Objects, subjects, bits and bytes: learning from the digital collections of the National Museums

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Siân Bayne*, Jen Ross** and Zoe Williamson***

School of Education, University of Edinburgh

Abstract

> This paper is concerned with online museum education, exploring the themes of user-centredness, digitization, authority and control. Taking as its starting point the shift of focus in museum policy from the collection to the user-learner, it suggests that this movement from object to subject – this 'de-centring' of the cultural institution – is further complicated by a fundamental change in the *nature* of the object, as a result of digitization programmes which transform material, 'possessible' artefacts into volatile amalgams of bits and bytes. The ability of users to take, manipulate, re-distribute and re-describe digital objects is, we suggest, a primary source of their educational value. It is also, however, a source of difficulty for institutions as they come to terms with the changing patterns of ownership, participation and knowledge production we are experiencing as we move further into the digital age.

Key words: online museum education; digital objects; materiality; learning.

Introduction: a complex tapestry

This paper weaves together three stories which inform the experiences of museum users and learners with respect to digital collections, doing so within the context of the National Museums Online Learning Project. This project is a £1.75m initiative funded by the UK Treasury which, by creating online learning environments for children and adults structured around the digital image collections of the project partners, aims to increase levels of user access to the digital collections of a consortium of nine English National Museums. [1] The first story is about a policy agenda which foregrounds the role of the museum as educational, defining the *learner rather than the object* as the museum's *raison d'etre.* This re-focusing of the museum's mission signals another key change in the institution, and this is associated with digitization which is the subject of our second story. When collections are digitized and placed online, concern with the stability, 'possessability' and educational value of the *real* object is re-directed toward issues of accessibility, authenticity and value in relation to the *virtual*. With its focus on the distributed learner and the virtualized object, the institution is re-centred or rather, like Borges' library, its centre is reconceived as being everywhere, its circumference nowhere.

While agendas for lifelong learning mesh well with programmes of digitization and associated internet-based education such as the National Museums Online Learning Project, there are tensions relating to internet-based patterns of participation which are not easily negotiated. These tensions are the focus of the third strand of our narrative. The web, and particularly 'web 2.0' and the new social media, gives users unprecedented ways of *re-claiming, re-contextualising and re-forming knowledge* into personally meaningful, and very public, configurations. Yet, somehow this has to be reconciled with a more top-down institutionally-focused tradition of transmitting knowledge which has a long and established history in the museum.

The questions raised by this new positioning of user, object and institution in the digital age form the focus of this paper. Drawing on interviews with consortium members of the National

Museums Online Learning Project, and on early users of the projects' learning environments, we ask: What is the status of the virtual object? What is the effect of digitization on the ways in which users take and make meaning from objects? What is the value and place of museum education and cultural stewardship in the age of the internet?[2]

The tension between the real and the virtual

> Interviewer: And quite broadly, what do you see as the role of education within a museums context anyway. I mean, do you have an educational philosophy or…?
>
> Interviewee: Me personally?
>
> Interviewer: Yeah.
>
> Interviewee: It's the raison d'etre of the museum.
>
> *Project partner*

The shift in recent decades toward a renewal of the museum's role as educational – what the UK's DCMS (Department of Culture, Media and Sport) calls 'the resurgence of their role in learning' (DCMS 2006: 9) – is fundamental to the context of this paper and to the National Museums Online Learning project. The debate over the desirability of foregrounding learning over collections has been described as 'sterile' (DCMS 2006: 2), yet the shift of focus away from object toward subject – away from the collection toward the user-learner – is a profound one (Hooper-Greenhill 2007). The foregrounding of subject over object enacted in the museum policy context has echoes in current constructivist educational orthodoxy, in which construction is privileged over transmission – the learning processes of the individual (the subject) are considered to be a more appropriate focus for learning design than the body of knowledge (the object).

In the context of digitization and the placing of collections online, this turning of the gaze away from the object is further complicated by the fact that the nature of the object itself has radically changed. The learner-user is often no longer working with a stable and (theoretically) 'graspable' artefact. Rather he or she is being asked to undertake knowledge work with a digital representation of that artefact which, in the volatile and often anarchic nature of the network, has a built-in tendency to become 'free' of the institution which originally guaranteed its authenticity and status.

As Hayles puts it, 'Access vies with possession as a structuring element' in the digital age (Hayles 1999: 43). Yet across the literature and in the perceptions of those interviewed during our research, there is a tendency to emphasize the importance of presence, of possession – the real object enclosed in the real museum space – and to see the digital primarily in terms of its 'enhancement' value, its ability to prompt or enrich the 'real', physical museum learning experience. Such a perspective creates a tension within the broader media context. Patterns of knowledge production and learning which seem to be prompted by digital, networked modes – working patterns which depend on instant access and global connectivity – are at odds with this privileging of the material object over the virtual representation. Instantaneousness of access and flexibility of usage of the object are essential in this mode; the authenticity of the original artefact and the conventional institutional apparatuses which guarantee its value become matters of mere secondary concern to the user.

