Digital Cultural Communication: Designing Co-Creative New Media Environments

Jerry Watkins
Queensland University of Technology
Musk Ave. Q4059 Australia
jerrywatkins@optusnet.com.au
+61 414 314 699

Angelina Russo
Queensland University of Technology
Musk Ave. Q4059 Australia
angelinarusso@optusnet.com.au
+61 410 411 554

ABSTRACT
The design and implementation of audience-focused immersive media-rich physical environments is a familiar landscape within the commercial sphere. From theatre and theme parks to autoshows and airports, commercial interdisciplinary design and production teams have extended and solidified the new media agenda. The success of this track record is demonstrated by the increasing presence of commercial design techniques and knowledge in the creation of immersive new media within the cultural sphere, as proven by London's Natural History Museum, or the Melbourne Museum.

This paper introduces the notion of digital cultural communication, a continuum through which designers can consider the place of narrative and experience and their attributes within public and commercial institutions. Digital cultural communication allows users to become co-creators of knowledge by providing tools and methods which enable the co-construction of creative artefacts. This paper uses a case study from Australia's rich cultural institution sector to illustrate the conceptual design of new media co-creative environment using an HCI-derived methodology supported by participatory action research. It is hoped that this method will demonstrate to curators of cultural experiences the cost-effective possibilities for enabling audiences to create rich narrative from user-led content.

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DIGITAL CULTURAL COMMUNICATION

Cultural communication using digital technologies can be 'two-way' for large populations, unlike 'read-only' broadcast-era mass communications which restricted 'writing' to professionals. The 'read-write' capabilities of interactive media and learning based on immersion in site-specific environments constitute a new phase in media literacy. However, the content that is produced outside of the professional realm is not always effectively structured and presented for wider audience dissemination. Interactive media communication has barely begun this journey into an 'order of literacy,' and most ordinary people remain untutored in 'writing' with multimedia tools. Nevertheless, cultural participation is undergoing some transformation as a result of increasing multimedia use.

Hartley and Rennie (2004) demonstrate the features of a culture where the emphasis is on the consumer as opposed to the author or producer. In this model, we move from producer to consumer; from experience in the public sphere to the private and from representations of the nation state to representations of the self. Using this model, we might ask how digital cultural communication strategies could be formed to shift from a focus on institutional codified ways of knowing and producing, to open-ended co-creative processes which draw audiences into the creation of content.

Digital cultural communication can frame the implementation of audience participation and interaction with cultural content where narrative and experience in use-led content can be realised. The spectrum ranges from representations of self in narrative institutions to representations of self in experiential institutions. Cultural interactive experiences can be said to cross the spectrum as can the telling of private stories, both enabling co-creation of content and user-led experiences. This interactive model of co-creation requires a shared language so that all parties can understand and work with the material in hand. As Candy and Edmonds suggest, "learning how to collaborate successfully is very important and cannot be assumed to be a natural to everyone" (Candy and Edmonds, 2002:66).

CONTINUUMS OF INTERACTIVITY

Shedroff suggests that we consider the meaning of interactivity by envisioning all experiences as inhabiting a "continuum of interactivity" (2002), separating passive traditional media experience (reading, talking) from interactive new media experiences, the latter being distinguished by:

- The amount of control the audience has over tools, pace, or content.
- The amount of choice this control offers.
- The ability to use the tool to be productive or to create.

Shedroff feels that there is no good or bad side to this continuum: the only judgment should be whether the level of interactivity or place along the continuum is appropriate to the goals of the experience or the messages to be communicated. Although Shedroff's neutral standpoint in this issue is worthy, the international focus of high-end experiential design is clearly on top-down new media implementation.

Furthermore, the types and quantities of information required by an individual to be considered "literate" within a media-rich culture are changing. No longer is it adequate to think of textual and visual modes of literacy separately, nor envision the internet as only a vast catalogue and receptacle of information. Through its virtual pervasiveness, internet-empowered new media challenge traditional roles of producers and consumers in culture, narrowing the distance between them. Shedroff concludes by with the powerful observation that:

"One of the most important skills for almost everyone to have in the next decade and beyond will be those that allow us to create valuable, compelling, and empowering information and experiences for others. To do this, we must learn existing ways of organizing and presenting data and information and develop new ones" (Shedroff, 2002).

However, as Roe suggests, defining the 'new' in new media can be about as rewarding as describing the 'post' in post-modern. Roe proposes that 'we are still struggling for language(s), practice(s) and way(s) of thinking that are yet-to-come' (Roe, 2003). While there is a well-developed language associated with the classification, organisation and distribution of traditional media, the language of new media is still in its infancy, being developed alongside the evolution of the media themselves. For example, within traditional media, content may be classified as fiction or non-fiction while formats such as newspapers, books and journals have easily identifiable genres as well as established methods of production and consumption. New media brings with it the challenge of blending information, education, community and personal expression and the new technologies of production and consumption.

