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Paper: Producing Interactive Digital Media Based Exhibitions to Engage Students with Cultural Heritage: Brighton Fishing Museum, A Case Study

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Abstract

This paper describes the processes and outcomes from the production of an interactive exhibition devised for the Brighton Fishing Museum by post-graduate students, offering the opportunity to understand not only the museum environment and collection but also its purpose in the community as a place of and for learning. The final outcome is a sophisticated cocktail of user generated multimedia content in symbiotic relationship with the pre-existing live exhibition of artefacts housed in the museum. The conclusions drawn highlight the importance and value of activity- and game-based learning. It demonstrates the power of media production in its creation and final implementation as a learning tool within a museum environment, as well as its ability to engage young audiences with Cultural Heritage.

Keywords: Interactive television, storytelling, cultural heritage, new learning, multimedia, user generated content

1. Context

The work described in this paper follows directly on from the pilot Interactive Storytelling Exhibition Project (InStEP) 'EGYPT' created by BBC Interactive Factual and Learning described in (Danks et al 2007) and (Danks, Rodriguez, 2007). One of the original project objectives was to create an interactive museum experience which could be easily adapted for future exhibitions by using a template editor. The intention was to provide for an experience, based on storytelling and gaming, with content on different themes; replacing 'Egypt' with 'Rome' for instance.

The resulting template editor known as INOTE (Software template created by Desktop Display for the BBC) provided a relatively straightforward environment for producers to devise, test and publish interactive stories, media and games with full system functionality. This task requires a combination of engagement with local cultural heritage as well as the adequate technical skills. Hence, post-graduate students were considered to be at the appropriate level to undertake what is in essence a professional task. As a result, post-graduate students from the University of Brighton's Master of Science (MSc) course in Digital Television (DTV) Management and Production undertook the task of devising a unique interactive museum experience for the Brighton Fishing Museum.

The University of Brighton's MSc in DTV Management & Production combines a range of disciplines that are required for managerial roles in interactive media development: interactive design, DTV technology, business and project-management. The students entering the course have a varied relevant background, each with their

own set of skills.

The one-year course culminates in a major project, often undertaken on industrial placement. The Fishing Museum project was of an entirely appropriate content and scale for a team effort by three students with a particularly appropriate mix of skills. One student had extensive background in video production, one in website production and maintenance, and one in project management. An additional factor of general interest was that two of the students were South Korean nationals for whom much of British culture and history (not just that of the fishing industry in a particular coastal town) was new.

In the following sections, this paper describes the processes and outcomes of this experience. In addition lessons learned and conclusions are described in the later sections.

2. Related Work

Using media production as a mechanism for learning has gained popularity in recent years. Hakkarainen in Ristimäki (2006) conceptualizes this approach by describing that learning is largely based on knowledge creation and development. The focus in this approach is on the creation and development of new material and conceptual artifacts. In practice, this concept has great potential for engaging young people with cultural heritage as part of their academic curriculum. This is because media production for a museum environment requires of a real interdisciplinary combination of technical and heritage knowledge:

- Analyzing the needs of the museum target audience and content requirements
- Searching, sorting and analysing information regarding the heritage displayed in the museum
- Designing the application taking into account pedagogical issues (presentation and interactivity)
- Implementing the software/hardware application
- Collaboration
- Publishing

Hence, students do not only learn skills but engage with the cultural heritage of the locality.

There are several examples in the UK of schools and universities using this approach. SchoolNet Global (Passey 2003) is an international project focused on UK schools to enhance pupils' cultural awareness. As a result, students became engaged in the use of web-based resources generating highly creative outcomes while acquiring ICT skills and a greater appreciation of social and community contexts. In addition, the project 'Cultural hubs', a regional initiative in the South East, enables groups of museums to develop their shared offer to schools. For this, museums work with primary and secondary schools on visits, loans and e-learning allowing pupils to engage with local history through creative and cultural opportunities (McAlpine 2006). One of such initiatives was undertaken by a Brighton primary school at the Brighton Fishing Museum by a group of thirty 10 year olds. Another initiative involved 10 year old pupils from a local school who developed media regarding the history of the city by interviewing senior citizens.

