Learning in 140 Characters: The Future of Museum Learning in a Digital Age

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We live in a digital, mobile and connected world. Our visitors, staff and stakeholders are part of ‘Generation C’ – citizens who are in control of their own experiences; choose what they will pay attention to, as well as when and how; seek challenges; work and learn collaboratively; and are widely connected, operating under the ethos of ‘I share, therefore I am’. The next generation has been called the ‘post-Google generation’ – children who will never have known a world without being connected to an electronic device and, most commonly, one that is mobile. Across all generations, participation is not only embraced, it is expected – 24/7 (Kelly, 2013).

Tapscott and Williams (2006) noted that “Digitisation means information can be shared, cross-referenced, and repurposed like never before. Knowledge can build more quickly within networks of firms and institutions that cross seamlessly over disciplinary boundaries” (p.153-154). They also stated that this revolution is not just about information access and archiving but creating and harvesting knowledge to “… drive economic and technological progress” (p.152), and in the museum context, a richer learning experience that meets visitors’ interests and needs.

Stein (2012) suggested that museums need to become more authoritative where the expertise of staff is manifest via participation and facilitation, rather than authoritarian, where authority is asserted formally and without any external input. Simon (2010) also highlighted that these power struggles in museums and other educational institutions are not new, and cites the work of the educational philosophers Ivan Illich and Paolo Freire who were passionate advocates of “citizen-powered education” (p.120) and participatory, accessible education as a fundamental human right in a just society. Simon concluded that “To be successful leaders in a socially networked world, cultural institutions must feel comfortable managing platforms as well as providing content … based on expert creation and delivery of experiences” (p.121).

In a literature scan of why people visit museums the main reasons people gave was for a learning experience (Kelly, 2007). However, what does learning look like in a digital world? Individuals have more control than ever before over how, where and when they learn and consult a wide range of information sources in their own time and space in order to do so (Kelly and Russo 2010). Old models of teaching and telling are no longer sufficient. The internet, and more specifically social media, mobile devices / smartphones / tablets and digital technologies have opened up a whole new way of engaging audiences, specifically educational audiences, who are taking up these tools in droves.
There is increasing attention being paid across the education literature to learning in the digital age, however how do these principles apply to museums as they struggle to provide rich learning experiences for increasingly technologically-savvy visitors? What does participation and facilitation look like and what platforms do museums need to be focussing on? This paper outlines issues facing 21st century learners in museums through analysing three key trends: gamification; multiscreening and Massive Open Online Courses (MOOCs), and then considers a theory for learning in the 21st century museum.

What is a digital learner?

Prensky, who coined the term “digital natives” (2001) outlined how future learners have fundamentally changed due to wide spread access to digital technologies:

> Our students have changed radically. Today’s students are no longer the people our educational system was designed to teach. ... A really big discontinuity has taken place. One might even call it a “singularity” – an event which changes things so fundamentally that there is absolutely no going back. This so-called “singularity” is the arrival and rapid dissemination of digital technology in the last decades of the 20th century. Today’s students – K through college – represent the first generations to grow up with this new technology. They have spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age.

The Digital Youth Project (Ito, et al., 2008) found that digital provides opportunities to:

- rethink social norms
- develop technical skills
- experiment with new forms of social expression
- share – extend social worlds
- engage in self-directed learning – explore interests
- encourage independence.

There is increasing attention being paid in the literature to learning in the digital age. The Horizons Project, established in 2002 by the New Media Consortium, looks at emerging technologies and what these mean for teaching, learning and education, and also for museums. The 2013 Horizon report focussing on museums (Johnson, et al., 2013) highlighted the following key trends in technology use and museums (p.8-9):

1. “Cross-institution collaboration is growing as an important way to share resources.
2. Collection-related rich media are becoming increasingly viable assets in digital interpretation.
3. Digitisation and cataloguing projects continue to require a significant share of museum resources.
4. Expectations for civic and social engagement are profoundly changing museums’ scope, reach, and relationships.
5. Increasingly, visitors and staff expect a seamless experience across devices.
6. More and more, people expect to be able to work, learn, study, and connect with their social networks wherever and wherever they want.
7. The need for data literacy is increasing in all museum-related fields.”

The report also identifies six significant challenges for museums in a digital age (p.10-11):

1. “Greater understanding is needed of the relationships, differences, and synergies between technology intended to be used in the museums and public-facing technology such as websites, social media, and mobile apps.
2. Museums of all sizes are struggling to adapt to how technology is redefining staff roles and organisational structures.
3. A comprehensive digital strategy has become a critically important part of planning for long-term institutional sustainability.
4. In many cases, museums may not have the necessary technical infrastructure in place to realise their vision for digital learning.
5. As our disabled population increases as a percentage of overall population, and as a percentage of our active, engaged, museum-attending population, accessibility cannot be an afterthought.
6. Museums are not doing a sufficient job of creating a sustainable environment to manage and deploy collection information and digital assets.”

