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The University Museums and Collections Journal (UMACJ) is a peer-reviewed, on-line journal for the proceedings of the International Committee for University Museums and Collections (UMAC), a Committee of the International Council of Museums (ICOM).

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The two silver spheres of the University

Goldsmith Mikael Beck in Stockholm started the design of the silver spheres immediately after the guardian government of Sweden (Queen Christina was still underage) had decided to establish a new university in Turku. It was the first university - and for the next 250 years the only university - of Finland. In the grand opening of the university 15.7.1640 the spheres were for the first time carried in front of the ceremonial opening procession. This tradition survived the whole Swedish era until 1809, the whole Russian era until 1917 and since then the whole era of independent Finland. The silver spheres are still carried in front of all the ceremonial processions of the university: the openings, the conferment of academic degrees etc. Otherwise the spheres are exhibited at the Helsinki University Museum.

Table of Contents

Introduction

Global issues for university museums Panu Nykänen, Barbara Rothermel & Andrew Simpson	8
First steps in global advocacy: some perspectives on the formation of UMAC, an international committee of ICOM Panu Nykänen	10

UMAC Proceedings Helsinki & Jyväskylä, Finland | Global Issues in University Museums and Collections: Objects, Ideas, Ideologies, People

Human remains, museum space and the 'poetics of exhibiting' Kali Tzortzi	23
A significance study of the University of Canberra's geological collection Andrew Simpson & Hakim Abdul Rahim.....	35
Artefact or art? Perceiving objects via object-viewing, object-handling, and virtual reality Rebecca Sweetman & Alison Hadfield with contributions by Sophia Mirashrafi & Hannah Sycamore	46
Art engagement and the college curriculum: factors and strategies for success in collection-based teaching Liliana Milkova	67
Museum of Education: challenges and successes in a Greek University Museum Magdalini Ntinou & Evgenia Vafeiadou.....	77
University museum as a multifunction platform A preliminary proposal of initiator-activity-function theory Jeng-Horng Chen	84
University of Tartu medical records Kaija-Liisa Koovit & Tiina Vint	91
Problems and challenges with exhibiting donated mummies Jaanika Anderson	95
A collection care program for/with school students Broadening stakeholder engagement Patricia H. J. Huang	103
Engaging museums: developing collection-centred activities for visitor involvement in the universities of Wuhan, China Luwei Fan, Wan Ni & Hao Jiang	110
University collections: some recent developments in Albania Dorina Xheraj-Subashi	120

Introduction

Global issues for university museums

Panu Nykänen, Barbara Rothermel & Andrew Simpson

In 2017 the annual conference of UMAC, the international committee of ICOM for university museums and collections, was held in Finland at two primary locations, the University of Helsinki and the University of Jyväskylä. This was the seventeenth annual meeting of the group who came together to consider the range of global issues that impact university museums. The subtitle of the conference theme listed objects, ideas, ideologies and people as examples of factors from where global narratives could be derived.

We know that university museums and collections are filled with historical treasures, glorious works of art and science. They provide opportunities to ignite the imagination, inspire the soul, and probe the very heart of our shared human consciousness. University museums are templates or platforms as places of investigation, inquiry, and intellectual challenge in an increasingly global society. The conference organisers posited that if university museums and collections are to retain their relevance, they must be responsive to the dynamics of contemporary society.

To identify global issues our community of higher education, museum practitioners and scholars were asked a series of questions, such as; how can we increase public awareness of multi-cultural, multi-racial and multi-ethnic values? How can we engage faculty and students with our collections when the educational system has been transformed by technology? How can we respectfully display human remains within a contextual exhibition? How can we protect and preserve our collections when under economic threat? The last of these questions seem to be a perennial one asked not just of university museums, but of all museums everywhere. But in higher education with declining public funds, the question “are you core business” is one that seems to be asked of university museums with more frequency. Meanwhile, the leadership groups of some tertiary institutions increasingly seem to be considering the monetisation of collection assets to fund other activities.

The annual UMAC conference was therefore set to examine the innumerable ethical and ideological issues, challenges and opportunities confronting university museum and collections, and their unique role as agents of social change. The four days of the conference attracted 123 participants from 25 nations. The papers captured in this, the 10th edition of *University Museums and Collections Journal*, represent about one quarter of the content presented in Finland in 2017. The geographic spread represented in this volume is appropriately reflective of a global community. There are contributions about university museum practice from Albania, Australia, China, Denmark, Greece, Scotland, Taiwan and the United States of America. Topics explored cover research into engagement with objects and digital surrogates, experiments in the ethical exhibition of human remains, programing at individual university museum level and the level of a geographical association of university museums. There are also theoretical offerings such as one that borrows from actor network theory to provide new insights into categorising the work of university museums, plus the application of significance assessment at a university collection level. Also explored are the use of an art collection in cross disciplinary programs and an analysis of engagement by a university museum focussed on education.

But this issue of *University Museums and Collections Journal* does not entirely represent the proceedings of the annual conference in Finland. There is also an article invited by the previous editors of the journal seeking reflections on the early history of our association. Understanding our history is an important way of making the case that university museum curatorship is an emerging specialism. In this volume, Panu Nykänen reflects on many of the controversies and debates that surrounded the establishment of UMAC as an international committee of ICOM. Panu was also the Chair of the local organising committee for the 17th annual conference. The author would be the first to point out that this is not a definitive general history of university museums. Rather it is a short story of how UMAC was formulated from the perspective of one of our members who was involved at the time. There are three starting points for this, Australia, Holland and Helsinki! Understanding where we come from as an organisation is obviously important, particularly as we draw close to a significant anniversary in 2020. As the journal transitions into an open source publication we anticipate that other active UMAC members of long standing will also offer their reflections and perspectives on the early, often controversial, development of our association.

As has been mentioned previously (LOURENÇO et al 2017) our aim is to transition this journal to an open source academic journal that is the main literature source for research on all aspects of academic museums and collections. Our goal is to be the leading journal of museums and collection research and scholarship in a higher education setting. The journal will provide global, inclusive access to analysis and research on the museums, galleries and collections within universities worldwide and stimulate discussion and debate on relevant issues and concerns. A number of processes are already underway to facilitate this transition. We have established a new and greatly expanded, Editorial Board. This gives the journal an increased range and diversity of specialised expertise. We are reviewing our journal's editorial policies so that we can expand beyond the scope of publishing conference proceedings. We are also investigating various journal indexing schemes that will give the journal a higher profile in the academic and other research communities. The process of change will take some years and involve much consultation with UMAC's membership.

The UMAC Board are focussed on expanding the influence and growing the membership of UMAC. An improved journal will assist in this endeavour. The primary language of the journal will always remain the global academic language, English. We are pleased to announce that the Board have recently undertaken a partnership with Shanghai University Museum to allow translation of whole editions of the journal into Chinese. Previously, only selected articles have been translated. We anticipate that this will engage a large number of university museum staff from China, one of the Board's identified regions for growth.

As we undergo this journey of change, seeking higher quality, we do, as always, welcome your ideas and insights on possible futures for the Journal. UMAC is your association, UMACJ is your journal, get involved now.

Literature cited

LOURENÇO, M., ROTHMEL, B. & SIMPSON A. 2017. Re-evaluating the discourse on university museums. *University Museums and Collections Journal* 9: 7-8.

First steps in global advocacy: some perspectives on the formation of UMAC, an international committee of ICOM

Panu Nykänen

Abstract

This paper provides some personal insights into the origin of UMAC, the International Committee of ICOM, established for university museums and collections. The origins of the group are shown to be controversial as they cut across the discipline-specific criteria usually associated with the formation of an international committee. Aspects of the early history of the group are outlined plus a summary of conferences is presented.

University Museums and Collections

The word «university» is derived from the Latin *universitas magistrorum et scholarium* - a community of teachers and scholars. The University as an institution is more than a thousand years old, with the founding of the University of Karueen, Morocco, in 859 and the University of Bologna, Italy, in 1088. Its roots extend even further to the establishment of educational systems for accumulating, recording, and preserving cultural heritage in ancient Babylonia and Egypt. Universities have survived great wars, revolutions, cultural shifts, and religious upheavals. They have transformed human societies.

The University is an institution of education and research. To accomplish these tasks, universities have built huge collections of different origins. As the activities of universities cover a myriad of human interests, there seems to be no limit to the range of these collections. Some collections are specific to academic disciplines, while others are more encyclopaedic. Some are of a scientific nature, e.g., huge collections of medical sciences, while others are collections of art, e.g., casts of Classical sculpture or original painting. All collections serve several objectives. First, they preserve priceless knowledge and material culture. Second, the collections offer possibilities for research, for creating new knowledge of nature, creativity, and life. Many have developed into museums with interpretive exhibitions and public programming.

The idea of having a collection and a museum within the university organisation is global. Throughout the world, university collections hundreds of years old are maintained for the sake of science and education, such as the Nacional University of San Marcos, Peru (1515); University of Santo Tomas in the Philippines (1611); the National University of Córdoba in Argentina (1613); Harvard University in America (1636), and the Université Laval, Quebec (1663).

The origin of the modern museum can be traced back to the cabinets of curiosities, collected by universities and wealthy travellers, especially during the Renaissance. Oxford University's Ashmolean Museum of Art and Archaeology is considered to be the first modern university collection. It has its origins in the university's art collection, founded in 1683, and the collection of the Tradescants, of "all rarities of flowers, plants and shells" and other curiosities amassed through travel under the patronage of England's aristocracy.

A new era of physical and natural sciences emerged in the 18th century, as scientists measured natural phenomena, developed scientific instruments, and created the basis for the era of rationalism. The Sedgwick Museum of Earth Sciences, established in 1728, is the oldest of the University of Cambridge's museums. The collection of fossils illustrates the evolution of life on the earth. The Royal Mineralogy Museum at the University of Naples, established in 1801 by Ferdinando IV di Borbone, is considered the most important Italian mineralogical museum and is well-known for the historic and scientific value of its Vesuvian collection, scientific instruments, and hyaline quartz from Madagascar, given as a present to King Charles VII. One of the most beautiful examples of a scientific instrument collection that remains intact is found at the Science Museum of the University of Coimbra in Portugal. Dating from 1772, the Physics Cabinet is the most important science collection in Portugal and one of the most important ones in Europe.

Scientists throughout this time measured natural phenomena and created the basis for the era of rationalism. Scientific instruments and collections were developing hand-in-hand with new theories and methods.

For example, botanical gardens, which date back more than 3,000 years to ancient Egypt and Mesopotamia, are one of the earliest types of university museums. The botanical garden at the University of Siena dates to 1588, when the university began to grow medicinal herbs. Oxford University has the oldest botanical garden in England, dating from 1621. The French National Museum of Natural History, part of the Sorbonne Universities, was founded in 1793, but its origins lie in the royal garden of medicinal plants created by Louis XIII in 1635. By the mid-18th century, botanical gardens were organized to represent the newly developed binomial nomenclature, first published by the Swedish botanist and zoologist Carl von Linné's (Linnaeus), *Systema Naturae* in 1735. His garden remains at the University of Uppsala. The herbarium at the University of Bologna is one of the earliest in Europe, with specimens from the 16th century onward.

In the 18th century many major universities collected art, symbols of the university's role in the society, exhibited to show the wealth, prosperity and status of academe. The origins of Princeton University's art collections date nearly to the University's founding. Chartered in 1746, it is one

of the oldest collecting institutions in America. The Academic Museum of Antiquities at the University of Bonn was founded in 1818 with one of the largest collections of plaster casts of ancient Greek and Roman sculptures in the world. These were used to instruct students in art academies. In addition to 500 casts, the museum today owns more than 2,000 originals from Greece and Rome and 3,000 works from ancient Egypt. The Fitzwilliam Museum at the University of Cambridge, founded in 1816 with the bequest of a collection consisting of 144 paintings by Dutch masters, works by Titian, Veronese and Palma Vecchio, 500 folio albums with engravings, 130 medieval manuscripts and a collection of autographed music by Handel, Purcell and other composers, is a world-class resource for researchers, students, and the public. The Yale University Art Gallery is the oldest university art museum in the western hemisphere, founded in 1832. The gallery was founded when patriot-artist, John Trumbull, donated more than 100 paintings of the American Revolution. Today, its encyclopedic collections number more than 185,000 objects from ancient times to the present. The Tokyo Fine Arts School, predecessor of Tokyo University of the Arts, started to collect art materials for education and research prior to its foundation in 1887.

At the beginning of the 19th century, empirical research became the foundation of scientific education in the academic world, with the University of Berlin the vanguard of research-based science and university education. As research became the foundation of scientific knowledge, associated collections became the evidence. Possession of a magnificent collection of devices designed and manufactured to measure time, angle or distance, became essential for the replication of experimentation and publication. The taxonomic approach to flora and fauna was made possible with significant collections of plants and animals. At the same time, research in mineralogy was advancing due to growing collections of crystals and minerals, providing the basis for the theories of chemistry and the earth sciences.

Science academies, founded in many European countries during the 18th and early 19th centuries, introduced series of scientific lectures for the general public, and established permanent exhibitions for scientific and technical education. Technical institutes, such as the Technische Universität Bergakademie Freiberg, Germany, had used technical model collections as a means of education from the 18th century. New exhibitions and technical collections, however, were targeted for both university and general public audiences. The Musée National des Arts and Métiers in Paris is one of the oldest permanent scientific and technological exhibitions.

Museums of anthropology and ethnography, the corpus of the Enlightenment concept of humanity, as something unfolding progressively through time, became prevalent at universities around the world in the 19th century, as did archaeological collections when increasing interest in antiquities led to increasing excavation work. These museums were influential leaders in documenting cultures and professionalizing academic disciplines. Harvard University's Museum of Archaeology and Ethnology, founded in 1866, is one of the oldest anthropology museums in the world. The Museum of Archaeology and Anthropology at the University of Cambridge, founded in 1884, has collections spanning nearly 2 million years of human history from all inhabited continents. The University of Pennsylvania Museum of Archaeology and Anthropology was founded in 1887 to house artifacts from a planned expedition to the ancient site of Nippur in modern-day Iraq (then part of the Ottoman Empire). Many objects of world cultures in the collection come from the University's archaeological digs and anthropological expeditions and include artifacts from Queen Puabi's tomb at the Royal Cemetery at Ur, ancient Mayan monuments, and architectural elements from the 3,200 year old palace of the Egyptian pharaoh Merenptah.

The model of organization of university museums and collections has gone through substantial transformations on a global scale. There is no longer a single model for university museums or collections. They all have distinctive missions and purposes, developed over time as appropriate for the parent institution. The only permanent and common feature of university museums and collections is their status as a tangible knowledge bank and a vital component of the academic tradition.

The Idea of UMAC

University collections share a specific feature derived from the nature of teaching and research. Science is a cumulative mass of knowledge, its development is unpredictable. No one can tell what the research problems of the future will be, and no one can tell if accepted scientific paradigms will still be accepted in the decades or centuries ahead. Every specimen that

contributes to knowledge has value and is of importance, independent of its economic value or its relevance to current research. A single artefact or specimen may be unbelievably valuable, or have no economic or scientific value at all. It is easy to see the value of the works of famous painters in the collections of fine art, or the gemstones in the mineralogical collections. But also, the economically worthless mud samples or a collection of a million little flies form an irreplaceable entity. The collection and individual items are both components of the research process that builds scientific understanding. An individual fruit fly specimen might not be that interesting, but as a set of millions they proved to be the key for outlining the genetic basis of the theory of evolution in the 19th century.

The duality of economic value and value in terms of knowledge production presents a real risk to collections. For example, when the direction of scientific research changes it may be considered economically prudent to discard a collection associated with previous scientific endeavour that is no longer considered relevant. When organisations are busy working on new research issues, and are not provided with adequate resources to take care of the old collections, these easily become unvalued objects stored in a backroom of the lecture hall. These kinds of collections are called orphan collections. The term is quite revealing. If these collections don't have someone to advocate for their importance and use in research, or use them for education or engagement, the outcome may be disposal.

The situation became critical in Europe from the 1960s onwards, where the rapid development of university organisation and administration posed a serious threat to many of these old collections. The universities' administrations were influenced by strategic ideas arising from corporate life, and the basic tenor of the university started to change¹. Merging of age-old institutions, renovation of the old buildings, even abandoning old university campuses in favour of new modern premises brought the collections from behind their closed doors, exposing them to new rationales that provided university administrators with justification to dispose of collections on financial grounds. Another reason for the undervaluation of collections arose with the introduction of computers and the rapid development of information technology that for a new generation promised a different approach to the generation of knowledge.

In many cases, the real scientific database, i.e. the scientific collections which were created at many universities, became an economic burden for the growing ranks of university administrators. One of the first examples of drastic action occurred when the Faculty of Geology of the Leiden University was closed down and merged with the Utrecht University at the beginning of the 1970s. In that process, the old collections of geology were dismantled². A similar elimination of collections happened at the Hancock Museum in England in the 1970s.