This negotiation of the relative status of the real and the virtual is reflected across multiple cultural domains as we move further into the digital age, and it is significant in terms of its impact on understandings of the primary role and function of the museum. Here, we will illustrate how this tension between the virtual and the real, and associated understandings of how knowledge work takes place online, emerges in the literature and in the perception of those interviewed during the course of our research.

The educational mission and the shift from object to subject

Barr, writing in 2005, suggests that, 'It is important not to forget that although the position of the subject (the visitor) within museums has changed in recent years … the status of the object has changed much more slowly. Museums are still primarily places of conservation' (Barr 205: 103). Quoting Hetherington, she suggests that, 'Museums remain spaces of the object first and of the subject second' (Hetherington 2000: 451). Yet the increased focus on the educational mission of the museum poses a significant challenge to this view, a challenge Anderson (2000) has described as prompting a 'paradigm shift' within our understanding of the institution. This shift can be summarized as follows:

> a switch from the object-focussed institution to one that is user-focussed. In the object-focussed museum, knowledge and expertise is perceived to be 'in here', and the audience 'out there'. In a user-focussed museum, the expertise of professional staff (such as curators) is only a small part of – and dependent upon – the wider expertise of the whole community; the audience therefore must be 'in here' as well as 'out there' if the institution is to develop successfully. (no page)

In the new paradigm, the 'object becomes secondary to the message' (Hawkey 2004: 5) – the phenomenal presence and status of the collected artefact remains important, but less so than the ability of the individual museum user-learner to access and make meaning from it. In the UK such a view has become foundational to government policy relating to museums over recent years (Hooper-Greenhill 2007: 2). The 'essential' characteristic of museums is that they 'are organisations dedicated to learning, discovery and understanding', with a 'core mission' in 'public education and formal and informal learning' (DCMS 2006: 8).

The different materiality of the digital

As suggested above, when collections are placed online the shift of focus away from the object becomes differently nuanced, as the learner-user no longer looks to or needs the proximal presence of the object in order to learn from it. In the early days of online communication Feenberg (1989) was able to draw attention to the way in which personal co-presence gives a sense of authenticity to an exchange, an authenticity which is problematized by the highly mediated nature of online discussion:

> In our culture the face-to-face encounter is the ideal paradigm of the meeting of minds. Communication seems most complete and successful where the person is physically present 'in' the message. This physical presence is supposed to be the guarantor of authenticity. (Feenberg 1989: 22)

We can perhaps see the authenticity of the digitized object as undergoing a similar crisis as its physical proximity is replaced by a highly mediated representation, a Platonic 'imitation' abstracted to a high degree. Digital objects are qualitatively, materially different from their 'real' counterparts. Where the material object is stable in time and space, the digital object is both mobile and volatile. As Poster (2001) has put it, 'Space offers no resistance to bytes on the Internet', and the digital object can 'circle the globe in nanoseconds' (Poster 2001: 92). At the same time, the digital object is unstable materially in a way that the 'real' object is not – the user-learner can re-format, re-align, re-colour, crop, erase and alter an artefact composed of bytes in seconds. The real object – encased and enclosed by the museum, rendered authentic and privileged by the associated apparatuses of scholarship and institutional authority – is in contrast with the anarchic and manipulable digital object which has, again quoting Poster, the 'stability of liquid' (Poster 2001: 92) .

The theme of the 'liquidity' of the digital artefact is taken up in the context of the museum by Parry (2007). Drawing on Manovich's (2001) 'principles' of new media (numerical, modular, automated, variable and transcoded), Parry draws our attention to the *variability*, the mutability and volatility, the openness to 'editing and reversioning' of digital media (Parry 2007: 12). Such instability in the digital object, both in its form – open to almost unlimited copying, cropping, re-colouring and re-forming – and in its appropriation by increasingly ubiquitous and volatile social networks of users, presents the museum with both a challenge and an opportunity:

> For *variability* interferes with the authorship and authority of the curator, and yet
> allows new narratives to be told and new voices to be heard. [italics in the original]
> (Parry 2007: 102)

Many institutions are engaging with this challenge positively. The National Museums Online Learning Project is the focus of this paper, but there are precedents and other examples which promise to be equally rich. User-tagging of digital objects, for instance, enables users to construct 'folksonomies' which sit alongside more conventional ways of classifying and searching collections. The Powerhouse Museum in Sydney has pioneered this work (Chan 2007) and other institutions have found imaginative ways to draw users in to the business of tagging. The Brooklyn Museum, for example, invites users to play an online game called 'Tag! You're it!' which works around the notion of competitive tagging among users.[3] Such initiatives are apparently simple, yet inviting users to co-classify digital object collections goes to the heart of the way in which museums understand the nature and purpose of the archive, and the role of users in its compilation and ordering.

The Commons on Flickr project[4] likewise demonstrates the richness to be gained by allowing users to publicly discuss, network around and contribute to digital collections. The final report of the Library of Congress Flickr Pilot Project provides many examples of the ways in which user interactions and commentary around images has enhanced and enriched them (Springer *et al.* 2008).

