

CHEST: Cultural Heritage Experience Scrapbook Tool

Alan J. Wecker
University of Haifa
University of Trento

ajwecker@gmail.com

Tsvika Kuflik
University of Haifa

tsvikak@is.haifa.ac.il

Oliviero Stock
FBK-irst

stock@fbk.eu

ABSTRACT

In this short position paper, we present the idea concerning the utility and makeup of an application to collect cultural heritage experiences. We take a short look at what has been done in this area both from a lifelong cultural heritage perspective and that of timelines and memory logging visualization. The features for such an application and possible visualizations are discussed. In addition we look at possible future directions.

CCS Concepts

• Information systems

Keywords

Lifelong cultural heritage; memory loggers, personal timelines;

1. INTRODUCTION

Since the dawn of recorded history, people enjoy to reminisce and collect artifacts concerning their journeys and cultural experiences. Personalities such as Marco Polo and Benjamin from Toledo have kept journals concerning their travels and adventures. According to Wikipedia (entry Scrapbooking)

Scrapbooking is a method for preserving personal and family history in the form of a scrapbook. Typical memorabilia include photographs, printed media, and artwork. Scrapbook albums are often decorated and frequently contain extensive journaling. Scrapbooking is a hobby commonly practiced in many parts of world.

What is needed is to bring this idea of scrapbooking into the 21st century. That is, given the advent of smartphones, electronic museum guides, GPS, and social media applications, **how can we make the process of scrapbooking easier and perhaps even more meaningful for the cultural heritage experience?** In addition we wish to provide ways of looking at artifacts from both a personal and historical perspective or alternatively form a personal and geolocation perspective.

In this short position paper, we present the idea concerning the utility and makeup of an application to collect cultural heritage experiences. We take a short look at what has been done in this area both from a lifelong cultural heritage perspective and that of timelines and memory logging visualization. The features for such an application and possible visualizations are discussed. In

addition we look at possible future directions.

2. BACKGROUND

2.1 Lifelong Cultural Heritage

Whatever reason brings a person to the museum, they bring with them their life experience and their past museum visit experience. Moreover for a specific the visit they have a limited amount of time. This is constrained in many aspects, including, the opening hours of the museum, the time the person has available, their own attention span and that of their companions. This is a repeating pattern for any museum visitor. Instead of considering museum visits as single episodes, it is suggested to take a “lifelong” view of the museum experience. It seems particularly promising to explore how to do this for repeated visits to the same museum, and to museums that are quite similar or ones that are located close to each other and have related exhibitions. In taking a “lifelong” perspective, we have identified four ways to view a museum visit, beyond the single visit view that has been the focus of most work on personalization of the museum experience:

Single museum, repeat visits: where the user, perhaps with companions, comes back to the same museum, either to revisit the things that they particularly enjoyed last time or to see new things;

Related museums: where there is potential to link the experience at this museum with previous or future visits at related exhibitions, for example groups of museums that are near each other;

Independent museums: which are particularly important for tourists who may only be able to visit a particular museum once, but they may gain more from that experience if it is linked to their other museum experiences;

Links to rest of user's life: where other aspects of the user's life are related to the personalized experience at this museum, a common and important case being the museum visits by school children where the links with classroom experience may be critical to the effectiveness of learning.

There are important differences between these views in terms of the need for interoperability as well as management of the user model. The list is ordered in increasing complexity. The later views introduce the potential for new ways to link a visit to the rest of the user's life.

2.2 Visualizing Timelines and Memories

Data surrounds each and every one of us in our daily lives, ranging from exercise logs, to archives of our interactions with others on social media, to online resources pertaining to our hobbies. This data, by its nature, has a temporal dimension. Visualization is an important aid in examining temporal issues.

This is especially true when examining personal events. Over the years substantial research attention was invested in visualizing temporal events and their interrelations, including, also personal, lifelong events. Recently, Huang et. al [3], claim that given the enormous potential for using the enormous personal data that surrounds us, and in order to use these data to understand ourselves better and make positive changes in our lives, Visualization (Vis) and Visual Analytics (VA) offer substantial opportunities to help individuals gain insights about themselves, their communities and their interests. However, designing tools to support data analysis in non-professional life brings a unique set of research and design challenges. They investigated the requirements and research directions required to take full advantage of Vis and VA in a personal context and developed a taxonomy of design dimensions to provide a coherent vocabulary for discussing Personal Visualization and Personal Visual Analytics. While reviewing the current research trends of personal data analysis, they pointed out Enabling Exploration for Curiosity, Supporting Awareness for Action, Taking Care of Family and Reflecting on Communities as domains where research on application of visualization and visual analytics focused. They noted that the main challenges of VIS and VA are that the tools developed need to Fit in Personal Routines and Environments, enable the users Recall of Relevant Context for Reasoning, Defining Appropriate Baselines for comparisons, System design issues, Privacy and Sharing Issues, Integrating Computer Assisted Analysis and Evaluation of such tools/systems. Thiry et al. [4] considered the idea of timeline for exploring personal memories. They explored how the timeline metaphor offer a framework for authoring, and examine how timelines can be used to underpin meaning building in relation to personal content. They report findings from a study of how older people authored digital timelines about their personal histories. They have shown that for older adults, a tension could be seen between the timeline as a form of legacy, and as a vehicle for interacting with others in the present. The timeline format has been shown to provide a useful background for the gradual building of a personal record, but its constraints can also be inhibiting. Thudt et al.[5] also looked at the timeline metaphor for visualizing personal events. They defined visual mementos as visualizations of personally relevant data for the purpose of reminiscing, and sharing of life experiences. Drawing on research on autobiographical memory and on the role of artifacts in reminiscing, they identified design challenges for visual mementos: mapping data to evoke familiarity, expressing subjectivity, and obscuring sensitive details for sharing. To understand whether people's subjective views on their past can be reflected in a visual representation, they developed, deployed and studied a technology probe that exemplifies our concept of visual mementos. Their results showed how reminiscing has been supported and revealed promising new directions for self-reflection and sharing through visual mementos of personal.