Probably the first organized response to the emerging threat of the destruction of elements of scientific heritage took place in the United Kingdom. The British Museums and Galleries Commission published reports on the university museums in 1968 and 1977. The problems of the university museums were raised during the 1986 Museums Association's conference, where Alan Warhurst of the Manchester Museum and Frank Willett of the Hunterian Museum in Glasgow presented papers under the topic *The Crisis in University Museums*³.

In the 1980s in Scotland, and later in England, university museums formed a special task force to discuss the problems. In Scotland, university museums founded a special organization, UMIS, to take care of its members' needs. In England, a similar organization, University Museums Group, UMG, was founded. Peter Stanbury from the University of Sydney, visiting the UK to discuss common problems with university colleagues, was surprised and interested by the amount of organizational work already done in Britain, especially in Scotland.

Following the Scottish model, Stanbury decided to try to undertake a survey and a project for establishing operational guidelines in Australia. There had been no serious survey of university collections since the 1930s although Barrie Reynolds from the James Cook University, Townsville, had conducted a simple overview of the Australian university museums in 1979⁴.

¹ See e.g., Museums & Galleries Commission. Report 1986–87. Specially featuring University Collections. Also

² Steven De Clerck, correspondence 20/07/2011.

³ Museums & Galleries Commission. Report 1986–87. Specially featuring University Collections.

⁴ Peter Stanbury. A survey of Australian University Museums and Collections 1992. Read 29/11/1993 at Council of Australian University Museums and Collections AGM, Hobart Tasmania. Barrie Reynolds. Survey of University Museums. Museums Association of Australia, 16/11/1979 (unpublished report).

In a preliminary survey in 1992, Stanbury compiled a list of about 125 different university museums and collections. After discussions with Reynolds, the two founded the Council of Australian Museums and Collections, CAUMAC. One of the initial aims of CAUMAC was to try to find the right forum to discuss the problems of university museums with the government, but there was an unexpected difficulty. Australian universities were under the authority of one Federal ministry, and museums under another. Neither of the ministries were willing to take responsibility for the university museums and collections. The State Governments (equivalent to Counties or Provinces) considered the university museums and collections to be responsibility of university administration, so the responsibility for financing and developing these museums rested with the individual universities themselves.

In the administrative sense, the situation was a deadlock. Finally, with the help of Di Yerbury, vice-chancellor of Macquarie University, the problem was brought to a meeting of the Australian vice-chancellors. This group was sufficiently influential to discuss the problem with both Federal government ministers. Sufficient funding was established to carry out a proper review of Australian university museums⁵.

A University Museums and Collections Review Committee was announced, chaired by Don McMichael, to consider the current condition of university museums and galleries and to make appropriate recommendations.

The Australian survey proved to be a turning point in the history of university museums, it stimulated interest and similar work in other countries. After eighteen months (with Peter Stanbury acting as the secretary of the project), the Review Panel published a 225-page report called *Cinderella Collections* (1996). A following report, *Transforming Cinderella Collections*, was published two years later. By the end of the decade, the number of known Australian university museums and collections had increased to 250.

Concomitantly, or perhaps as a result of the government review mentioned above, a project led by Vanessa Mack from the Macleay Museum of the University of Sydney, resulted in the creation the Australian University Museums Information System, AUMIS. This project attempted to catalogue items in university museums Australia-wide. Almost at the same time Macquarie University began putting its collections online using the Ad Libris system⁶.

In Europe, at the same time, similar discussions and projects were emerging. Steven De Clercq was making an effort to highlight the situation of university museums and collections at the Scientific Instruments Commission of the International Union of the History and Philosophy of Science and the European Association of Museums of the History of Medical Sciences. Also active on these issues during the late 1990s were Liba Taub, Jim Bennett, Robert Anderson, and Paolo Galuzzi. By that time, De Clercq had set up a task force which later became the Dutch Stichting Academisch Erfgoed.

The Dutch network was created as an unofficial network during the late 1970s, at this time responsibility for financing and preserving university collections was essentially being shouldered by those working in the university museums themselves rather than their parent institutions. This network consisted of the few people that still cared for the old collections. They saw that the collections were under immediate threat of disposal. The network managed to get the attention of the government, and measures were taken in order to save the collections. In this way, the issue managed to stay on the political agenda.

In 1982, Steven de Clercq was appointed director of the Utrecht University Museum, and together with the existing network he started the Landelijk Overleg Contactfunctionarissen Universitaire Collecties (LOCUC), consisting of representatives from the universities of Amsterdam, Groningen, Leiden, Delft, and Utrecht. Meanwhile, at the government-level, a workgroup called Werkgroep Universitaire Collecties (WUC) had been established, chaired by the head of the Department of Museums, Monuments and Archives at the Ministry of Culture. This group had previously undertaken a national survey that had excluded university museums. In October 1984, WUC and LOCUC sat together and decided to run a national survey, to be carried out under the responsibility of the Utrecht University Museum. The survey made by the University of Amsterdam the previous year served as an example.

⁵ E.g. An Issues paper: Why are Universities in the Museum Business? October 1994.

⁶ Mack & Llewellyn 2000.

The results of the survey, published in December 1985, revealed that there were at least 128 collections. In addition, a lot of important material was discovered: at least 18 collections were under imminent threat of disposal, and another 10 would be orphaned in the near future. The Ministry of Culture considered the situation serious and asked the Rijkscommissie voor de Musea and the Commissie van Advies voor de Natuurhistorische Musea to establish a commission for further investigation and to make recommendations for safeguarding the irreplaceable collections of national and international significance. The report of the commission was published on the 1st June 1986⁷.

While this work was being undertaken in the Netherlands, international contacts were being established. The Dutch activists were visible in the Scientific Instruments Commission of the International Union on the History and Philosophy of Science IUHPS, and in the European Association of Museums of the History of Medical Sciences, and their work was crucial when the foundations of UMAC were being formed during the late 1990s.

In Britain, the report of Museums and Galleries Commission of 1986–87 focused on university collections. The demand for survey and inventory work was apparent also in Britain, and an extensive research project of the different collections was established. A series of publications was issued during the following decade, a number of them written by Kate Arnold-Foster⁸.

The discussion that had been going on in Britain and in the Netherlands, was being noticed at the European level. The European Council accepted the report of the Committee on Culture and Education. In 1998, the Council of Europe gave the *Recommendation 1375 (1998) over the Protection of "incidental collections" against dispersal*. The recommendation was for the most part ignored in the general discussion, but at least it gave moral support for those who were trying to do something positive to preserve the endangered cultural heritage in university collections.

In 1998 the issue finally had a chance to get some global visibility. That year, ICOM held its general conference in Melbourne. The conference theme was *Museums and Cultural Diversity*. The new Secretary General of ICOM, Manus Brinkman, came to be the key person in advancing the issue. Brinkman started this role in early 1998, and quite soon Peter Stanbury, now working for Macquarie University in Sydney, presented the idea of a new international committee to him. It was too late to put forward the case at the Melbourne meeting, but Brinkman brought Peter Stanbury and Steven De Clercq into contact with each other. Discussions between Stanbury and De Clercq lead to the idea of gathering a larger group of interested associates, and Stanbury sent dozens of letters around the world to get the project initiated.

During the meeting in Melbourne, the Comité International des Musées de Sciences et des Techniques CIMUSET, an international committee of ICOM, delved into the problems of university museums and collections. Peter Stanbury was the main lobbyist in getting the issue raised inside the ICOM organization. During the meeting, he collected a sufficient number of signatures for a formal submission to establish an international committee of ICOM for the university museums and collections. De Clercq suggested the name UMICOM for the organization.⁹

The request provoked a heated discussion among the ICOM Advisory Committee and also among the Executive Board. The major argument against the new committee was based on the belief that there were already too many international committees within the organization. It was argued that the number of committees should be reduced rather than expanded. There was also a question of money. ICOM was not a rich organization, founding new international committee would also put pressure on finances. The second argument against the new committee was based on the nature of university museums. Some people argued that university museums are not a special group of museums, but rather a series of art, natural history, history museums, etc., and thus they would be better accommodated in the existing international committee structure. The controversy was exacerbated by different national backgrounds and perspectives. The tradition and the whole idea of university museums were very varied; in some countries these museums were treated as special museums, but in others the whole concept was unknown¹⁰.

⁷ Steven De Clercq, correspondence 20/07/2011.

⁸ See Foreword by James Joll in Kate Arnold-Foster: *Beyond the Ark. Museums and Collections of higher-education institutions in southern England. Scholarship, learning, and access*. South Eastern Museums Service (Western Region) 1999.

⁹ <http://publicus.culture.hu-berlin.de/umac/pdf/Notes%20from%20Steven%20de%20Clercq.pdf>

¹⁰ Manus Brinkman, correspondence, 25/07/2011.

One of the biggest obstacles on the path of the new organization was that the concept of the intended new international committee was not clear even among the university museums themselves. With the support of Manus Brinkman and the President of ICOM Jacques Perot, ICOM decided to support the idea of a new committee. The success or failure of the operation would be judged by the number of supporting and motivated museum professionals around the world¹¹.

In 2000, the creation of the new committee was bolstered when *Museum International* (a UNESCO publication) produced a series of articles discussing the question. Stanbury had managed to get a group of writers to fill two issues, # 206 and # 207. The articles were an important mechanism for changing opinions about university museums and collections. However, the case for establishing a new organization for university museums was not yet clear. The president of UMAC Jacques Perot explained the situation to Peter Stanbury in a letter on 24 July 2000. There was still much to be done before the establishment of the committee¹².

The discussion continued in different forums. UMiS in Scotland arranged a meeting in Glasgow in September 2000 under the theme *The Death of the Museums*, primarily to discuss the problem on a national scale. Several foreign delegates took part in the meeting, especially from the United States, where a group of University Museums had been struggling with their own problems of financing and administration. One of the leading museums in the US movement was the Sam Noble Oklahoma Museum of Natural History which was going through an impressive development project under the directorship of Michael Mares with Peter Tirrell as deputy. The need for a new international organization came out during the discussions in Glasgow. The initiative for the founding of UMAC was presented a few days later in Paris, to which several delegates of the Glasgow meeting travelled.

More background crucial for the founding of UMAC came from the Nordic countries. There the discussion started when the University of Helsinki was reorganizing its museum and scientific collections in the late 1990s. The old laboratory building Arppeanum (1869) was destined to host a permanent museum exhibition. During these preparations, the museum director Kati Heinämies and the chief of administration Sinikka Mertano initiated co-operation with the Museum of Medical Sciences of Paris V – Université René Descartes. Contacts were also created with the Museum Gustavianum of Uppsala University, and to the University Museum of Tartu. During these discussions, a need for a wider forum for the university museum leaders was recognised.

Sinikka Mertano was an acting member in the program IMHE, the Institutional Management of Higher Education, which was a part of the Organisation for Economic Co-operation and Development OECD. Heinämies and Mertano made an initiative for IMHE to arrange a seminar under the topic *What Works*, where university museums could discuss practical problems.

The initiative met obstacles. First, there was doubt whether this kind of meeting was needed, because a common view was that ICOM could handle all discussion regarding different kinds of museum issues. After some persuasion, the deputy director of IMHE, Jacqueline Smith, agreed to arrange the seminar. As Mertano was also a member of the Board of the Finnish Cultural Centre in Paris, she managed to persuade them to host the meeting, and the seminar on the *Management of University Museums* was arranged at the Finnish Cultural Centre in Paris from the 18th to the 19th of September 2000¹³.

The seminar was a huge success, over 60 participants from 17 countries participated. The largest delegations were from Australia and the United Kingdom. Among the participants were e.g. Peter Stanbury, Dominick Verschelde, Penelope Theologi-Ghouti, Steven de Clercq, Ing-Marie Munktel, Kate Arnold-Forster, Aldona Jonaitis, Lyndel King, and Peter Tirrell. The participants gave two full days of presentations, and 18 presentations were later published in the OECD series¹⁴.

11 Manus Brinkman, correspondence, 25/07/2011.

12 Letter, Peter Stanbury to Jacques Perot, 25/07/2000.

13 Mertano, correspondence, 12/03/2011. Report on UMAC activities from September 2000 to June 2001. In the Umac Archive.

14 Managing University Museums. Education and Skills [microform] / Melanie Kelly, Ed. Organisation for Economic Co-operation and Development, Paris, France. Washington, D.C. Distributed by ERIC Clearinghouse, 2001.

During the closing session of the seminar, a discussion about founding an international committee for university museums inside ICOM was held. The meeting made a practical decision to form a committee for the university museums and collections, and the voting members for the new organization were asked to sign the charter. Bernard van der Driessche and Dominick Verschelde, both from Belgium suggested a name for the organization: University Museums and Collections, UMAC.

To proceed with the practical arrangements, an interim board was appointed. Peter Stanbury became the chair, Penny Theology-Gouti the treasurer, and Steven de Clercq the secretary. The aim of the work of the interim board was to arrange the first UMAC meeting in Barcelona in 2001.

The International Committee for University Museums and Collections, UMAC, was officially founded during the 2001 ICOM Triennial Conference in Barcelona, Spain¹⁵. One of the main objectives of the new organization was to get recognition from both the academic world and political organizations.

The First Conferences and Stabilizing the Organisation

As stated, UMAC organized its first and very successful meeting in connection with the ICOM Triennial Conference in Barcelona in July 2001, with some 20 contributions under the theme *Intensifying Support for, and Increasing Audiences in University Museums and Collections*. There was concern that there would be an inadequate number of participants, it was unfounded. Around 50 participants from 20 different countries were willing to sign up as voting members of the new international committee¹⁶.

According to the statutes of UMAC, the Board is elected during each triennial plenary meeting. The members of the first elected UMAC Board were:

Chair: Peter Stanbury, Australia
 Vice-Chair: Steven de Clercq, Netherlands
 Secretary: Penny Theologi-Gouti, Greece
 Treasurer: Sue-Anne Wallace, Australia
 Dominique Ferriot, France
 Kati Heinämies, Finland
 Lyndel King, USA
 Ing-Marie Munktell, Sweden
 Tonnette Peñares, Philippines
 Fausto Pugnaroni, Italy
 Ewen Smith, UK
 Peter Tirrell, USA
 Pasquale Tucci, Italy

Four working groups were established at the Barcelona meeting to tackle the most important problems and to discuss and introduce procedures for the newly born organisation, UMAC¹⁷. The idea of the working groups was to share the workload of the Board. In fact, at the beginning, the aim was to distribute most of the time-consuming work of the International Committee to the working groups. The first four working groups were: Directories, Organisation of the next Annual General Meeting and Conference, Personnel and Staffing, and Ethics.

The Directories Working Group was formed by Simon Chaplin, and the group's basic role was to create and maintain UMAC's relations with the other actors in the museums field. Peter Stanbury suggested a working group for the arrangements of the next annual meeting. The main question of the working group was to figure out if the next meeting should be arranged as soon as the following year. Australia, Poland, Portugal, and the USA were candidates for hosting the event.

¹⁵ In some sources the date of the Barcelona meeting is mentioned to be in 2000, but the triennial was 2001. See e.g. <http://www.icom-ce.org/recursos/File/Resolutions%20adopted%20by%20ICOM.pdf>. 21/03/2010.

¹⁶ UMAC Annual report 2001–2002.

¹⁷ Minutes of 1st UMAC Board Meeting. Barcelona Tuesday 02/06/2001.

The next working group for discussing the status of personnel and staff in the university museums was proposed by Ing-Marie Munktel. The Museum Gustavianum of Uppsala University was to be a case study. The fourth working group was on Ethics, the formation was proposed by Steven de Clercq. The main objective of the group was to point out where and how the ethical procedures of the university museums and collections differ from the formally established Code of Ethics of ICOM. For instance, research collections were created in order to find answers to scientific questions, and it does not always follow that the material should be preserved once the research questions are resolved; in other words, selection and subsequent deaccessioning may, in some circumstances, be appropriate.

From the beginning, UMAC's working processes were based on e-mail exchange, and it became the standard way of communication; even reporting to the Board was done this way.

Reliance on this relatively new technology was perhaps a little too enthusiastic. During UMAC's first years, there was the ambitious plans that the working groups would report on their progress every two to three months, and that the minutes of the general meeting would be published online almost without delay. The years to follow would show that discussion and reporting would not be quite that rapid. At the same time, the 'old fashioned' paper-based publication of proceedings of meetings came up as a means of giving substance to the work of the organization. The Board received a proposal from *Museologica*, the museological journal of the University of Lisbon in Portugal, for publishing the proceedings of UMAC. The chair also reminded the Board of ICOM's own series *ICOM Study* and of the possibility for UMAC to propose a special issue on university museums.

In Barcelona, UMAC had made a good start, but the future still seemed quite uncertain. It was decided the next meeting would be held in Sydney the following year. This seemed promising, but the time for preparations was short. Everyone understood that the future of the organization depended on UMAC's relationship with ICOM and the national museum committees that made up ICOM. It was already decided that the next ICOM triennial conference would be held in Seoul in 2004. The vice-chair suggested that the Board should start communicating with the organizers of the Seoul conference as soon as possible, as well as with the local institutions, in order to ensure a strong UMAC program for the next meeting.

