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What’s the Use? Learning from Digital Artefacts, Learning about Users

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In recent years, the volume of digital content created from artefacts in museum, library and archive collections has grown exponentially, but research on how this material is actually being used has lagged far behind the supply curve. For example, in 2007 the British Library reported they had created 3.1 million digital images;¹ by 2009 that had increased by almost 500% to 15.1 million images.² In 2012, the Library reported that they were creating 8,000 digital images per day.³ Despite considerable investment in digitisation, research on the actual use of artefacts has tended to take the form of idiographic studies of first-hand usage of physical artefacts focusing on the pedagogical benefits of object-centred learning rather than more user-focused ethnographic examinations of the use of collections in both physical and virtual environments.⁴ Moreover, little research attention has been paid to the use of quantitative, nomothetic methods in describing the differences between users and the influence of background and previous knowledge in shaping usage behaviour.

Both producers and users of digital material have a stake in understanding artefact use. In recent years, as funding has contracted for digitisation programmes,⁵ the heritage sector developed an interest in finding out about how digitised collections are being used to justify further investment in digitisation, to understand audiences, and to ensure that ways of supplying digital material meets changing user demand. Universities have a growing interest in understanding how artefacts are used in digital environments as they strive to service a rising demand for flexible study.⁶

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⁵ For example, funding from the Joint Information Systems Committee (JISC) for mass digitisation fell from £12m in 2004-06 to £3.4m in 2011-13, JISC 2013.
⁶ Irvine 2003: 5.
reduced costs,\textsuperscript{7} and make course content more distinctive in an increasingly competitive environment. Through various government-led funding schemes,\textsuperscript{8} the Higher Education (HE) sector is being encouraged to collaborate with museums, libraries and archives to gain access to cultural collections and, importantly, users of those collections to jointly investigate how digital technologies affect relationships between end-users, institutions and their collections.

Within the context of this shift from content creation to content use,\textsuperscript{9} this paper examines patterns of behaviour among groups of individuals normally involved in supplying and using artefacts in digital and physical form in Higher Education. Testing Etienne Wenger’s concept of the community of practice (CoP) which he describes as people ‘informally bound together by shared expertise and passion for a joint enterprise’,\textsuperscript{10} this paper describes a case study based around supply and use of museum collections, owned by the Shakespeare Birthplace Trust and the Royal Shakespeare Company, in postgraduate teaching and research. Digital CoPs and Robbers: Communities of Practice and the Transformation of Research, was a six month project funded by the Arts and Humanities Research Council and carried out at the University of Birmingham between February and August 2012. This project aimed to examine how behaviour is affected by shared ways of seeing,\textsuperscript{11} thinking and acting around physical and digital artefacts. The project was designed to scope some of the main issues associated with artefact use from the perspective of producers and users of content.

To do this, Digital CoPs and Robbers brought together practitioners from the heritage sector (curators, archivists and librarians), the digital creative industries (technologists and strategists), and the performing arts and academia (lecturers and students). Participants took part in interviews designed to gauge membership of communities of practice, followed by workshops (involving physical and digital artefacts) specifically designed to externalise usage behaviour. Transcripts produced

\textsuperscript{7} Fry 2010.
\textsuperscript{8} For example, the Arts and Humanities Research Council Standard Research Grants and Knowledge exchange partnerships both require collaboration with ‘other’ individuals or organisations, specifically ‘creative and cultural organisations’ in the case of knowledge exchange initiatives, AHRC 2013.
\textsuperscript{9} Rumbold 2010: 321.
\textsuperscript{10} Wenger 2000: 1.
\textsuperscript{11} Sol 2013.
from each session were then coded using Grounded Theory\textsuperscript{12} to identify examples of artefact use according to format (physical or digital) and community of practice.\textsuperscript{13} Word frequency sampling was also carried out to examine patterns in language use by practitioners. Quantitative data, itself unusual for such studies (which tend to utilise only qualitative methodologies), was generated which allowed for the interrogation of Wenger’s concept of communities of practice and the analysis of patterns of user behaviour.