3. SYSTEM DESCRIPTION

Given the importance of lifetime cultural heritage experience and the usefulness of visualizing timelines and memories, it might be advantageous to use visualizations and timelines to enhance the lifelong cultural heritage experience. In this section we discuss 1) what features we envision for such a system, 2) what are possible visualizations and 3) how can we gather information for this system.

3.1 Features

Through these features we can allow the visitor to reflect on, analyze and organize his lifelong experiences, whether they are repeated visits, related visits, independent visits, or visits connected to personal interests. Below we describe the individual features and their characteristics and then, how they need to be integrated in order to provide a holistic view.

3.1.1 Personal Timeline

One of the fundamental ways that we can organize the scrapbook information is according to the person's individual timeline. People tend to remember things as part of their life-flow. (need reference) Thus in addition to raw dates, people might be interested in birthdays, anniversaries, starting new jobs and other significant life events. Many personal scrapbook applications such as Facebook and Google Photos use timelines to organize user information.

3.1.2 Focus of Interest

Another, complementary, way of organizing cultural heritage experience information could be according to different historical categories or subcategories which we call "focus of interest". A focus of interest is a broad enough subject context to encompass numerous sites and exhibits and at the same time not too general to have too much content, that would not allow perusal. It also should be a subject that genuinely interests the user. Each event/visit/exhibit could be placed in the context of the focus of interest timeline. For example if someone is interested in Abraham Lincoln the information could be organized as being connected to Lincoln's birth, childhood, education, lawyer, run for governor, run for Senate, run for Vice-President, early years of presidency, the civil war years, and the assassination. Another focus of interest could be the Spanish-American War or American History; as a default a general history could be used as the organizing timeline.

3.1.3 Social Aspects

Humans are social beings, when we reflect we sometimes want to see family and friends in different situations. We also like to share such experiences (see the popularity of media sharing applications such as Facebook, Twitter, Instagram, etc...). A scrapbook application should allow users to share information and search for information based on social aspects. For example, a person could be interested in seeing what media related to a certain exhibit that he is looking at contains family members or friends.

3.1.4 Location

Another important facet in organizing information could be based on geolocation. People can be interested in reminiscing about cultural heritage experiences according to which countries/places they visited. Using location provides the user with a more complete experience.[1] Geolocation has the attribute of being hierarchical, e.g. you have continents, countries, cities, neighborhoods, streets, buildings, rooms; which can be exploited by visualizations

3.1.5 Visit

In addition to the information concerning different ways to organize the information, there is the need to see the mementos themselves. One aspect that needs to be determined is how deep in the hierarchy does the visit reflect. Does the visit scoped to the entire museum or to goes down to the level of single exhibits. The

mementos people are interested can be videos, pictures, audio clips that pertain to a particular exhibit. In addition links can be shown concerning connected or associated media that is appropriate to the particular visit.

3.1.6 Integration of Features

All the above describe specific features that need to be integrated in order to provide a good representation of the personal experience. The personal timeline may be the basis for representation, however, personal timelines may be linked according to social links, locations and visits. The individual items may also be tagged and linked according to various foci of interest – individual and social ones.

3.2 Visualizations

Using the mantra for Information Seeking “Overview first, zoom and filter, then details-on-demand.”[2], we describe two overview views with how they can zoom and filter, and then one "detail on demand" view. While true the task domain is not exactly Information Seeking, there is in reflection an aspect of organizing and seeking specific memories.

3.2.1 Matrix View

In this overview we present visits in a matrix on two axes. The x-axis represents the person's own timeline. The y-axis represents the "focus of interest" that the user is interested in. By zooming in or out we allow the user to get a narrower or broader focus depending on the number of items they wish to peruse. If the user wishes he can choose to zoom in and look at one particular historical period or a particular trip. He may decide to collapse/expand certain years by use + - widgets. The importance of this type of view it allows the user to see items from both a personal perspective and a historical perspective. In the example below (Figure 1) we see the focus of interest is Abraham Lincoln. The visitor visited the Ford Theater in Washington DC in 1985, Union Square Station in Washington DC, Virginia in 1990, The Lincoln log cabin in Illinois in 2000, Gettysburg, Virginia in 2005 and most recently the Lincoln Memorial in Washington DC in 2010. This view gives the person firstly his personal view, but in addition provides extra information concerning historical dates and how does that fit in with his cultural heritage experiences.