Where user-tagging at the Powerhouse and the Brooklyn Museum takes place within the parameters of the museums' own web provision, Commons on Flickr interactions take place within a relatively long-established social media environment which is external to the participating museums' own web services. Yet all these innovations are clearly legitimized and contained by the institutions which initiate them. Other manifestations of the 'liquidity' of digital objects and associated networks are not so authorised. Worth1000[5], for example, an online community of digital artists, holds regular competitions in the digital manipulation of images. The 'ModRen Sequels' competitions ask artists to take famous paintings and re-craft them to show the scene five minutes 'after the brushes are down'. Re-crafted images include Da Vinci's *Lady with an ermine* being bitten by her pet[6], Hopper's *Nighthawks* after the drinkers have gone home[7], and El Greco's *Knight with his hand on his breast* picking his nose[8].

Similarly, the 'reverse image search' web site, TinEye shows an image flow of 150 retouched Mona Lisa's found on multiple personal web sites, image sharing sites, MySpace pages and weblogs – Mona Lisa Santa, Mona Lisa alien, Mona Lisa Michael Jackson among many, many others[9]. Playful and messy, engaging and lacking in reverence, these examples illustrate the way in which the user-learner has, in this context of volatility and 'liquidity', a level of control over the digital object which is far in excess of their ability to alter – or even touch – its 'real', material counterpart. An element of power shifts to the user of the digital object, and away from the institutional gatekeeper responsible for the conservation and classification of the original. 'Notions of fixity or closed authorship in the museum' (Parry 2007: 107) are challenged; the new learner-focus of the museum gains an additional intensity as the (digital) object enters the hands of the user, who now not only consumes culture, but also produces it.

'Backing away' from the radical implications of the digital

Parry, in his comprehensive analysis of the history of digital technologies in the museum, sees institutions as beginning to reach a kind of equilibrium with the digital. Although technologies continue to be 'constructively disruptive' (Parry 2007: 140), musems and computers have, after two generations, begun to 'find their fit' (Parry 2007: 138). Whereas in the past, discussion of the digital object and its potential has been overwhelmed by discourses of 'authenticity' (Parry 2007: 63), we are now able to engage with a more positive, more nuanced definition of what constitutes the 'object' and its value. For Parry, this is a definition less concerned with proximity and materiality, and more concerned with the wider context of the object's status as an artefact which records or defines individual epistemologies and ontologies (Parry 2007: 68). With this re-definition, the digital object gains a new normality as 'object' 'becomes a term more appropriate and responsive to… our current cultural condition... where 'objects' are recognised to be in a state of motion, and may occupy or migrate through different states and media' (Parry *ibid*).

There remains, however, identifiable in much of the literature and in the interview data generated by our research, a continuing tension between an understanding and engagement with the radical potential of digital ways of working with digital objects, and a desire to back away from its implications for the authority and role of the museum as institutional guarantor of the authenticity and stability of cultural artefacts. Our findings suggest that the radical implications of the digital seem still, often, to be reined in by the privileging of physical presence.

In Anderson's (1999) report on museums in the learning age, for example, the dramatically different materiality of the digital, and the implications of this for the control and power of institutions, is acknowledged:

> A key change in technology is the shift from physical 'atoms' to electronic 'bits'. Associated with this change are a host of others. Control of media production and with it, control of the learning process, is moving from the traditional producers to consumers, from transmitters to receivers, from teachers to learners. … Yet the development of these technologies will, without doubt, also reduce control of knowledge by public institutions. Documented images will be 'hot' resources, as students seek authentic learning material in an accessible, flexible form. Once data has left the museum and become available digitally, it may be beyond copyright protection, especially in the huge deregulated zone of informal digital learning. (Anderson 1999: 21)

Yet these new patterns of participation and control for learners are marginalized at the same time that they are acknowledged. The report goes on to state that, 'Museums and galleries offer a unique kind of learning, based on first-hand experience of authentic objects, works of art and other resources in a public, social environment' (Anderson 1999: 31) and that, more explicitly, 'so far as possible, museum education programmes should be provided in galleries or sites, among original works of art, specimens or artefacts' (Anderson 1999: 55). There may not be the reactionary fear of digital, 'surrogate' objects expressed by some commentators – 'why should anyone bother to visit a museum to see the actual artefact when virtual copies are so easy to come by?' ask Leinhardt and Crowley (2002), with irony – but there is still an underlying assumption that the online learning experience is less rich than that which engages with proximate, present objects. Digital objects are perceived as enhancing a conventional, gallery-based learning experience, rather than being instrumental in a radical re-definition of how learning occurs in the age of digital social media. 'Technology will not undermine but stimulate the public's desire to have a gallery experience; the "virtuality" offered by new media may balance and complement, rather than erode, the "actuality" that is to be found in real human relationships and contact with authentic objects in museums', suggests Anderson (1999: 26). Or, as Knell (2003) expresses it:

> No matter how one animates the digital object or captures it in high resolution, the object received through a monitor seems remote. Its materiality, its being, its existence as proof, as evidence – its true value – remains illusive. The emotive experience of seeing the real requires the real and no surrogate will do. A virtual visitor may understand the thing better and be better prepared to interpret it when they see it but they receive those peculiar attributes of real things only through real world engagement. (Knell 2003: 140)

This perception of the digital object, and the online learning experience, as being valuable primarily for its potential to enhance conventional ways of working and learning, rather than radically re-think them, came through strongly as we interviewed partners in the National Museums Online Learning project.

