

Object Based Learning in Higher Education

Object Based Learning (OBL) in Higher Education (HE): Pedagogical perspectives on enhancing student learning through collections

Collaborating institutions

University College London: UCL Museums & Collections and UCL Centre for the Advancement of Learning and Teaching

Country and a summary of the national or regional context as appropriate

UK: the project is of relevance in an international context as it deals with generic HE student learning and skills development using museum objects.

Museum/gallery description

UCL Museums & Collections is a small to medium sized university museums service, comprising 800,000 objects housed in three public museums, the Petrie Museum of Egyptian Archaeology, the Grant Museum of Zoology and the Strang Print Room, plus a series of stored collections covering archaeology, geology, anthropology, science and medicine (UCL Museums and Collections, 2006).

HE subject and context description

The collections cover the following disciplines: Zoology, Geology, Anthropology (Bioanthropology and Ethnography), Physiology, Pharmacology, Pathology, Medical Physics, general medical collections (e.g. medical instruments), Chemistry, Physics, Electronic & Electrical Engineering, Geomatic Engineering, Archaeology, Fine Art (including works on paper and sculpture) and Social History. (For further information go to - <http://www.ucl.ac.uk/museums/>).

Project goals and ambitions

The aim of this project is to assess the perceptions of university students and staff of the benefits of using museum collections in learning, with a particular focus on using object based learning (OBL) to support student learning of 'threshold concepts' and coping with 'troublesome knowledge'. In addition the project will assess the value of linked electronic resources which make use of virtual collections using a virtual learning environment called Moodle (see: <http://moodle.ucl.ac.uk/course/view.php?id=6017>). Finally the project will assess the value of OBL in acquiring key or transferable skills (e.g. communication, critical thinking, teamwork, etc) in the HE context.

Project description

The project draws together a series of initiatives at University College London (UCL) exploring object based learning (OBL) from the perspective of staff and students. University museums were pioneers in object based learning; many universities amassed substantial collections across the arts, humanities, sciences and medicine, primarily for the purpose of teaching. These collections afford a valuable opportunity to provide a focal point for acquiring subject-specific knowledge. Objects can also be used to inspire discussion, group/team work and lateral thinking – all essential key, transferable, skills in higher education (Chatterjee, In press; 2008). Object based learning in higher education draws on many of the learning strategies already known to inform students, including active learning and experiential learning. This project seeks to begin to characterise OBL in higher education and better understand the pedagogical framework for museum learning in the university classroom, by reference to practice led examples from a range of disciplines.

Why is your project important and worth reading?

As Paris suggests, 'objects, although concrete, actually represent a vast continuum of abstract ideas and inter-related realities' (Paris, 2002, introduction, p.x). They therefore have the power to help students to cope with challenging aspects of the curriculum. Working with objects strengthens learning, as the sense of touch can lead to a more memorable learning experience. It has been established that



Figure 1

'object-handling has a long-lasting effect and relationship with memory, more so than text-based learning often has' (Romanek and Lynch 2008, p.284). Biggs explains that '[The] more [Teaching and Learning Activities] tie down the topic to be learned to multiple sensory modes, the better the learning' (2003, p.80). This could apply to learning at any level (primary, secondary, higher and further education) but, whilst OBL at primary and secondary level is fairly well understood (see Paris, 2002), the pedagogical value of OBL in the higher education context is less so. In order for museums to extend their education programmes to include HE level audiences, it is vital we understand the needs of university teachers and learners.

What happened?