One of the presentations in Barcelona was given by Marta Lourenço, who had written to Steven De Clercq and posed some questions regarding her doctoral thesis. De Clercq asked Lourenço to submit a paper, and her thesis started to intertwine with the development of the new organization. Lourenço became a member of the scientific committee of the annual meeting, and she started as a consultant for the Board, delivering information on European and American university museums.

Marta Lourenço's doctoral thesis *Between two worlds. The distinct nature and contemporary significance of university museums and collections in Europe* was published in 2005 in the series of Conservatoire National des Arts et Métiers in Paris¹⁸. Steven De Clercq and Dominique Ferriot were the supervisors. This study became a solid basis of university museum knowledge in Europe.

The next UMAC conference was arranged for Sydney and Canberra in 2002. There, Peter Stanbury actively encouraged Australian researchers to engage with university museums. The theme of the conference was *Exposing and Exploiting the Distinct Character of University Museums and Collections*. In Sydney, 25 contributions and 8 posters were presented. In addition, two round table discussions were arranged.

The next year, 2003, 55 people from 14 different countries attended the UMAC conference which was held at the Sam Noble Oklahoma Museum of Natural History in Norman, Oklahoma. In the Annual General Meeting during the Oklahoma conference, UMAC proclaimed its maturity; the first tentative steps were over.

Cornelia Weber and Marta Lourenço came forward with a proposal for a new world-wide database for the university museums and collections. The database was set up at the ICOM/UMAC website, and it was published in May 2004. It was an immediate success; the number of hits was levelled between 900 and 1200 hits per week.

¹⁸ Correspondence Marta Lourenço. 17/08/2011.

A Summary of Subsequent Activities and Conferences

The next ICOM General Conference was arranged for 2004 in Seoul, Korea. Hosts of the UMAC meeting were Professors Kidong Bae, Chung-Kyu Lee, and Youngna Kim. For quite a few European participants this was their first exposure to Korean culture.

A new Board was elected during this meeting with Cornelia Weber, Berlin, Germany, as chair. The number of vice-chairs was raised to two. Steven de Clercq continued as the first vice-chair, and Peter Stanbury was to be the second. Lyndel King, Minneapolis, USA, was nominated newsletter editor, and Peter Tirrell, Oklahoma, USA, web editor. Other Board members were Dominique Ferriot, France, Kati Heinämies, Finland, and Ing-Marie Munktel, Sweden. The chairs of the working groups were also taken as Board members; these were Aldona Jonaitis, USA, Marta Lourenço, Portugal, and Rafaella Simili, Italy.

After Seoul, UMAC arranged conferences as follows, a summary is presented below¹⁹.

2005 - Uppsala

25 September – 1 October

Location: Museum Gustavianum

Theme: Communicating University Museums. Awareness and Action – University Museums.

Local organiser: Ing-Marie Munktel

2006 Mexico City

25–29 September

Theme: New Roads for University Museums

Location: Universidad Nacional Autónoma de México

Local organiser: Miquel Angel Fernández Felix

2007 Vienna

19–24 August

Theme: Museums and Universal Heritage

Location: Vienna University

ICOM general conference

UMAC Theme: Universities in Transition – Responsibilities for Heritage

Local organiser: Monica Knofler

The Board election was held during the AGM, and Cornelia Weber was chosen to continue as the chair. The post of the second Vice-Chair was passed on to Nicholas Merriman, Manchester, UK, Aldona Jonaitis became the Secretary, Panu Nykänen, Espoo, Finland, was elected the new Treasurer., and Lyndel King the newsletter editor. Other members of the board were Hugues Dreyssé, Strasbourg, France, Kate Arnold-Forster, University of Reading, UK, Peter Stanbury, and Penny Theology-Ghouti. The proceedings from this conference became the first edition of University Museums and Collections Journal as an electronic publication²⁰.

2008 Manchester

16–20 September

Theme: University Museums and the Community

Location: University of Manchester

Local organiser: Nicholas Merriman

2009 Berkeley

10–13 September

Theme: Putting University Collections to Work in Research and Teaching

Location: University of California, Berkeley

Local organiser: Rosemary A. Joyce

¹⁹ A full listing of conference details is given on the UMAC website <http://umac.icom.museum/resources/archive/past-annual-conferences/>.

²⁰ A brief history of UMAC's publication ventures is given in Lourenço et al. 2017.

2010 Shanghai

7–12 November 2010

Theme: Museums for Social Harmony / University Museums and Collections as Recorders of Cultural and Natural Communities Worldwide

Location: Shanghai World Expo 2010

Local organiser: Professor Wu Hongzhou, Chinese University Museums Committee CUMC

The meeting was held simultaneously with the ICOM general conference. The UMAC conference was arranged in co-operation with the International Committee for Egyptology (CIPEG). A new UMAC Board was elected. Huques Dreyse, Strasbourg, France, became the new chair. Ing-Marie Munktel, Uppsala, Sweden, and Peter Tirrell, Norman, OK, USA became the vice-chairs. Other new board members were Elena Corradini, Italy, Christine Khor Seok Kee, Singapore, Lyndel King, Graciela Weisinger (secretary), and Panu Nykänen (treasurer).

2011 Lisbon

21–25 September

Theme: University Museums and Collections - University History and Identity

Location: University of Lisbon

Local organiser: Marta Lourenço

2012 Singapore

9–13 October

Location: National University of Singapore (NUS).

Theme: Encountering Limits: The University Museum

Local organiser: Christine Khor, National University of Singapore

2013 Rio De Janeiro

12–17 August

Theme: Museums (Memory + Creativity = Social Change)

UMAC Theme: Evaluating change

Local organiser: José Lira (São Paulo)

This meeting was held simultaneously with the ICOM general conference. The composition of the Board after the election was: Hugues Dreyssé Chair; Panu Nykänen and Elena Corradini Vice-Chairs; Graciela Weisinger, Secretary; Catherine Giltrap Treasurer. Members: Isidro Abano, Christine Khor, Lyndel King, Luisa Fernanda Rico Mansard and Barbara Rothermel.

2014 Alexandria

9–14 October

Theme: Squaring the Circle? Research, Museums, Public: A Common Engagement towards Effective Communication.

Location: Library of Alexandria

Local organiser: Mona Haggag

The UMAC conference was arranged with the Committee for Education and Cultural Action (CECA) of ICOM.

2015 Manila

11–15 May

Theme: Rethinking university museums: Bridging theory and practice

Location: University of Santo Tomas

Local organiser: Isidro Abano

2016 Milan

3–9 July

UMAC Theme: University Museums, Collections and Cultural Landscapes

Local organiser: Sofia Talas

This meeting was held simultaneously with the ICOM general conference. The current Board at time of writing were elected; Marta Lourenco Chair; Barbara Rothermel and Graciela Weisinger Vice-Chairs; Marcus Granato Secretary; Natalie Nyst Treasurer. Members: Fatemeh Ahmadi, Elena Corradini, Akiko Fukuno, Lyndel King, Luisa Fernanda Rico Mansard and Andrew Simpson.

2017 Helsinki and Jyväskylä

5 – 8 September

Theme: Global issues in university museums and collections: Global objects, Global ideas and ideologies, and Global people.

Location: University of Helsinki, University of Jyväskylä

Local organiser: Panu Nykänen

2018 Miami

21-24 June

Theme: Audacious Ideas: University Museums and Collections as Change-Agents for a Better World

This was held as a joint conference with the Association of Academic Museums and Galleries, AAMG-USA.

Local organiser: Jill Hartz and Barbara Rothermel

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Global Issues in University
Museums and Collections:
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Human remains, museum space and the 'poetics of exhibiting'

Kali Tzortzi

Abstract

The paper explores the role of the design of museum space in the challenges set by the display of human remains. Against the background of 'embodied understanding', 'multisensory learning' and 'affective distance' and of contextual case studies, it analyses the innovative spatial approach of the Moesgaard Museum of the University of Aarhus, which, it argues, humanizes bog bodies and renders them an integrative part of an experiential, embodied and sensory narrative. This allows the mapping of spatial shifts and new forms of engagement with human remains, and also demonstrates the role of university museums as spaces for innovation and experimentation.

Introduction and research question

This paper aims to explore the issue of the respectful presentation of human physical remains in contextual exhibitions by looking at the role of museum space in the challenges set by their display, with particular reference to the contribution of experimentation in the university museum environment. The debate raised by the understanding that human remains “are not just another artefact” (stated by CASSMAN et al. 2007, in GIESEN 2013, 1) is extensively discussed in the literature, and increasingly explored through a range of museum practices. In terms of theoretical understanding, authors have sought to acquire an overall picture of approaches towards the care of human remains so as to better understand the challenges raised. For example, among the most recent publications, O’Donnabhain and Lozada (2014) examine the global diversity of attitudes to archaeological human remains and the variety of approaches to their study and curation in different countries. In contrast, Giesen (2013) looks at the UK and provides an overview at the national scale of current tendencies. In terms of practice, of particular interest are the perspectives on the care and display of human remains, and research into them, seen through the lens of a particular institution, the British Museum, by Fletcher, Antoine and Hill (2014). From the point of view of this paper, it is illuminating that, in this publication, emphasis is given to the display of bog bodies (JOY 2014) and mummies (TAYLOR 2014) – which are also the focus here – in the belief that, with their “materiality”, well preserved features and distinct individual traits, they set additional challenges.

It is also particularly interesting that in the literature special attention has been given to the display of human remains in university museums and the experimental and innovative approaches they often adopt. An exemplary case is the display of Lindow Man in the Manchester University Museum in 2008 (see JENKINS 2011; SITCH 2009; BROWN 2011), one of the case studies in this paper. Both theoretical perspectives and curatorial experiences have been the subject of international conferences such as the ones held in the Museum of London in 2004 (see LOHMAN & GOODNOW 2006) and in 2007 (see SWAIN 2007) which “illustrate just how diverse the uses of human remains and the views about them are” (SWAIN 2007, 197). However, as noted by Sanders (2009, 183), despite the rich accumulating literature, “the question of what happens when the displayed archaeological artefact is a human being has not yet been fully answered”.

With these debates and challenges as context, the aim of this paper is, as noted, to focus on the spatial dimension of their presentation and how this can contribute to their respectful integration into the overall display narrative. We are particularly interested in their spatial arrangement, the positioning of their display in the museum itinerary and its accessibility and visibility links with other spaces and displays, and, in general, in the contribution of spatial design to the aim of humanizing human remains, rather than objectifying them “as scientific objects or data” (ANTOINE 2014, 3). The question is set against the background of, on the one hand, the augmented awareness in museum theory and practice of the role of space in the construction of exhibition meaning, and, on the other, the increasing engagement of museums with embodied and sensory forms of knowledge.

Reflecting this, the first part of the paper reviews the general significance of the spatial dimension in the creation of museum experience, and the concept of ‘embodied understanding’. The second part shifts the focus of attention to museum practice to examine through background cases, and in particular university museums, how space has a key and variable role in presentations of human remains, which depends, it is suggested, on the degree to which they are conceptualised as once living human beings. The third part of the paper analyses, based on in-depth in situ observation, the main case study: the Moesgaard Museum, a combined archaeological and ethnographic museum of the University of Aarhus, Denmark. The Moesgaard Museum constitutes, it will be argued, an innovative example in terms of the display of some of the best preserved bog bodies in the world, a key parameter in which is its spatial approach. The analysis shows how the human remains, by being treated as past people, become an integrative part of an experiential, embodied and emotional narrative. The display is organized as a series of experiences which, while spatially separate, and often intimate, are intricately interwoven. A narrative is constructed as each builds on the previous one conceptually, while synergies between spaces intensify contextual associations. This approach, as is shown, affects visitors’ experience and in particular their sense of co-presence with other visitors.

Looking at the Moesgaard Museum in conjunction with the background case studies brings to the surface spatial shifts in the display of human remains which suggest there may be deeper and more enriching ways in which we, as visitors, can engage with archaeological remains of human beings in museums. No less importantly, it demonstrates the role of university museums as incubators of new ideas and experimental approaches.

Theoretical context: physical dimension, embodied understanding and affective engagement

In the later part of the twentieth century and the early twenty-first, the importance of space in creating the museum experience has become a focus of interest in the museum studies literature. Falk and Dierking (1992) proposed to conceptualize the museum experience as the interaction between three contexts which are “inextricably bound together”, in what they call the ‘Interactive Experience Model’: the ‘personal’ (visitors’ experience and knowledge, interests and motivations), the ‘social’ (accompanying group, other visitors, staff) and the ‘physical’ (including architecture and the feel of the building as well as the objects on display). “At the level of the exhibit, at the level of the exhibition and finally at the level of the building”, they say, “the visitor’s experience is influenced by the creation of space” (2000, 123). This powerfully affects how visitors behave, what they observe and what they remember (1992, 3), as there are strong links between places, emotions and memories (2000, 64).

The idea of an interconnection between cognition and the physical context, and cognition and affect (FALK & DIERKING, 1997, 216) is shared by Roberts (1992). Pointing to different modes through which visitors can receive information, she argues that museums in the past have prioritised “information-based” learning over “experience-based”, and have neglected affect. “A museum visit is first and foremost a physical encounter” (1992, 162), she argues, and “messages reside throughout the physical fabric” of museums (including the “physical facts of layout”, colour and lighting) and not only in verbal forms and literal messages (1992, 167).

Recent developments in cognitive science and neuroscience argue for an ‘embodied’ or ‘situated’ approach to human cognition (BEDFORD 2014, 72) and emphasize that all experience of the world is multisensory (LEVENT & PASCUAL-LEONE 2014). The current view of ‘understanding’ is that it is not just an intellectual operation but rather a series of full-bodied engagements with our surroundings; it is “less a form of knowing or thinking than it is a matter of experiencing and acting” (JOHNSON 2015, 875). In his ‘Embodied theory of meaning’, Mark Johnson argues, referring to Dewey’s concept of the ‘body-mind’, that “mind and body are not two things” and that meaning is grounded in “bodily engagement with the physical dimensions of place and space” (2002, 76; 78) as well as movements, emotions, and feelings (2007, ix). He highlights that “what we actually experience are whole, unified situations, within which we experience individual objects” (2015, 875, 3). These developments have brought more emphasis, in the museum field, to the effects of space on the way in which we perceive displays, and to its interactions with visual, auditory and other aspects of visitor experience. Museums are now increasingly seeking to provide multimodal experiences and information from different senses meaningfully integrated. Multisensory learning is related, among other things, to increased engagement and a beneficial impact on subsequent remembering (LEVENT & PASCUAL-LEONE 2014).

More specifically, in the context of assigning a crucial role to embodied understanding in museum displays, Witcomb (2014; 2015) proposes the concept of a ‘pedagogy of feeling’ to describe exhibition strategies that work sensorially, inviting visitors to “look, listen and feel”. Immersive and sensorial experiences in such displays engage the viewer in a direct and physical way and provoke emotional, even empathetic responses, privileging experience over reason. A key dimension of this is the reconstruction of the narrative by the visitor as the accumulative effect of experiences, rather than as a sequence.

This way of theorising new forms of display practices finds a parallel in the emergence in the late twentieth century of affective historiography and in particular of the concept of ‘affective distance’ proposed by Mark Salber Phillips (2006; 2013). Challenging the idea that historical distance refers to the “growing clarity that comes with the passage of time” (2013, 1) and to detachment, Salber Phillips sees it as a construction that varies in type and degree (2013, 7). It is made up of “all positions from near to far” and “encompasses the variety of ways in which we are placed in relation to the past”. This includes affective engagement, which Salber Phillips relates to “the intimate and immersive displays and sentimental techniques” (2013, 231) of contemporary museums. These, in contrast to “old-fashioned display cases that place a barrier between visitor and artefact”, aim to provide “a visually immediate sense of the past” (WHITEHEAD et al. 2015, 53) and “make it as accessible as possible” (2013, 216) through new forms of spatialisation.

Background case studies: the variable role of space in the display of human remains

From the point of view of this paper, what is of particular interest is that over recent years the spatial dimension has become a key parameter in the display of human remains and an explicit issue in the guidelines and policies issued by governmental bodies (as in the UK and Scotland), national and international museum associations (for example, ICOM and Museums Association, UK) as well as individual museums (as the British Museum). In the case of the UK, in the key document, the 'Guidance for the Care of Human Remains in Museums', issued in 2005 by the Department for Culture, Media and Sport (DCMS), it is recommended that museums should ensure that visitors do not come across them unaware, but display them in a "specially partitioned or alcove part of the gallery". These recommendations, in the form of questions to consider, accompanied by examples, are also included in 'Guidelines for the Care of Human Remains in Scottish Museum Collections', by Museums Galleries Scotland (2011, 17-18). A similar recommendation, to "consider providing advance notice to audiences prior to display", is formulated in the 2016 'Additional Guidance' to the revised 'Code of Ethics' of Museums Association (2016, 9, paragraph 2.3).

