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Exploring the pedagogical foundations of museum exhibitions and their websites

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Abstract: This paper reports in research conducted in two museums in Australia on the beliefs and pedagogies that influenced the design and development of educational materials on museum websites, both for materials that explicitly accompanied and explained an exhibition, as well as additional educational resources related to the topics presented. The paper describes key themes emerging from the research including the perceived usefulness of exhibition-related websites, how the website links explicitly to curricula, beliefs on how people learn from museums and the role of websites.

Introduction

Museums, like most other areas of modern life, have been significantly influenced by the increasing capability and pervasiveness of the Internet. In the last decade or more, there has been some movement by museums to provide representations of material culture through digital resources, as well as the more traditional physical artefacts. Sumption (2006) has noted that despite some concerns that the *physical* is in danger of being replaced altogether with the *digital*, the Internet should provide no threat to the 'materiality' of museum objects: 'Far from diminishing it, ubiquitous museums will surely intensify the need for emblematic objects that signify the extraordinariness and ever-rarer primary nature of human experiences' (p. 8).

In general, museums are concerned with interactions between people and resources in representing the past, and until recently these interactions have been largely place bound, that is, material objects confined to museums. However, progressive museums have been very proactive in examining ways for these interactions to extend beyond their walls through travelling exhibits, and specialised schools programs. More recently web-based technologies have increased the affordances available for designing learning settings and more sophisticated pedagogies as well as forms of digital media representation have been able to be implemented.

The provision of representations of material culture through digital resources is not new and has been of great interest in the educational sector from the early stages of use of digital resources to inform. Ambron and Hooper (1988) outlined a range of early ideas on the use of digital media that were to revolutionise thinking about the use of technology in education. Projects such as *The Voyage of the MIMI*, developed by the Bank Street College (Gibbon & Hooper, 1993) and the early work on the Apple Classroom of Tomorrow on the *Wireless Coyote* project (Grant, 1993) demonstrated effective implementations of the use of digital media through authentic and situated approaches to learning.

Some of the earliest illustrations of the utility of the Internet involved offering virtual access to museum exhibits (Sumption, 2006). The *Museum Open Learning Initiative* (MOLLI, nd), for example, has developed a series of

virtual learning environments, based on some of their collections. Dillon and Prosser (2003, p. 14) have argued that 'When an individual visits the website he or she … becomes part of the associated Internet community…'. The site claims that MOLLI offers 'a unique opportunity for school children… to prepare for, undertake and follow up a visit to the museum'. There is also a strong tradition of museums working in collaboration with education systems as partners, offering teachers pedagogical and lesson planning support, based on their rich collections. A recent specific example is the Alaska Museum that has developed a series of teacher resources on history virtual tours of the coast and the Alaska gold rush (Din, 2005).

Research into the pedagogical effectiveness of museum visits in developing specific learning outcomes has also been reported by authors such as Griffin and Symington (1997) and Cox-Peterson, Marsh, Kisiel, & Melber (2003). These studies indicated that teachers organise excursions for a variety of reasons that include enrichment of learning experiences and opportunities for social engagement. Teachers appear unfamiliar with opportunities for learning in such informal environments and lack appropriate strategies to facilitate learning through establishing pedagogical connections between syllabus requirements and content of museum exhibits. Recent work, specifically on the roles and perceptions of 30 primary school teachers in visiting four museums in Israel (Tal, Bamberger, & Morag, 2005) also provided support for this view and expressed concern in subcontracting the management of such excursions to private contractors where the visit becomes one more related to social engagement than enrichment of learning experiences.

This paper describes a project that examined two cases of museums' use of web resources to support museum visitations to specific exhibitions by schools, and the factors and pedagogies that influence the design and development of web-based educational materials to accompany museum exhibitions. The research did not explore the use of computers in museums or on-site computer-based interactives. Instead, it focussed specifically on exhibition websites that could be used in a reflective manner, not in situ during a museum visit, but rather prior to and after an onsite visit.