Defining new media is necessarily a complex task, and one that faces further challenges through its ever evolving nature. One all too common approach to defining new media is that it cannot be defined because it evolves too quickly when this is, in fact, one of its most defining features. Yet another view is that new media is a gestalt of technologies or multimedia:

"While it is difficult to pin new media down to an exact definition, new media may be described as any digital media production that is interactive and digitally distributed. There are two fundamental bases that distinguish the new media from the media that preceded it, much of which still exists, and these bases involve how the media are transmitted and how they are accessed. Transmission now integrates text, pictures, video, and sound and the increasing use of the Internet as the vehicle; access means interactivity, which is a defining feature of new media and likely to be the most significant area for future new media development" (http://www.qcc.cuny.edu/AcademicAffairs/newmediatech.htm).

This rather more pragmatic definition has informed the strategic approach to the new media consultancy discussed within this paper's case study.

CASE STUDY: STATE LIBRARY OF QUEENSLAND (SLQ) - NEW MEDIA WITHIN THE CULTURAL INSTITUTION

The background to this case study may make interesting reading for a European audience. SLQ is not only an impressive physical structure located on Brisbane's South Bank, it is also the governing body for the entire State's library network. This network encompasses a geographic area bigger than most European countries, yet home to a population smaller than many European cities. Contemporary Queensland is a crossroads of South-east Asian and European culture, attempting to fit – often uncomfortably – not only with the world's oldest indigenous culture, but also with an equally ancient, fragile and precious natural environment. This unique interface continues to produce individuals and communities with many rare and distinctive stories for the digital cultural communicator: clearly, the role of the State Library within this interface - as a collector and distributor of stories - is non-trivial.

Libraries create cultural experiences which connect audiences to both physical environments and provide access to rare collections. So far, current media technology has achieved limited distribution within Queensland's regional library environment, where microfiche and photocopiers are often the only information technologies present.

Future services which draw on these rare collections can use distributed technologies to allow broader access and distribution of knowledge while ensuring that audiences can

act as producers and consumers of information. Such technologies could include:

- Web-based activities: online communities, blogging, internet, chat, web authoring.
- Interactive media: 2D and 3D animation, video diaries, audio and video recording and editing.

In Queensland, these technologies are not a fanciful top-down imposition of state-funded curatorial practice. Rather, networked new media could provide the only cost-effective means of connecting the rare stories and collections of libraries, communities and individuals across such a huge area. SLQ's vision (www.slq.qld.gov.au) - in partnership with its stakeholders - is to:

- Build smart communities.
- Construct communities around information literacy.
- Demonstrate the potential of media rich social spaces.
- Attract target audience to create learning environments.

In framing the development of new services and roles, it will be important to consider the changes which new media brings to modes of production, consumption and levels and methods of interaction. This holds implications for the different types of cultural artefacts for display and preservation as well as the new skills required by professionals to enable audience participation. As visual and textual literacies evolve, new skills are required by both producers and consumers of content in the creation of compelling and enduring experiences.

BRIEF AND METHODOLOGY

The broad initial brief given to the authors was to provide creative design concepts underpinned by research in order to realise the strategic implementation of new media environments within SLQ's main Brisbane facility, as part of the Queensland Government's wider Millennium Arts Project.

Specific focus was directed by the client to a proposed "Ideas Centre", the central pillar of SLQ's new media offer. The Ideas Centre environment will promote electronic delivery of new media services and new literacy programs to a widening cross-generational audience.

In order to produce a cohesive design proposal, the authors employed an HCI-driven methodology. This research uses an abbreviated informal structured analysis and design methodology based on the Method for Usability in Software Engineering (MUSE) approach developed by Long and Dowell (1989) to inform the construction of a potential design solution to both the general and specific design problems under examination in this paper. Elements of this method have been used very successfully by the authors in the creation of interactive artefacts and experiences within the commercial sector - in particular, the method's insistence on the clear statement of desired project outcomes as the starting point of the design process.

The method presented in this research is termed Cultural Interactive Experience Design. CIED follows three standard systems analysis phases familiar to adherents of structured methodology:

1. Current systems analysis.
2. Conceptual system design.
3. Detailed experience design.

The project's general design problem (GDP) examines the effectiveness and validity of using a top-down curatorial approach to produce community-focused and community-co-created cultural interactive experiences.

The specific design problem (SDP) refers to the challenge faced by the curator to accurately capture – and appropriately analyse – audience requirements from the bottom-up, in order to design an entertaining, stimulating, representative and cost-effective facility.