The report details the technologies to watch in next 12 months. Interestingly, a key change in this year’s report is the concept of BYOD (bring your own device) as being a technology to be adopted in the next 12 months: “Today, separating a user from their tools and apps has become like separating them from some of their most precious belongings” (p.12). Gardner and Davis (2013), in researching young people in a digital world, noted the ways that apps have changed the way we relate to the world: “... young people growing up in our time are not only immersed in apps: they’ve come to think of the world as an ensemble of apps, to see their lives as a string of ordered apps” (p.7). BYOD can be a threatening idea for museums who often like to lock-down content on provided devices amid concerns about privacy and data integrity. This, I believe, is totally unfounded and is a too common mindset that museums need to change. As stated in the Horizons Report, there are nearly 15 apps downloaded per human being on Earth. Coupled with education being the second most popular category in the iTunes store, embracing the concept of BYOD provides great opportunities for museums to extend their relationships with visitors before during and after their visit without having to outlay expense and resources in providing devices for visitors to use – they want to use their own!

It is widely accepted that technology, especially mobile, is fundamentally changing the ways visitors learn and their expectations of museums. Yet, what are some of the key trends that impinge on this? I will look at three that I believe are useful in thinking about 21st century learners and museum experiences: gamification; multiscreening and MOOCs.
21C Learning Trend 1: Gamification

Lauby (2012) stated that “Studies indicate that games, when designed properly, motivate learners, improve learner retention and encourage students who aren’t typically ‘academic’ to partake in the learning process”. Green and Hannon (2006) identified that learning through gaming, specifically online multiplayer games, was often referred to as “… accidental learning or learning through doing” (p.23). Green and Hannon were one of the first to recognise the power of gaming in both skills development and learning. For example, in order to be successful in World of Warcraft they concluded that “… one needs to be adept at many skills: attracting, evaluating and recruiting new members; creating apprenticeship programs; orchestrating group strategy; and managing disputes” (p.23).

Thomas and Seely Brown in their book A New Culture of Learning (2011), discuss the ways that learning is fundamentally changing, as it is “… taking place in day-to-day life through the fusion of vast informational resources with very personal, specific needs and actions” (p.31). They note that learning now bridges the public world – one that is information-based and shareable; and the personal and structured world of the individual. These authors also outline the nature of learning in digital environments as a series of processes they have called hanging out, messing around and geeking out, mostly based on how gamers behave in online spaces. The first process, hanging out, refers to “… learning to be with others in spaces that are mediated by digital technology … developing [a] social identity” (p.101) and answering the question “What is my relationship to others?” (p.101). The next, messing around, allows the learner to unpack and experiment with the familiar [in order to] rediscover the different possibilities … [and] acquire a sense of social agency” (p.102). Messing around reveals that the relationship between people and their environment is rich, complex and changing, and looks at the question “What am I able to explore?” (p.103).

Finally, geeking out “… provides an experiential, embodied sense of learning within a rich social context of peer interaction, feedback, and knowledge construction enhanced by a technological infrastructure that promotes ‘intense, autonomous, interest driven learning’”. (p.104). Ultimately, geeking out represents learning in its deepest form and as a rich, complex and ever-changing process.

Salen (2012) also recognised the synergies between gaming and learning: “We see a huge intersection between games and learning, partially because the way game environments are structured is a lot like what good learning looks like”. Museums could well learn from these environments by providing opportunities across their physical and online presence for visitors to hang out, mess around and geek out, and therefore encouraging “flow” experiences identified by Csikszentmihalyi and Hermanson (1995) as very relevant to museum learning.
21C Learning Trend 2: Multiscreening

We now have four screens in our lives: smartphone, television, PC, and our tablets and these screens are becoming increasingly available via mobile. Stadd (2013) looked at how people are actually spending their time on their mobile devices: a combination of relaxing / “me time”; socialising; shopping; managing their lives (finances, etc.); preparation and research; random discovery and self-expression. Common Sense Media research into children’s media use (2013) discovered that their access to mobile media devices has increased significantly since 2011 and the time spent using these devices has tripled. They found that children spend less time using “traditional” media such as TV, DVDs and video games; TV still dominates screen time but the nature of television watching has changed – there is more control over what and when TV is watched and it has become a more social experience through participation in social media (specifically Facebook and Twitter use during television shows). The also highlighted that although gaps between socio-economic groups still persisted this was getting closer.