A number of case studies using UCL's museums and collections have enabled us to collate, analyse and theorise about the underlying pedagogical value of OBL in the HE context. The activities which students undertake include identifying objects and considering contextual factors, discussing and reflecting on details, answering question sheets, and relating the characteristics of the objects to previous theoretical learning. The following related projects have been drawn upon:

Case study 1

Medical students using museums objects in their research projects to explore the therapeutic potential of object handling (Chatterjee and Noble, 2009) In this case study undergraduate medical students undertaking a research project in Phase 1 of their MBBS medical degree assessed the value of handling museum objects as a health and enrichment intervention at patient's bedsides in hospital. A summative analysis with the students following completion of their research indicated that the project had increased a range of skills including communication, organisation, time management and independent thinking; all core skills for higher education students. Specifically the development of an activity based around museum objects afforded the students an opportunity to develop object-centered learning resources focused on subjects outside of their core discipline, due to the diverse nature of the collections, which includes natural history, archaeology and fine art; students reported that their knowledge of these subject areas were enhanced due to their involvement in the project.

Case study 2

Subject specific examples in Archaeology (Sparks, In press), Fine Art (Gould, In press) and Zoology (Chatterjee and Lee, In press) Museums collections form a vital component of student learning in areas such as biology, geology, archaeology and history of art. In this case study exemplars from projects involving three cohorts of students at UCL (archaeology, zoology and fine art) demonstrate the value of museum collections in enhancing subject specific knowledge. Sparks (In press) has shown that 'Material culture provides a tangible link between the past and the present. Handling objects [see Figure 1] can make that past more real, with the opportunity to filter the physical and unfamiliar through our own networks of association and experience'. Furthermore, Doonan and Boyd draw attention to the Quality Assurance Agency for Higher Education's benchmark statement for archaeology which defines OBL as fundamental to the way archaeology should be taught (Doonan and Boyd 2008, 108).

In the 'Sequel' project described by Gould (In press) students from the UCL Slade School of Fine Art were invited to create artistic responses to the UCL's collection of old masters drawing and prints. These new artworks were then exhibited in the UCL Strang Print Room and made available via a virtual microsite. The collaboration exemplified the importance of providing direct access

to museum collections as a source of inspiration for new artistic ventures and provided the student's with valuable transferable skills in exhibition design, curatorial networking and object handling.

UCL Biology students have likewise been involved in a project which explores the value of virtual object based learning (Chatterjee and Lee, In press). ZooMoodle is a museum based virtual learning resource which accompanied first year undergraduate museum practicals; the resource comprises a series of web books (Figure 2) outlining the diversity of the animal kingdom from an evolutionary perspective, plus an associated glossary with hyperlinked entries. The WebBook combines textual and visual information in the form of labelled diagrams, images of museum specimens (from UCL's Grant Museum of Zoology) and other figures. Summative and formative evaluation of ZooMoodle was undertaken during its development and implementation in the spring of 2009. Results from the formative survey indicate the resource is valuable and informative and increased student's knowledge of biodiversity, phylogeny and anatomy. Student's perceptions of their knowledge of biodiversity were assessed on a scale of 1 (Limited) to 4 (Very Good) before and after using ZooMoodle (in conjunction with attending a museum-based practical zoology class): 80% of students classed their knowledge of biodiversity at 2 (Quite Limited) before using the resource and attending the practical, compared to 70% who rated their knowledge as either 3 (Good) or 4 (Very Good) afterwards. When asked: 'Please describe what effect the online resource has had on your knowledge and understanding of the topics', the following student comments were received:

'Increased it! Its nice and easy to flick through so I found it easy to pick up knowledge about the features of the different groups and how they are related'

'It improved my knowledge and made everything easier to understand'

Case study 3

The role of OBL in transferable skills development (Marie, In press)

The development of core or transferable skills in a major component of the UK higher education system and museum collections have a valuable role to play in helping students to acquire key skills such as listening, interpersonal communication and teamwork, which underlie most activities. Many students find the process of assessing and recording skills acquisition tedious and unnecessary; in this project museum loan boxes were used as the basis to develop a series of activities focused on enhancing transferable skills. Formative evaluation undertaken during the development of these activities revealed that students liked the idea of using museum objects as a way of engaging with their key skills, although some found the process of recording skills acquisition onerous. This exemplifies the idea that making an activity enjoyable, in this case using museum collections, can lead to a deeper engagement with that learning activity, enhancing learning (Blunsdon et al 2003; Daniels et al 2009)

Would you do it again?
And if so, what would you do differently?

