Master thesis design
Towards an online event-centered cultural heritage social experience

Sharyselle Kock
Information Studies – Human centered multimedia
sharykock@gmail.com
VU ID: 1201301
UvA ID: 5994918

Supervisor: Lora Aroyo
Second reader: Frank Nack

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Abstract

"Art is the Queen of all sciences communicating knowledge to all the generations of the world."

L. da Vinci

Advancements in technology allow for preservation on a variety of data. As such cultural heritage institutions are also subject to this change. Consequently this allows for the digitization of cultural heritage data with the support of new media on the Web and reaching a broader online audience. To enable interpretations of the online museum collection the objects belonging to it needs to be annotated. Therefore an existing project, Agora\(^1\), is aimed at helping the user in understanding online museum collections. Furthermore to stimulate user interaction there is a striving for the development of a social online platform. This proposal discusses the current situation in order to evaluate the proposed design solution. By assessing the previous three user studies that have been carried out for the Agora project new requirements can be generated for the further evolution of the Agora demo. Further evaluation can be acquired through by conducting an experimental design. This allows for improvement on the successes and shortcomings of the previous work.

1. Introduction

New emerging technologies are changing the role of cultural heritage institutions [1]. Museums are the institutions in the position of preserving cultural valued objects. Automation is causing a paradigm shift how art and history museums are taking care of their collections [2]. Due to a vast amount of data collection and the will to preserve this in an orderly manner an information system with access to the Web is needed. Not only to serve as a repository for data preservation, but also for gaining new knowledge [3]. The trends [4] that are responsible for transforming museums’ repositories are storage capacities, networking services, better user interfaces and standards and protocols. Digital media [1] can facilitate this transformation of the data that is managed by museums. As such we need to look at the properties of digital media and how they can be incorporated in a right manner to support the digitization of museum’s collections.

Users are already engaging with different types of media in their daily lives and on different devices [5]. Therefore fusing museum online collections with the media usage of the public enables a more engaging relationship by providing them with relevant information (e.g. websites, mobile applications, other installations inside and outside the museum). This relationship supports the enhancement of their knowledge on the object and their collections. This is changing the way the information is being offered, perceived and presented as cultural institutions are offering their collections online and supporting these by the means of new technologies [6].

\(^1\) http://agora.cs.vu.nl/
There are different ways of conveying additional information to objects of a collection. The main assumption within the Agora project is to associate this with events. In order to achieve this, the information can be modeled with events and therefore allows to construct narratives automatically that can serve as backbones for stories and capturing perspectives. “A single historical event often gives only a part of the whole historical context of an object, therefore narratives are important in the interpretation process” [7]. Thus, the interpretation process consists of a historical event depicting partial context on a collection’s object. When a sequence of historical events are formed these allows for narratives to support the interpretation process [8]. This facilitates a new engagement for the audience and museum curators.

In order for collections to be presented online they have to be digitized and annotated. At the moment collections are curated by domain experts residing at the museum. Most of this is achieved either manually or personally [9]. Besides a lack of specific expertise there is also a lack of knowledgeable people to carry out these tasks. By addressing the general audience through the Web users can now also generate content and provide their opinions on a collection [10]. The span of online curating of museum collections is able to reach a much larger audience due to the variety of channels of communication available [11].

While at the moment the lack of curators and expertise creates a problem this also creates opportunities for the different parties involved. It allows for the user to play different roles. Due to a wider reach of online connectivity the audience will consist of different types of users. Digital hermeneutics is concerned with the interpretation of information in a digital environment [12]. By allowing and providing the audience with a platform to facilitate the opportunity of assuming different roles as a user the public can now interpret and contribute to collections [13], besides assuming only the role of consumer of information. At the moment user engagement and interest are stimulated by providing personalized services through virtual museums [14]. In order to further stimulate user interaction we can think of engaging the user in online communities and enable compensation for the current lack of expertise.

Furthermore the shift can be made by moving towards crowd sourcing by the audience to support the role of curators and context provision for the objects belonging to a collection [15]. This can be achieved by the means of accessing forums that attract users with a particular interest in art history coming from various walks of life. Providing us with the possibility to move towards a social media platform, this allows these potential users to exchange their stories on online collections offered by the museum.

