Tost (2011: 64) puts it: "With regard to visitors, high-tech exhibits have problems supporting collaborative group exploration, because computers were designed for individual, lineal and machine centred interaction that is suitable for a highly structured formal learning context. This does not match the more flexible informal environment, where interaction is constant re-negotiation between exhibits and visitors". It seems obvious that virtual visitors face the same problems regarding social interaction and online experiences as the systems for local and virtual exhibitions are usually designed by the same people. Therefore it would stand to reason that there is an imminent danger for the virtual visit to become an exclusive one, if not to say a solitary one. This would strongly contrast with the physical visit that is primarily a social event (Chalmers & Galani 2008: 159). Therefore, understanding the sociality of online

visiting should be in the forefront of the research agenda (Chalmers & Galani 2008: 176). Obviously, it will take some time and effort to understand how to create collaborative online experiences for virtual visitors or for collaborative experiences for physical and virtual visitors who interact from inside and outside of the museum (cf. Chalmers & Galani 2002). Nevertheless, the design of virtual exhibitions should focus on interaction design in a social meaning instead of a technical signification.

3.9 Expect your virtual visitors to be keen on participating and contributing

According to Web 2.0 enthusiasts, the new generation of the Web is supposed to be the medium in which anybody is zealous to participate and to contribute. This might be true for the digital natives (i.e. the generation that grew up in the digital world, cf. Prensky 2001) among the users but does it also hold true for the so called digital immigrants (i.e. the generations that adopted information technology later in lifetime) who still make up the larger part of the population in many countries? Is the willingness to participate the same in all strata of society in one country and in all the different cultures all over the world?

At the moment, there exists little museological research concerning the crucial question of the readiness to participate on the side of virtual visitors from which one could draw substantial conclusions. However, the current research offers interesting insights. A study from the *Australian Museum Sydney* in cooperation with 20 schools shows that even a young audience can have "mixed views about the Museum's presence on social networking sites such as MySpace and content sharing sites like YouTube and Flickr. Some felt it would make the Museum look too 'try hard' or 'uncool'" (Kelly & Groundwater-Smith 2009: 63). Another Australian study, this time from the *Art Gallery of New South Wales*, referring to the online exhibition *myVirtualGallery*, indicates that virtual visitors might not be keen on a sustained participation as one might expect. Within the first six month of the project, 250 online exhibitions were created by virtual visitors, 205 were never suggested to the Art Gallery for publication by their creators, an inspection measure the institution claimed for herself in order to ensure a certain amount of quality for published content, while among the 45 online exhibition creators who propounded their works for publication, 28 failed to react to the comments of the museum concerning their online exhibition (Cooper 2006: WWW). This indicates that the interest in participating and contributing on the side of the audience was not as distinctive as often expected. This study casts only a spotlight on the question of participation. More research is necessary about what could be done to improve the audience's interest in participating and contributing.

In contrast, a project from the region of Lombardy in Italy (Giaccardi 2004) indicates that online exhibitions created by members of the community can help to create and sustain a community if there exists a successful media strategy and organisational support for that members of the audience that are not Internet enthusiasts and not very computer-savvy. In this project, to which anybody could contribute personal memories and materials referring to the Lombardy region, a radio station advertised the online exhibition on a regular basis and amateur participants were supported by a network of scanners and volunteers that helped prospective contributors in using the technology in this way filling the technological gap between amateurs and computer-savvy users.

3.10 Expect your curators to be enthusiastic about user contributions

Web 2.0 offers the audience new ways of contribution and gives them the feeling of inclusion. As David Dawson (2002: 62) points out, inclusion in museums means that visitors are able to bring their own materials and stories together with the more traditional view of curators. Irrespective of the widespread enthusiasm about Web 2.0 you have to ask yourself and in particular your curators if they are really willing to accept user contributions the online exhibitions they create.

In his article about the online exhibition project at the *Art Gallery of New South Wales* Jonathan Cooper (2006: WWW) pointed out that there were two contradictory attitudes among the museums' curators:

> "At one extreme is a belief in the authority of the curator; i.e. that only a professional curator should be allowed to curate exhibitions and interpret artworks in the public arena; this I shall label authoritism. At the other extreme is a belief in the equal validity of everyone's views: thus, anyone should be allowed to curate and interpret, and share personal contributions with others. This view, which I shall label autonomism, was not represented in its extreme form within the discussion. Not all curators were equally extreme in their authoritist views; however, all those tending towards authoritism were indeed curators. This may be a natural reflection of the necessary, inward focus of the curatorial profession – in contrast to the outward focus of museum education. However, the extreme authoritist view also appears to be a conservative reaction to a perceived liberalism and 'dumbing-down' of art."

