Learningful Interactions: Enhancing children's engagement, awareness and understanding of local Cultural Heritage

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Abstract. This paper reports on a cultural heritage learning programme– for and with primary school children – which uses technology to mediate engagement with local cultural heritage. Using a design-based research methodology and qualitative methods, the first design cycle undertaken in 2016 is outlined. Co-constructors in the evolving design, children were motivated to explore their local area/museum interactively, using iPads to facilitate autonomous, discovery learning. The paper illustrates how the design created an overall positive learning experience for children, enhancing their engagement with historical objects and narratives in a local museum as well as in a classroom environment. Although the data has not been fully coded or analysed 'learningful' (Resnick 2006), playful, creative interactions are emerging as major components in the engagement of children with cultural heritage.

Introduction

The aim of this research is to explore children's engagement with their local cultural heritage. In particular, the research explores the connection between children's engagement with cultural heritage in the formal classroom and in the informal learning setting of a museum. It investigates whether engagement can be strengthened through combining constructionist, digital technologies with evolving designs of learningful interactions.

My research methodology relies on design-based research, which includes two cycles of principled technology experimentation and evaluation. The research is informed by educational theories such as constructivism, constructionism,

creative learning, play, and museum strategies such as object-based learning. The multi-ontological framework is informed principally by the theorists Dewey, Papert, Csikszentmihalyi, Resnick, and Falk & Dierking.

The first design cycle included two interventions one in a primary school in early 2016 and one in *Galway City Museum* in July 2016. The second cycle of this design based approach began in May 2017 and was completed in July 2017. This included three 2-day programmes situated at different local primary schools, and a 3-day programme held at *Galway City Museum*.

Design Cycle One

Intervention No. 1 – School (Jan - May 2016)

Over a ten week period twenty-two 6th class children (age 11-13) were introduced to the archaeology and history of medieval Galway. While physically interacting with their local sites, monuments and historical objects, children used digital technologies to engage with, and to deepen their learning of their local heritage. They collaborated on creating a digital story using the sandbox game *Minecraft*.

Classroom exploration and discovery of archaeological information added to the physical exploration and interaction. Digital Storytelling techniques such as storyboarding, scripting and recording were employed to actively engage children with their local cultural heritage and to tie into the learning objectives and outcomes of the Primary school Local History Curriculum (NCCA 1999).

A pre and post questionnaire, children's reflections, and elements of Read's *Fun Toolkit* (2006) formed the data set.

Intervention no 2. – Museum (July 2016)

Following on from the earlier formal classroom based intervention, the context for the informal learning intervention was at *Galway City Museum*. Fourteen children aged between ten and twelve years of age from different local primary schools participated in the four day-long workshop.

I wanted the children to have more autonomy and feel 'freer' in the museum rather than in the more structured formal school environment, where children spend more time sitting down at a school desk. For that reason the seating in the education room was re-arranged to enable an atmosphere of playful learning. Bean bags were introduced to make the setting more appealing and comfortable.

During the workshop children interacted with the museum's collections. Children were supported in creating digital artefact(s) based on narratives they constructed from museum artefacts, their own imagination, exhibitions and displays found within the museum.

Working in teams, children selected objects of interest, researched possible uses for their chosen objects, brainstormed/.discussed ideas and possible stories.

They constructed, storyboarded, scripted, recorded, and uploaded their digital artefacts (movie, slideshows, and digital comics) to the project website www.teche.ie.

Children presented their work publicly to their parents, guardians, family and friends on the last day. Quick Response (QR) codes were printed and placed on the museum display cabinets to enable public sharing of their stories.

Data Collection/Analysis/Findings

Qualitative methods were employed including daily reflections from children, pre and post questionnaires, researcher observations, and a parental survey (museum intervention only). Reflections were gathered from children at the end of each day on a blank sheet (no prompts) in order not to lead the child.

Additional data collection tools such as the *Fun Sorter* and *Again-Again* table from Read's Fun Toolkit (2006) were also employed. In the Fun Sorter children ranked activities from 1-9 in order of enjoyment. The Again-Again table asked 'Would you do it again?' for each stage of the interactive cultural heritage learning process.

A parental online anonymous survey consisting of three open-ended questions proved valuable in gaining parents' perspective and observations of their children's reported workshop experience.

The data analysis employed thematic methods. Within this flexible method four approaches to coding data was undertaken including Saldana's (2009, p.66) Elemental Methods (Descriptive, Process, In Vivo) as well as what Saldana (2009) calls an exploratory method, a Holistic approach.

Codes were categorised and organised into themes. Resulting themes from all four coding methods were compared and cross checked.

Designing for a more engaging positive learning experience formed part of the rationale for this project and was evident from the children's non-directed reflections. *Learning, Engagement, and Positive Experience* emerged as themes from each of the above four different coding approaches.

The initial findings from the parent's online survey identified a positive student-centered creative learning environment/experience.

Evidence regarding the importance of affect and fun as a necessary requirement for engagement was apparent from the parent's survey and children's non-directed reflections and questionnaire.

Design Cycle Two was completed in July 2017 and included interventions at 3 primary schools, and again at *Galway City Museum*. An addition to the methodological toolkit for this second cycle was the inclusion of video recording and focus groups. It is hoped these additional methodological approaches will allow further exploration and evidence of 'playful learning indicators' which are the individual components making up the theoretical framework Pedagogy of Play

(Project Zero 2016), creative learning from Resnick's model (2007), engagement factors (O'Brien and Toms (2008), and interactions (peer-to-peer, playful, social, collaborative).

Conclusion

The design rationale was to design a multisite design for learning with technology, one that will enhance children's engagement with, awareness of, and understanding of their local cultural heritage in a creative and interactive manner. This design through evidence gathered in schools and informal settings could serve as a template for a cultural heritage learning programme for children that could equally be carried out in a formal school and informal settings, taking into consideration the identified contextual constraints. However, as the design process progresses, there are other emerging factors which may serve as important contributions in their own right.

Acknowledgments

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