In order to support the user in his different roles in such an engaging experience [16], [17], where the user is no longer a consumer, but also a contributor, a new project has been developed. The Agora Project is concerned with placing museum objects into an explicit art historic context. The project is collaboration between the VU University Amsterdam2, the

2 http://www.vu.nl/en/index.asp
Rijksmuseum Amsterdam\(^3\) and the Dutch national audiovisual archive institution Sound & Vision\(^4\). By developing a social platform objects from different museum collections can be related. The result is a more complete and illustrative description of historical events. This is achieved by the use of events and events–narratives. Therefore event–centered access can be provided to the museum’s collections. Users of this platform are also able to create their own personal narratives.

The Agora project also aims to offer its event–centered browser for use on other different platforms to enhance user interaction, for example for usage on interactive tabletops, smart phones and tablets. This will ultimately provide a social community portal where the general audience, interested and knowledgeable people, professionals and (art) history scholars can come together in order to explore history and share their perspectives on historic events represented within the collections of Rijksmuseum and the Sound & Vision Collection.

2. Literature review

2.1 Online communities

In a study [18] the topic of sociability and usability of online communities is covered. This study stresses on the importance of online communities, different types of online communities and how to achieve success through social interactions. Even though sociability and usability are closely related, the former focuses more on how online community members interact with each other through the provided technology while holding the components of people, purpose and policies in mind. Usability on the other hand focuses on how intuitive and easy the technology is for the user. Therefore it takes different components into account, for example:

- Dialogue and social interaction support
- Information design
- Navigation
- Access

The results of this study show that there is a lack of attention for determining success factors for online communities even though various techniques exists for measuring sociability and usability. Therefore this paper lays the groundwork on how to acknowledge these key determinants. Each type of community demands different evaluation techniques in order to determine its successes and failures.

2.2 Impact of social media on informal learning in museums

This paper [19] explores how social media supports learning and what the implications are when this is used within museums. The connection between museum programming and learning is shown through the creation of digital learning objects. In order to be able to learn there should be an ease and affordability of connection which influences the social structures and learning.

\(^3\) https://www.rijksmuseum.nl/

\(^4\) http://www.beeldengeluid.nl/en
Implications for the usage of social media in museums are that it could be useful for audience engagement as the newer social networks (e.g. Facebook, Myspace) are changing the way information is shared. Other forms of social media such as wikis, blogs and podcasts have been used so far to establish a position of authority for museums, which has positive as well as negative implications. For example the usage of audio tours has been given a new meaning by allowing users to customize them, e.g. Artmobs\(^5\). While another platform Talk Back\(^6\) provides users a platform to share their opinion on art and see what others had to say about it. Although these kinds of platforms are well known with the young audience they rarely extend reflections and additions to the expertise of curators.

Accessibility to online collections also means allowing certain concessions for the audience to experiment with. This allows them to express what is of importance to them rather than what the institutions would normally impose. Therefore the challenge for museums lies in the support of multiple representations and critical examination through a public forum. The argument is that social media is able to lay new opportunities for museums. It allows the audience to engage and interact with knowledge in meaningful ways. Likewise if curators start blogging the audience is able to have a discourse with them. When knowledge is shared in such a manner the audience is able to question professional research. Thus social media is self-editing letting users decide how and with whom they share their experiences with.

The future for museums lies in the tools that social media can provide for participatory engagement. For example rapid publication, personalization, content sharing and content creation. Accordingly museums can provide incentives for participation from the audience by stimulating knowledge sharing, voice, education and acknowledgement.

3. Projects of similar nature to Agora

3.1 MOSAICA

The Mosaica project [20] was set up as a Web 2.0 tool to preserve and present cultural heritage, by creating an interactive and creative educational experience. Mosaica’s main aim is to move towards a more tolerant society by exposing its users to different aspects of multiculturalism. The system consists of three layers, firstly a basic and semantic web search. The second layer contains a presentation of virtual expeditions and stories. The third layer provides users with the possibility of uploading and sharing their items, thus allowing the enrichment of the online collections. Therefore the functionalities that the Mosaica system provides are investigation, exploration, virtual expedition, tag resources and create resources.