These concerns are increasingly reflected in current museum practice. In traditional museum displays we tend to find the absence of spatial distinction in the presentation of human remains. This can be illustrated by the 'Egypt' galleries of the British Museum, and in particular the 'Early Egypt' gallery (Room 64). This gallery includes the display of the well-preserved naturally mummified remains of an adult male from the late Pre-dynastic Period (c. 3500 BC), at the site of Gebelein, Upper Egypt, known as Gebelein Man. The transparent display case (which is accompanied by a nearby virtual autopsy table allowing visitors to explore interactively the CT scan data) is located along the main circulation axis that traverses the enfilade of spaces and extends along the whole north side of the museum. The Gebelein Man is thus exposed to the unintentional views of visitors passing through this main route of the museum. In this case, it could be argued, the human remains are seen as exhibits comparable to others, not requiring any special spatial treatment.

In the case of a later (1997) display in the British Museum, that of the Lindow Man, a different approach is adopted. The well-preserved body (dating between 2 BC – AD 119) was found in a peat bog at Lindow Moss, near Manchester, in 1984, and "has been on permanent display at the British Museum for over twenty years", in different locations (see JOY 2014, 10–19). In its current display in the Iron Age gallery (Room 50), which, interestingly was "put in place" before the DCMS guidelines (JOY, 2014, 17), a visually protected area was created in one corner of the gallery. The square, hip-level display case (accessible from two sides) is off the axis, and inward looking, requiring a short detour by the visitor. The display is accompanied by explanatory material (information panels which include a photograph of the find spot).

In this respect, it is of interest to juxtapose this permanent display of the Lindow Man in the British Museum to its presentation for the temporary exhibition ('Lindow Man: A Bog Body Mystery'), in 2008, at the Manchester University Museum. This was the third time Lindow Man was loaned for a temporary period (earlier exhibitions in 1989 and 1991) and the idea was to create "a polyvocal exhibition" which explored the different meanings of Lindow Man for different people, instead of the museum's single authoritative voice (see BURCH 2008; SITCH 2009; BROWN 2011). For the presentation of the Lindow Man, spatial separation and availability of route choice to omit the space, were proposed in the context of public consultation. But "it transpired that placing Lindow Man towards the end of the exhibition and creating a separate corridor for visitors not wanting to see the body could not be accommodated within the narrow confines of the Museum's Temporary Exhibition Gallery" (SITCH 2010, 400).

The idea that a respectful display means spatial separation, as formulated in the DCMS guidelines, is reflected in the exhibition 'Kingship and Sacrifice', opened in 2006, in the National Museum of Ireland. The exhibition includes four bog bodies (c. 400 BC and 200 BC) and is centred on a new theory that connects their location to important ancient boundaries, and assigns them a protective function (KELLY 2006). The bodies are "not exposed within the general exhibition space, of which they form part conceptually. Instead, each occupies a high-walled cylindrical cell, dimly lit and large enough for only a handful of people to enter at one time" (O' SULLIVAN 2007, 20; see also GILES 2009). In this case, the spatially separated space for the human remains is designed to create the sense of "very private spaces – almost sepulchral – and, on entering these cells, visitors feel compelled to speak in quiet voices or to not speak at all" (O' SULLIVAN 2007, 20). It could be argued that the museum uses the sense of place created by spatial separation to intensify the feeling that these human remains were once living human beings.

Taken together, these three cases are indicative examples of the variety of forms of displays that exist in parallel in current museum displays (in this case, in the UK), and begins to show the role of space in the display of human remains as past people. Against this background, we will turn to the main case study, the Moesgaard Museum.

Main case study: the innovative Moesgaard Museum of the University of Aarhus

Since 2014, the Moesgaard Museum (whose history dates back to the years following WWII) is housed in a new building designed by Henning Larsen Architects. The building is inspired by the concept of an archaeological excavation: it is positioned on the side of a hill, partly submerged in the site, and blended with the natural landscape. It is structured on two levels: the upper level dedicated to the ethnographic collections, presented under the theme of the 'Lives of the Dead'; and the lower level bringing together the archaeological collections, chronologically arranged in adjacent spatial complexes (the Stone Age, the Bronze Age, the Iron Age, the Vikings and the Middle Ages).

The focus of the paper is the spatial complex dedicated to the Bronze Age (1700–500 BC) and the Iron Age (500 BC–AD 800). Each section includes a space devoted to the display of human remains: in the Bronze Age section are the bodies of three members of a family, (c.1350–1300 BC), found in 1875 in the Borum Eshøj barrow; and in the Iron Age section, the Grauballe Man, a bog body of the 3rd century BC, which is the highlight of the museum. It was found in 1952 in Grauballe, in Central Jutland, and put immediately on public display in the then Prehistoric Museum at Aarhus by Professor Peter Glob.

The complex of the Bronze and Iron Age as a whole is organized on three levels and is essentially an open space divided into sub-spaces, often characterised by curved geometries. The spaces are darkened, and objects, directly spotlighted, unify the environment and create "an illuminated space of intimacy for each work" (PALLASMAA 2014, 243).

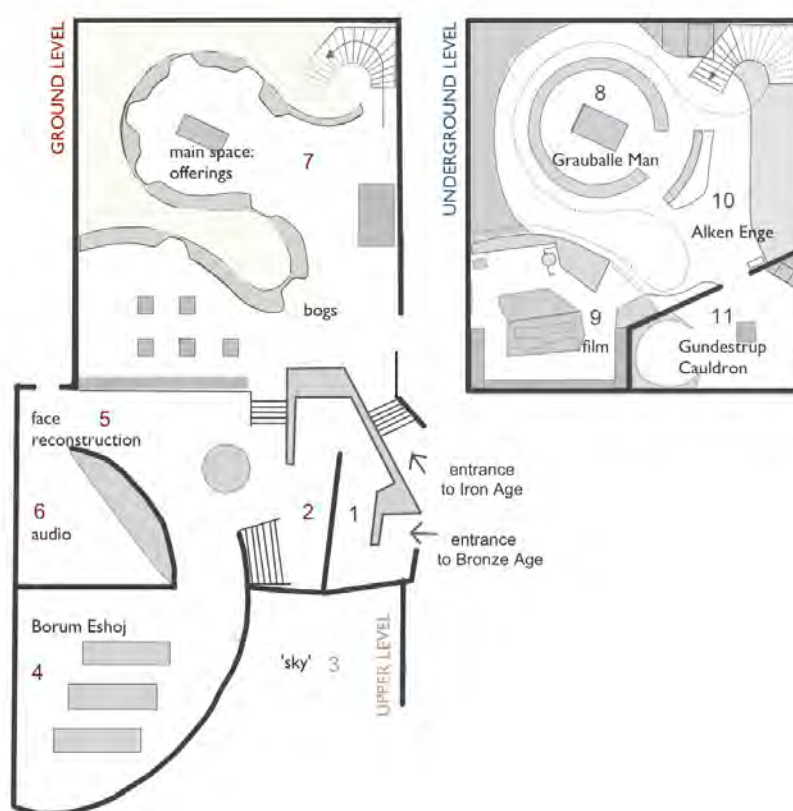


Fig. 1
Plan of the Moesgaard Museum
(based on the museum map), with
the spaces numbered

The display narrative and its spatialization

Looking at the display narrative (fig. 1), the first two spaces of the Bronze Age section (spaces 1-2 in fig.1) set the broader context by reference to key features of the period, such as travel and trade in metal, and the construction of barrows of grass turf. A staircase leads to the upper level small space (named here the 'sky' space) (space 3), which is related to astronomy and the Bronze Age people's ability to predict the movement of celestial bodies (fig. 2a). Under the 'sky' space, is an enclosed dead-end space, which has the form of a barrow (space 4). Signs, in the form of footsteps on the floor, lead the visitor to its low opening. This space shows the bodies of the small family – an old man, a young man and a woman – in their oak coffins and wearing their clothes (fig. 2b). It is quite dark and only the three transparent display cases are dimly lit, while its walls create the sense of the "earthen chamber" of the grave (PRICE 2015, 481). The display of the bodies extends to two adjacent spaces: one (space 5) shows on screens the process of reconstruction of their faces based on CT scan of their skulls; and the other (space 6), which is divided from their main display space by a semi-transparent wall, presents their discovery as audio narrative, together with their life-size reconstructions, with the woman and the young man interacting over the lying body of the old man.

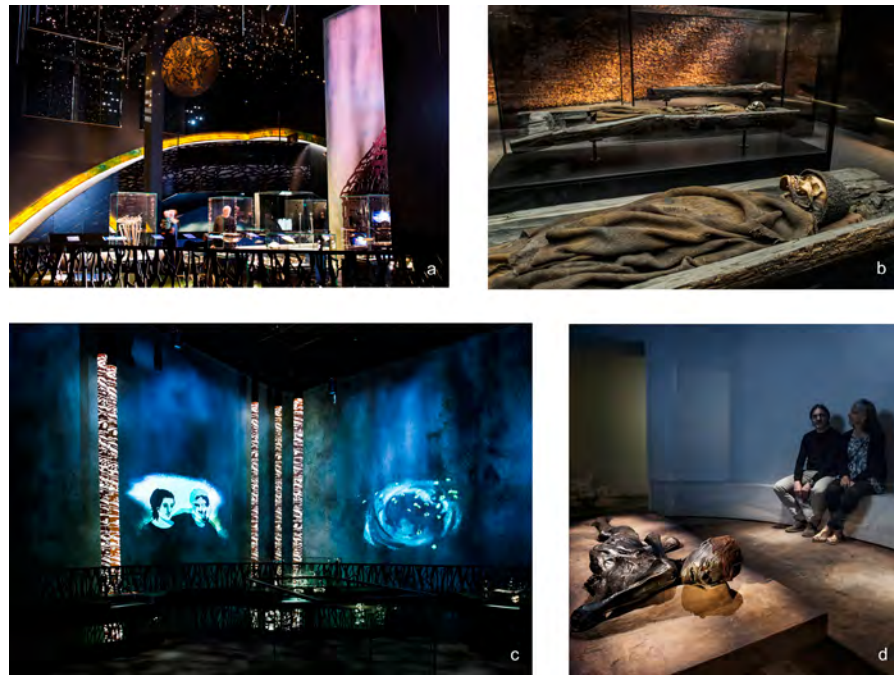
The main space of the Iron Age section (space 7), that follows on a slightly higher level, places the emphasis on the significance of bogs as a prominent part of the landscape and a gateway to another world. It is differentiated, and so enhanced in relation to the rest of the complex, by its spatial features and visual scale: it is double-height, defined by a curved, low fence-like form, and, at the same time, enveloped at a distance by the walls of the building (fig. 2c). This distance from the walls creates a surrounding void that extends to the underground level, unifying vertically the two levels, while suggesting the form of a bog. This allusion is further enhanced by the soft floor of the main space, in conjunction with the green colour of the display cases, which create the sense of walking on a bog. Entering the space, the first thing that visitors see is a glass opening in the middle. This allows visitors a view to the enclosed underground space below, which is dedicated to the Grauballe Man. The displays around the glass opening illustrate the variety of offerings to the gods, as documented by archaeological findings such as a cut-off length of a woman's hair, neck rings (worn both by men and women), as well as skeletal remains of animals (e.g. dog and horse skulls). The Grauballe Man is also thought to be such an offering. Four animated short films are projected on the walls of the building, each narrating a personal story (three from the perspective of a woman – 'Karla', 'Tova' and 'Sigrid' –, and the fourth from that of a father – 'Thorsten' – and his son). These films suggest a picture of life in prehistoric Jutland and work as an imaginative and emotive background to the display of objects. Strikingly, as the films are activated individually by visitors, the way they are synchronized in the collective main space can never be predetermined and so exactly repeated, creating a unique experience of this display each time it is visited.

Descending a curved stairway, visitors find the space of the Grauballe Man (space 8 in fig.1 and fig. 2d). The bog body is presented in a glass case, in the centre of a circular, intimate and dark room, as the sole 'exhibit', surrounded by a continuous seating for visitors. The space is devoid of textual information. A neighbouring room (space 9) presents a 15-minute film about the discovery, preservation and display history of the Grauballe Man. On the whole, the lower level (space 10) continues the focus on the theme of offerings in lakes and bogs, including skeletal remains of people who had the same fate as the Grauballe Man, as well as bones of sacrificed warriors as an offering ritual in the lake at Alken Enge. The last space of the complex (space 11) focuses on the silver and richly decorated Gundestrup cauldron, which was also found in a bog, perhaps used in important rituals for gods and goddesses represented on its exterior.

Fig. 2

Moesgaard Museum, University of Aarhus. (a) The upper-level small space related to astronomy seen from the main space; (b) The Borum Eshoj space with the three bodies in coffins; (c) View of the main space, defined by the curved, low, fence-like form and enveloped by the walls of the building, on which the animated films are projected. In the foreground, the glass opening through which visitors can see the Grauballe Man; (d) The Grauballe Man space.

Photographs: Media Department, courtesy of © Moesgaard Museum



Contextualisation of human remains through spatial, visual and sensorial links of displays

The display narrative is then largely structured as a series of experiences, which are distinct yet tightly interwoven like the pieces of a puzzle. Here we propose that the puzzle can be decoded by examining how human remains are given spatial form in the display, in such a way as to construct an underlying narrative.

At the global scale of the complex, the links between the three levels (upper, ground and lower) acquire a symbolic dimension. The upper-level 'sky' space is visible from the main ground-floor space, which gives visitors a picture of life in Prehistoric Jutland. In parallel, from this main space, the Grauballe Man, displayed in the enclosed underground space, can also be seen through the glass opening in the middle. Thus, the spatial design of the three levels suggests metaphorical meanings of sky, life, and underground world.

Looking closely at the positioning of the two spaces with human remains in the museum itinerary, we find that both are relatively segregated and closed spaces in the layout (as advised in guidelines), but combined either with a clear route leading to it, as in the case of the Borum Eshoj where foot-steps on the floor show the way; or with high visual and spatial accessibility, as in the case of the Grauballe Man space, where visitors become aware of the body at two different stages of the narrative and view it from different distances.

For the Borum Eshoj family, the space takes the circular form of the real, original context, of the barrow. Once the visitor is inside, the space is dark, with only the three coffins partially lit. These are arranged to invite movement among them so the bodies can be seen, and no seating is provided. But this display is accompanied by the presentation, in the more accessible adjacent closed space, of the three people as living human beings through their life-size reconstruction. In the 'living' space, there is a continuous bench on one side, coupled with the audio equipment. Access from one space to the other requires exiting and finding another route. Taken as a whole, the complex creates a meaning, involving architectural form (that of the barrow), spatial relations (the closed spaces), visitor activity (moving and sitting), and human remains as dead and living beings. This meaning acknowledges death, but points to life.

In the Iron Age case, the bog body is also located in a circular and dark (though less so than the previous case) space, on a similar scale to that of the Bronze Age. But, unlike that case, the Grauballe Man space does not take the form of its original context. It creates, in contrast, a lived experience, in the form of an environment that expresses a spatial and social relation to a dead person. The centrally placed body, surrounded by the well-used seating at the perimeter, leaves little space for movement. The effect is that visitors sitting in the space create the form of a characteristic spatial (surrounding) and social (many people) relation to the recently dead, like participants in a relation of tribute or mourning. As in the Bronze Age case, a meaning is created linking architecture, space and visitor activity, and again that meaning reflects the fact of death but also that of the dead as once a social being.

Between the two spaces with human remains, there is one more well-defined circular space, the double-height main space of the complex. Unlike the human remains spaces, this space is integrated in the museum layout, and combines spatial closedness with visual openness, linking visually the pattern of everyday life (through the exhibits and the films) with the 'sky' as well as the underground world of the bog body (through the glass opening). At the same time, the main space is highly active in terms of visitor behaviour. Informal observations show that it is characterised by interaction between visitors and so by active social co-presence: people visiting together (in groups of 2, 3 or more) consistently interact, talking, watching films together, showing things to each other. So if the human remains spaces can be said to create a meaning which reflects death but points to life, the main space reflects the richness of life, but also points to death.

Against this background of visual, spatial, symbolic and social relations, further connections between levels and spaces are created through sensorial links. For example, exhibition elements, and in particular lights in a form bringing to mind wooden clubs, or birch trees (PRICE 2015, 482), traverse the double-height main space through to its lower level, so connecting ground and underground displays. Like light, sound – another key element of the display space 'atmosphere' – is also used to unify the environment and intensify visitors' sensory experience. Sound sources, such as ambient sounds of the physical world that enhance imagination, and, background music played in the spaces at low volumes, often combined with whispering voices from the narration of accompanying films, immerse visitors in "a sense of a coherent experiential entity" (PALLASMAA 2016, 130). All contribute to focusing visitors' "sense of reality into the imaginative world of the subject matter" (PALLASMAA 2014, 246).