The study

A study was conducted to explore the use of the web to situate the onsite museum visit, not as a single one-off event, but within a complex task or problem-based learning approach that extends beyond the museum visit itself. This paper focuses on the first phase of the research, which explored current practice in museums and the factors and pedagogies that influence the design of exhibition-related and thematic websites. The research questions for the first phase of the study were:

- What is current practice for the use of museum websites (a) to support museum visitations by schools, and (b) for non-exhibition related educational activities and information?
- What factors and pedagogies influence the design and development of education materials (a) to accompany museum exhibitions, and (b) for non-related educational activities?

Research plan, methods and techniques

The research investigated the nature and pedagogical foundations of web-based resources and activities to support on-site museum visits. It comprised several connected explorations, specifically:

1. An exploration of research literature to examine recent research in *informal learning* or *free choice learning* that relate to web-supported initiatives of visitations or field trips.
2. An exploration of two case studies of the physical context of exhibitions in two participating Museums: one a state-based museum in Sydney, Australia and the other a national museum in the Australian capital city of Canberra. One exhibition and accompanying website, relevant to school curriculum, was explored from each museum.
3. An exploration of museum expertise to determine the pedagogical approaches to educational materials and services used in the design of exhibitions and their accompanying website resources. Museum staff members (curators, web developers and education personnel) were interviewed.

Thus, the artefacts and key personnel used in the first phase encompassed: a research literature, a review of existing museum websites, two current exhibitions, and the museum personnel. Data collection included, research papers, web searches, analysis of exhibitions and their websites, interviews, and focus group interviews.

The in-depth exploration of the two exhibitions and their supporting web-based activities gave some insight into the pedagogical dimensions of museum exhibitions, and allowed the researchers to map recent theory and research into how people learn in museums with recent thinking on authentic learning environments in schools and the completion of sustained and complex tasks. This paper focuses on findings that relate to the development and pedagogical use of websites to accompany the exhibitions.

Data analysis and findings

Interviews with four curators (one group interview and two individual interviews), five web developers (one group interview and three individual interviews) and six education officers (individual interviews) from the two museums, were transcribed for analysis. Interview questions focused on the roles of the interviewees in the design and development process of the two exhibitions, the major influences in creating the exhibitions and the websites, the relationship of the exhibitions and websites to educational curricula, and the pedagogical beliefs of the interviewees and their views on how people learn best in museums and from the websites.

Data were analysed using constant comparison method, where key themes were identified from the individual and group interviews and ideas were compared and reviewed throughout to gain corroboration of data and identification of major issues related to the research questions. (Names and pseudonyms are not used, nor gender or roles revealed, to protect the identity of the participants.)

In addressing the first research question, major themes emerged in relation to current practice for the use of museum websites to support visitations by schools. Prefacing remarks for the national museum included some interesting statistics on the nature of the exhibition that was the focus of the investigation, and its role particularly in serving an educational need in schools. Respondents pointed out that the exhibition is ‘not an encyclopedia’ and it is not ‘all things to all people’. Given that school visits comprise only 10% of the visitors to the exhibition, the museum personnel were careful to point out that a curriculum-based focus was not an immediate and high priority in their realization of the exhibition form. They also noted that they did not see their role as predominantly pedagogical, as the exhibition and the accompanying website were not created for the chronological representation of history—somewhat like reading a book—nor was it designed as ‘a remedial history lesson’.

While the state-based museum’s remit is more intentionally committed to meet the needs of school visits, some respondents also pointed out that exhibitions primarily ‘cater for the general public’ and ‘have a very broad audience’. In designing their exhibition, the intention was for it to be ‘an accessible exhibition across all areas’. The museum’s location in Sydney means that it is less likely than the national museum to be included in general tours to the city, and more likely to be targeted for specific pedagogical reasons by school groups.