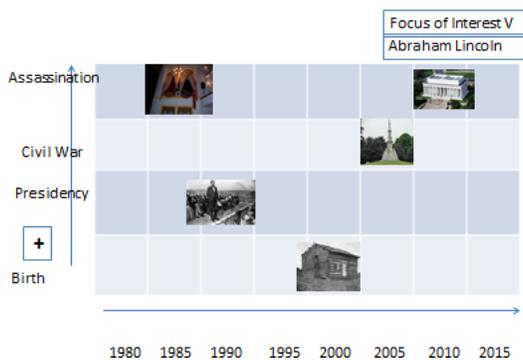


Figure 1. Matrix View

3.2.2 Map View

In this view the primary axis is that of location. The view can be hierarchical allowing the user to zoom in to the level of individual

neighborhoods. In addition through the use of colored pins or stars, the user can follow his personal timeline of visits to a particular area. The example below uses the same "Lincoln" example as the previous overview. (Figure 2)

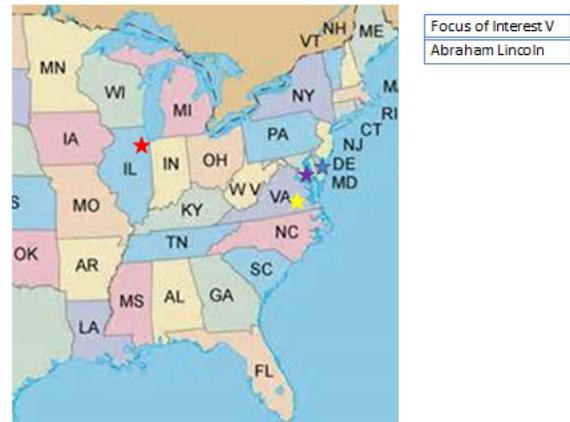


Figure 2. Map View

3.2.3 Visit View

In this view "details on demand" the particular media associated with a visit can appear. Information such as date of visit, who was it with can appear on the details page. In addition links can be listed in this view to venues at this location, previous visits to this site, and other visits with the same people. See Figure 3 for an example of such a view.



Figure 3. Detail View

3.3 Gathering Information

There are two categories of gathering information for such a tool. One would be *explicitly*, that is by having the user consciously direct the tool to add specific photos, audio recording to the scrapbook. In addition the user would explicitly state which cultural heritage visit they wish to add to the scrapbook.

The other way would be *implicitly* gather information. This could be done by having mobile museum guides share information with the scrapbook. Information such as, which exhibits interested the visitor could be used to help fill the scrapbook automatically. Given this knowledge, and situations where the user could not take personal pictures, perhaps provide general pictures of the exhibit. In addition social media could be used to find additional items related to friends and family.

4. SUMMARY AND FUTURE WORK

We have presented an idea for using state of the art technologies in helping users collect and maintain a lifelong cultural heritage experience. In this way we help closing a "gap" in the cultural heritage visitor experience that nowadays is composed of individual "episodes" supported by various physical and virtual artifacts. We specify some of the important features that should be present in a solution to this gap. In addition we discuss some novel visualizations that lend themselves to express unique requirements of our domain and provide general directions where research into such applications should be directed.

Future work would involve building such a system and evaluating it on a number of levels including gathering user requirements, examining usefulness and exploring user experience. In addition one could kick start such a system by taking information from social media such as Facebook. In addition other visualizations could be explored such as "clouds", 3D views and multi-dimensional ones. Other issues to explore include: since the scrapbook is a lifelong activity, how does one keep the visualizations current while at the same time providing continuity

5. ACKNOWLEDGMENTS

Thanks to Joel Lanir for interesting conversations and pointing us to a number of references.

6. REFERENCES

- [1] Ghiani, G., Paternò, F., Santoro, C. and Spano, L. D. UbiCicero: A location-aware, multi-device museum guide. *Interact Comput*, (2009).
- [2] Heer, J. and Shneiderman, B. Interactive dynamics for visual analysis. *Queue*, 10, 2 (2012), 30.
- [3] Huang, D., Tory, M., Aseniero, B. A., Bartram, L., Bateman, S., Carpendale, S., Tang, A. and Woodbury, R. Personal visualization and personal visual analytics. *Visualization and Computer Graphics*, *IEEE Transactions on*, 21, 3 (2015), 420-433.
- [4] Thiry, E., Lindley, S., Banks, R. and Regan, T. Authoring personal histories: Exploring the timeline as a framework for meaning making. In *Anonymous Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. (). ACM, , 2013, 1619-1628.
- [5] Thudt, A., Baur, D., Huron, S. and Carpendale, S. Visual Mementos: Reflecting Memories with Personal Data. *Visualization and Computer Graphics*, *IEEE Transactions on*, 22, 1 (2016), 369-378.