The Role of Media on User Satisfaction with City Cultural Digital Stories: A Case Study

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Abstract

This paper describes a case study of the “Love Your City, Share Your Stories” digital storytelling initiative led by three cultural organizations in Hamilton, Canada. The study investigates the role of media on user satisfaction with city cultural digital stories. Data collection involved one-on-one interviews with 95 participants who experienced city cultural digital stories distributed over multiple media channels. A preliminary grounded theory based on qualitative observations from the case study is developed.

Keywords

Digital Storytelling, Culture, Technical Media, Proximity-Based Technologies, iBeacons, Interactive Wall Displays, Microsites, Information Systems Success, User Satisfaction, Information Behavior.

Introduction

This paper discusses how digital storytelling, the art of telling stories with the use of digital media (Couldry 2008; Hartley and McWilliam 2009; Lambert 2013), can be employed by cultural organizations. Specifically, the paper describes a case study investigation of the “Love Your City, Share Your Stories” (LYCSYS) digital storytelling initiative in Hamilton, Canada, led by the Hamilton Public Library (HPL), McMaster University Library (MUL), and the City of Hamilton. The initiative involves the collection and distribution of digital stories concerning significant cultural icons, such as historical figures, architecture, and events, in a variety of digital formats (e.g., audio, video, text). To enhance and support these stories, a variety of library resources (e.g., photographs, archival material) were used. The initiative is viewed as a significant community-based mechanism to promote Hamilton’s cultural and historical identity. Initially, this initiative focused on four cultural icons of the city.

LYCSYS stories are distributed over multiple media channels: i) a microsite; ii) a large interactive computerized wall display, and iii) a proximity-based mobile application. The microsite allows citizens to view LYCSYS stories about Hamilton cultural icons, upload their own digital stories, and provide comments on archival pictures about the city’s cultural icons. The microsite acts as the main channel for the collection, curation, and sharing of stories. The large interactive wall display installed on the first floor at Central Branch of HPL in downtown Hamilton allows users to experience the digital stories produced. The display is interactive in the sense that users can “touch” the display to explore the stories. In addition to visual images, speakers are installed above the wall displays so users can hear narrations of the stories and any background music. The iBeacons mobile app is the third channel for disseminating the LYCSYS digital stories. Proximity-based technology systems, such as iBeacons, allow users to receive information automatically when they are close to a physical spot (Khan and Light, 2012). Information from an iBeacon is automatically pushed to a user’s mobile phone or tablet when users are in close physical proximity. Posters advertising a cultural icon were installed in HPL and MUL libraries to invite people to download and experience a custom-made app on their smartphones and tablets. If users installed the app on their smartphone or tablet and enabled Bluetooth, then their mobile device would “wake up” when the users were physically close to one of the posters (i.e., the app would automatically receive stories about the image on the poster).
The high-level research question guiding this study is: What effect do different types of media play on user satisfaction in terms of the provision of digital stories that hope to raise interest and awareness about a city's cultural heritage?

Conceptual Framework

To set the boundaries of this investigation, the Information Systems Success Model (Delone and Mclean 2003; DeLone and McLean 1992; Petter, Delone, and McLean 2008) from the Information Systems literature was used. This model identifies critical components of information systems success. These include, among others, systems quality, information quality, user satisfaction and net benefits. Systems Quality refers to the desirable characteristics of an information system such as ease of use, flexibility, reliability, and ease of learning. Information Quality denotes the desirable characteristics of information system outputs such as relevance, understandability, accuracy, conciseness, completeness, currency, and usability. User Satisfaction pertains to a user’s level of contentment and fulfillment with an information system and its outputs. These three constructs were investigated in this study. Other constructs in the Information Systems Success Model, namely Net Benefits, Service Quality, and Systems Use, were thought to be outside the study's scope and thus were not incorporated into the design of the study. Net Benefits are the sum of the positive and negative impacts of an information system on the user. Measuring the impacts of the information system was not included in the scope of this short paper. Service Quality pertains to the quality of the support that users receive from the IS department and IT support personnel. Participants in this study had no interaction with the technical support team who built the digital storytelling media in this case study. Systems Use is the degree and manner in which users utilize the capabilities of an information system. Since participants in this study only used the digital storytelling media once, questions on the extent of use and frequency of use of the system was determined to be out of scope.