Within higher-education institutes such as Universities; learning by doing is usually applied to engaging students with the community. An example is the Tees Valley Community Media project (Tees Valley Community Media 2007). The media developments in that project are supported by open source software and applications developed at the University of Teesside and other free or inexpensive solutions.

3. The InStEP System and Paradigm

The INOTE software created for the BBC for the Interactive Storytelling Exhibition Project provides a suitable resource to create a museum personalized experience and is readily available for academic exploitation. Personalization is achieved using a unique user identifier registered to the visitor at the beginning of the experience. This id takes the form of a computer readable identity card. The card is used to retrieve appropriate content from the system on demand by the visitor.

The INOTE software employs Internet technologies to present users with interactive gaming and mixed media to relate an episodic story. Each episode is defined by a simple sequence of events; starting with story content, which demands the visitor to undertake an activity beyond the screen in the surrounding exhibition. This activity

involves the discovery of information that will be given to a character in the next episode of the story. The information is recorded in the system within an interactive game and on completion of each game the visitor is rewarded with a continuation of the narrative. In every episode an onscreen character asks for information until the final scene, in which the visitor is offered a choice of souvenirs to take away. These usually consist of personalized print out records of the information they acquired on their visit.

4. Brighton Fishing Museum InteractiveExperience: Concept and Implementation

Figure 1: Brighton Fishing Museum, entrance and the deck of the 'Sussex Maid'

The University has connections with the Brighton Fishing Museum and it was considered to be an ideal venue for the project. Open year round, the unmanned, free to access museum draws in hundreds of thousands of visitors a year from the millions of people passing on the seafront. As shown in figure-1, the collection includes a 32-foot-long fishing boat 'Sussex Maid', prints, photographs and memorabilia of Brighton seafront life from the 19th and 20th centuries. It is run by volunteers from the 'Fishing Quarter' businesses and supported by the University of Brighton and Brighton and Hove Council.

This project's aim was to create an interactive exhibition using the InStEP system and paradigm. The exhibition would aim to engage visitors with artefacts using interactive storytelling; while the production activity would in turn engage students with aspects of local history.

From the point of view of the students' academic requirements, the project contained elements of interaction design in a TV-like context both in the video elements and the interactive games. The students were required to research the audience to create an appropriate narrative to capture their interest as well as to devise and create game elements using templates supplied. Additionally, the students were required to master the template editor implementation technology (the INOTE system), and make it work on the hardware assembled for the project. Finally a fixed end point to their contribution required careful project management. In summary; interactive design, DTV technology, business and project-management made an excellent fit with the overall course content.

The expectation of the supervising academic was that the project would result in a robust demonstration of the flexibility of the INOTE template, a publicity generating launch event and a continuing research vehicle for examination of the use of interactive multimedia in a cultural heritage context.

4.1 Methodology

To create successful interactive media, the students had to devise a story with a character-driven narrative to fit with the location and themes of the museum and design suitable games to fulfill specific learning outcomes. Emphasis on a user-centered approach also required them to identify the intended audience.

Students made repeated visits to the fishing quarter, observed visitors and recorded interviews with museum trustees and volunteers who provided a great deal of background to the museum and the local community history. None of this data was of specific use to the exhibition but provided both sides with the opportunity to build mutual respect and understanding.

The three students identified roles and responsibilities for each other based on their existing skills and strengths. All shared in the story development and input on visitor experience, so they all engaged with the museum and all it has to offer.

On analysis of user feedback from the BBC pilot project (Danks et al 2007), the group decided to target a young audience, aged between 7 and 14; the experience would suit school trips as well as casual passing visitors.

A story to appeal to this age group was devised involving a peer group character. A young girl (Lucy) walking on the seafront with her mother goes into the museum alone. Once inside she meets a friendly fisherman who tells her that she has been caught in a time warp and has traveled back two hundred years. She will need to travel forwards through time to get back to the present day (see figure-2).

Figure 2: Screen shots from the exhibition. Lucy and Mum exit museum, Lucy and Fisherman with a time key, finale.

Visitors to the museum are asked to help Lucy by gathering information found in the museum to provide time keys to enable her journey. These keys are each associated with information found in the surrounding exhibition (see figure-3) and provide the key to move forward in time, each key in turn builds elements of the final game identifying how the West Pier has changed over time, and indeed how the site will be developed in the near future.