The conducted evaluation was concerned with examining the usability of the system and the social impact. By evaluating users' disposition towards open-mindedness and the system's usability, in terms of knowledge gain, ease of use and attractiveness, the societal impact of MOSAICA was researched.


\(^{6}\) [http://redstudio.moma.org/talkback/](http://redstudio.moma.org/talkback/)
Results of the pre- and post-questionnaires showed an increase towards disposition in open-mindedness after using the MOSAICA system during the workshops. This is due to the fact that the users are from different demographics and religions and are now given the opportunity to learn about other cultures. Furthermore using MOSAICA showed that it encourages users to be less judgmental and less critical about the behavior of others. Also there was no difference between the different population groups towards open-mindedness. This means that users from different age groups, religion, gender and country experience the same positive effect when it comes to disposition towards open-mindedness. Results on the usability aspect of MOSAICA and its learning outcomes showed that the highest positive opinion received was on the question whether the system is a good way to represent old documents and pictures. When analyzing the demographics on the usability categories there was no difference between religion and gender of the users, although a significant difference was found between age groups. This was due to the younger age groups finding the systems easier to use than the older age groups. Younger age groups are more familiar with the web 2.0 and thought the MOSAICA interface was friendly in use and could easily switch between screens.

3.2 Digital Public Space

Another project that is of a similar nature, regarding the topic of digital heritage, is the BBC’s Digital Public Space\(^7\). The Digital Public Space is a web-based browser user interface. The interface covers items such as people, places, things, events and collections to be browsed through. Instead of a museum collection the data sets here include televised cultural heritage. Unlike Agora this project is already extended with the extra resources such as Wikipedia, allowing the user to look up additional background information on objects.

In the following section more information will be provided on the previous studies that have been carried out in the context of the Agora project.

4. Previous studies & requirements for an Agora community portal

In the Agora project we are mainly concerned with user-centered design. This entails conducting user studies to test and evaluate ideas beforehand. The learning process that goes along with these studies is also crucial for future improvements. Previous research for the Agora project was concerned with the evaluation of three user studies [21]. The first two user studies that were conducted were concerned with evaluating the understanding and interpretation process of online collections offered by museums. In both cases the participants were provided with the Agora demonstrator, which contained content from the Rijksmuseum collection, to perform a set of tasks. By enriching the collection with events and narratives it was investigated whether these support the interpretation of information.

\(^7\) [http://spindle.org.uk/](http://spindle.org.uk/)
The first user study revealed that the users were able to identify collection objects and their related aspects and place them in the right historical context. The majority made use of external sources in order to enrich objects. This enabled them to answer their research question, which confirms the hypothesis that the demonstrator is able to support understanding online collections while events remain central. Furthermore the use of narratives also proved to be useful in order to place objects and events into context, aiding the interpretation process. Overall the users were positive about the use of the demonstrator to support browsing and making use of event information to carry out their tasks. In order to furthermore support their understanding they stated a need for a chronological structure and background information for the objects.

The second user study showed that the users also made use of external sources to answer their research question. They showed different preferences for event browsing. The geographical map containing objects was rarely used. Compared to the first group this group was less positive regarding the narratives. This can be due to late presentation of the narratives as they were residing in the background. Therefore it is necessary to present the narratives earlier on to the users.

The third user study was conducted with participants from a remembrance community in order to research how they organize their memories. During the session they shared that they have different ways of sharing their stories in a community through writing, art, dance and storytelling. They stated that most of the time they make use of objects and that the stories they tell were mostly centered on people instead of a place or concept. Furthermore they agree that stories should be told through multiple perspectives, which is missing most of the times at the moment.

According to [17] the following three requirements for an online social platform were extracted from the above mentioned studies.

1. It should provide an objective representation of objects in their historical context.
   a. Objective representation meaning that besides presenting facts for an object such as the author, time, place, event, material, type and subject, also users' opinions can be portrayed. Therefore an overall description can be presented for an object through the collection of facts and different perspectives leaving room for interpretation and discussion.

2. It should enable users to explore the meaning of collection objects.
   a. Meaning can be attributed to a collection object by placing it into the right context. This is attained by chaining events belonging to an object therefore creating a narrative.