Notably, a meta-analysis of empirical studies based on the Information Systems Success Model shows that different levels of support for the relationships between the constructs in the model exist depending upon whether one was investigating information systems success at an individual versus organizational level (Petter, Delone, and McLean 2008). Since this paper's study investigates the use of digital storytelling media by individual citizens, the relationships between these constructs at the individual level were deemed relevant. As such, this short paper is focused on the following constructs from the Information Systems Success Model and their relations: i) Systems Quality to User Satisfaction, and ii) Information Quality to User Satisfaction. Petter et al. (Petter, Delone, and McLean 2008) find strong support for these relationships at the individual level of analysis.

Methodology

A qualitative case study investigation was conducted on the LYCSYS digital storytelling initiative, and a preliminary grounded theory based on qualitative observations was developed. Data collection involved one-on-one interviews with 95 participants from the general public who experienced digital stories using one of the LYCSYS digital storytelling media channels. From all the participants, 30 people explored the microsite (15 people at MUL and 15 at HPL); 15 participants used the large interactive computerized wall display, and 50 participants experienced the proximity-based mobile application (25 participants at MUL and 25 at HPL). Basic demographic information on each participant was collected using a short questionnaire after each interview. The questionnaire collected participants’ age, gender, education, participant type (student/non-student), and technology efficacy. Participants included a diverse and representative sample from the Hamilton community. Specifically, participants varied widely in terms of age, gender, education, ethnicity, and familiarity with technology. The interviews were conducted “on-the-spot” – that is, immediately after the participants were finished using one of the digital storytelling media channels. Interview questions asked participants to reflect on their experience using the digital storytelling media they used.

The interview transcripts were analyzed using grounded theory data analysis techniques advocated by Strauss & Corbin (Corbin and Strauss, 2014; Myers, 2013) to identify categories and relationships between those categories. DeDoose text analysis software was used to help conduct this analysis. The study's conceptual framework informed the design of the interview instrument, as well as the analysis of
the data. Theoretical constructs from the Information Systems Success Model were used to initially code the data. However, as coding progressed, new categories and relationships emerged. Therefore, the study's generated model incorporated codes identified in the study's theoretical background, as well as those that emerged during the data analysis process. Qualitative data analysis involved discovering categories in the data, identifying and exploring relationships between categories generated, and selecting a core category and systematically relating this core category to other categories. The aim was to create a storyline around which other categories could relate.

Findings

At this time (April 2018), data collection is complete; the first round of data analysis has been conducted, and preliminary qualitative results have been produced. Based on qualitative observations a preliminary grounded theory is developed. Findings indicate that digital storytelling can play an important role in strengthening the connection between people and the cultural heritage of a city. The comments made by participants in their interviews were very positive. People loved the city cultural digital stories. Several participants mentioned that the archival pictures presented in the stories were incredible. All participants said they learned something new about Hamilton and that the experience was very informative. Participants mentioned that the experience of receiving information in the format of digital stories was fascinating and enjoyable. They mentioned that the experience was informative, educational and that they liked the factual basis of the stories. Most participants mentioned that all three media types (i.e., the microsite, the large interactive computerized wall display, and the proximity-based mobile app) were easy to use, user-friendly, and provided easy access to information. Even participants who reported low self-efficacy in using digital technology (e.g., seniors) seemed to enjoy the digital storytelling experience using any of the three types of media. However, participants using different channels expressed different levels of satisfaction.

Preliminary qualitative results indicate that **Story Quality** is important to participants and leads to heightened user satisfaction. It should be noted that the **Story Quality** pertains to both information content and the format of the stories. In other words, not only the information content of the story needs to be relevant, understandable, accurate, concise, complete, current, timely, and usable, but also the topic (e.g., history, cultural, current status of the city, future vision, etc.), format (e.g., text, video, picture, sound, music, archival footage, personal stories, etc.), length of the story (e.g., short, long), the pace (e.g., slow, fast), and storytelling style are very important. Moreover, **Media Quality** is also vital to increase user satisfaction. **Media Quality** represents both the quality of the system and the media type. Many participants stated that they were satisfied with the quality of the media/channels in terms of being easy to use, user-friendly, and providing easy access to information. However, they expressed different levels of user satisfaction using different media channels. For example:

- Participants using the proximity-based digital storytelling app loved the idea of receiving relevant information based on their physical location via push notifications (i.e., receiving information about an object/place when users were physically close to that physical spot. Several participants mentioned that using this app and receiving notifications and short stories about a place raised their interest to search for further information.

- Participants using the large touch-screen wall display enjoyed their experience. Some participants mentioned that it was interesting that they could chat with other citizens in the seating area while watching the stories and get their perspectives and memories as well. However, some mentioned that they would have preferred to have had more control over the experience (e.g., voice level control; reviewing some parts they like).