The project produced five main findings:

1. Communities of practice exist to a meaningful extent. Although evidence of other concepts like ‘networks of practice’ and ‘thought collectives’ were detected,\textsuperscript{14} Wenger’s model adequately explains patterns of behaviour in the sample. This was reflected in word use (patterning in the use of particular words by particular communities of practice, such as ‘collection’ by heritage practitioners) and usage behaviour around artefacts (for example a relatively greater use of taste and smell by digital creatives compared to other communities of practice).

2. There are three main ways of using artefacts: identifying (determining what the artefact is), contextualising (working out where the artefact fits in in terms of its physical or informational context), and interpreting (figuring out what the artefact means). These appear to be non-sequential, connected processes which use different forms of physical and cognitive interaction with the artefact. Using digital artefacts, there is a marked preference for interpretation: with physical artefacts, there’s a more even split between all three processes (the physicality of collections may make identification more engaging and the need for context-building greater in a museum environment).

\textsuperscript{12} Grounded Theory is a research methodology, initially developed in the social sciences by Barney Glaser and Anselm Strauss, which involves the generation of a theory from data rather than testing a theoretical framework on data. It entails the systematic coding of data to create categories from which theory is then formed.

\textsuperscript{13} Glaser and Strauss 1999.

3. Communities of practice use artefacts in different ways: the extent to which users identify, contextualise and interpret artefacts varies within each CoP as does how they do so. For example, lecturers and students, unlike all of the other CoPs, show a higher degree of abstract thinking around the digital artefact whereas those associated with the performing arts and leading digital projects appear to be stimulated more creatively by physical material. During the project, heritage practitioners were more imaginative when using digitised material and more assertive and practical when using physical collections.

4. Use behaviour is influenced by the quality of engagement with the artefact (i.e. whether it is in physical or digital form). This may be because of the artefact’s format or the context of use, or a combination of these two factors.

5. Communities of practice learn in different ways: mapping patterns of identification, contextualisation and interpretation to Kolb’s theory of experiential learning (learning through experience) suggests that each CoP has a dominant and distinct learning style,15 defined by Stewart and Felicetti as, ‘educational conditions under which a student is most likely to learn’.16 For example, digital creatives tend to be divergent or imaginative learners when using physical artefacts and convergent or logical learners when using digitised material.

These findings help to broadly describe how all individuals engage with artefacts in physical and digital form, while indicating important differences between groups of users according to the skills, interests and priorities of their community of practice. Knowing how individuals generally use artefacts should inform the selection, digitisation, and packaging of artefacts to make artefact-based content more relevant and usable. This knowledge could also act as a framework to help universities integrate artefact-based learning into the curriculum, if metrics of use can be developed to measure impact. These processes of use should also help the heritage sector understand in taxonomical terms how users engage with digitised and physical material. This should allow museums, libraries and archives to reflect on

15 Kolb 1984.
16 Stewart and Felicetti 1992: 15.
how they currently cater for identification, contextualisation and interpretation of collections, and to conceive of ways of charting use to justify future investment.

Learning about the differences between users and producers of digitised artefacts draws attention to the potential for mismatch between what is being created and the needs of users; the author suggests setting-up communities of use around content as well as examining the process of digitisation and presentation of physical artefacts. The author recommends that lessons learned from physical engagement with the artefact should inform both the process of digitisation and the design of the user interface with digitised material. The author further recommends that interaction with the physical artefact could be enhanced by looking to engagement in digital environments. In terms of learning styles, knowing about the strengths and weaknesses of CoPs with regard to how they learn could point the way to a more effective design of collaborative projects in ways which create balance and stimulate creativity, as well as promoting multi–modality (catering for different learning styles) among users within Higher Education.

To build on this work, the author recommends further research on the influence of usage environments, and the connection between artefact use and learning styles. This would ideally involve narrowing down the number of communities of practice and recording artefact use in controlled physical and digital environments to highlight the affordances and limitations of each. Analysis of this data could then be compared to a standard learning style indicator test to expose any correspondences between usage behaviour and learning style. Potentially, this could reveal ways of tailoring content (the way artefacts are digitised) and context (the environments in which artefacts are used) to the learning style of particular users in postgraduate education. Further research is also suggested in the area of language use and communities of practice to investigate patterning within and between practitioner groups to help lower discourse barriers to collaboration between sectors.
Bibliography