The 'poetics of exhibiting'

More theoretically, and linking the different threads of this analysis together, it could be argued that, over and above the information-based content of the display (e.g. through brief labels and touch-screens), it is the sensory, immersive and embodied experiences that shape understanding. Meaning is created through the presence of objects, the affordances of space, the sensory qualities of architecture and the imaginative use of technology, or, in Lidchi's terms, through "the poetics of exhibiting, the practice of producing meaning through the internal ordering and conjugation of the separate but related components of an exhibition" (LIDCHI 1997, 168). The rich network of connections is used to construct conceptual interlinking of the different experiences and contribute to the making of meaning. The visitor acquires through space the experience not of a sequential narrative but of a set of interrelated spatial and social propositions with a common theme: that the human remains were once living people. Strikingly, this is realised not only through visitors' physical movement through the different spaces and levels, but also through their stasis in a single space. This is most clearly expressed in the Grauballe Man space where people are observed to gather and sit silently in contemplative co-presence, and to experience collective affect as if in a memorial space.

Comparative and concluding remarks: mapping spatial shifts and engagement changes

Looking back at all our cases, two interlinked points seem to be emerging. First, it could be suggested that, as we increasingly see human remains as past people rather than museum objects, we observe a move from their presentation in easily accessible, or integrated, display spaces or locations (as in the Egypt galleries of the British Museum) to segregated and enclosed spaces (as in the National Museum of Ireland). Display cases lying on key lines of movement are replaced by those in convex spaces that intensify local experiences, and open visibility and exposure give way to visual insulation and intimacy. The second point follows from the first and relates to what our main case study, the Moesgaard Museum, seems to bring to respectful presentations of human remains: that is, their integrative role in the display narrative and in the embodied and affective nature of the museum’s experience, rather than their separation and their presentation through rational discourse. Close encounters with human remains become part of the experiences that make up the narrative. Visitors are invited to “look, listen and feel” and this leads them to make sense of the whole “by building on the accumulative effect of the sequence of displays they have just experienced”, and which complement each other, as proposed by Witcomb (2015, 338). In this sense, the Moesgaard Museum’s spatial approach and emphasis on bodily, richly sensory and affective experience could also be seen as a mode of mediation with the past. In particular, it relates to the approach Salber Phillips (2006) describes as presenting “the past as a field of experience” rather than only “as an object of study”, through proximity and affective engagement rather than distance and detachment.

These changes over time in spatial design are summarised in table 1. From an initially neutral use of space, we see first a shift to a relatively negative one, in the sense that it is required to prevent people coming across human remains unaware, and allows their deliberate omission. At the same time this spatial negativity can be associated with the positive effect of creating spaces which intensify visitors’ experiences of the human remains, including the sense that they are human. This is then followed by a shift to a spatial design that makes human remains an integral part of the museum’s embodied and affective narrative and constructs a powerful sense that they were once living beings. As the analysis showed, this is realised through specific kinds of space and spatial relations, sometimes with symbolic meaning, and through visitor activity in those spaces as lived experiences. The different arrangements afforded by the spatial design of the Moesgaard Museum create a richness of experiences and perceptions, which are critical to how the narrative is constructed and, most importantly, to how human remains are contextualised and individualised, and their humanness enhanced.

Table 1.
Spatial properties of displays of
human remains in the museum case
studies suggesting shifts over time
in spatial design

Spatial Shifts	Case Studies		
	<i>Traditional displays (e.g. Early Egypt gallery, British Museum)</i>	<i>Recent cases (e.g. National Museum of Ireland)</i>	<i>Moesgaard Museum</i>
spaces / locations in museum layout	easily accessible, or integrated, display spaces or locations	segregated and enclosed display spaces	closed display spaces but with clear access
displays	display cases with human remains lying on key lines of movement	display cases with human remains in convex spaces that intensify local experiences	displays of human remains as distinct yet tightly intertwined lived experiences
visual organization	open visibility and exposure	visual insulation and intimacy	meaningful visual relations, combined with sensory links
use of space	neutral	spatial separation and intensification	spatial integration into an embodied and sensory non-sequential narrative

These spatial shifts and engagement changes suggest new forms of understanding through the concept of “introducing the human to human remains” (SWAIN, 2007, 197), and the acknowledgement of the sensory dimensions of museum learning. It is of particular interest that the most innovative and complex of these developments have been found in a university museum. As has been suggested (NELSON & MACDONALD, 2012, 419; see also ASHBY, 2018), although university museums have been thought to be traditional and “guardians of historic practices”, they are shown to be spaces for innovation and experimentation. Their aim of cutting-edge scholarship, in combination with service to the public (for their tripartite mission of teaching, research and engagement, see SIMPSON, 2012), gives them a special character and an enhanced potential for producing new ideas. The shifts identified in this paper, we believe, can open up more complex and richer ways to engage museums with human remains, over and above providing a spatial context for their respectful display.

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Keywords

University museum spatial design - Display of human remains - Embodied and sensory understanding

A significance study of the University of Canberra's geological collection

Andrew Simpson & Hakim Abdul Rahim

Abstract

The process of applying a collection level significance assessment to the entire geological collection at the University of Canberra reveals an interesting and unique collection that reflects past academic endeavors at the former pre-university institution focused on the production of industry ready graduates to feed historic economic booms in Australian mineral exploration. The collection is ungoverned, lacks relevance to contemporary university activity and is at risk. Significance study illuminates characteristics of the collection that could be developed to be of value to the university. We argue that all legacy collections in higher education could benefit from this standard museological process.

Introduction

The University of Canberra is one of Australia's 43 universities. The institution achieved university status in 1994 having previously been a College of Advanced Education prior to the introduction of government reforms in Australian higher education designed to simplify the variety of tertiary education institutions.

Geology has been taught as a specialized tertiary level program at the University of Canberra, and previously at the Canberra College of Advanced Education, for a number of decades. This paper stems from the development of a report on the results of a site investigation looking at the dispersed geological collections on the campus of the University of Canberra, in response to a consultant's brief for a project funded by Heritage ACT (Australian Capital Territory).

The aims of the original investigation were twofold:

1. To undertake a significance assessment of the collection as a whole, guided by principles of museum practice and professionally recognized significance analysis (RUSSELL & WINKWORTH, 2009) and the Burra Charter, the set of principles adopted to create a nationally accepted standard for heritage conservation practice in Australia.
2. To undertake a preliminary audit of the collection based on available data to test current information management practices and accordingly make any recommendations for future work.

The collections were housed in a number of teaching and storage locations in the University's Faculty of Education, Science, Technology and Mathematics (ESTEM). They are primarily used for service teaching in undergraduate programs within the ESTEM Faculty's Department of Environmental Sciences, principally for the undergraduate major and minor in Earth Sciences.

The collections were started in the late 1960s by Ian Mathias in the Canberra College of Advanced Education. They were established to be a teaching collection, this was the impetus for collection development in many institutions (SIMPSON 2012a). The School of Applied Science commenced teaching in 1970, geology was initially not included but commenced in the early 1970s as a result of the nickel mining boom and a rapidly increased demand for professionally trained geoscience graduates. Others involved in early collection development included Cliff Ollier, Max Brown and Eric Best.

Because of the focus on supplying graduates for a minerals-based mining boom, collection development was oriented at an early stage towards ore suites and materials that would aid conceptual understanding of ore genesis. As a result of the personal contributions of staff, the fledgling geology program at the Canberra College of Advanced Education had access to much ore material from Broken Hill in western New South Wales. The significant quantity of duplicate Broken Hill material and the extensive professional contacts of the early staff, allowed this material to be used as a basis for exchange. This resulted in rapid growth and international coverage of the ore suites represented in the collection.

While many university geology collections commenced through the personal contributions of staff members, the University of Canberra example is a case of the right people with the right subject focus for the time (ore mineralization) being prepared to work together to leave a collection legacy for future generations of staff and students. This reflects the aspirations of a tertiary education institute, prior to the unification of higher education in Australia, in this case a College of Advanced Education (CAE), with a strong commitment to serving industry through the production of work-ready graduates. There is ample evidence of a close industry-academic alliance that remains associated with the material today, this includes the historic compilation of related resources with ore suites in the collection.

The demand for graduates, however, fluctuated markedly over the ensuing decades and, eventually, Earth Science programs at the University of Canberra ceased in 2005 (SMITH 2008) with only service teaching remaining for the undergraduate major.

Nature of the collection

The collection can be divided into a number of related categories. This is common for scientific teaching collections that are used for different purposes over time during the life of an academic program. It is important to remember that the same specimens may perform multiple functions during the life of a program. There is evidence this is the case in the associated card and folio files that represent the information management of the University of Canberra's geology collection.

A summary of collection components is given below.

Current teaching sets: - There was a good supply of well catalogued and sorted material in a teaching laboratory indicating comprehensive coverage of igneous, metamorphic, sedimentary rock types and the majority of common rock-forming minerals. Storage of teaching sets in the laboratory is shown in figure 1.



Fig 1.
Storage of geological teaching
samples in laboratory, University of
Canberra, 2015
Image: Andrew Simpson

Ore suites: - There were a large number (up to 268) of ore suites or economic mineral sets. The ore suites were groups of material that may include some, or all of the following types of material preparations: hand specimens, thin sections, polished sections and polished thin sections. There was also a filing cabinet full of data that relates directly to some of the sequentially numbered ore suites.

The reason for establishing an ore suite reference set has varied during the life of the collection. Most commonly it was based on the existence of a well-known and well-understood ore body, particularly ones that demonstrate principles of ore genesis that, in the hands of an experienced tertiary education teacher, are excellent pedagogic tools (e.g. fig. 2). There were some very famous and internationally recognized suites in the collection, many of which would be expensive and difficult to replace e.g. Sudbury, Tsumeb, Paraburdoo. There were many other small, lesser known locations, particularly Australian examples that were worked by long-term mining activities and are now either irreplaceable, or would prove difficult and expensive to replace.

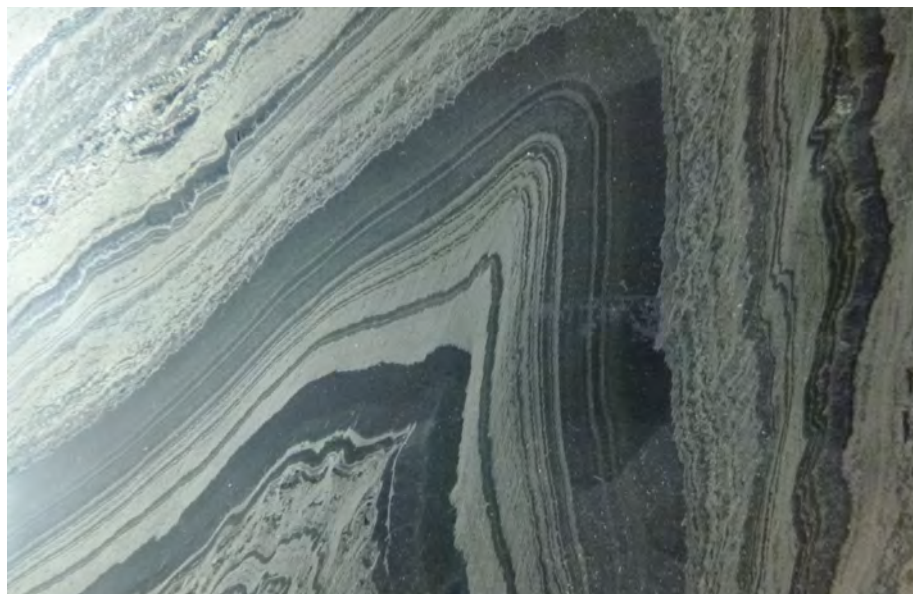


Fig. 2
Cut section of Mt Isa ore from the
University of Canberra geology
collection

Image: Andrew Simpson

At other times during the collection's history, sets have been compiled based on a specific geographic region or geological terrane. In some cases they have also been compiled based on mineral type, or functional utility (e.g. for specific exhibition purposes). The information about the ore suites was summarized and compiled in ring-bound folios.

Specialised teaching sets: - There was also evidence that specimens had been cycled through different specialized teaching sets during the life of the teaching program. This includes a Regional Tectonic Group (that in some cases equates closely to existing ore suites), and metamorphic, sedimentary and igneous teaching sets.

Context of the collection

The last comprehensive report on geological collections from the Australian higher education sector (SIMPSON 2003a) documented declining institutional-level support as expressed in terms of staff available for collection management. Declining demand for geology graduates left many collections under-utilised as student numbers reduced and academic programs were restructured. This trend is not apparent just in Australia but has also been observed in many other western nations (National Academy of Sciences 2002). In the absence of any national approach¹ to orphaned (or partly orphaned) collections, the future of many of these collections has been decided at an individual institutional level².

Data from 17 collections presented (SIMPSON 2003a, Table 1) indicated that the University of Canberra geological collection is small in comparison with that of other Australian universities (under 10,000 specimens) but comparable with those institutions that were previously Colleges of Advanced Education and were subsequently converted into universities to produce the unified Australian higher education system.

Some of the data reported by Simpson (2003a) was extracted from an earlier report on collections within the Australian higher education sector (University Museums Project Committee 1998). This attributed judgements of "significance" to some university-based collections documented in the report. Of all the former Colleges of Advanced Education geology collections documented, the University of Canberra was the only one in Australia considered to be nationally significant. This is unusual for a collection with a primary focus of industry related graduate education, but justified because of the geologic and geographic diversity of the collection.

¹ A good example of a national approach to orphaned geological collections is outlined by de Clerq (2003) wherein criteria were agreed and parts of dispersed university collections were absorbed into a national reference collection.

² In Australia these responses have been highly variable and range from transfer out of the higher education sector to a state museum through to undocumented disposals.

While it must be remembered that these attributions of significance were self-selective and preceded the development of a standardized process of significance assessment as a common museological tool (ABDUL RAHIM 2014), the context of the collection is still unique in the history of higher education in Australia. This is because it represents a specialized reference collection that reflects both the economic booms and busts of the late 20th century and the aspirations of a higher education institution that was transitioning from College to University with a strong focus on the production of graduates for Australian exploration and mining.

In considering the future of the geology collection, as with any legacy collection in higher education, it is important to align any actions with the current management and governance of material collections at the University of Canberra. The two “Cinderella Collections” reports from the 1990s (University Museum Review Committee 1996, University Museum Project Committee 1998) urged universities to develop a range of institution-wide policies for the management of material collections. There have been numerous new challenges to higher education since the 1990s and not all universities have responded with policy development. Simpson (2012b) devised a four-tier system for describing governance arrangements for university museums and collections. The University of Canberra’s geology collections are best described as ungoverned. This is a common scenario for scientific collections that have lost relevance because of changes in Australian higher education.

Any future consideration or proposals for alternative plans for the collection should also be mindful of the geographic and institutional context. There are two other major geology collections in the Australian Capital Territory (ACT), those of the Australian National University and Geoscience Australia. Both of these organisations are enabled by national or commonwealth government legislation, whereas the University of Canberra is a controlled entity under local territory (equivalent of state) legislation. Although the University of Canberra’s geology collection is global in coverage, it is also important to remember that there is neither a museum of natural history in the Australian Capital Territory, nor any national natural history museum in Australia.

Information Management

The information management system for the University of Canberra geology collection is pre-digital. Data is stored on individual card files held in metal filing draws (fig 3). Each specimen was given an accession number (AN) which is recorded with basic information on a card. Accession numbers were allocated sequentially, sometimes the date and collector are included, but not as a standard acquisition procedure.



Fig. 3
Card catalogue storage for data on
University of Canberra’s geology
collection, 2015
Image: Andrew Simpson

The use of specimens in different teaching sets is also recorded on some, but not all cards. The card file system of accession data is augmented, and can be cross-referenced, in a number of ways. There is another card file system that records specimen types, a folio file that records ore suites/economic geology sets and, located in a building basement with many of the specimen sets, was a filing cabinet with associated data about the collection.

Filing cabinet information about the ore suite sets included published papers, field notes, maps, assay data, mine plans and, in some cases, unpublished notes. Many similar card file systems from collections of this era also included a locality file, but one was not identified in the University of Canberra's system and not all of the data captured in the various filing systems relates the specimens to recognized geological formations. Nevertheless, the dispersed specimen information through a range of paper-based systems is essentially robust and allows for cross-checking specimen data in a number of ways.

An example is given here. Rodingite is a massive, dense, buff to pink rock that is typically rich in grossular garnet and calcic pyroxene, that is enveloped in serpentinite. Specimen no., 2209 is a rodingite from Wagga Wagga, NSW, it is recorded in the accession number card file system, the rock-type card file system and as specimen no. 5 of ore suite 114. The card files and folio documents also record when hand specimens (HS) have been made into thin sections (TS), polished sections (PS) or polished thin sections (PTS), these are three different technical preparations for the study of geological material. It is important to remember that some specimens may only be present as preparations and there may be none of the original specimen, as collected from the field, remaining as a hand specimen in the collection.

This form of card file and paper-based information management is highly vulnerable. Disposal of material like this is common-place in universities. Decisions to dispose can often be taken by administrative units without knowledge of the significant loss of information that will ensue. This is particularly a problem in collections that are essentially ungoverned (SIMPSON 2012a). Urgent attention is needed to recreate the card file data in digital form.