- Participants using the microsite also enjoyed their experience. Notably, they enjoyed the possibility of choosing stories from a repository of digital stories. They also mentioned that they liked having control over how stories were viewed (e.g., control over sound and closed captions, use of story navigation tools such as fast-forward, pause, and rewind). Some participants mentioned that they liked the possibility of using the microsite anywhere, any time, and on various platforms (i.e., a tablet, an iPad, a pc, or a laptop) as opposed to the other two channels that had to be used in specific places (i.e., in the library). However, many participants who used the microsite mentioned that if they had a question about a cultural historical object in Hamilton, they would not necessarily first turn to the...
microsite to find the answer. These participants also stated that it might be hard for them to find the microsite later on, as they would not necessarily remember the site’s URL.

Our findings also indicate that Individual Differences, such as gender, age, and topic preference (personal interests) are important and can affect user satisfaction. For example, women were more affected by digital stories than men and more satisfied with the digital storytelling experience. Furthermore, middle-aged and older adult participants were more satisfied with the experience and more impacted by the digital stories.

Discussion and Concluding Remarks

This study is inspired by Bates et al.’s (Bates, Hulsey, and Jost 2002) notion of the need for cultural institutions to expand their multimedia support for visitors. In response, this paper discusses how digital storytelling can provide cultural organizations with an opportunity to strengthen their connection with people and provide digital stories to relay city cultural heritage information. Moreover, this paper investigates the information behaviors or ways in which people interact with information (Bates 2010), specifically in terms of using digital storytelling channels.

The findings presented above provide a description of participant satisfaction about digital stories about a city’s cultural heritage and indicate how different factors affect the user satisfaction level. Participant comments in this study were very positive, and they enjoyed the digital stories. Findings suggest digital storytelling is a viable tool for cultural organizations to share city cultural heritage stories that lead to user satisfaction and a greater appreciation of a city’s cultural heritage.

Overall, the qualitative findings presented above align strongly with the study’s theoretical background (i.e., the Information Systems Success Model) and expand the existing theory. In the contexts of the cultural digital stories, in addition to Information Quality and System Quality, results indicate that Story Format and Media Type also play critical roles in User Satisfaction. Figure 1 summarizes the study’s results and shows the role of media on User Satisfaction with city cultural digital stories.

As depicted in Figure 1, Story Quality and Media Quality are essential to participants who experience a city cultural digital stories. Both of these factors boost User Satisfaction. Story Quality pertains to both information content (Information Quality) and the format of the stories (Story Format). Media Quality represents both the quality of the system (System Quality) and the Media Type. This finding aligns well with the workings of the Information Systems Success Model (Delone & McLean, 2003, 1992; Petter et al., 2008) and expands the model further to include Story Format and Media Type. Participants expressed different levels of user satisfaction using different media channels. Our findings show that most participants loved the idea of receiving relevant information based on their physical location via push
notifications (i.e., when participants were physically close to one of the hot spots, their smart devices automatically received stories related to that spot). It seems that numerous mobile apps available for different purposes nowadays have affected people’s information behavior and information use habits. Unless they have a specific question, people prefer not to actively search and just receive relevant information automatically based on their location and their interests.

Importantly, our findings demonstrate how Individual Differences (e.g., age and gender) moderates the relationship between the Story Quality and Media Quality with User Satisfaction, which was not included in the Information Systems Success Model. Our qualitative findings show that gender and age affect people’s perceptions and behavior regarding the stories and need to be considered in designing how digital stories are rendered over different media. Another important factor is personal involvement with the content of the stories presented. For example, on one hand, older participants in our study were more interested in the history of Hamilton than younger participants; older participants had more personal memories of Hamilton discussed in the stories than younger participants. However, on the other hand, younger participants were more interested to know what is currently happening in the city, including the municipal government’s plans and vision for the city. Therefore, finding subjects that are interesting to different groups of people is essential in the creation and dissemination of city cultural digital stories.

Other studies support findings from this research. For example, various personal variables, such as psychological or demographic factors (Wilson 1997, 2010) and personality dimensions (Heinström 2003), have been shown to affect information behaviors. These factors may inhibit or encourage information use. Also, the characteristics of the information source and context may act as intervening variables (Wilson 1997). Insights or discoveries from the findings are likely to be relevant to any initiative involving digital storytelling led by city cultural organizations, specifically if cultural digital stories are the core information disseminated.

REFERENCES