In answering the first research question regarding current practice in the development and use of museum websites to support visitations by schools, two issues emerged of particular interest to educators. These are discussed in detail below.

The design of the exhibitions and their website

The design of the national museum exhibition and its website appeared to be two separate processes in the views of the museum personnel who were interviewed. The exhibition itself was designed through a process of consultation and agreement with a group of curators and experts, including consulting historians, but education personnel were not involved in any decision making on the exhibition itself; in the words of one respondent, they were: ‘locked out of the process at a very critical point’. Once the exhibition was decided, the information on its

content and form was made available to education officers who were then able to create a supporting website for educational purposes. One respondent noted that:

> No one really took the website terribly seriously … so there was no real process of having curators and web designers and so on working together and putting some serious time and effort into what do we do with this website, or what do we want to produce, and what do we want to get out of it.

It was agreed by all participants that this situation was far from ideal, and that educational advice should have been present from the very first design stages. However, it was noted that the early days of the museum were extremely difficult in terms of requirements to meet strict deadlines to accommodate the opening. There was also a realization that there would be much to be gained from having education personnel involved in the development of exhibitions as well as their websites, and the view was expressed that this would happen in the future:

> Education didn't play a part in the construction of the gallery, which we hope will change for the next two permanent exhibitions … so this time around we're hoping to be much more, we already are, much more formally involved in looking at what the new gallery might consist of.

While now museum policy, when the state-based exhibition website was created, it was one of the first exhibitions at the museum to have a accompanying website, and there were limited resources for its creation. Like the national museum's exhibition, the exhibition was planned first, and then the website was designed by education personnel using theme labels supplied by the curator. Because the curator travelled overseas shortly after this, there was little consultation between the designer of the exhibition and the education personnel on the creation of the website.

In both cases, the principal focus was on the design of the exhibition itself, and the accompanying website was designed to complement the exhibition rather than as an integral factor in the experience of museum visitations by schools.

Usefulness of website in accompanying exhibition

Although acknowledging the potential usefulness of exhibition websites in educational contexts, most museum personnel questioned the effectiveness of the website that accompanied the national museum's exhibition. It was felt that teachers generally did not see it as important to access the site in order to prepare students for the visitation, and that it was not used to source follow up activities:

> The evidence seems to be that … only very zealous teachers who really want to know, and be prepared for museum visits, will go and do the research, and they'll do it for the whole team coming … [but] generally that doesn't seem to be the case … it's that they haven't had time. The evidence doesn't seem to be that there's a lot of follow up either.

Another respondent agreed with this view: 'I'm a huge skeptic about whether schools, particularly because we're located in Canberra, will use a website for some serious pre-visit reasons'. When asked about follow-up hits to the website after school visitations, this person replied that they are 'very, very, very small'. In the views of some museum personnel, the predominate uses of the exhibition website appeared to be as an independent and searchable resource for information on school projects, that is, access not necessarily associated with school visitations to the exhibition:

> It seems to be more about using [the website] as a research tool for projects than as a tool for understanding the exhibition before they get here … so they are interested in things like the gold rush, and Prime Ministers … but the feeling is, it's not about visiting pre-visit preparation, it's about getting information for their projects.

It was also noted that the website provided a useful resource to reach remote students as a substitute for a visit to the museum: 'I tend to think the best use of our website as an outreach tool for schools that can't visit'.

When questioned about the usefulness of the website created to accompany the state-based museum's exhibition, respondents at this museum mentioned two important reasons to have a website: one regarding the importance of

web presence, the other regarding access to information. Two respondents regarded the existence of a website as crucial to the success of an exhibition:

> It's critical actually, because in some ways you don't exist anymore unless you're online as well … you'll go and google [any required information]. I think that's the same for exhibitions now, you have to have a web presence in some form or another.