Significance assessment

The significance statement below has been developed according to the principles outlined in the introduction. The cultural significance is the sum of the qualities, or values, that the collection has. In considering a sense of place, Article 1.2 of the Burra Charter includes the five values: aesthetic, historic, scientific, social and spiritual. For the purposes of this report the criteria used in the analogous document for objects and collections, Significance 2.0 (RUSSELL & WINKWORTH 2009), consists of general statements against the following criteria:

1. Historic
2. Artistic or aesthetic
3. Scientific or research potential
4. Social or spiritual

In undertaking a significance assessment it is important to recognize that the process is iterative and progressively incremental. The notes on significance criteria presented below only cover the 2015 investigation into the nature of the collection plus some additional desk research. The additional research allowed some initial contextualization and comparison with other Australian university geological collections from previously published (e.g. SIMPSON 2001, 2003a&b) and unpublished data.

As a continuing process, significance assessment involves analyzing an item or collection, researching its history, provenance and context, comparison with similar items, understanding its values by reference to the criteria and summarising its meanings and values in the statement of significance

Historic

The geological collection of the University of Canberra is material evidence that represents almost 50 years of academic endeavor at an established and nationally recognized Australian higher education institution in the discipline of Earth Sciences (Field of Research Code 0403 – Australian Bureau of Statistics 2008). As such it represents an impetus to prepare graduates for the workforce over an extensive period of time that covers significant fluctuations in the resource-based economy at a national and global scale. Many geological programs in higher education resulted in significant teaching collections that reflect changing educational pedagogy over time including a strong historic reliance on object-based pedagogy typical of the discipline as noted by the Pigott Report (Committee of Inquiry on Museums and National Collections 1975). The collection also represents the interests (academic and general science) of the staff who established and developed the collec-

tion illustrating their changing research interests. The collection is rare among Australian academic geological collections because of the strong focus on global reference material of ore suite deposits. The nature of the information management associated with the collection is pre-digital and therefore of historic value. It represents the standard way collection information was handled through a series of card files during periods prior to the 1980s. It was the most common way of recording data in specialized university collections. Many of these collections are no longer in the higher education system for a variety of reasons, or the associated collection data has been converted into digital forms.

Artistic or aesthetic

The qualities of this collection of geological specimens includes those that have well-developed crystal faces with crystal symmetry and aesthetically pleasing colour and lustre. Aesthetic qualities of mineral specimens that demonstrate rare beauty are strongly sought by an international community of collectors. Such collectible qualities would only be attributed to a small percentage (around 2%) of the University of Canberra geological collection. This is a common situation for most academic teaching collections.

Fossils specimens also attract the interest of collectors, some fossils were discovered but they did not form a significant part of this investigation and are not included in this analysis.

Scientific or research potential

The collection of ore suites has a high scientific and educational value because they are pedagogic tools that exemplify the highly diverse pathways of ore genesis. They are therefore invaluable as practical aids for teaching advanced ore geology in the hands of seasoned tertiary educators with significantly high levels of understanding of economic geology, a subject that was previously more widely supported by Australian Higher Education institutions. They are also of value in teaching elementary geology and mineral economics, these two fields have also seen a relative decline in Australian Higher Education in recent years with a concomitant decline in resources to manage legacy collections from former teaching programs (SIMPSON 2003a).

Their scientific significance is greatly enhanced by the comprehensive nature in terms of the range of ore geochemistry represented and the diversity and global scale of geographic representation in the collection. Because of the historic nature of the collection, a number of specimens are from localities that are either extinguished (mined out), or inaccessible because of geopolitical changes. While specimens from these types of localities remain in circulation among collectors and institutions, it can be increasingly difficult to find replacement material.

The existence of the collection, even if only as a resource for reference and comparison, also represents a platform of the science undertaken at the University of Canberra. No metrics of research output of relevance to the collection has been undertaken in this study. It should be noted, however, that the A B Edwards Medal by the Geological Society of Australia was awarded to researchers from the institution on two occasions³.

Social or spiritual

The social significance of the collection is found in the relationships between and among staff and students with the study of geology at the University of Canberra (and previously at the Canberra College of Advanced Education). The collection therefore represents a fundamental anchor point for many graduates and can be seen as representing their link to the host institution both geographically and temporally. Earth Science in higher education involves socialized and communal teaching methodologies and experiences such as collective laboratory work, specimen collection and fieldwork experiences. All of these can build a strong sense of institutional affiliation and connection among participants. In support of this, documents were recovered indicating the existence of a student geological association and numerous images of field work.

³ A. B. Edwards Medal by the Geological Society of Australia is awarded annually for the best paper in ore deposit geology published in the *Australasian Journal of Earth Sciences*. In 1993 it was won by Sylvie Marshall and in 1996 by Ken McQueen. This is reported in the Minutes of University of Canberra Council Meeting No. 56 held on Wednesday 10 November 1997.

The social significance of the collection is also represented by the fact that it was housed for many years in one room and was a focal point for both formal and informal learning⁴ (Fig. 4). Other aspects of institutional identity are present as the material that comprises the University's Foundation Stone is represented in the collection.



Fig. 4

Image of the former "museum" room from when there was an active geology program at the Canberra College of Advanced Education. This is now used as a meeting room

Source of image is unknown

This is supported by the fact that many specimens from the local region are present in the collection and the variety of specimen types is diverse. The Canberra region consists of hilly, upland terrain consisting of a Palaeozoic bedrock (Ordovician and Silurian) sediments, volcanics, volcanoclastics and intrusives. This represents a sequence of emerging deep water sediments that have been complexly folded and faulted and in places metamorphosed. This leads to a significant variety of geological formations in the Australian Capital Territory and surrounding districts, much of this is reflected in the geology collections of the University of Canberra. Apart from including material from Paddy's River, the only mining operation within the Australian Capital Territory, it also includes gossan specimens from the campus itself. It is rare for any higher education campus in Australia to have evidence of mineralization within its grounds⁵.

Discussion

Collection data that is controlled entirely by card systems and other paper-based methods with no back-up is highly vulnerable. Converting it into a digital information system is needed to provide collection data sustainability and build value that could help connect the collection to new audiences. In a university context this task should be guided by any information management and/or asset management requirements and policies. In the absence of any such policies, the data should be incorporated into a series of standard spreadsheets that can be converted at a later date into most commonly used museum and collection databases. The University of Canberra has no standardized approach for campus museums and collections and no externally facing policy or guideline documents that could facilitate improved information management.

The process of converting information into a digital form would also be an opportunity to undertake a more complete audit of what remains of the collection at the University of Canberra. While a full audit will not necessarily reveal all the material that originally made up the collections, the process would give as complete a record of the collection as possible. Given the nature of the collection, there is an opportunity, using the ore suites, to build a global reference set that would be of value to researchers and advanced geology students. While digital conversion and a full audit would build value for the collection and will give the University of Canberra a useful resource, it still requires an investment of resources and time by the university.

⁴ Interview with Professor Ken McQueen, long term staff member, Feb 2, 2015. With the discontinuance of a course in geology the room, once a small teaching museum, is now used for staff meetings and the specimens not deployed in service teaching are in storage in a number of different locations on campus.

⁵ The University of Queensland has for many years run an experimental mine for the training of mining engineers. This however is not located on the original campus at St Lucia.

As this hasn't occurred as yet, it is obvious that attempting to extract maximum benefit from a legacy collection such as this is not perceived as a current priority by the institution's leadership. Imaging all the specimens in the collection should be undertaken as part of a full audit. While this is time intensive work, many museums have successful digital volunteers programs that undertake similar work. These should be investigated to produce a model that suites image capture at the University of Canberra. This work, in combination with data entry, under supervision could be a valuable student experience in the university's museum studies program as both represent standard museum practice.

At the time of this investigation (2015) the collection was dispersed in a number of buildings that had multiple uses. Secure housing should be found for the collection if further work is to be carried out. The many pressures on building spaces in the modern university make this situation understandable, nevertheless, failure to provide secure housing places the collection at a long-term, low level risk particularly for one that is essentially ungoverned and in an institutional setting without guidelines or policy.

Devising a future for the geology collections at the University of Canberra is dependent on the support of the current faculty and university executive. The university needs to consider if it wants to develop a relevant cultural policy covering material collections on campus as is the situation in some other Australian universities. There is an opportunity here for the university and the faculty to show good stewardship of a significant collections by actively planning a future for it (and other University of Canberra) collections. Good stewardship can still be demonstrated even if it is decided that the collection is no longer seen as a relevant part of the institution (REYNOLDS et al. 2000).

To make the collection of value to researchers and advanced students in the future, the data needs to be checked to upgrade all information to currently accepted geological nomenclature. The great advantage in having a digital system is upgrading data when units are renamed or reclassified is an easy process. Specimen data needs to be aligned with current geological units through Geoscience Australia (for Australian materials) or other geological information agencies. Specimens also should be linked to online mapping resources. Consultation with information agencies and specialist geological expertise would obviously be needed for this task.

Although the ore suites appear to have had primary purpose as reference material, there were obviously a body of staff and students who were research active. Analysis of research outputs in the form of theses and publications should indicate the value of the collection in the past as a general reference resource. As noted above, University of Canberra geological research has won some awards. A university collection that has supported research carried out in the institution's name is of greater value than one that has not. A university should invest in the material results of intellectual advances undertaken in the university's name (Australian Research Council Evaluation Program 1995) through resourcing collection management as research infrastructure. Archival data from the geology program should be available to provide some insights into these questions.

This study identified a large amount of diverse material from the Australian Capital Territory and the surrounding region. Because there is no natural history museum or centralized collection within the territory, there is valuable social and educational context that can be built around this material as a mechanism for community engagement (SIMPSON et al. 2005). Support could be enlisted to develop a number of off campus displays and educational resources for community engagement.

Images recovered from a filing cabinet during the investigation indicate the previous existence of a very active and engaged geological student society during the various mining booms that probably implies consequentially large relative enrolments in geoscience programs at the former College of Advanced Education. Archival material relating to this student group should be sourced and researched. Many of the University of Canberra former geology graduates could have moved on to successful industry careers. These alumni need re-engagement with the university. In the face of declining public support for higher education, private philanthropy is becoming an increasingly important financial source. Links between former geology students and the ESTEM faculty can be built through social media, functions, exhibitions and other forms of community outreach.

We believe this case study demonstrates the value of applying a significance assessment process to university collections. It requires the institutional contextualization of collections and testing their value propositions against changing institutional priorities. It has been noted that the uses of material collections in a higher education setting can change significantly with changing pedago-

gies and research questions. What was once of value to the front-line of institutional enterprise can be quickly overlooked and forgotten (MEADOW 2010). But the material collections themselves are an embodiment of institutional history and heritage and a creative university leadership team in association with staff and students can always find innovative ways to put legacy collections to work in support of the university's tripartite mission of teaching, research and engagement. We would recommend the development of statements of significance for every university collection.

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Key Words

Significance assessment – University Collections – Geology collections – Collection governance – University of Canberra

Artefact or art? Perceiving objects via object-viewing, object-handling, and virtual reality

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with contributions by Sophia Mirashrafi & Hannah Sycamore

Abstract

In the past two decades museums have sought increasingly to engage audiences with their collections through digital media (ARNOLD-DE SIMINE 2013a), yet there is little empirical data on how the digital experience itself affects visitor perceptions of objects. To address this issue, the Museum of the University of St Andrews (MUSA) and the School of Classics conducted a series of experiments comparing visitor responses to archaeological material presented in four different formats:

- 1) 3D digitisations*
- 2) A display case*
- 3) A sensory box*
- 4) Artefact handling*

This article discusses key findings in relation to visitor interest, enjoyment and understanding, and analyses whether objects are more likely to be perceived as 'art' or 'artefact' in different contexts. Finally, it outlines implications for museum policy on the use of digital media and exhibition design.

Introduction

Over the course of their development, European museums have performed a variety of functions in society, but since the 1980s, particularly with the emergence of *The New Museology* (VERGO 1989), attention has shifted towards issues such as the museum's relationship with its community, equality of access and the visitor experience. There has also been considerable discussion on the process of 'meaning-making' in museums, i.e., the power of objects to "accumulate meanings as time passes" (PEARCE 1994, 19). This process occurs through changes to the use, ownership or context of an object before and after it enters the museum, and through the reactions of visitors to a display. For museums with archaeological collections, 'meaning-making' is complicated by the fact that many artefacts were originally collected and displayed as art, divorced from their archaeological context. This poses a number of challenges for museums today; without an understanding of an object as artefact or of its entangled past, it is difficult for visitors to understand its significance for the societies that made and used it. Artefacts selected for display may appear to be superior or more valuable than others in storage, and trade in illicit antiquities may be inadvertently encouraged if artefacts are perceived as being separate from the societies that created them.

Exhibition design clearly affects how an object is perceived, particularly in terms of art or artefact, however, museums also need to address the question of how different sensory experiences influence visitor impressions of material culture (EDWARDS et al. 2006, 2).

To this end we undertook empirical analysis of a number of different user groups to see how their perceptions of archaeological material changed depending on how they experienced it, whether viewed inside a glass case, explored through touch (with and without sight), or in a digital format. Although we recorded the wide range of interpretations of our user groups, we focused on the commonly used distinction of art/artefact and aesthetical/functional.

Fundamental to these tests was the inclusion of digital representations of the objects. In recent years, digital technologies have been used to help make museum collections more accessible to the public, as surrogates for real objects that cannot easily be displayed, and as supplementary resources to deepen visitors' understanding. Stogner (2009, 392) suggests digital media can boost visitor figures and broaden audiences, in particular attracting younger digital natives. Although there is an assumption that provision of digital media is positive, more comprehensive studies are needed to understand varying levels of uptake between different user groups according to factors such as age, experience and interests (FALK 2009)¹. There remain critical questions regarding the use of digital media, such as: What impact does it have on perceptions of material culture? Does it affect levels of understanding and retention of information? Does it appeal to all? This article sets out to answer these questions drawing upon evidence from our audience research at MUSA. Furthermore, our user-analysis has allowed us to develop a number of pertinent points concerning perceptions of material culture in museums, particularly as art or artefact. It has also enabled us to evaluate the effectiveness of digital media in assisting visitors to understand the entangled history of an object, thus leading to better contextualization of the material. As such, our work provides a timely contribution to wider studies of digital engagement within the museum and heritage sector.

Perceptions of Material Culture

People relate to material culture on a range of different levels, including personal and public, and see a variety of meanings in it, including symbolic, aesthetic and functional. Alberti (2005, 568) also notes that the diversity of meaning is increased by the choices curators make about which objects to display and how to present them, especially in relation to one another. There is a tension, however, in the fact that the curator will often arrange material based on prior experience and knowledge that the viewer may not necessarily share. Diverse approaches are taken to studies of material culture depending on discipline: archaeology, art history, anthropology, history and sociology. A multitude of different approaches and interpretations are valid; as art, archaeological material can be seen as a vehicle to educate, elevate and entertain, and as artefact, as allowing access to the people, the social order and the contexts behind them.

¹ The importance of the visitor as an individual underlies Falk's call for a more enhanced museum experience. The Tate have analysed online activity on their own sites (Appendix 5, Let's Get Real Report, 2011). However it does not segment the results by visitor traits.

The idea that there are differences between art and artefact is partly a consequence of institutional history. As Whitehead (2009) argues, museums themselves have contributed to the separation of material culture into the distinct disciplines of art history and archaeology. The fact that the British Museum collects ancient Egyptian, Greek and Roman art while the National Gallery acquires European art from the 1300s onwards does not result from any inherent difference between the material that makes the former more 'archaeological' and the latter more 'artistic'. Rather, the division results from the historical actions of these institutions as they competed for power, territory, recognition and resources (WHITEHEAD 2009, 8).

The now considered flawed notion that art and artefact are separate entities impacted heavily on earlier approaches to material culture. For example, red and black figure pottery was seen as high quality art, leading to issues of connoisseurship² and a side-lining of other material culture as well as original context. Often, material culture without context was seen as art. Cycladic figurines are a typical example of this (CHIPPENDALE & GILL 1993). They have been looted and traded so often that few have been found in their original contexts, impacting on our current understanding of their function (BRODIE & RENFREW 2005). Emphasising material culture as artefact helps to maintain a connection with its original archaeological context and in turn should contribute to a wider understanding of the issues of illicit antiquities (BRODIE et al. eds., 2006).

Critical to this is the individual, often subconscious, judgement made on whether the object has aesthetic value or not and whether this changes depending on levels of contact and experience with the object. The idea of beauty is neither fixed in time nor location as tastes change. The sense of being able to define good or bad art often lies at the heart of such judgements³. For example, the founding principles of the Victoria and Albert Museum were to improve industry design standards by educating the public about art and design. Under the directorship of Henry Cole in the 1850s, the Museum of Manufactures, as it was known then, included not only the best, most inspiring examples of metalwork, ceramics, glass, and furniture, but also a 'Gallery of False Principles'. Here, curators displayed and critiqued examples of poor design work, and juxtaposed them with alternative objects "judged successful and correct" (Victoria & Albert Museum, 2016). Challenging this idea of fixed aesthetic value is the Museum of Bad Art (MOBA) founded in Boston in 1994. With up to an average of 9000 visitors per year, enough interest in bad art has been generated simply by hanging it in the museum. The intention of the museum was to display bad art, but the museum and viewer have imbued value in it, even if it's not aesthetic value.