This project is ongoing as we continue to collect information, ideas and data from staff and students involved in OBL in universities. The next steps in our project include the acquisition of a broader dataset, with a larger sample sizes collected over a longitudinal period, so that we can assess the impact of OBL over time (e.g. to test the idea of lasting memories gained from OBL). From our experience so far we would definitely like to continue to work both virtually and hands-on with student learning from museum collections.

What did you learn?

It appears to be easier to learn about complex and challenging areas of knowledge, 'troublesome knowledge' (Meyer & Land, 2005) when several senses are involved in active learning (Biggs, 2003; Prince, 2004). The experience of seeing and touching objects and discussing them with peers leads students to interpret the concrete and relate it to abstract concepts (Paris, 2002). The process of learning is valuable in itself, as verbal communication and presentation skills as well as writing can be developed. Student learning can also be assessed through tasks based on objects, real or virtual. OBL offers an enjoyable way to model how activities should be reflected upon and recorded.

What advice might you give others and how could others learn from what you have done?

The essence to developing object based learning activities for HE audiences, from our experience, appears to be to develop a shared language, based on a common understanding of the necessary learning outcomes. This is most easily facilitated by developing activities in close collaboration with HE staff and, if possible, trialling activities with students before finally rolling them out. Once developed, these resources can easily be adapted for other HE groups and even for other audiences such as prospective students, addressing the widening participation agenda, and the wider public, including the university-public engagement agenda.

How would you roll this project out in other places and why would you?

Museums have the potential to play a significant role in HE service provision at the subject specific level, augmenting the acquisition of discipline based knowledge, and transferable skills. Museum collections can also form an accessible bridge between HE and their wider public audiences, including local communities, prospective students, and school and colleges. Museum services have considerable experience in developing public outreach programmes, but this is an area in which universities have traditionally floundered; extending and sharing this knowledge with the HE sector could be enormously beneficial for both parties, with museum collections providing the interesting nexus for helping to make universities more accessible institutions. This could be achieved through collaborations such as exhibitions, where collections can be used to tell stories that make university research more accessible and understandable to the non-specialist, or through object based learning directed towards schools and prospective students, addressing the widening participation agenda (see Chatterjee, 2008 for examples).

What implications are there for policies and what are the key barriers to further collaboration?

Universities are under considerable pressure to make the work they undertake (research and teaching) more accessible to the general public; this has been addressed recently by the development of the Beacons for Public Engagement initiative which brings together universities, museums and other public institutions to encourage a more collaborative, inclusive and accessible relationships between universities and the wider public. Museums have the potential to play a significant role in enabling universities to meet these needs through developing innovative collaborations and there are several examples of museums which are already involved in the six Beacons projects nationwide (www.publicengagement.ac.uk). The UCL Public Engagement Unit sits within UCL Museums and Collections and involves partnership with organisations including the British Museum, Southbank Centre and Cheltenham Festivals; other museums involved in the Beacons initiative nationwide include: National Museums Scotland, National Museum Wales, Sainsbury Centre for Visual Arts and Manchester Museum of Science and Industry. One of the biggest barriers for non-university museums engaging with higher education audiences is a potential

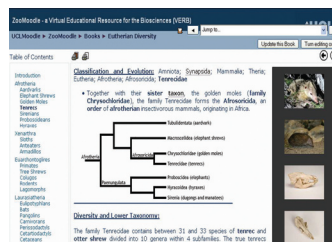


Figure 2

lack of knowledge of the HE-specific language and learning styles specific to HE students. Enhanced communications between universities and museums, dissemination of case studies and examples of modes of engagement, combined with continued research in this area will hopefully encourage a closer relationship between the two sectors.

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