For one interviewee, the project's digital environments were perceived as functioning to replicate something of the experience of being in the brick-and-mortar museum:

> And also the key thing for us some of our activities are working with the images and you know coming up with questions to engage the learners about, with those objects and images from the collection, um to give them some sort of sense of [pause] what it might be like if they were actually in, in the museum environment themselves.
>
> *Project partner*

For another the value of the online learning environments being developed lies, again, in their potential for encouraging visits to the real museum. Here, the global accessibility of the digital resource is subordinated to a regionally-focused vision:

> I think they're going to, I think the main [pause] function for primary schools, which is where most of our constituents are, the main function, um, will be looking at um, uh, the scope of the collections and the availability of the collections and I imagine it will be the London [pause] schools that, um, [pause] use it in the beginning. I hope it will then go, um, further afield, regionally. Um, so that'll be the, the purpose will be enhancing our own, uh, potential to visit, a physical site visit. *Project partner*

For another, again, the function of the online resource was to extend access, but in large part in the interests of prompting a physical visit:

> Interviewee: Ah, now. [The project] for us is a way of reaching a much bigger audience because we are quite a small team, we can only reach so many people through face to face teaching and they have to be within a certain geographical area to get here and because we're a paid-for service again, you know, there are social, economic barriers as well so in that sense [the online resources] can actually um reach more users um if the DCMS count them as one of our performance indicators. Um, so for us, very useful um educationally yes, again we are reaching more users we want to reach and hopefully we reach them through, those within the area that can visit, we reach them, pique their interest they come for a visit which again supports it so you've got a visit.
>
> Interviewer: So one of your goals is to draw visitors to the physical museum?
>
> Interviewee: Physical museum, yeah get physical footfalls, yeah.
>
> *Project partner*

These perceptions of the value of the digital resource are both understandable and reasonable. They do, however, all construct the digital learning resource as being a means to an end (enhanced or increased physical visits), rather than an end in itself. The resource is not, generally, described as having a value related to its capacity to enhance new ways of learning and working which are appropriate to the digital age. The starting point might be the digital object, but the end point is the physical museum and the learning event which takes place in the presence of its 'real' counterpart. Such a stance leaves little space for consideration of the ways in which museums might engage in new and potentially disruptive forms of knowledge construction and learning from digital collections.

New forms of knowledge construction

The tendency of the digital to disrupt the distinction between producer and consumer has existed since the early days of the internet, though it has gained additional momentum and immediacy since the emergence of the 'Web 2.0' paradigm. The change in the quality of the artefact described above is accompanied by a shift in the way in which learning is conducted, and knowledge produced, in the age of digital and social media. The communication characteristics of the 'net generation' of learners[10] is described here by Lorenzo *et al.*:

> Net Generation learners are comfortable and confident in online environments, seemingly never in need of an instruction manual. Whether through chat, Facebook, or Flickr, they are in touch with friends and acquaintances, evidently trusting the information—and individuals—they encounter online. Friends of friends and those who have similar interests find each other through social networking, whether or not they have met in person. Relationships exist online, facilitated by the exchange of profiles, text messages, photos, music, and the

like. Constantly connected to information and each other, students don't just
consume information. They create—and re-create—it. With a do-it-yourself,
open source approach to material, students often take existing material, add their
own touches, and republish it. Bypassing traditional authority channels, self-
publishing—in print, image, video, or audio—is common. Access and exchange
of information is nearly instantaneous. (Lorenzo 2006: 2)

Instantaneous access, customizability and shareability of material, social connection via an
always-on, highly-mediated 'web' of contacts, and the ability to forge complex connections
between domains of knowledge across multiple, volatile media appear to characterise the new
patterns of knowledge work which take place in the digital environment. In such a media context,
another element of power shifts to the user – alongside the ability to manipulate and share the
digital object itself, there emerges the capacity to *interpret* and make meaning from digital object
collections within a global public sphere. We return to this point in the final section of the paper.

In general, interviews among the partners to the National Museums project suggested
that there was a wide awareness of the more radical implications of the new, digital ways of
working and learning. However, instituting these new practices presented a significant challenge:

Like I say, this kind of concept of how [pause] if you, if you've got a generation
of pupils now who are also the generation as newly qualified teachers and stuff
who have all grown up around that technology, I mean, we can sit here and we
do sit here with, with national museum projects talking about how we can utilise
[pause] behaviour and the technology but unless you're kind of, um, immersed
in it, in the same way as they are, you're always going to be a step behind.

Project partner

The [media] department, for example, is used to technology changing on a
monthly basis. The fact that something that we see today will not be there in a
month is something that's extraordinarily normal. So therefore accepting the fact
that people's communication strategies are changing [pause] is something that's
not surprising and something that we should expect to have to deal with. So from
the [media] perspective I think there's absolutely no discomfort. In fact I would
imagine that the concept of developing a social network online would be
embraced. But whether or not people are increasing their internet communication
and increasing their own ownership of content on line, there is no question. We're
aware of that evidence and [pause] believe that it will come to museums
eventually. Maybe not now but certainly in the future. The [education] department
is less web savvy and tends to experience change more slowly so therefore there
is more reluctance to embrace or even try to understand something along the
lines of, uh, social networking online.