When it was newly opened in the mid-1980s, the Centre for African Art, New York City (now the Africa Centre), held an exhibition entitled ART/Artifact. The displays included items such as a hunting net and a 19th century brass sculpture of a head. There was a video of a religious sacrifice providing the context for the displayed commemoration posts. Object information labels were not provided in some spaces, while they were purposely provided in the room termed the 'art museum' (FARIS 1988). Faris (1988, 778) criticises the 'art museum' room as details of why certain objects were chosen for display as art were not explained, thereby emphasising a sense of an aesthetic driver that may not have been intended. The exhibition also showed that while aesthetic plays a role in interpretation, the importance of the museum context should not be underestimated. Art or artefact is clearly the viewer's interpretation/perception rather than the maker's intention. The distinction is created through context, means of display and viewer interpretation.

As Gell (1996) surmises, one of the issues with the work on defining art or artefact has come from the perspective of those working in art who have difficulties in seeing artefact as art. By any definition an artefact is worked or made with intentions for use. They may be culturally specific and in all cases they reflect human agency. It is arguable thus that art is artefact. However, art can be defined as such by its placement in a gallery space. So if an artist installs a 'found object' such as a rock in a gallery, the choice to display the object still reflects intentionality that can make it art. Additionally, placing the natural object in a gallery will further enhance its perception as art because of an implied relationship to more recognisable works of art.

2 For example, see the Beasley Archive: <https://www.beasley.ox.ac.uk/tools/pottery/default1.htm>. Beasley's methods of stylistic analysis and identification of artists is still controversial with those who still use his methods (Oakley 1998) and those who have been highly critical (Whitley 1997).

3 Other dichotomies such as this may include primitive/sophisticated and natural/artificial.

The same may be true of archaeological material on display in a museum or art gallery. Although the original intention of the creator may have been for it to be a functional piece, its complex history changes it to becoming an object of value, a stolen item (in some cases), a collector's piece, to an object (art) on display. As such, its intended character is not always the same as its actual character as it moves from archaeological to museum context (PEARCE 1994). These are entangled objects: "Objects are not what they are made to be but what they have become" (THOMAS 1991, 4).

To enable visitors to gain a deeper understanding of the material culture museums must examine the object's entangled history, that is to say the complex history of how it got from its original context to the museum (CLASSEN & HOWES 2006, 209). There are innumerable interdependencies between objects and people; put simply, objects depend on people and on other objects, just as people depend on objects and on other people (HODDER 2011, 154). From this perspective, all aspects of an object's life are significant and are crucial features in the development of an understanding of the object itself.

The provision of a detailed discussion of an object's entangled life in the museum setting can empower the visitor to begin to re-contextualise the object in their own mind. It could be argued that 're-contextualisation' is not the most accurate term for this process, as rather than returning an object to a previous context, the discussion of its entangled life is creating a new context for the object which is both current and chronologically broad. Elsewhere, this process has been described as 'meaning-making' (BLACK 2012, 145; 149) on the part of the viewer, which implies both the agency of the museum visitor to draw their own conclusions, and the multiplicity of possible interpretations of the object (FALK & DIERKING, 1992). In this sense, offering details of an object's entangled life challenges the traditional historical narratives and paradigms often propagated by museums by allowing the visitor to take an active, rather than passive, role in their own understanding of each object.

Looking at the entangled lives of objects can further enhance visitors' understanding by creating the opportunity for comparisons to be drawn with the visitor's own everyday life and experience. For example, a ceramic fragment on display behind a pane of glass in a museum might not resonate much with a visitor, even if the label lists its find spot, period and material. However, including details of its entangled life – including possible function, acquisition history and relation to other objects – may help the visitor to form a more rounded idea of what the object is. In her work on visual culture in museum settings, Vallance (2008) suggests that visitors interpret all imagery as part of a cyclical continuum, wherein everyday objects as mundane as supermarket advertisements occupy a position on a spectrum shared by what might be termed 'fine art' and by typically museum-standard objects. This model produces two important results: firstly, that visitors are capable of drawing meaningful comparisons between objects already familiar to them and objects they view in a museum setting, and secondly, that all objects exist on the same continuum, with no defined demarcation between objects 'worthy' of being in a museum and the rest. Instead, visitors have the agency to foster their own understanding, and to make use of their own experience as part of their museum visit.

While the idea that all museum objects are inherently divorced from their original context might be an irrevocable aspect of the very concept of the museum, it ought to be acknowledged that the inclusion of details of an object's entangled life can be a conscious attempt to place the object into a context which is current, transparent and informative. The additional use of digital media – particularly 3D reconstructions – allows visitors to interact with the object beyond simply viewing it from the other side of a pane of glass. This in turn empowers the visitor further to step outside their traditional role as passive recipient of information, and instead become an agent in the process of understanding. All visitors have a personal agenda for their visit, influenced by their own knowledge, experience and attitudes (FALK & DIERKING 1992, 25). Additionally, Falk's (2009) model segments visitors into groups according to their motivation for visiting (e.g. 'Explorers', 'Facilitators', 'Experience Seekers', 'Professionals/Hobbyists', 'Rechargers'). This, he believes, is the key to museums competing with other leisure activities and providing the kind of tailored service consumers expect. Interpretation must likewise be tailored to different audience requirements, interests and varied learning styles. Falk (2009) has gone on to develop this to advocate a museum visitor experience model where he believes a visitor's experience should be fulfilled by a museum coming in line with their expectations of it. Furthermore, Di Pietro et al. (2014) have argued that in order for a museum to sustain itself it needs to tailor its strategies to visitors' varying cultural backgrounds.

Museums often try to take a neutral stance on controversial subjects; many museums seek to represent multiple views and involve their audience by inviting people outside the organisation to write labels or by recording soundbites from visitors to play alongside the object. Digital media works in a similar way: on one level it encourages a fluid interpretation and multiple voices; on another, there is a tension between encouraging flexibility while also ensuring a certain authenticity. This, however, has to be balanced with a museum's duty to provide access to ordered collections for research and knowledge transfer (PUTNAM 2009, 7). As Malvern notes, War Museums tend to be sidelined in these wider debates. Each time a museum undertakes refurbishment and development; there is a renewed analysis of visitor interpretation of the meaning of objects on display. For example, when the Imperial War museum was originally established it was with the intention of holding records of World War I (MALVERN 2000, 178). It has since become a popular museum with some 2.4 million visitors per year. However, its mission statement⁴ includes desires to be authoritative yet empathetic to visitors through the stories of the, often uncomfortable, objects; a difficult balance to strike given the need to prioritise visitors and allow manifold interpretations. However, as Malvern (2000, 179) notes, knowledge of the museum's own history is as relevant to a broad interpretation as the entangled life of an individual object displayed. In this case, the fact that the museum was established with the belief that they would only house records a single world war but has since incorporated material from every war the United Kingdom has been involved in, means that there has been a significant change in the museum's purpose.

Museums and Digital Technology

In the past two decades museums have shown increasing interest in making parts of their collections available for viewing through digital media (DIN & HECHT 2008b, 9-11) (ARNOLD-DE SIMINE 2013b, 188). Making collections accessible to the public is a fundamental remit of modern museums, and digitisation offers solutions to many of the practical challenges associated with collections care and access. The use of digital media to attract visitors and make collections accessible to a wider public is undertaken in a variety of forms⁵. This ranges from straightforward 2D images of material on websites (Getty's open content programme)⁶, to more elaborate downloadable 3D images and integrated archives for education (Petrie Museum, London)⁷, to the creation of 3D models for sale in the museum shop (Fitzwilliam Museum, Cambridge)⁸ or using 3D models as records for conservation purposes (Virginia Commonwealth University)⁹. Many museums have embraced the use of digital media in galleries to enrich their displays. In 2015, the British Museum created a virtual reality Bronze Age round house and offered visitors 3D headsets and tablets to explore it. This is especially effective for showing non-specialists how features of an archaeological site, such as post holes and stake holes, relate to the original dwelling (CARROZZINO & BERGAMASCO 2010)¹⁰. Additionally, creation and provision of digital content on-line means that visits need not be restricted by opening hours, admission charges or physical location; museums can provide virtual representations of objects which would be too fragile or difficult to display. Museums can now market their collections to a global audience and increasingly, break down traditional hierarchies between curators as 'producers' of culture and visitors as 'consumers', with so-called 'digital volunteers' enlisted to improve institutional knowledge of collections (Department for Culture, Media and Sport, 2016).

4 https://www.iwm.org.uk/sites/default/files/documents/iwm_ara_16_17_web.pdf

5 <http://www.museumsassociation.org/museum-practice/3d-technology/15082013-the-potential-of-3d-technology> (accessed 26 August 2016).

6 <http://www.getty.edu/art/collection/> (accessed 24 August 2016).

7 <http://www.museumsassociation.org/museum-practice/3d-technology/15082013-petrie-museum> (accessed 24 August 2016).

8 <http://www.museumsassociation.org/museum-practice/3d-technology/15082013-fitzwilliam-museum> (accessed 24 August 2016).

9 <http://www.museumsassociation.org/museum-practice/3d-technology/15082013-virginia-commonwealth-university> (accessed 24 August 2016).

10 https://www.britishmuseum.org/about_us/news_and_press/press_releases/2015/virtual_reality_weekend.aspx. (accessed 20 September 2016).

There is a balance to be struck in use of technology. We know from previous work and this study that it is not always universally appealing. People have a range of interpretations of the material depending on their own age/experience and how the material is presented (BRUNO et al. 2010). For example, in her MLitt project at the University of St Andrews in 2015, Catherine Cruickshank ran archaeology workshops with three different age groups (children aged 7-12, teenagers and adults respectively) incorporating use of a 3D scanner and digital images¹¹. This was an experimental project in which ten objects were chosen, scanned and uploaded to WebGL by the Open Virtual Worlds team for viewing on her website¹². All groups showed enthusiasm and interest in the use of new technology, but this was most pronounced among teenagers (seventeen out of eighteen enjoyed the 3D reconstructions, compared to six out of nine children). Amongst the adult group, all nine participants enjoyed both the digital and handling aspects of the workshop but five preferred seeing the real artefacts and only one preferred the 3D images, with the other four unsure.

It has been argued that the presence of digital media can distract too much from the actual material culture in museums (PARRY 2007). This question has been addressed in a recent study undertaken by the Association of Science Technology Centres who asked museum leaders two questions about the use of technology: whether there was ever too much and whether it engaged or distracted. In all cases, they noted that acknowledging the potential for distraction allowed a better balance to be struck in the use of technology, and that the original objects should remain at the forefront of user engagement (SCHUSTER 2014). Furthermore, there is a danger that digital technology might augment a notional divide between art and artefact. This was observed by Latimer (2011) who noted that despite a consistent approach to interpretation and use of digital media across the recently re-developed Kelvingrove museum, the particularly strong criticism of the new art galleries betrayed a continued assumption that art should be treated differently, even more reverentially than other types of collections.

Despite the current enthusiasm for digitisation, Parry (2009, 2) notes that it is still difficult to find a central source of policy, advice and resources on digital heritage across the globe. The Report from the Culture24 Action Research Project 'Let's Get Real' (2012, 4) found that "organisations regularly invest in cultural websites, social media activities and online services without a clear idea of what the services are trying to achieve, or their intended audience". Nor is there an agreed method to measure success in terms of "user behaviour, engagement and satisfaction" (ibid.). As such, an important aim of our work was to contribute empirical research to assess levels of understanding and enjoyment of material culture when presented in digital form.

Bridges Collection

To assess the extent to which different sensory experiences impacted on interpretation and enjoyment of material culture we devised a series of experiments using a small collection of Cypriot material which was donated to the University of St. Andrews in 1994 by the Bridges family. The collection consists of 184 artefacts, mostly ceramics, ranging in date from the Bronze Age to the Byzantine period, including Hellenistic and Roman lamps, as well as Archaic and Classical figurines (figs. 1 & 2). The Byzantine material mostly consists of sgraffito bowls (fig. 3). There are also a few bronze and glass objects, including lamp stands and beads from various periods. The material was accumulated by the Bridges family during the 1960s, when Mr Bridges was employed by the British Council in Cyprus. Prior to the 1970 UNESCO Convention on Cultural Property,¹³ it was fairly common for individuals to build up private collections of antiquities, choosing pieces on aesthetic grounds, with little regard for their provenance or the destructive consequences of feeding the antiquities trade.

¹¹ <https://arts.st-andrews.ac.uk/bridges-collection/>

¹² <https://sketchfab.com/opencvirtualworlds/models>

¹³ (<http://www.unesco.org/new/en/culture/themes/illicit-trafficking-of-cultural-property/1970-convention/>) (accessed 18 May 2016).



Fig. 1
Bridges collection
Incised spindle whorl, Bronze Age
HC1994.3(136)



Fig. 2
Bridges collection
Oil lamps, spindle whorl and baby
feeder, various dates
HC1994.3 (1,6,7 & 137)

In 1994, following consultation with Professor Vassos Karageorghis (former Director of Antiquities and former Director of the Anastasios G. Leventis foundation in Cyprus), Mrs. Bridges offered the collection to the University of St. Andrews for teaching purposes. It is now displayed in the School of Classics, and although the University does not seek to expand the collection through new acquisitions, it is used extensively for hands-on teaching within the University, the wider community and schools. Items are also shown regularly in temporary exhibitions at the Museum of the University of St. Andrews (MUSA) and are used in public events such as MUSA's monthly Young Archaeologist workshops (fig. 4). One of the challenges of using this collection, however, is that the objects lack contextual information, divorcing them from their (pre)historical environment.



Fig. 3
Bridges collection
Byzantine sgraffito bowl
HC1994.3(15)



Fig. 4
Experiments: viewing the material
behind the glass case

Bridges Collection and Medium of Experiencing

To provide a range of sensory encounters based on current museum provisions, we provided four different means of interacting with the Bridges Collection (in a museum case, in a handling box, in digital reproductions and handling the real object) (fig. 4). This allowed us to analyse the success of each interactive method for different users in terms of interest, enjoyment and for conveying key information regarding provenance and function. Central to the analysis was whether the medium of experience affected visitor perceptions of the material itself. Recently, scholars such as Edwards, Gosden and Philips (2006) have researched the use of different senses in museums. Our analysis of the four different media of experiencing contributes further to this analysis.

An interactive exhibition was held at the Museum of the University of St. Andrews (MUSA) from 15 June 2016 to 20 April 2017. This was located in the Learning Loft, an educational space which is open to the public. It was the only object-based display in the room at the time. It featured a large glass display case containing 21 objects from the Bridges Collection, an illustrated text panel and labels, designed in accordance with MUSA's interpretation guidelines. A sensory box containing replicas was situated next to the case, alongside a bank of computers with 3D images and links to contextual information. During our focus group sessions artefacts were removed from the case so that participants could handle and examine them closely.

Sensory Box

To test the importance of touch we decided to use a sensory box to allow participants to feel a replica object without seeing it. We placed this box strategically beside the traditional museum case. A local potter, George Young, took on the task of recreating four objects: a lamp, a perfume bottle, a flask and a spindle whorl for the handling box (figs 1 & 2). By engaging a contemporary potter we also gained valuable insights into how the pots were made, used and decorated.

Digitisation and 3D Images

There were a number of practical reasons for digitising the collection; to make it more accessible to academics and the public; to provide material for archaeology and museum studies students to experiment with creating virtual exhibitions; and to reconnect the material to its archaeological contexts by linking information as well as websites and topographic data. The digitisation of the collection meant that it was possible to connect it to maps of Cyprus and archaeological contexts with details about type sites (such as burial, domestic, religious) based on comparisons with better provenanced Cypriot material.

To create the 3D images, objects were reconstructed using the Autodesk programme 123D Catch and then Agisoft Photoscan¹⁴. Once the 3D reconstructions were created on this site, they were then uploaded to The Bridges Collection pages on Sketchfab¹⁵. Sketchfab is a platform for hosting digital images and one favoured by museums such as the British Museum. The 3D images create an online archive available to staff and students for teaching and research. Additionally, the material will form part of the University of St Andrews virtual museum which is in development by Smart History and will be freely available on open access in due course.

¹⁴ <http://www.123dapp.com/> and <http://www.agisoft.com/>.

¹⁵ <https://sketchfab.com/bridges> (accessed 27th October 2017).

Audience Research Methods

Two primary sources of data were examined for our study of perceptions of material culture. First, a web-based survey located in MUSA, which visitors completed independently after exploring each part of the exhibition. This analysed differing perceptions of material culture according to the format in which it was experienced. Second, 9 focus groups were recruited to provide more in-depth qualitative data. These varied in size from a group of 4 to a group of 22, and included: a mixed faculty student group (Group 1), MUSA's Young Archaeologist club for 7-12 year olds (Group 2), St Andrews Town Archaeology Society (Group 3), a mix of students and the public (Groups 4 and 7), the University Archaeology Society (Group 5), Museum and Gallery Studies students (Group 6), Social Anthropology students (Group 8), and an out of school club for children aged 5-11 (Group 9).

