

# Skills for Significant Properties: Debating Pragmatics and Philosophy in an Area of Digital Curation

Stephen Grace  
Centre for e-Research  
King's College London  
London, UK

stephen.grace@kcl.ac.uk

Sheila Anderson  
Centre for e-Research  
King's College London  
London, UK

sheila.anderson@kcl.ac.uk

Christopher A. Lee  
School of Information &  
Library Science  
University of North Carolina  
Chapel Hill, NC 27599 USA  
callee@email.unc.edu

## ABSTRACT

A debate at DigCCurr 2009 will allow educators and practitioners the chance to reflect on the balance of practical and theoretical skills required of digital curators. The area of significant properties is used as a case study for drawing out some of these skills in research and teaching environments. A panel will debate issues, with the audience invited to contribute to the discussion.

## General Terms

Management, Theory

## Keywords

Significant properties, pedagogy

## 1. INTRODUCTION

Roles and responsibilities of information professionals are changing in the distributed digital environment [1]. The Centre for e-Research (CeRch) at King's College London is planning an innovative postgraduate course in Digital Asset Management for 2009. This will seek to balance the practical skills and techniques of digital curation with a more theoretical approach, to offer students a rich mix of course content able to sustain the future working lives of reflective practitioners. Similarly, the DigCCurr and DigCCurr II projects at the School of Information and Library Science at University of North Carolina at Chapel Hill, are building an international digital curation curricula and professional engagement opportunities for graduate students and practitioners.

A research project underway at CeRch exemplifies digital curation's mix of skills. InSPECT is investigating the significant properties of digital objects over time [2]. Significant properties can be seen as a useful arena to discuss issues of theory and practice across information, library and archival sciences.

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 Unported license. You are free to share this work (copy, distribute and transmit) under the following conditions: attribution, non-commercial, and no derivative works. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/3.0/>.

DigCCurr2009, April 1-3, 2009, Chapel Hill, NC, USA



## 2. SIGNIFICANT PROPERTIES

Significant properties (SPs) are those characteristics of digital objects that should be preserved over time in order to perpetuate their "quality, usability, rendering, and behaviour" [3]. SPs relate to the information object in the OAIS data model, in capturing the content, context, appearance/rendering, structure and behavior of objects. SPs are related to and sometimes overlap with what the Reference Model for an Open Archival Information System (OAIS) [4] calls Representation Information (RI). RI relates to the information needed to make sense of the data object as SPs do at the level of the information object.

Although tools may be able to discover preserved digital objects, making meaningful use and sense of such digital objects will also require contextual information [5]. SPs, when identified and preserved in metadata with digital objects, offer evidence of the wider context (beyond the datastream itself) needed by future users. In addition to the SPs of individual digital objects, other contextual information -- such as on provenance, authenticity or relationships to other digital objects -- may also be crucial for users to make sense of digital objects. Four skills and their academic parentage are outlined as important for those engaged with SP research and practice. These will form the basis of a discussion.

## 3. SIGNIFICANT SKILLS

### 3.1 Characterization

Characterization supports the logical accessibility of digital objects over time by identifying the precise format version of an object and validating that object against relevant formal specifications. The activity comes from computer science, and requires an understanding of how digital files are structured and encoded. Analyzing files to enumerate SPs can be a lengthy, involved process, although tools such as JHOVE can support this activity to some extent.

### 3.2 Diplomats

The archival practice of diplomats is concerned with the study of the genesis and form of individual documents, to determine if they are what they purport to be. This culture of analysis and judgment determines the authenticity and integrity of records, and has been applied to the digital domain. Digital curators will need to be at least as confident of the authenticity and integrity of their content as traditional archivists, since the technical means of establishing direct links with the creators and their methods may be lost or partial.

### 3.3 Epistemology

Epistemology is the branch of philosophy concerned with knowledge. Social epistemology, in particular, can help to describe the social dimensions of information. The content of digital objects conveys knowledge as intended by the creator. Librarians and archivists have not always had subject skills to verify or warrant the reliability of information conveyed in materials they manage, as opposed to their authenticity. In the digital domain, the respective contexts of the creator and that of the user can be far apart unbound by ties of culture, intellectual parity, time or space.

### 3.4 Conceptualization

Digital humanities (or humanities computing) as a discipline provides a methodological focus for studying the outputs of human creativity. It also has an understanding that increasingly computers are used as ‘venues of representation’ rather than just as computational machines. As people become more adept at using technology to create digital forms of representing information and meaning, curators require a similar familiarity with the possibilities of human interaction with such forms. Content modeling, visualization and other forms of conceptualization inform the description and understanding of digital content, and can offer entirely new approaches to the reuse of data.

## 4. PRACTICAL VS. THEORETICAL

An academic discipline needs to define the limits of its domain, the identifiable body of knowledge which an adherent can comprehend. It also needs to be able to conceptualize that domain. Librarianship and archival science have long articulated their respective domains’ knowledge bases, and also their traditions of practice. The role of teaching practical skills plays can be problematic in the academy, since practice changes over time in response to new research, changing technology and human factors. Yet communities of practice also need to have embedded a shared theoretical understanding for the vision to adapt to the changing environment.

The ‘performance model’ articulated by the National Archives of Australia [6] is a useful way of looking at significant properties.

It combines the source datastream and process of rendering in a performance that understands the human interaction with technology. It offers a useful grounding for the digital curator’s task in giving life to digital objects over time.

## 5. DEBATE

A multinational panel will be convened to debate the mix of skills required of digital curators, the roots of such skills and how they might develop in coming years. A short introductory statement will frame the debate by using significant properties as a case study combining practical and theoretical skills. The audience will have a sense of digital curation as an evolving domain and field of activity, with a vital role in the enduring availability of scientific and cultural value, and not just the half-born offspring of other external disciplines.

## 6. REFERENCES

- [1] Anderson, S. 2005. Curation and preservation: re-thinking roles and responsibilities in the distributed digital environment. In IS&T’s 2005 Archiving Conference (Washington, DC, USA April 26, 2005). Society for Imaging Science and Technology, Springfield, VA, 2005.
- [2] Wilson, A. 2007. Significant properties report. AHDS, London, 8.
- [3] Hedstrom, M., and C.A. Lee, Significant properties of digital objects: definitions, applications, implications, Proceedings of the DLM-Forum 2002.
- [4] ISO 14721. 2003. Space data and information transfer systems – Open Archival information system – Reference Model.
- [5] Lee, C. Taking context seriously: a framework for contextual information in digital collections. UNL SILS Technical Report 2007-04. University of North Carolina, Chapel Hill, NC, 1.
- [6] Heslop, H, Davis, S and Wilson, A. 2002. An approach to the preservation of digital records. Canberra, Australia, 9.