It was felt by the authors that the number and variety of stakeholders involved in this project strongly supported the decision to apply CIED, which is arguably a somewhat prescriptive HCI method. Iterative design-based approaches would entail a convoluted and prohibitively expensive cycle of ongoing consultation throughout the wider community.

This paper focuses on CIED phase 2 conceptual systems design.

CONCEPTUAL SYSTEM DESIGN

Current systems analysis of the SLQ's vision, strategy and systems was linked to current new media research to produce a task description for the strategic role of the Ideas Centre target design. Using Shedroff's terminology (2003), *co-creativity* was identified as the key to achieving desired performance within the target design by enabling community-driven storytelling. In this instance, co-creativity is more than a reference to the group creative process – rather, it encompasses the active role of enabling technology and environments.

Co-creativity requires more than shared ideas and intent for effective realisation. Indeed, SLQ has already acknowledged this: its concurrent Queensland Stories project which provides an ideal structure for stories which are derived from and created by the community. The State Librarian's proposal for an Ideas Centre goes several stages further by envisioning a unique media-rich physical environment in which Queenslanders are not only inspired, but also empowered to learn others' stories - and tell their own.

Immersive discussion within the design team during the conceptual system design stage of CIED identified four core elements required to create a platform for co-creation:

- Informational.
- Social space.
- Edutainment.
- Facilitation.

These elements were linked to age ranges to illustrate the focus of the creative proposal.

Informational

From child to adult, SLQ exists to provide information. A range of multipurpose spaces provide visitors with themed information search and retrieval environments and equipment, supported by SLQ portal software.

Social space

A visit to SLQ should not automatically be charged with an edutainment or informational purpose. Although the entire Library environment could to some extent be considered social, specific social spaces are designed to attract teenage visitors.

Edutainment

Aimed at the 0-10 years old age group, new media games and stories were designed to be located within immersive environments which would entertain and educate SLQ's youngest visitors. Learning would be encouraged in the physical area and subsequent interfaces by the following design activities:

- Engaging youth as *active participants*, giving them a greater sense of control (and responsibility) over the learning process, in contrast to traditional school activities in which teachers aim to "transmit" new information to the students.
- Encouraging *creative problem-solving,* avoiding the right/wrong dichotomy prevalent in most school math and science activities, suggesting instead that multiple strategies and solutions are possible.
- Facilitating *personal connections* to knowledge, since designers often develop a special sense of ownership (and caring) for the products (and ideas) that they design.
- Promoting *interdisciplinarity*, by bringing together concepts from the arts, math, and sciences.
- Creating a *sense of audience*, encouraging youth to consider how other people will use and react to the products they create.
- Providing a context for *reflection and discussion*, enabling youth to gain a deeper understanding of the ideas underlying hands-on activities (Resnick, 1998).

As part of the coherent strategy structured by the CIED methodology, these various design activities serve to:

- Stabilise children's emotions and induce self-initiated activities.
- Aim at attainment of these objectives through free play.
- Consider individual variations in development and previous experience to educate each in a way that suits his/her developmental tasks (Takeo C. et al., 1997).

Facilitation

Complex digital storytelling requires sophisticated equipment and appropriate training. The Ideas Centre proposal demonstrates how SLQ will facilitate community-created media for 16+ year olds. From animated narratives and audio recordings to publication designs and video productions, the Ideas Centre will facilitate co-creative storytelling via a complete spectrum of authoring tools.

Public access to similar equipment in Queensland has consistently been restricted to tertiary educational institutions such as universities and adult education colleges. The Ideas Centre will lift this restriction, allowing the community to tell its stories using professional, cutting-edge tools:

- 2D graphic design: the expense of most design software is inhibitive so in an effort to dissuade people from sourcing pirated software, SLQ's multimedia space provides cutting-edge software to suit every aspect of graphic design and production.
- Web design: as with print design, the cost of high-end WYSIWYG and interactive software is exorbitant. This facility will provide free access to software that will facilitate online publication and creation of communities through the use of current web technology.
- 3D digital animation: 3D animation is a field that has seen some of the fastest advances in technology of any of the creative arts. Consequently, the Ideas Centre will provide specialised equipment to allow animators to collaborate and share their digital stories.
- 2D cell animation: although less specialised than 3D animation, 2D cell animation has just as much potential for the creation of powerful stories. The beauty of this art form is that it allows people with relatively little technical expertise to create narratives. This facility will provide equipment for capturing and rendering hand drawn images.
- TV production: the proposed TV studio enables the many potential audiences eager and interested to learn and give new dynamic impact to their communities through TV production. SLQ has a vision to build smart communities through smart libraries and its mission is creatively linking Queenslanders to information, knowledge and each other. The TV studio

will be linked to Briz31 – Brisbane's community access TV channel which produces local programming. The TV studio widens community opportunity to create local content and offers a range of community-targeted programs to provide training in "new literacy, such as video camera operation and techniques, picture composition, editing, sound and lighting.