Figure 3: Three of the five 'Time Keys' required to free Lucy show the West Pier in 1916, 2006, and an artists impression of the future ' i360' on the same site.

Inspiration for games to support visitor activities was derived from sessions in the museum. The museum has a handful of themed areas. Hence, information to fit into system games was found in accordance with the themes sympathetic to the museum layout.

Gaming templates provided for 'hot spot' and 'drag and drop' games. These are suitable for multiple choice questions, identification of specific areas on a screen image and multiple image sorting. The students did not feel they had the time to develop more sophisticated games in FLASH (Adobe 2007) which can also be published on the system.

The games used in the BBC Egypt InStEP project had been devised to be predominantly visual; for example, finding a location on a map or identifying and sorting images and iconography. For the Fishing Museum, students devised games requiring visitors to find the year of a memorable event, a location, a person's name, and to sort images of a local scene through one hundred years of change.

Figure 4: Boat name boards

on the wall of the Museum

One of the games requires the visitor to identify the owner of the ‘Skylark No.1’. There are eight or nine boat name boards on display, each carries the name of the registered owner (see figure-4). Once the visitor has found the board and identified the name of the owner they need to give this information to Lucy. As illustrated in figure-5, this is done in a simple touch screen multiple choice game showing the name board with the name removed. If a visitor selects the wrong name the system feeds back the name of the boat appropriate to their choice and asking them to try again, thus they are unable to fail the task.

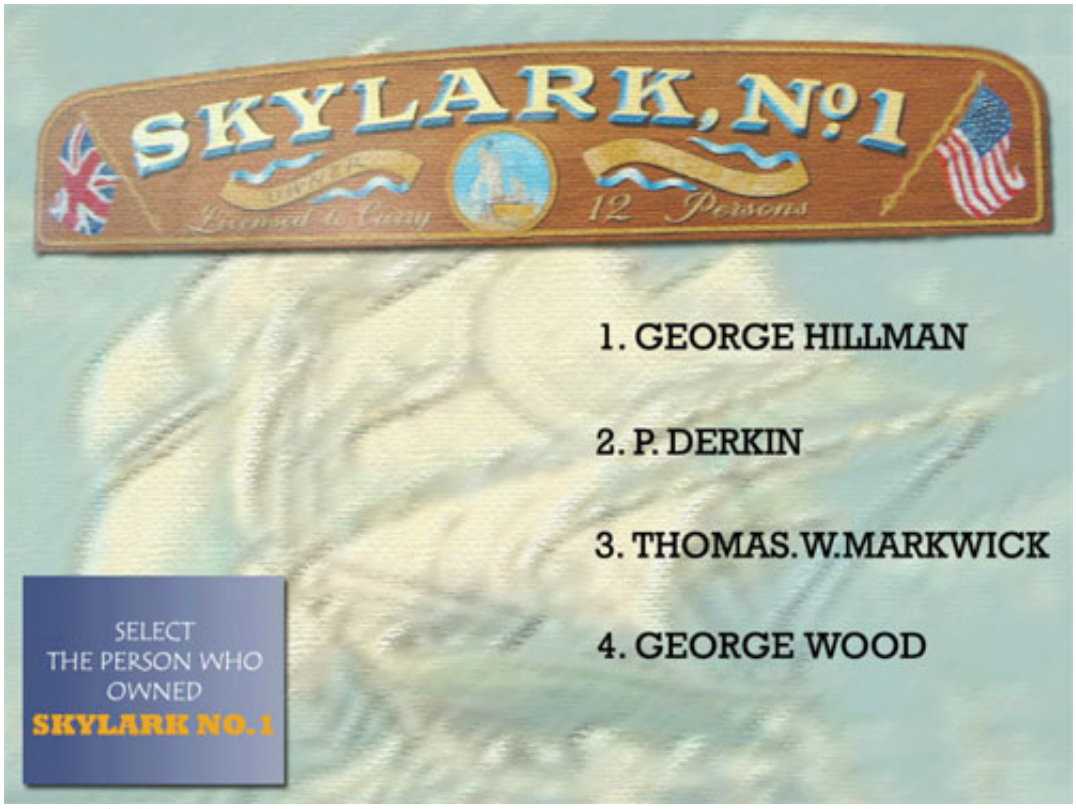

Figure 5: Game interface with name removed ‘Name the owner of Skylark No.1’

The narrative was worked up into a shooting script, and video assets were created over a two-day shoot. These were being edited simultaneously with games and system graphics. Once the assets were complete they were dropped into the system template. The whole process took about 10 weeks. By this time, the students were at the end of their allocated time and were able to write up their experiences as part of their course work.