Project partner

While the enhancement theme, and concern about the cultural 'fit' of digital modes characterized
project partner interviews, the early users of the project's learning spaces – members of the
public – varied interestingly in their perspective on the changing pattern of knowledge work, and
the value of the digital resource. In the following case, the new modes were seen, again, as being
inevitable but of a value subordinate to that of the traditional museum visit:

Interviewee: So I always try and encourage them to sort of get out there.

Interviewer: Into the physical museum?

Interviewee: Physical world yeah. I mean it's, it's an important part of research
really. Like you may accidentally fall upon something, come across something
that inspires you. You may not get that via the internet. …And with, with my group

of students currently, it's kind of, you get, you get a range. The older people in, in the group are much more the physical world and going out hunting and gathering and collecting the stuff but for the younger ones it's like, "oh yeah I printed this off the internet last night" [laughs]. But you know. It's the way it's going.

Museum web user

The concern of this user is bound up with the way in which technology seems to determine a mode of attention to information which he perceives as being less valuable, and less robust, than 'pre-digital' ways of conducting research. However, and counter to this interviewee's perception, the serendipitous aspect of the digital way of working might be viewed as one of its most notable features – the ability to stumble upon resources, to forge connections between randomly-encountered artefacts, to find ways of making creative sense of the rich turmoil of the digital collection. This 'stumbling upon' potential was commented on both by project partners and the early users of the project's learning environments. In the following extracts, interviewees are talking about the 'Creative Spaces' strand of the project (at that point called 'Creative Journeys') – a social networking, blogging environment designed to encourage the creation of personal narratives around the museums' digital collections:

Interviewer: What, what do you think a creative journey is?

Interviewee: Stumbling, I suppose. Stumbling and you know, picking up things on the beach and not necessarily thinking what you can do with them until maybe later and you get them home and so forth. But the way I use the internet is very much like having those things kind of, I don't know, valuing the the intricacy, the paths that you use to get places or the multiple opportunities that you have to go different places and the random connections.

Museum web user

I suppose I think the strength is more in, um, seeing other people's creative journeys. Actually being able to stumble upon, um, videos of, you know, how I designed my cocktail dress or, you know, how I knitted my bathing suit or how I, um, sorted out the um, the set at the amateur dramatic society.

Project partner

What emerges across these interview extracts is a series of tensions clustered around notions of how learning and knowledge construction takes place online and via the digital object. On the one hand there is the perception that the physical museum visit – the anchoring of the learning experience by the materiality of museum and object – remains at the centre of what museum education is about. On the other there is the acknowledgement of a movement, in the broader social context, toward a 'digital' way of working in which connection, serendipity, access and networking are perhaps of more concern than the status and accessibility of the 'real' object.

There is also a tension relating to the 'reach' of the digital collection, a sense on the one hand that it is important to take a regional approach in which the goal is to increase and enhance visits, and on the other that in the age of the internet regional boundaries fall away:

And you see this is, this is the thing that's interesting about museums, because I think museums are being too narrow in their interpretation about how people learn online because we all operate globally, anybody who's online operates globally.

Museum web user

A tension or opposition seems, therefore, to sit at the heart of contemporary online museum education – that which exists between the 'fluidity' of the digital object and the stability of its material counterpart, and the impact of this on the educational remit of the institution. The different materiality of the digital object meshes with the changing patterns of knowledge construction and dissemination we are seeing online, but at the same time it problematises the traditional authority of the institution, which is still to a large extent invested in material presence and proximity to material objects. The tendency to view online learning with digital objects not as a worthy end in itself, but rather as an enhancement to a traditional idea of what constitutes 'real', i.e. physical museum-based learning, may limit the genuinely innovative potential of an approach to education which is positioned so intriguingly at the nexus of multiple shifts in the technological and policy context. These are shifts in which changing patterns of knowledge production and learning are pushing the regional focus toward a global reach; stable, authoritative objects are re-crafted into their volatile, manipulable digital equivalents; access replaces possession as a structuring principle for cultural institutions; and the learner-user replaces the museum educator at the centre of museum education.

Fundamental to this changing context is the question of authority and the power relation between institution and user. It is this challenge to existing understandings of power and authority which we will briefly turn to next, in outlining the final key theme of this paper.

Seizing the digital and taking voice

Within the media context of online museum education, the institution's conventional role as cultural gatekeeper and 'provider' of educational opportunity pulls in one direction, while the radical and messy possibilities of digital ways of working, digital objects, and the foregrounding of the user-learner pull in another. How do contemporary institutions negotiate this tension in order to maintain a positive role in the shifting and unstable space of the new technological landscape, where traditional ways of managing the relations between institution and individual perhaps no longer suffice?