Portal: configuration, security and interface

The four core elements discussed have informed discrete yet linked immersive physical environments, all of which interact to deliver a co-creative sphere to a range of target audiences. The ability to configure applications in each physical environment – according to the different types and modes of interaction and/or audience – is essential to provide a secure environment for children and youth, as well as maximising accessibility to services and applications. This also promotes a budget-conscious approach to software licensing issues. This global configuration, security and access interface is addressed by the proposal of an SLQ Portal, a front end that enables library staff to quickly and easily designate each computer's access to software, applications and web content via an intranet. The Portal's ability to isolate various activities enables flexible use of the spaces and the widest possible use of available resources. An integrated desktop approach is taken to providing a secure, innovative and seamless connection to global library and information networks, as well as facilitating location based potentialities. The Portal provides cross-space accessibility and whole-space accountability across a wide range of possible library user activities including web browsing, safe internet chat, multi-user gaming, multimedia authoring, audio-visual editing and educational workshops.

DETAILED EXPERIENCE DESIGN

The SLQ new media project discussed so far in this paper is currently in phase 2 conceptual system design stage of the CIED methodology. The current project schedule foresees detailed experience design of artefacts and environments beginning in end 2004.

In order to illustrate phase 3 detailed experience design of the CIED methodology for the purposes of discussion, this paper turns to SLQ's Queensland Stories project, in which communities are called upon to tell stories which reflect on the types of ancestors they wish to become by sharing their values and experiences. The project aims to build a sense of connectedness between libraries and their local and state-wide communities. It explores the social value of libraries and the discovery of a 'sense of place' and inclusiveness across Queensland. In a very real way, it works collaboratively to deliver real, tangible outcomes and intangible benefits through community building.

The authors adopted the CIED method to define the artefact design process. The method is informed by the desire to establish communication networks which share knowledge, particularly recognising that sharing knowledge is an important facilitator in creative communication and that "an effective working relationship exists where both parties exchange knowledge resources in order to progress the work and revolve difficulties of both a technical and artistic nature" (Candy and Edmonds, 2002: 63).

The detailed artefact design stage is intended to be delivered by a professional designer who will guide community members in eliciting a conceptual framework from their own stories. CIED recognises that community members would not normally have a well-developed language to describe the elements which go into creating or communicating a new media artefact. Importantly and unlike a number of 'digital storytelling' methods which guide the development of personal stories for digital media, the CIED method enabled communities to use storytelling devices and create diverse new media artefacts rather than producing a prescribed formatted artefact each time.

Another important aspect of this workshop was that it allowed for multifarious readings and resulted in community participants establishing a shared language. It also identified points of convergence and departure in the team and provided a clear framework to scaffold the rest of the design development. Following the workshop, participants were asked to sign off on the direction of the project, the desired outcomes, the roles that each member will play, timelines, budget strategies, sign-off procedures, media outcomes and evaluation strategies. At this point the shared understanding revolved around realizing the project as both valuable and achievable to specific timeline and budget.

As communities become producers, they work to implement projects within a timeline and to budget. The team needs to come together regularly to report on progress and discuss concerns. As a shared understanding would have been established from the beginning of the project and technological and financial limitations have been addressed, discussions can revolve around overcoming problems rather than questioning the basis of the activity.

Following the development and distribution of the artefact, evaluation processes will be put in place to capture the efficacy of the cultural interactive experience. Multiple publication outcomes would also be implemented as evaluation would demonstrate those elements of the project which could be successfully re-purposed for future use. While the communication strategy could capture multi-platform publishing opportunities, back-end audience research would be used to generate strategies for re-purposing content in ways which had not been considered at the outset.

CONCLUSION

The realisation of digital cultural communication projects has strong potential in Queensland's culturally rich

landscape. The number of government, state and community originated projects which are beginning to appear in response to digital storytelling techniques is a testament to the evolution of a new literacy.

The authors' consultancy to SLQ has both identified and promoted methods of providing low cost and mutually advantageous partnerships culminating an expansive range of electronic services to library users.

Although the CIED methodology is in its infancy, its roots in Long and Dowell's Method for Usability in Software Engineering (1989) provide some robustness, which is further supported by its previous successful application by the authors to high-profile commercial communication design projects. It is hoped that CIED will become a powerful tool within participatory action research and cultural interactive experience design.

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