The Raw Story (2012) predicted that tablets will overtake notebook PCs by 2016, with an even greater need to focus, not only on applications and programs on the tablet, but how users interact with them. Google research across 11 countries (Kelly, 2012) found that tablets are now considered an essential, not an optional, tool. For example, Australia was number two in smartphone penetration in 2011, yet in 2012 dropped to number four due to a significant increase in tablet purchasing. Although Australians are regarded as early adopters of technology, the research showed that tablets are no longer just for the early adopters. This research also found that 47% of tablet users are female and mothers, who use their tablet to entertain themselves, for social media, photo uploads and shopping. In the past tablets were thought of as luxury item, now they are mainstream, for example 21% of unemployed have tablets and 7% of students, and 30% say that tablets are replacing their traditional desktop and laptop computers.

However, not only are we multitasking we are “multiscreening” (such as using tablet while watching TV). This means that it is not the device content that is critical, it is the device context that determines our behaviour. The Google research suggested that smartphones are our constant companion; PCs are for power computing; TV is a rich viewing experience (and are getting smarter); and tablets are engaging, versatile and multifunctional. While tablets complement other types of devices, they are also a unique channel. For example, 81% start an activity on one device and then finish it on another, with 66% reporting finishing purchase their desktop. These findings support the conclusions of Johnson, et al (2013) who noted the expectation that experiences across devices need to be seamless.

When designing museum learning experiences, particularly exhibitions, it is imperative for museums to consider the types of screens and devices they utilise in the physical space, given the context of how visitors use screens in their everyday lives. This transfers to how visitors behave in a museum’s physical space – how often have we observed visitors trying to swipe and scroll a static computer or
television screen? Will swiping and scrolling be the new ways that visitors navigate text panels for example?

21C Learning Trend 3: Massive Open Online Courses (MOOCs)

“A MOOC is a model of educational delivery that is, to varying degrees, massive, with theoretically no limit to enrolment; open, allowing anyone to participate, usually at no cost; online, with learning activities typically taking place over the web; and a course, structured around a set of learning goals in a defined area of study” (Thompson, 2013). MOOCs are causing quite the disruption to higher education with students able to take a range of courses from highly regarded institutions such as Harvard, Yale and, increasingly, museums such as the Exploratorium, the American Museum of Natural History New York and MOMA.

MOOCs puts the power of education within the hands of the consumer, opening up a range of opportunities to people to take courses in areas of their own interests without the need to apply to enter an academy. They also provide a suite of opportunities for museums in distance education and the potential to reach a massive audience, in a formal, yet informal learning environment. As Greenfield (2013) observed “MOOCs present educators with opportunities and challenges as we adapt and mould them to fit multiple learning styles along with different types of museum education programs”. MOOCs also present museum staff with new ways to learn more about providing learning themselves through participation in video lectures combined with notes, discussions and hangouts. Although still a relatively new movement, it is this kind of democratisation of education that theorists and activists, such as John Dewey and Paolo Freire, were championing.

A learning theory for the 21C museum?

How do these ideas relate to museums? It was the museum learning theorist George Hein, who first discussed constructivism as a theory most relevant to museum education and learning. Constructivism views knowledge as being constructed in the mind of the learner with new information being integrated into an individual’s existing cognitive schemata, and validated not by conforming to “… some external standard of truth, but whether they “make sense” within the structured reality of the learner” (Hein, 1998, p.34). Fosnot (2005) proposed that constructivism was not a theory about how to teach, but a way to think differently about how knowledge was transmitted and the relationships between teachers (or museum educators) and learners: “… a constructivist view of learning suggests an approach to teaching that gives learners the opportunity for concrete, contextually meaningful experience through which they can search for patterns; raise questions; and model, interpret, and defend their strategies and ideas” (p.ix).

Harlen (1996) applied constructivism to developing children’s scientific thinking through process of clarifying meanings; raising questions; developing hypotheses; predicting; gathering evidence (by planning, observing and interpreting); communicating and reflecting. Harlen also identified other
important elements of constructivist approaches to learning as curiosity; respect for evidence; flexibility; critical reflection and sensitivity.

Hein (1991) proposed a set of principles that emerged from constructivist thought:

- learning is an active process of constructing meaning from sensory input
- people learn about the process of learning, as well as the content, as they learn
- learning happens in the mind
- learning is a social activity undertaken in conjunction with others
- learning is contextual – we learn in relation to what we already know, our belief systems and our prejudices
- previous knowledge is a pre-requisite to learning
- learning occurs over long periods of time, through repeated exposure and thought
- motivation is essential for learning.

In an earlier paper (Kelly, 2011) I suggested that while the visitor experience is similar across all three spheres of a museums’ operation – physical, online and mobile – the tools used and the context are the differing factors. I also proposed that constructivism is a useful way to frame how learning could be both structured and explained across each sphere as detailed in Table 1.