Such harsh reactions on the side of curators should be taken into account because "[a]t the heart of any discussion about museum and Web 2.0 lies the issue of authority", as Matthew MacArthur (2007: 59) puts it. Authority is closely related to trust – which might be the reason for this high level of sensitivity on the side of the curators – and trust is a very important issue for museums and their reputation both in the real and the digital world as it is hard to earn and easy to lose, for example by displaying loser generated content in an online exhibition. According to a 2001 American Association of Museums survey on public trust of various sources of information, museums are the most trusted ones, ahead of books and television news (MacArthur 2007: 59), a statement that is supported by the findings of *InterConnections: The IMLS National Study on the Use of Libraries, Museums and the Internet* (2008). The crucial questions are how the trust in museums is affected if users have a greater voice in online exhibitions, how this might influence the relationship between professional experts and amateur enthusiasts and the reputation of the institution (MacArthur 2007: 59). This is an interesting field of future research concerning online exhibitions and user participation.

3.11 Prevent digital vandalism by avoiding Web 2.0 elements

Even before the term Web 2.0 was coined, the idea of letting visitors contribute to online exhibitions was quite popular (cf. Dawson 2002). With the advent of Web 2.0 it is necessary to study the pros and cons of user participation and user generated content. The major drawback of user participation on the Web is the imminent danger of digital vandalism, especially the misuse of participatory means by people with weird attitudes and opinions which they want to publish in an inappropriate way. This danger exists in all collaborative environments and can only be controlled by a fair balance of monitoring measures and trust. Unobtrusive but consistent monitoring meas-

ures are necessary as in many countries the law holds institutions responsible for the content of their websites. In addition, the quality of the contributions affects the reputation of the institution which might be endangered by loser generated content and digital vandalism. On the other hand, user participation can prosper only in a climate of radical trust, as Darlene Fichter states:

"Radical trust is about trusting the community. We know that abuse can happen, but we trust (radically) that the community and participation will work. In the real world, we know that vandalism happens but we still put art and sculpture up in our parks. As an online community we come up with safeguards or mechanisms that help keep open contribution and participation working." (Fichter 2006: WWW)

Following this notion of 'radical trust,' we need to take into account the danger of digital vandalism in order to build a more intimate, equal relationship between museums and their communities. As there is still little experience in the effects of digital vandalism many institutions might decide to disable the instruments for participation, for example the possibility to leave comments in blogs. This might be the easy way to be on the safe side but it might also be a way to discourage virtual visitors from revisiting the online exhibition.

3.12 Increase the attractiveness of your physical exhibition by not putting all your content online

In discussions and on discussion lists you can often hear or read that you should not put online digital surrogates of all the objects in your physical exhibition in order to make the audience come and see the original objects in the museum. First of all, there is no solid evidence for the claim that virtual exhibitions will prevent visitors from coming to the real exhibition as they have already seen it in the digital world neither there is proof for the argument that exhibitions on the Internet will increase the number of physical visitors (Griffiths, King & Aerni 2007: WWW). Therefore it seems obvious that putting online your digital content will cause no harm! On the contrary, a focus group evaluation for the *Colorado Digitization Project* undertaken in 2001 with three groups of participants (hobbist users, students, and general users) suggests that "having access to digitized images would result in slightly more inclination to visit museums" (Fry et al. 2002: 13). In addition, an "interesting correlation between in-person and remote visits is that evidence suggests in-person visitors may visit more when they also visit remotely" (Griffiths & King 2007: WWW). User studies conducted in other online exhibition projects back up these findings (Dalrymple, Shaughnessy, Soren & Wolfe 2004, WWW).

If you look into the information searching behaviour of virtual visitors, you will find that they mostly use the Internet for looking up information related to the physical museum visit. A study by Judy Haynes and Dan Zambonini (2007) that was based on more than 100,000 user sessions taking place on the websites of five museums found that the most popular information were opening hours and how to get to the museum followed by exhibitions, galleries and events. This kind of information is extremely popular because museum visiting has high opportunity costs such as investments of time, effort, and money (Haley Goldman, Ellenbogen & Falk 2008: 192). In addition to information about the museum, virtual visitors also expect to find content that would help them with their learning-related projects, whether it was for professional research or university or school projects as a study commissioned by the *Canadian Heritage Information Network* (CHIN) indicates (Thomas & Carey 2005).

Although it is difficult to draw conclusions from the current state of research on the differences in motivation between physical and virtual visitors, it seems clear that museum-goers are seeking

experiences while virtual visitors look for information and communication (Haley Goldman, Ellenbogen & Falk 2008: 192). From this perspective, the motivations for physical and virtual visits seem to be different. Nevertheless more research is necessary to identify the differences between these two types of visits.