Another respondent extended this idea by suggesting that a website can also provide an alternative information source for people who are interested in the topic but are not able to attend the museum:

> I think it's becoming more important on a daily basis really because for anybody under the age of twenty, if it's not on the web it doesn't exist … more and more if we want to get that information out there it has to be on the web. Being realistic, coming to the exhibition in Sydney is out of the question for a lot of people and so if you're going to put in all the effort to do an exhibition you might as well put it on the web as well so that you can reach the hundreds of thousands of people out there who might want to know about the subject as well.

Another respondent concurred with this view commenting that 'there's an enormous amount of research and background that goes into an exhibition that never sees the light of day in the exhibition, so it's one way of getting that out to a broader student audience'. The ability of a material object to prompt reflection and discussion was also another factor linked to the usefulness of a website. One respondent made the comment that the exhibition presents ideas in a simple way, and if students wish to explore the topic at a deeper level:

> [Students] can go back [to the website] and reflect. If there was an object that they really liked, they can go back and find out more information about it, cause there's only so much you can fit into a small label - 50 words and that's about it … the website basically expand on those topics'.

In addressing the second research question regarding factors and pedagogies that influence the design and development of education materials to accompany museum exhibitions, two further issues emerged strongly.

Links to curriculum

In the views of many of the respondents, the national museum was limited in its ability to link resources directly to curriculum because of its national mandate and function. The museum is located in the national capital, and as such is not tied to any specific state curricula. Australia does not (as yet) have national curriculum standards across states, and meeting specific curricula is virtually impossible for the school groups who visit, largely because their requirements are different depending on the state they live in.

> State museums can … more specifically look at curriculum for students; they can have things that really nail their own curriculum, so they can advertise it for Year 10 and they know what time of the year they're doing it and all of that. We get people from all over Australia, so we've got all different curriculums, and the kids don't come here necessarily to do something that is related to the curriculum.

One respondent noted that the majority of students who visit the museum do so because they visit the national capital as part of a tour rather than for a specific visit to the museum to study a curriculum-related exhibition:

> Because we're in Canberra, we're basically a tourist destination, and 80% of schools book through tour groups who make the decisions often … for them. So it's the tour groups who might be looking at our website … making sure it's linking to whatever they think the teachers are interested in curriculum-wise.

However, several museum personnel pointed out that the exhibition had great relevance to Australian curricula generally by virtue of being generic in its treatment of Australia and its history, and in the period of time that is examined. Few human society and social studies courses in Australian schools would not touch on this theme and period of history. One respondent explained the generic nature of the exhibitions in the museum:

> [The exhibitions] do link to a curriculum focus … they all link to current affairs in some way, they all link to civics and citizenship ... But what we don't do is become too curriculum specific, because again we've got schools coming from everywhere so we try and kind of make it fairly generic.

The period covered in this exhibition was also considered accessible to schools 'because the content is very much about the 1788 to today period and that's where school curricula is largely located in history'.

As noted above, personnel from the state-based museum were more open to the importance of curriculum and how it might influence their exhibition designs. However, links were considered only at the broadest level, as indicated by this respondent who noted that curriculum generally reflects trends and issues that are current in society:

> [A] syllabus is a document that is community based, there's broad consultation in developing syllabuses. Syllabuses can be very forward thinking in terms of the ideas in which they embody. Yes we should look at the syllabus but I don't think we slavishly follow the syllabus to put on an exhibition. We look at in terms of what we think is going to be interesting to the individuals that are going to come and then factor the syllabus in as one of those things.

In general, personnel at neither of the museums believed that it was necessary or important to design exhibitions to closely match current school curriculums.