The fit between digital social media and long-established institutions, founded on the relative certainties of material co-presence and the existence of stable phenomena, is perhaps inevitably awkward. This is an element of the historical 'incompatibility' incisively traced in Parry's (2007) text. The challenge to conventional institutional structures represented by the new, volatile, digital ways of working are significant, whether the institution be an archive, a museum or a university. One point at which this awkwardness is manifest is in the notion of trust. A recent report by Demos (a London based think tank) emphasizes the importance of individuals (users) trusting the institution (Holden 2007: 39). The institution, on the other hand, must have stringent moderation systems in place – the user is not to be trusted in return. This one-way flow of trust draws attention to the imbalance of authority which may be inherent in interactions between individuals and institutions, however much these institutions embrace user-generated content models such as those being explored through the National Museums Online Learning project and other initiatives. The focus on authority usually remains central in discussions of these models:

> Social media can extend the authenticity of collections by enabling museum professionals to establish and maintain a cultural dialogue with their audiences... Some museum professionals are rightly concerned that the authority of the museum is perhaps compromised and the 'authenticity' of information eroded by these new approaches – enabling information sharing, response to issues and the creation of new knowledge and content… Our research indicates that museums can play an active role in encouraging participation – while extending their authority – by actively encouraging knowledge sharing, 'voice', education and acknowledgement. (Russo *et al.* 2007)

Here, authority is reconfigured (and 'extended') to include enabling participation and voice – voice is 'given' (on the terms of the institution) to interested audiences. Left unquestioned are the assumptions that the museum must always be half of any 'cultural dialogue', and that the authentic is that which is provided or sanctioned by the museum. Yet for many users, immersion

in the digital environment promises the opportunity not to be 'given' a voice, but to 'seize' it, to appropriate the institutional capital of the museum and use it on their own terms. One project interviewee talked about a senior colleague's response to being shown photographs of their museum objects in Flickr:

> Interviewee: He couldn't get over all the photographs that had just been taken in the galleries, on phones, mobile phones and uploaded and stuff. But, yeah, it's out there and people are doing it.
>
> Interviewer: Yeah. What did he think of that?
>
> Interviewee: Well, I think he's still in shock.
>
> Interviewer: Was he? A bad shock or a good shock?
>
> Interviewee: Bad.
>
> *Project partner*

As M. L. Anderson (2005) predicted:

> The winners of the battle over who owns access to still digital images of artworks are destined to have a Pyrrhic victory. End users interested in creativity will find their way, legally or not, to new kinds of multimedia destinations. (no page)

The source of much of the educational value of the new patterns of participation and learning is, therefore, also its most problematic aspect. When the object, and the user's power to interpret that object, shifts into the digital public sphere, the power relation between institution and user radically shifts:

> I'm saying at the moment for me it's coming across [pause] the way the museums learn is, is they're still slightly stuck in show and tell. "Yeah, well we'll just have to teach it you know, it used to be and here I have a such and such and would you like to see it and it's a da de da de da." In other words the museum, the teacher, has to show you it for you to be able to access it and for museums, the teacher puts the parameters around what it shows.
>
> Going online is a whole new ball game, it doesn't work the same as somebody coming in to a museum, it works differently because [pause] the power disposition changes.
>
> *Museum web user*

The 'bottom up' ethos of contemporary social networking around digital objects – the ability to connect and share interpretations of objects through weblogs, Flickr, environments like Facebook and so on – is a source both of unease and of excitement among museum educators. As one of them commented:

> Interviewee: I really don't know what they're going to do.
>
> Interviewer: And you are quite comfortable with that?
>
> Interviewee: That's the exciting thing. I love that, I like that idea. The power is transferred [laughter].
>
> *Project partner*

The shifting patterns of power and participation online – the emergence of the digital 'museum without walls' – presents, therefore, multiple challenges to the museum educator, and to the museum user. Just as digital objects have a more ambiguous status than their material counterparts, relationships between digital content producers and consumers are more ambiguous than in the hierarchical confines of the physical museum. It may be impossible ever fully to resolve the dilemmas apparent in new digital ways of working. Flexibility, access, openness, control, authority and prestige are all highly valued within museum education contexts, and taking education online problematises the relationships between these qualities.

In conclusion

It is clearly not possible, nor even desirable, simply to 'resolve' the tensions caused by the competing agendas of the value of the material over the digital, of access vs control, of flexibility versus authority or of user voice versus institutional prestige. These are in fact *creative* tensions which drive contemporary online museum education, and innovative programmes like the National Museums Online Learning Project, and make them both relevant and essential. To focus too closely on the 'dangers' of the digital, the primacy of the material collection and the undesirability of the supercession of the 'real' by the 'virtual' (Social Media and Cultural Communication 2008), places limits on the extent to which we can focus on nurturing genuinely radical and challenging online pedagogies and learning spaces within the museum context. These, we would argue, need to be viewed on their own terms rather than being seen as ways either of 'enhancing' or of threatening the existing and the known.

At the same time, the changing patterns of knowledge production, and the shift of power over access to the object and its interpretive potential toward the user perhaps need to be more boldly grasped than they tend to be at present, if museums are to engage with the more radical, interesting and vibrant opportunities presented by digital technologies. By simply acknowledging and working with the riskiness and messiness created by the 'clash' between the virtual and the real, the digital and the material, the expert and the user, online museum educators – and learners – can make serious contributions toward understanding and managing the evolving landscape of museum learning. Parry sees the new digital technologies as prompting museums to learn to be 'comfortable with heterogeneity and chaos again' (2007: 56), a positive engagement with 'messiness' which was valued by project partners and web users alike. As one of the consortium partners put it:

> I think we have to keep plugging away and not allow sort of pretty outcomes to dominate over untidy serious outcomes.