One year after the completion of the exercise, the exhibition was finally installed into the museum in the summer of 2007. The installation will be exploited by other university students to undertake visitor and usability studies. They will analyze how the system impacts on the museum, effectiveness and suitability of the experience for the museum visitors and other usability studies relating to the content and presentation.

5. Feedback and Learning

For the students, it must be said that this was not their first choice of project. They would rather have obtained placements with commercial interactive television companies giving enhancement to their curriculum vitae and the potential prospect for employment. However, that they would be credited with the development of a relatively prominent novel installation was to some extent compensation. Additionally, the project provided scope for them to demonstrate mastery of current skills and acquire new ones.

Once over the initial disappointment of being assigned a non-commercial project, the students had to confront what appeared at first sight to be (to them) the impossible task of finding an engaging adventure narrative in a little museum full of boats, lobster-pots and 19th century seaside artefacts. They needed some nursing through this phase until imagination caught light and the plot line emerged. The learning experience of being pressured to mine creative ‘gold’ from what at first appeared very unpromising, *and succeeding well*, will stand the students in good stead as they approach future projects.

That they had to engage in the rapid creation of an engaging and audience-appropriate story line presented some challenges. Artistic creativity is not always facilitated by a committee, and there was the inevitable clash of egos over the line that was to be taken. It was notable that compromises made due to the democratisation of creative decisions led to the creation of a rather more prosaic final product; a more sophisticated outcome would have required greater commitment of time and effort which could have been more forthcoming in a commercial project.

From a creative point of view, the students were keen to impress their own style on the interactive exhibition. This was discouraged by supervisors in an attempt to raise awareness that the museum is in effect the client, and it is in the producers' interest to promote the brand identity of the client and not necessarily produce a unique brand for the interactive product. Thus designs which originated from assets beyond the museum were removed, and appropriate replacements were found from the museum context. This enhanced the integration of the interactive system, improved understanding of the museum for the students and provided a clear message to the user.

There were a number of constraints that appeared during the process and served to complicate it. One example amongst several: once the basic plot of a child transported back in time had been established, the precise fantasy mechanism must be determined. An early idea had the child entering a smoke-house (a small building used to cure fish on the beach in front of the museum), and being enveloped in smoke before exiting from another door into the past. However, there was some concern that this would encourage children in the audience, against museum policy, to enter the smoke house in reality.

Creating a management plan for a project containing a substantial creative element (researching, generating a plot line and script writing) was particularly challenging, though representative of many commercial projects. Other significant learning elements included the production of video material (shooting and editing) specifically for an interactive application, working within the constraints of the technical infrastructure to deliver a smoothly working product, and an approach to analysing the audience for this particular niche development.

That the script was largely written by someone with a Korean rather than British background was not as problematic as might have been expected. Many of the cultural references were slightly archaic, perhaps inevitably given the context of the exercise. This, together with the unique milieu in which the story was set, meant that terminology and detail could be taken from material contained within the museum. The students' recent immersion in contemporary British culture and the universality of the adventure narrative chosen allowed the writing to be accomplished effectively.

Unfortunately the final installation of the system in the Fishing Museum was not accomplished within the time available to the students. Additional resources needed to be acquired, and additional adaptations for the museum installation were required. From the point of view of student learning, missing the opportunity to assess the effectiveness of the product in situ was a significant deficit. However, this was not so different from the experience of students undertaking placements in commercial organisations where products they have contributed to are often scheduled to air after they have graduated. The students saw the system being trialed in a laboratory setting and thus were able to evaluate their own work.

The long-awaited installation of the system in the Fishing Museum offers further opportunity for student involvement in research into its usability and effectiveness. A research exercise for an appropriate undergraduate final year module is planned for the autumn 2007 term. The installation will also make a motivating case study to be viewed by subsequent cohorts of the MSc.