Beliefs on how people learn from museums and the role of the website

Museum personnel had some strong views about how school students learn—and do not learn—in exhibitions. They were all in agreement that it is not beneficial to simply allow students to be 'let loose' in the galleries, nor for them to engage in low level responses or inconsequential choices. For example, one participant pointed out that activities designed to help students interact with the exhibition can be entirely counter-productive, such as: 'spin rails which … sits at the child's height, it's on a rail, it's got a question and image on one side, you spin it over to the other side and you get an answer'. The use of written exercise sheets was also criticised:

> I love watching kids in the exhibition, and in particular I love it when you see them becoming completely absorbed. I hate watching kids walking round with exercise sheets to do … the kids are just there to get the answers and they'll get the answers from their friends or whatever without necessarily learning.

The respondents in the study had a range of views about how people learn in museums and with their accompanying websites, ranging from somewhat structured didactic to more constructivist approaches. For example, one of the museum personnel believed that if students are to learn from the museum experience, they needed to be largely directed by the teacher:

> Teachers are still … largely the gate keepers … There's nothing to stop you putting material up on the website for the students but I'm a bit of a skeptic about whether students visit organisational websites under their own steam, unless they're directed by a teacher to do so … my view is perhaps rather traditional in this respect but the teacher is still very much in control of what students do.

This respondent expanded on this to reflect on the typical experience of a Year 5 or 6 student who visits the museum for an hour:

> My worry in that situation is that unless we give them some structure and some semblance of purpose, it literally is just walking through. Certain things will catch their eye and certain things will resonate … but I would be more comfortable with that approach if they had more time … because it's in talking and communicating and discussing, its building in that time that's really hard in a museum experience.

Another respondent recognised that the teacher has most likely chosen the exhibition and the focus that will be taken during the visit, but noted that in the museum activities it is important to give students choices:

> The teacher has chosen the topic that they are going to be looking at when they come and probably the gallery that they're going to be going into unless they're doing the whole museum. So within those constructs we try to give the students choice … by giving them an activity that asks them to make decisions and look for things that they think are interesting.

Others focused firmly on the exhibition itself, believing that 'the objects tell the story'. As one person noted, the national museum's exhibition was based on the idea that 'museums are about three-dimensional objects, they're

about objects telling the story, they're not about somebody trying to teach people Australian history'. Another respondent believes that people learn most from the conversations that they have in the museum:

> Because of the way the gallery's set up, and the fact that it has so many wonderful objects that are to do with basically everyday Australian life, when teachers and students come in … they want to share the stories that they have about those objects, … it's based around nostalgia and humour … so the discussion isn't always focused around the object, the object inspires the discussion … and it's memorable.

Museum personnel were questioned about the kinds of activities that students and teachers engage in at the exhibition that they believe reflect real learning, and some interesting anecdotes emerged. For example, one respondent described a successful reflective activity regarding the making of a poster after visiting the exhibition:

> It's always a lot of humour, a lot of fun, and they're cutting and pasting and chatting, and doing things with their hands. I think is important to have time to reflect on the experience they've just had … it reinforces those learning outcomes that they've just picked up. Ideally they would take that poster away and maybe discuss it again back in the classroom or exhibit it, or do something with it.

Another example focused on the benefits of story telling:

> People love hearing stories. We've been telling each other stories for thousands of years and so telling stories really is a good way to get a message across, and they love it. They like to recognise people that they can relate to and if you're going to have a video about a story, it's really nice to have somebody who children might relate to, so another child … not necessarily an expert.

A teacher using the exhibition space creatively with students was another example given by a respondent. For example, one teacher demonstrated the injustice of the world's resources being used principally by the privileged minority:

> I've watched a teacher divide up a group of 20 kids, and explain to them how resources are shared around the world. [There is] a very small group of two kids sitting on the left and 18 kids on the right, and the teacher is saying 'You two on the left are getting all the world's goodies and you on the other side are going to get nothing. How do you feel about this?' Within the context of the exhibition it's lovely to see them using the space in that way.

While the content and approach of an exhibition was considered important, one respondent noted that sometimes the occasion of the visit and being away from school—and the valuable opportunities this situation afforded—was of greater value to teachers and students:

> Sometimes teachers enjoy programs more for the kind of team building process rather than necessarily the pure kind of content outcomes that the gallery might have.