> *Project partner*

Or, in the words of a museum web user:

> I believe in the [pause], you know the creative possibilities that come from ambiguity and mess. [laughter]

> *Museum web user*

Notes

[1]   Partner museums and galleries are the British Museum, Imperial War Museum, National Portrait Gallery, Natural History Museum, Royal Armouries, Sir John Soane's Museum, Tate, Victoria and Albert Museum and the Wallace Collection. For more on the project, see the web site at: http://www.vam.ac.uk/about_va/online_learning. The authors of this paper are research partners to the project during its period of development and implementation, 2007-2009.

2   The research reported in this paper took place between April 2007 and June 2008. Stage one data generation (April-August 2007) consisted of loosely-structured interviews with consortium partners and early Creative Spaces users. Questions aimed to explore interviewees' perspectives on key themes relating to the project – the changes undergoing museum education in the digital age, the implications of the digitization and networking of museum collections, the role of social media in contemporary modes of working and communicating, and so on.

We interviewed a total of 16 individuals over this stage of the research, generating around 400 pages of transcript. Each transcript was coded according to an emerging interpretive framework which was challenged and confirmed by iterative returns to the data, to the literature and to discussion among the research team. Interview data was transcribed in a way which allows for the 'messy' elements of speech – pauses, stutterings, discourse markers, non-lexicals and repetitions. Our intention in doing this is to acknowledge that 'transcription is not merely a technical procedure but an interpretive practice' (Mishler 1991: 259) and to work, in a modest way, against a tendency in qualitative research to reduce spoken interview data – with its messiness, ambiguity and rhythm – to the conventions of the written form.

The second stage of the research (October 2007-June 2008) involved interviews with Creative Spaces early users, selected from among the 59 people who had created a profile or posted an entry on one of the early Creative Spaces (then 'Creative Journey') sites. We approached a mix of London-based and non-London-based people from those Creative Journey sites which had eligible participants (Tate, National Portrait Gallery, British Museum, V&A, Soane and Imperial War Museum). We deliberately included a number of people who had created a profile but never posted an entry, so we could explore some reasons for non-participation.

We then conducted a total of 19 interviews: ten face-to-face in London, four by phone or Skype, and five via email. The interviews were a combination of open-ended questions and gathering of visual data. A broad mix of people agreed to be interviewed about their Creative Journeys. We talked to artists, scientists, musicians, teachers, students, academics, parents and writers. There were teenagers and retired people; computer novices and web experts; museum newcomers and museum professionals; and both people who were regulars at their museum, and those who had never visited their museum.

Data was coded and analyzed thematically as previously.

3   http://www.brooklynmuseum.org/opencollection/tag_game/

4   http://www.flickr.com/commons

5   http://www.worth1000.com

6   http://www.worth1000.com/emailthis.asp?entry=410483

7   http://www.worth1000.com/emailthis.asp?entry=410461

8   http://www.worth1000.com/emailthis.asp?entry=410533

9   http://tineye.com/widgets/display?mona

10   There are many problems with a generational positioning of learners in relation to technology (see Bayne and Ross 2007). Our understanding of 'net generation' – unlike Lorenzo's – is not based on age but on engagement and familiarity with digital ways of working.

References

Anderson, D. (1999) *A Common Wealth: Museums in the Learning Age*, London: DCMS. Retrieved: 15 June 2008. http://www.culture.gov.uk/reference_library/publications/4717.aspx

Anderson, D. (2000) 'Networked Museums In The Learning Age', *Cultivate Interactive* (2). Retrieved: 15 June 2008. http://www.cultivate-int.org/issue2/networked/

Anderson, M. L. (2005) 'Who Will Own Art Museums' Content?', *The Art Newspaper*. Retrieved: 15 June 2008. http://www.maxwellanderson.com/WhoWillOwnArtMuseumsContent.htm

Barr, J. (2005) 'Dumbing Down Intellectual Culture: Frank Furedi, Lifelong Learning and Museums', *Museum and Society, 3* (2). Retrieved: 15 June 2008. http://www.le.ac.uk/ms/m&s/Issue%208/barr.pdf

Bayne S. and Ross, J. (2007) 'The 'digital native' and 'digital immigrant': a Dangerous Opposition', paper presented at the *Annual Conference of the Society for Research into Higher Education (SRHE),* December 2007.

Chan, S. (2007) Tagging and Searching – Serendipity and Museum Collection Databases, in J. Trant and D. Bearman (eds). *Museums and the Web 2007: Proceedings*, Toronto: Archives & Museum Informatics. Retrieved: 18 March 2009. http://www.archimuse.com/mw2007/papers/chan/chan.html

DCMS (2006) *Understanding the Future: Priorities for England's Museums*, London: Department for Culture, Media and Sport. Retrieved: 15 June 2008. http://www.culture.gov.uk/images/consultations/cons_uf_prioritiesforenglandsmuseums.pdf

DigiCult (2002) *Integrity and Authenticity of Digital Cultural HeritageOobjects*, Thematic Issue 1, August 2002. Retrieved: 15 June 2008. http://www.digicult.info/downloads/thematic_issue_1_final.pdf

Feenberg, A. (1989) 'The written word: On the Theory and Practice of Computer Conferencing' in R. Mason and A. Kaye (eds) (1989) *Mindweave: Communication, Computers and Distance Education*, Oxford: Pergamon Press, 22-39.