3. It should support a community to share members' perspectives.
   a. By adopting the features of offline communities unto the digital platform members can now create and share their own experiences and enhance the online collections.
5. Problem statement

The main goal of the Agora project is to help people understand museum collections that are offered online. The current problem Agora is facing is that there not enough experts and a lack of expertise to carry out the annotations for collections. Therefore the obtained information is limited, incomplete and mostly traditional in terms of one collection.

From the previous use case study it became clear that there are particular groups of people that participate in memory sharing amongst their own networks. By translating this activity into an online digital presence the community can be offered a platform where they can gather together and continue sharing their experiences.

The characteristics that define such a community are [22].

- Membership
- Influence
- Fulfillment of needs
- Shared emotional connections

Adapted for digital usage:

- Feeling of membership in an online community [23]
- Feeling of influence in an online community [24]
- Fulfillment of needs in an online community [24]
- Feeling emotionally connected in an online community [23]

Therefore there is a need for a community. By maintaining such a community it facilitates a platform where interested and knowledgeable people can gather in order to maintain and sustain a process of gathering annotations while at the same times also providing corrections on existing annotations. Last, but not least important purpose of this community it is to gather the users’ opinion on the different items of a collection.

Furthermore contributions by members of the community add to the gathering of multiple perspectives instead of one as has been the case until this point with the current demo (this was also reported by some of the users). Multiple perspectives enrich background information on events and narratives.

In order to remediate the current situation a shift needs to occur from the Agora browser to an Agora community portal. Therefore the problem statement is as follows:

*Which evaluation approach is required in order to test the event-centered aspect and the social aspect of the Agora demo for use across different platforms for a diverse group of users, consisting of for example (art) history scholars, professionals, knowledgeable enthusiasts and the general audience, which will therefore allow for multiple perspectives?*

In order to research this given problem the following research question was formed.

1. What are the appropriate metrics to evaluate and compare the different Agora demos and the different Agora users according to the following aspects:
   a. the level of objectiveness of a representation
b. the level of support for exploration of meaning  
c. the influence of multiple-perspective representation for objectiveness  
d. the influence of event-centric narratives for the exploration of meaning

6. Methodology  
In order to investigate how an online community portal can instill a sense of community into its diverse group of users this study aims to accomplish this through the following tasks. The problem on the lack of contribution and missing multiple perspectives will be studied in an empirical manner. This will provide an insight whether an online community portal is able to lift the interpretation process of information to a higher level. In addition a literature study will be performed previously to the setup of the experiment to gain insight in how online communities work, how social media is used for engagement and the derivation for requirements from the previous studies that were conducted. In order to evaluate the different Agora demos for the diverse group of users an experimental design will be set up. To conduct this experiment the following steps are necessary:  
Metrics development  
- Define metrics for the level of objective representation  
- Define metrics for the level of exploration of meaning  
- Define metrics on the impact of multiple perspectives for objective representation  
- Define metrics on the impact of narratives for the exploration of meaning

Experimental design  
- Define user tasks (for each different user group)  
- Define built in feedback and evaluation features (for the demos)  
- Provide one solid measure to be applied across the different demos  
- Otherwise provide different measures for each demo

Evaluation of demos  
- Evaluate new wireframes  
- Evaluate Agora touch demo  
- Evaluate Agora web demo

7. Planning  
The planning, based on a monthly overview, to bring this project to a successful end, is partitioned as follows:  
September  
- Finish thesis design  
- Weekly meetings with supervisor  
- Process feedback
October

- Design metrics and experiment
- Set up questionnaire for evaluation of wireframes
- Literature study
- Start writing thesis
- Recruit participants
- Start collecting data
- Weekly meetings with supervisor
- Process feedback
- Start first thesis draft

November

- Continue data collection
- Analyze data and describe results
- Continue with thesis draft
- Weekly meetings with supervisor
- Process feedback

December

- Continue data collection
- Analyze data and describe results
- Weekly meetings with supervisor
- Process feedback
- Final thesis draft
- Defend thesis
References


Communities and Technologies (pp. 138–149). ACM.