Within the context of project research, the students gained an understanding for the needs of a fishing community to adapt and move with the times, with short-term seasonal changes and over generations. This combined with the putting into context the seafront community with other locals and visitors to the town.

The technical implementation of the project proceeded very smoothly with few hiccups. This was in part due to the robust implementation of the INOTE system, and also the technical competence of the student with a Web development background.

From the point of view of the academic requirements of the MSc, the project was a success. It allowed the students to demonstrate mastery of the disparate elements of the course, and to combine them into the delivery of a product completed to a professional standard.

6. Conclusions

The paper described the project developed by post-graduate university students creating an interactive museum experience for a local museum. The experience highlights the importance and value of production as a mechanism for learning, as well as its ability to engage young audiences with local Cultural Heritage.

The constraints of the InStEP system rather ensured the creation of content within the location context. The creation of an immersive visitor experience provided not just the opportunity for students to produce an entertaining experience, but also demonstrate an understanding for the integrity of the museum itself, for themselves as producers and the visitors whom they aim to engage. The production of games originated from the museum context required a good understanding of and for the exhibition, its intents and contents.

The process had relevance to learning about professional client/producer relationships and associated responsibilities to the public, demonstrated by the realizing what is possible & practical in the real world, working within budget constraints and not to encourage the public in irresponsible activities behavior, to enter the smoke house for example.

Learning from talking and engaging with local community benefited the students greatly. The exercise enhanced a sense of belonging not exclusively to the fishing community but in the wider context of the town. This was demonstrated by a new confidence in engaging with strangers in and around the museum, something which had represented a challenge before the exercise. The context for the museum and the fishing quarter and its fit into the bigger picture of the town and the links around the coast of Britain was clearly demonstrated through the pride with which students relate their experiences to others in retrospect.

Negotiating with curators and exhibition custodians bought understanding of the value and specific issues arising from conserving, presenting and the interpretation of Cultural Heritage and artefacts. A respectful attitude from students for objects in the museum was perhaps derived through some sense of vicarious ownership following the exercise.

With the recognition of the museum as a resource, the value of other Cultural Heritage locations may be more readily appreciated in the future. Detailed knowledge of subject and exposure to a niche in Cultural Heritage sensitized the students to the potential for an interesting experience for themselves (and indeed the wider public) in other small corners of a community, in the sense that if you go looking around you will find something of interest no matter how unpromising things may appear at first inspection. Each student saw the potential for work in the Cultural Heritage sector which they had not previously recognized.

The instalation of the exhibition represents an opportunity for further research, including usability and visitor studies, as well as providing a platform for the production of new content in the future. The students have in effect created one story in the museum; others could create their own stories in the same museum and each could offer further opportunities for the creators and users alike to engage with the fishing quarter and aspects of Cultural Heritage.

7. References

Adobe (2007) Adobe Flash Player http://www.macromedia.com/software/flash/about/

Don Passey (2003) SchoolNet Global: An Independent Evaluation - Final Report, Department of Educational Research, Lancaster University. Available: http://partners.becta.org.uk/upload-dir/downloads/page_documents/research/sng.pdf

Joy McAlpine Black, Sarah Lewis (2006) Progressing museum partnerships with schools. Museums, Schools and Creativity Report. http://www.mlasoutheast.org.uk/

Michael Danks, Marc Goodchild, Karina Rodriguez-Echavarria, David B. Arnold and Richard Griffiths. (2007) Interactive Story Telling Interactive Storytelling and Gaming Environments for Museums: The Interactive Storytelling Exhibition Project.Second International Conference, Edutainment 2007, Proceedings. Series: Lecture Notes in Computer Science , Vol. 4469, Hong Kong, China, June 11-13, 2007,

Michael Danks, Karina Rodriguez-Echavarria. (2007) The Interactive Storytelling Exhibition Project: A Perspective On Technology For Interpretation. Proceedings of the third international symposium on the socio-economic impact of cultural heritage, Heritage Impact, Brighton 2007

Ristimäki Seija, Koivulehto Taru, Viluksela Pentti (2006) Learning by creating content - Is creating eLearning content an efficient tool for learning. Project Report of eLearning content community for graphic and media communication SELEAC 2003-4715 / 001-001. February 2006

Tees Valley Community Media (2007) http://www.tvcm.co.uk/ Last accessed: July 2007

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