Hawkey, R. (2004) 'Learning with Digital Technologies in Museums, Science Centres and Galleries', *Futurelab Report 9*, Retrieved: 15 June 2008. http://www.futurelab.org.uk/resources/documents/lit_reviews/Museums_Galleries_Review.pdf

Hayles, K. N. (1999) *How We Became Posthuman,* Chicago: University of Chicago Press

Hetherington, K. (2000) 'Museums and the Visually impaired: the Spatial Politics of Access', *The Sociological Review*, 48 (3) 444- 63.

Holden, J. (2007) *Logging On: Culture, Participation and the Web*, London: Demos. Retrieved: 15 June 2008. http://www.demos.co.uk/publications/loggingon

Hooper-Greenhill, E. (2007) *Museums and Education: Purpose, Pedagogy, Performance*, London: Routledge.

Knell, S. J. (2003) 'The shape of Things to Come: Museums in the Technological Landscape', *Museum and Society,* 1(3). Retrieved: 15 June 2008. http://www.le.ac.uk/museumstudies/m&s/issue%203/msknell.pdf

Leinhardt, G., & Crowley, K. (2002) 'Objects of Learning, Objects of Talk: Changing minds in museums, in S.G. Paris (ed.), *Perspectives on object-centered learning in museums*, Mahwah, NJ: Lawrence Erlbaum.

Lagerkvist, C. (2006) 'Empowerment and Anger: Learning How to Share Ownership of the Museum', *Museum and Society, 4* (2). Retrieved: 15 June 2008. http://www.le.ac.uk/museumstudies/m&s/issue%2011/lagerkvist.pdf

Lorenzo, G, Oblinger, D. and Dziuban, C. (2006) 'How Choice, Co-Creation, and Culture Are Changing What It Means to Be Net Savvy', *Educause Learning Initiative, Paper 4*, October 2006. Retrieved: 15 June 2008. http://www.educause.edu/ir/library/pdf/ELI3008.pdf

Manovich, L. (2001) *The Language of New Media.* Cambridge MA: MIT Press.

Mishler, E. G. (1991) Representing Discourse: the Rhetoric of Transcription, *Journal of Narrative and Life History*, 1, 4, 255-80.

Parry, R. (2007) *Recoding the Museum: Digital Heritage and the Technologies of Change.* London: Routledge.

Poster, M. (2001) *What's the Matter with the Internet?,* Minneapolis: University of Minnesota Press.

Prosser, D., and Eddisford, S. (2004) 'Virtual Museum Learning', *Information Technology in Childhood Education Annual, 2004* (1).

Russo, Angelina and Watkins, Jerry and Chan, Sebastian (2007) 'Look Who's Talking', *In the MAG*, 14-15. Retrieved: 15 June 2008. http://eprints.qut.edu.au/archive/00008176/01/8176.pdf

Social Media and Cultural Communication Weblog (2008), 'Why Is There So Much Debate Around the Virtual and the Real?' Retrieved: 15 June 2008, http://nlablog.wordpress.com/2008/06/02/why-is-there-so-much-debate-around-the-virtual-and-the-real/

Springer, M. *et al.* (2008) *For the Common Good: the Library of Congress Flickr Pilot Project.* Retrieved 16 March 2009. http://www.loc.gov/rr/print/flickr_report_final.pdf

Weber, J. (2007) 'Thinking Spatially: New Literacy, Museums, and the Academy', *Educause, 42* (1). Retrieved: 15 June 2008, http://www.educause.edu/apps/er/erm07/erm0716.asp?bhcp=

***Dr Siân Bayne** is Senior Lecturer in the School of Education at the University of Edinburgh, Programme Director of the online MSc in E-learning, co-convenor of the Ideas in Cyberspace Education symposia and Principal Investigator on the research strand of the National Museums Online Learning Project.

**Jen Ross is a researcher working on the National Museums Online Learning Project. She is based in the Department of Higher and Community Education at the University of Edinburgh, where she is also the technologies co-ordinator for the MSc in E-Learning programme. She is also conducting doctoral work on online reflective practices in Higher Education.

***Zoe Williamson is a lecturer at the Moray House School of Education, University of Edinburgh, where she is course organizer and tutor on the Initial Teacher Education undergraduate and postgraduate degrees, working mainly with Primary education students. Her teaching focuses on the use of new technologies in education, with her primary interest being on the use of digital media and developing 'new literacies'. Her research interests span issues relating to the use of new technology in education as well as research into teachers' continuing professional learning and development, the latter forming the basis of her own doctoral research.

Address
Dr Siân Bayne, Higher and Community Education
School of Education
The University of Edinburgh
Paterson's Land
Holyrood Road, Edinburgh EH8 8AQ
sian.bayne@ed.ac.uk
0131 651 6337