Table 1. The Constructivist Museum: physical, online, mobile (based after Hein, 1998)

<table>
<thead>
<tr>
<th>Physical exhibitions (Hein, 1998)</th>
<th>Online (website + social media)</th>
<th>Mobile apps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free choice</td>
<td>Free choice</td>
<td>Free choice</td>
</tr>
<tr>
<td>Many entry points</td>
<td>Many entry points</td>
<td>Many entry points</td>
</tr>
<tr>
<td>No specific path, no beginning, no end</td>
<td>No specific path, no beginning, no end</td>
<td>No specific path, no beginning, no end</td>
</tr>
<tr>
<td>Based on prior knowledge and experience</td>
<td>Based on prior knowledge, experience and interests</td>
<td>Based on prior knowledge, experience and interests</td>
</tr>
<tr>
<td>User-controlled</td>
<td>User-controlled</td>
<td>User-controlled</td>
</tr>
<tr>
<td>Present range of points of view and perspectives, often museum seen as authority</td>
<td>Present range of points of view and perspectives, yet authority can be questioned or unclear</td>
<td>Present range of points of view and perspectives, authority comes from individual</td>
</tr>
<tr>
<td>Provide materials that allow to experiment, conjecture and draw conclusions</td>
<td>Interactive websites can provide programs and information that allow to experiment, conjecture and draw conclusions</td>
<td>Mobile apps can provide programs and information that allow to experiment, conjecture and draw conclusions</td>
</tr>
<tr>
<td>Used for leisure, entertainment, learning, connecting</td>
<td>Used for leisure, entertainment, learning, connecting</td>
<td>Used for leisure, entertainment and learning</td>
</tr>
<tr>
<td>May be difficult to remain up-to-date</td>
<td>Usually up-to-date, constantly changes</td>
<td>Always up-to-date, constantly changes</td>
</tr>
<tr>
<td>Inherently social</td>
<td>Inherently social</td>
<td>Inherently social</td>
</tr>
</tbody>
</table>
Parallels can be drawn from constructivism to the notions of hanging out, messing and geeking out outlined by Thomas and Seely Brown (2011), particularly in the importance of social experiences, personal motivation and, most significantly, the emphasis on the learner themselves as an active agent in their own learning. Is it time to revisit constructivism as a theory for 21C museum learning?

Looking to the future: Learning in 140 characters

Museums have always seen themselves as educational institutions, and have utilised digital technologies for around forty-five years. Visitors have long expressed their understanding of museums as places to learn within a social context coupled with the range of objects that museums hold. Now, in the twenty-first century, museum audiences are better connected, more informed, more engaged, older, more culturally diverse, more interested in ideas and architects of their own learning. They are mobile, accessing information wherever they are and at whatever time of their choosing, and they are active participants, rather than passive receivers of content and information.

Given the opportunities that 21st century learning now offers, it is suggested that rich learning experiences across museums’ physical, digital and mobile spaces should:

- encourage discovery, interaction, cater for the unexpected, provide many pathways to explore, give a taste for what happens behind-the-scenes and are fun;
- provide content that is challenging, real, authoritative, meaningful, encourages questions and is well-organised and easy to navigate;
- involves staff that can relate to visitors, are respectful of their ideas and views, are knowledgeable in their field and are easy to talk to – in the physical space, online or accessed via mobile devices; and
- increase opportunities for social interactions – hanging out with friends, families, peers – learning together while building community, enhancing connections and providing opportunities for collaboration.

In an early text about museums and the digital (Jones-Garmil, 1997) it was stated that “Users need to be taught about new technologies gradually, consistently and persistently” (Hermann, 1997, p. 90). Reflecting on this notion Din and Hecht (2007) remarked that “This is still true; however as technology’s effect on museums’ business processes and strategic planning grows, staff need to understand the role of technology even more urgently. The training in specific technical skills is still important, but the focus should now be on understanding the conceptual underpinnings of technology in the museum” (p. 16). In 2013, this need is still urgent and an appreciation of technology still required, however the focus must now shift to creating strong synergies between the physical, online and mobile experiences, while understanding how audiences are interacting and behaving across these three spheres.
The well-known digital educator, Professor Stephen Heppell, observed that this is the most exciting time to be working in education given the opportunities afforded by technology. The challenge for museums is how they will incorporate these tools into everyday work practices and the inevitable changes they bring in delivery models, and how museums can become learning organisations that empower staff to hang out, mess around and geek out in these spaces. Reallocation of resources, different mindsets and providing access for staff to a range of technologies to play around with are some ways museums can encourage staff to embrace change, learn from it and ultimately provide visitors with better participatory and two-way learning experiences.

References