With regard to the website accompanying exhibitions, although some museum personnel conceded that a web-based experience may be better than no experience at all, others believed that a website is no substitute for a visit to a museum exhibition. Comments included the importance of being able to 'immerse themselves in [the exhibition]' and 'visceral reactions'. One person commented on the importance of physical proximity to objects:

> Being that close to it you really do make a very strong connection with it that you can't over the web. It's like looking at something in a book, you're not seeing the real thing and that's why people come to museums - to see the real thing … Similarly, the crushed car, people have needed to touch that car. They've rubbed the paint off that car through all their touching and in a way they're having a real emotional experience … because they're [thinking], 'Oh, that was a family car'. It's a relationship that you can't form on the web.

The use of museum websites in supporting learning prior to, and independently of, museum visitations are important areas of research interest for both museums, and they are ideal environments for a deeper exploration of the use of exhibition websites for school excursions.

Conclusions

In this research, the pedagogical foundations of museum exhibitions and their websites have been explored, as well as the beliefs of key museum personnel in how their exhibitions and web-based resources are best used to facilitate learning. Both museums admitted that they do not consciously set out to design exhibitions that deliberately address specific curricula in Australian schools. Given that exhibitions need to have general appeal to a variety of target audiences (not only school groups), this is understandable. Exhibitions are designed to have maximum impact in a short amount of time, and understanding how this fits with the more reflective and attentive learning that occurs in schools is of interest to educators. One respondent raised the issue of responsibility for curriculum content in museum exhibitions with this comment: 'All the consultants out there say the teachers will only go [to an exhibition] if it's syllabus related, but I reckon they'll find the syllabus link if they really want to'. Whose responsibility is it to provide educational worth for visiting students in museum exhibitions?

Previous work done on school excursions by the authors at [an ecological site] (Harper, Brickell & Herrington, 2006; Brickell & Herrington, 2006) has found that learning onsite is best facilitated by significant preparation in schools prior to a visitation, and follow-up activities. This work utilised a situated framework in developing a model of learner engagement that places the onsite excursion in the context of an integrated three-phase process to an authentic inquiry-based task—a pre-visit phase (classroom environment), a fieldwork phase (excursion environment) and a post-visit phase (classroom environment). In this context, the onsite work takes on a new significance, as it becomes the data-gathering phase in a much larger research endeavour. The provision of a range of technology tools allows students to store, retrieve and analyse any data they collected in the fieldwork phase, and return to it at any time for further analysis. This data can then be compared and contrasted to historical data of the same measures, Teachers are able to guide students in choosing a set of essential tasks for pre- and post-visit experiences that are clearly integrated to the fieldwork associated with the visitation to the site.

If this approach were to be applied to a museum context, it would mean that teachers would have more pedagogical influence in the onsite visit to a museum, and the educational context in which the visit is set. In such a setting, the museum would provide a range of relevant high-quality resources that could be accessed via the exhibition website. The teacher's role would be to create an authentic problem or task for students to complete over a sustained period of time. After providing opportunities to research the problem from a range of perspectives (including the museum's website), the students would be prepared for the onsite visit to the exhibition. The excursion then becomes the data collection phase in the project. After the visit, students complete further follow-up research, and finally produce a real product (such as a report or a presentation) to present their findings. This is *genuine* research that can be adapted to suit the level of understanding and ability of the students concerned, and is far removed from the one-off excursion using work sheets to regurgitate material that is quickly forgotten because it has no connection to any real use of the information.

Excursions to museums have many benefits beyond the educational value of curriculum-related learning. Opportunities for informal learning, team building, making connections with material objects and conversations around those objects can provide excellent educational events upon which teachers can build. It is not the responsibility of museums to create the learning activities that students should engage with as they visit exhibitions. These can only grow from teachers' knowledge of their students and the educational contexts in which visitations to museums take place.

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