3.13 Consider the virtual visit as a secondary or surrogate experience to the physical one

> "In museum studies literature, often the discussion about new media focuses on the real-virtual divide (Mintz 1998) that treats remote visits as secondary or surrogate experiences to the physical ones, prioritising the unmediated experience of the museum object – 'the real thing' – over the mediated experience via technology." (Chalmers & Galani 2008: 158)

This statement by Matthew Chalmers and Areti Galani (2008: 158) in their article *Blurring Boundaries for Museum Visitors* illustrates the discussion on the relationship between the real and the virtual. This discussion can be traced back to Walter Benjamin's famous 1936 essay *The Work of art in the Age of Its Technological Reproducibility*. But the focus of the discussion should not be on the reproducibility of the object but on the issue of the experience on the side of the visitor, considering both the real and the virtual visit in its own right. This is especially important as every museum visit is a social act which raises the question how the quality of the experience influences the visit. Therefore it is necessary to look into social science and ethno-methodology in order to identify factors that influence the social experience of the visit to a museum (cf. Chalmers & Galani 2008: 158, 162, 173) and an online exhibition.

If we accept that the physical visit to a museum exhibition and the virtual visit to an online exhibition are two different things that are experienced differently, we can be sure not to wrong both kinds of experiences. This means that the two formats do not exclude each other or compete with each other (cf. Frost 2002: 93), instead they can positively affect each other (cf. Schweibenz, in print). At its best, the result will be a "'virtuous circle' between the virtual and physical space" (Barry 2006: WWW) augmenting the relationship between the museum and the visitors.

An example for such a 'virtuous circle' was the *Minneapolis Institute of Arts* exhibition *A Masterwork Restored* and the corresponding web site *Restoration Online*: During the eight week on-site restoration of a 17th Century Italian altarpiece in a gallery space, an online exhibition was used to promote and document the project and provide information for those who were not able to attend the on-site exhibition. For the duration of the project, visitor who observed the restoration in progress also followed the process online while virtual visitors who watched the project's online exhibition came to the museum to see the live exhibit and "the real thing" (Sayre, Gorman, Noon, Dust 2000: WWW).

4 Conclusions

Although there is a wide range of research literature available concerning online exhibitions, there is still little systematic research analysing the factors that make them successful. Instead there is a number of recommendations, hints and so called tricks of the trade that do the rounds on mailing lists, on websites, in talks and personal communication. Usually these pieces of advice are given with the best of intentions but might provoke quite the opposite effect instead of the intended one. Reviewing the research literature, this paper explained why some of these popular rules of thumb do not work und should therefore not be adhered to:

- You should not rely solely on your museum documentation database for the presentation of your content because your database contains content created by subject experts for subject experts and not intended to be used by laymen.
- You should not let your users search and browse on their own but provide guidance as your virtual visitors are usually not familiar with the content of your database and hardly know what to expect and how to search for it.
- You should not allow too much interactivity because interactivity means more than clicking on links. If you use interactivity in the wrong way it might be harmful for your virtual visitors meaning making.
- You should not trust in the slogan "content is king" because your virtual visitors need content in context in order be able to connect to the content and take an interest in it.
- You should not serve your virtual visitors with one information design that fits all because your audience is quite heterogeneous and consists of a wide range of target groups with different needs, interests and goals as well as different background knowledge and previous experiences.
- You should care for accessibility issues because in this way you do not only serve users with disabilities but also the general audience accessing your online exhibition with various browsers and handheld displays. In addition you provide well-prepared content for search engines that read a website in the same way as screen readers of blind users do.
- You should not use cutting edge technology to attract virtual visitors because you run the risk of excluding large segments of the audience that do not have the knowledge or the possibility to install the plug-ins that are necessary for advanced technology applications. If you opt for cutting edge technology, you should provide a low-tech version for users who cannot cope with the high-tech one.
- You should not make your virtual visitor's online experience an exclusive one but try to create social experiences that virtual visitors can share with each other or with physical visitors to the museum as a museum visit is primarily a social act.
- You cannot expect your virtual visitors to be keen on participating and contributing in a sustainable way if you do not support them and achieve in creating a community feeling.
- You cannot expect your curators to be keen on allowing user contributions as this will inevitably raise the questions of authority of experts over enthusiasts and the quality of user contributions and user generated content.
- You can surely prevent digital vandalism by avoiding Web 2.0 elements but at the same time you hamper the communication with your virtual visitors which might result in effects that are worse than a certain degree of digital vandalism that can be tolerated.
- You cannot increase the attractiveness of your physical exhibition by not putting all your content online because virtual visitors expect your content to be available online as they want to use it for information purposes.
- You should not consider the virtual visit as a secondary or surrogate experience to the physical one as both kinds of visits are different in the ways they are experienced but nevertheless are both experiences in their own rights.

If you want to create a good online experience for virtual visitors instead of a bad one you should be careful to avoid the pitfalls mentioned above. It is easier said than done because some of them are supposed to be the tricks of the trade or things you take for granted. Nevertheless you should consider this piece of advice in order not to create the worst online exhibition possible - in the best of intention.

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