The groups were selected in order to compare the responses of those with no archaeological experience and those with experience, as well as differing age groups. The age group divisions corresponded broadly to those used in MUSA's Learning and Access programme, i.e. school-aged children, students/young people and adults, in order to both inform future programming decisions and to consider the data in the context of wider generational differences in the use of digital media. Various methods of recruitment were employed, including direct contact to student societies and lecturers, adverts on posters and a callout on MUSA's mailing list. Participants were informed that they were taking part in a study by MUSA and the School of Classics and asked to explore the exhibition section by section. They also had the opportunity to handle original material from the display case.

We met with and gathered information from 9 groups (altogether 94 people) from April – October 2016¹⁶. The first focus group meeting was held in the Archaeology Room of the School of Classics, where minimal information about the material is provided. All subsequent focus group meetings were held at MUSA, using the newly designed interactive exhibition.

Initially it had been intended that participants would simply fill in a questionnaire, but as scholars have found in the past, we realised that far richer, nuanced data could be gathered via focus group discussions (NELSON & COHN 2015, and DODD et al. 2012)¹⁷. The method employed to gather data from focus groups was similar to a semi-structured interview. At each stage, a facilitator used a pre-determined set of open-ended questions, such as "How would you describe this type of material?", followed by more specific prompts to gauge whether the format of display and interpretation affected perceptions of the same set of objects. Prompts included: "What do you think this object was used for?", "Where do you think it might have been used?", "Why?" The questions were repeated with each of the four interpretative formats and each focus group. A note-taker recorded the participants' replies and any relevant observations on non-verbal behaviour, e.g. which activities lasted longer, how participants interacted with objects and how much discussion was generated. A consistent structure was also employed for the sessions, starting with the exploration of the display case, then the handling box, the digital reproductions and finally the hands-on experience with the original material. Allowing for the fact that visitors might build knowledge progressively through the process we reversed the order in which they explored the exhibition for the two final groups.

The notes were collated together following each session, then comments were grouped into similar themes by the researchers. In addition to our key categories of art/artefact, we recorded views on functionality, aesthetic, tactility, ease of understanding of material and enjoyment. A summary of our findings is presented in the Appendix.

¹⁶ Mixed Faculty UG Students (8); Children (Young Archaeologists) (12); Archaeology Society (mainly interested adults) (5); Fresher's week (general) (8); Archaeology Society (Students) (12); Museums and Galleries (Students) (10); Public/Student Group (6); Anthropology Students (22); Lawhead after school club (p1-p6) (11); Through a Glass Darkly Preview (38)

¹⁷ The Victoria and Albert Museum promote the use of qualitative analysis for '... attitudinal information. It is important in assessing the likely enthusiasm for projects. It identifies barriers and how to overcome them, generates new ideas, tests visual concepts, explores motivations, attitudes and lifestyle needs and compares different approaches' <http://www.vam.ac.uk/content/articles/l/evaluation-at-the-v-and-a/> accessed 27th October 2017.

Results

Objects in a museum case (Fig. 4)

Many of the general groups saw the material behind the case as both art and artefact. There was an interesting divide though in the classification of the material: if it was functional (e.g. bowl/lamp) it was often seen as artefact. Something that was decorated or figurative, e.g. the figurine or the sgraffito bowl, was seen as art. While this response reflects traditional views of art, many people across the groups questioned the definition of art.

It was notable that across the groups, and including the group that visited the case last, the experience of the material in the museum case was much more of a contemplative and solitary process. While engagement for adults with the 3D material was similarly a solitary process, individuals spent considerably longer with the 3D material than the museum case (at least 5 mins per 3D object).

Objects in the handling box

For many of the children (in both groups) this was an enjoyable part of the session but they favoured the 3D format more. It is possible that elements of mystery were drawing them in. In contrast to children, some adults hesitated about sticking their hands into the box.

In some respects the data collected from the handling box was the most surprising element of our observations from the focus groups. For many participants, the ability to feel the object without using the other senses increased levels of engagement, but importantly for this study, the box made the majority consider the function of the object rather than its artistic value. This was (like the handling session) because they could feel the weight, form and texture of the material. It could be argued that as the objects were replicas this may have impacted on participants' views; that is to say that they were seen as functional and not as art, but we believe that most participants did not consider them as reproductions once they actually started handling the object. However, some did suggest that feeling reproductions took the aura or mystery away from the object.

It was notable that there was lots of discussion across the groups about the material in the handling boxes and they would go back and forth between the reproduction and the actual object in the museum case to try and understand it. Participants noted that the handling box and museum case as a combination worked really well and the handling box encouraged much more engagement with the case.

Objects in 3D

The children were more inclined to treat the format of the 3D material as a talking point than the adults and two-thirds of those asked preferred this method of examining the objects over all the others. The children would look more at what the other children were doing on the computers and chat to each other about it.

For adults it was a very solitary experience and although it kept their focus, at the same time many of the older adults felt distant from the material or that the 3D format isolated the material even more. Once they were shown the potential for discovering contextual relationships there was more engagement.

It was noticeable that of the adults, the groups who reacted most positively to the 3D material were the student Archaeology Society (though notably not St Andrews Archaeology Society) and the Anthropology students. Their familiarity with handling and studying artefacts may have encouraged them to explore the on-line site to find details of context and other associated material culture¹⁸. Both groups also commented on the research value of the 3D scans which highlights their experiences of and thus different approaches to material culture.

Interestingly, those with archaeological backgrounds did not identify more of an art feel from the objects in 3D. Many people (Groups 3, 5, 7) requested a scale for the 3D objects which reflects in fact the amount of consideration they had of the objects.

¹⁸ Students in the student archaeology society were much more concerned to try and find out more about context. Many navigated themselves through the computer material in order to try and find this out. St Andrews archaeology society were frustrated by what they perceived as a lack of context but were not as savvy in terms of finding out the data themselves.

On the whole, other participants felt distanced from the material and saw it as further divorced from the original but they appreciated the 3D format in terms of the close up views it afforded. Whilst people could see more features there was general agreement that the object seemed less functional in 3D. One person said, “in a case it felt like a treasure but on the computer it felt like just another computer image – one of hundreds that are available on the internet. It felt less important once it was on the computer.” Group 4.

Interestingly, those with archaeological backgrounds did not identify more of an art feel from the objects in 3D while others without, did so. For example from a non-archaeology participant, Group 1; “I think for the case and the 3D images the objects are seen in abstract – I view it more as art. The handling gave me a much better idea of functionality and hence I saw this from an archaeological lens and as an artefact”. In contrast, Group 5; “you almost feel you can handle the objects on the computer whereas with art you are distant”.

With the first mixed university group, a few participants commented that they liked the doing part of the 3D images. They enjoyed being actively engaged with the material through the 3D images; “The website gives a very good overview of the context. The maps are very useful. The website also is divided into different categories so that it gives further context.” Group 1. Similarly the archaeology and anthropology students had analogous comments: the digital version was a good “research tool which puts the objects in the ‘artefact’ category.” Group 5.

Object handling

Whilst adults visibly enjoyed and expressed excitement about handling the original artefacts, not as many of the children felt this to be the case. The majority of children felt they engaged more with the 3D objects (and certainly this format generated the most animated discussion in this age group).

All of the adult participants liked the way they could see and feel details of the objects during the handling session. This combination allowed them to feel more connection with the craftspeople responsible, and as such, it sparked their imaginations to think about the object itself, its decoration, meaning and function. In many cases, as with handling the replica, participants in all groups said they were surprised by the weight of the object and also they felt that it added more to the perception of the object as utilitarian.

Observations

There was definitely an increasing sense of understanding and curiosity about the material with every new experience. We observed many people discussing the material after they had experienced it in a couple of formats. Often participants would go back and forth between the formats to re-examine the material culture. Participants commented on this in most sessions and further comments include; “having used the computers it was clear that the display case had been curated in a certain way to gain access to context” Group 5. The combination of material and techniques complement each other: “Combining handling and visual gives better insights” Group 3 and it was “good to have both the handling box and the 3D renderings” Group 6.

Most participants agreed that touching the objects made them feel more functional (in particular the spindle whorl (fig. 1). “Touchability makes them more functional” Group 3. Interestingly, many also believed that they engaged more with the object when they were able to feel it (not see it) in the handling box and this worked particularly well when the box was next to the glass case of objects. For many of the older participants, the 3D format created more of a barrier with the object.

Many participants (with the exception of the archaeology society and anthropology students) said that non-decorated objects seemed more like artefacts and that decorated items could be interpreted as art. When in the museum case, the differences between art and artefact came down to the décor. When the objects were felt (without vision) they became much more utilitarian. Consequently, perception of material culture as art or artefact is not solely dependent on how it is experienced.

The test results of the visual no touch and manipulation through 3D experiments showed that without a good visual understanding of the original archaeological context, most visitors classified the majority of objects as art rather than artefact. Furthermore, while many participants questioned what art was and how it could be defined (particularly in the adult groups), not a single person was concerned with the meaning of an artefact. Another pertinent result is that 3D provision in isolation

has no more impact on overall understanding of material than examining the material in a glass case. Furthermore, while younger audiences were engrossed with the 3D material, it was used as a means of then engaging with the original objects and their labels rather than learning directly from the 3D image. Even when contextual information was provided it was either sidelined or ignored so that the visitors' overwhelming view was of an object in isolation. This is particularly pertinent as museums focus on the important roles they have in allowing visitors to reconstruct an object's history and not just focus on its aesthetic value (SYLAIOU et al. 2010, 244).

It is clear from the data presented above that object handling sessions have the most potential to engage visitors and help them understand the function and context of the material. Conversation regarding the perception of the archaeological material as art or artefact was well-considered and debated and many commented that "discussion helped understanding" Group 3. In contrast, material in a museum case was not given significant consideration and was often hastily classified as art or artefact. Discussion at the museum case was kept to a minimum (if any at all). This is a tradition which has been well explored in the past and is not the same for museum visitors across different cultural traditions (APPADURAI & BRECKENRIDGE 1999). Moreover, the session observers noted that there was significantly more interaction with the objects in the case once participants had investigated the handling box. This format also encouraged discussion. Handling the replicas made all participants (without exception) consider the utilitarian side of the material and in some cases even changed individuals' original interpretation:

"The context of the pieces matters the most in how I see them. If the objects are behind a case, it seems more like art, whereas handling it made it more like an artefact because it stops being purely aesthetic and I can see the functional aspects of it" Group 1.

It was quite obvious, however, that those individuals who were currently students of material culture were not happy to engage with replicas, echoing Stogner's (2009, 7) point that museum-goers expect to view genuine items or it can have a negative impact on their visit.

The virtual representations were very popular with younger participants, as they picked up the exploration of the 3D objects quickly. They enjoyed being able to closely examine any texture or pattern and they discussed the objects in detail amongst themselves. The children seemed less interested in the written context and information about the objects alongside the 3D image, but were more inclined to offer their own observations of the potential uses of the material than adults. The handling sessions allowed the children to examine one object at a time, slowing down their discussion of the material. Many studies have supported the theory that children are more open-minded learners (LUCAS et. al, 2014) than older audiences. In our handling sessions it was clearly evident that children are more able to perceive the potential uses of an object than adults and correctly identify the material such as the terracotta bell or the baby feeder¹⁹. There were some adults who were able to identify a few familiar objects such as the perfume bottle, albeit less frequently. That the children preferred the 3D format more than the real handling may reflect current trends among younger generations. On the whole, younger generations employ digital technology so frequently that they are much more comfortable using it to help them understand objects and the world around them. Conversely, the handling box which is usually thought of as a child-orientated aid in museums, was not as well-liked among our children but in fact encouraged a great deal of discussion amongst adults.

Conclusions

In our study, subjects noted that handling and engaging with the objects, feeling their weight and gaining insights to their production, made it much more likely to perceive them as archaeological artefacts. As several participants noted, touching 'art' is generally discouraged, and so being able to handle the material encouraged them to perceive the objects as tools to be used. We can make academic judgements about the original context for the material but for the most part, when viewed in isolation (in a display case or in digital form) the objects are seen primarily as art rather than artefact. Within this broad view there was a sense of a scale: decorated pieces regardless of function, or figurines were seen as more artistic than non-decorated items. For example, the incised spindle whorl (fig. 1), a fundamentally functional object was seen as art. Contrary to the other groups, the Archaeology and Anthropology students did not perceive the digital material as art.

¹⁹ http://www.alisongopnik.com/papers_alison/Current%20Directions%20in%20Psychological%20Science-2015-Gopnik-87-92.pdf
<https://cocosci.berkeley.edu/papers/WhenChildrenAreBetter.pdf>

Although there were differing views on the 3D medium itself, this format did not alter perceptions of the objects as art or artefact. It remained primarily a visual experience for most and therefore less artefactual than artistic. For some, this was because material culture was equated with ‘treasure’ when it was untouchable, but the ability to handle it made it seem more ordinary.

Furthermore, a sense of authenticity of the artefact is fundamental to positive engagement (STOGBER 2009, 391). This was particularly visible in the reactions of the Archaeology and Anthropology students who did not enjoy the sensory box experience of the replica artefacts. Moreover they viewed the 3D objects as different from replicas and more as a tool of research value. In saying that, a more recent study undertaken by Cooke et al. (2014, 14) suggests that there is not yet enough empirical research to understand what the “relative cultural value” of engagement with the real and digital object is.

One of the project’s key aims was to reinsert context discreetly to encourage an appreciation of both the aesthetic and archaeological value of the Bridges collection. What we learned however, was that although some visitors were happy to read museum labels, only certain groups (the Archaeology and Anthropology students) were willing and/or able enough to successfully navigate their way through the digital media to the contextual information. Gell (1996) noted the significance of an object’s context when defining it as art. This highlights the importance of the role museums play in promoting archaeological contexts and the tangled history of the object. Similarly, Classen and Howes (2006: 217) questioned whether the symbolism or the function of the object would be better understood by anyone, especially outside of its original cultural context, if a more enhanced sensory experience was available. In terms of our work, the answer is most definitely yes. While our provision of context in digital form did not necessarily work for all our users, it complemented other sensory experiences, enhancing the experience overall.

Hooper-Greenhill (2000, 7) indicated the difficulties museums face in being user-friendly and attractive without losing intellectual content. Certainly the provision of contextual data enhances the potential for an enticing and contemporary means of examining material culture, going beyond museum labels. However, even though such data may be provided, it is not always sought after, as we found with the 3D format.

The digitisation of the Bridges’ collection has enabled a more enhanced understanding of the value of digital media in museums. For those (specialists) who wanted to explore the digital format, the provision of original context information in the form of plans, images and other associated material culture is better enabled through the virtual form. However, for a wider audience, the overarching value of providing a 3D image is that it makes material accessible; it can be viewed from multiple angles and at high magnification, allowing detailed observations otherwise unavailable when simply seen in a museum case (BRUNO et al. 2010). While digital images cannot replace the more embodied sensory experience of handling the object, the ability to turn and manipulate the object at least provides another sensory layer to a self-directed or virtual visit. In turn, this created more consideration and discussion of the original material. Classen and Howes (2006, 218) emphasise this point, noting that sensory content on its own is not going to deepen one’s understanding of the object, but with more contextual detail through labelling and visuals as well as different media, it is further enhanced.

Our research has shown that the provision of a wide range of sensory experiences engages diverse audiences and facilitates learning. Detailed audience research and learning theories, including various interpretations of Gardner’s (2006, 8-38) multiple intelligence theory, have played an important role in shaping museum approaches to exhibition design over the last few decades. Factors such as age, educational level, additional support needs, cultural background, interests and motivation for visiting all affect the visitor’s interaction with museum objects and their understanding of the exhibits. The application of constructivist theories, (e.g. HEIN 1995) has seen the rise of discovery oriented approaches to learning in museums, whereby exhibition design encourages visitors learn by experience and construct their own knowledge. The influence of visitor group dynamics, especially within families, has also been studied in detail (FALK & DIERKING, 1992 & 2000; HOOPER-GREENHILL 1994; STERRY & BEAUMONT 2005; TISON POVIS & CROWLEY 2015), and there are excellent examples, particularly in science centres, of hands-on exhibits encouraging learning through social interaction amongst visitors – be it competing in a game or working as a team to solve a puzzle or construct a model. In our experiments this behaviour occurred spontaneously when the children were exploring the 3D images, and the experience could arguably be made more powerful if the 3D images were integrated into a game with defined learning outcomes. A further issue impacting upon

current museum design and programming is wellbeing. There is an increasing body of research suggesting that the sense of touch can have therapeutic value, including in work with dementia sufferers (CAMIC & CHATTERJEE, 2015). Many museums have developed successful initiatives such as Tunbridge Wells Museum's dementia toolkit for handling sessions and Liverpool Museums' House of Memories digital app. Both of these projects use their collections to help people make connections, to support learning and improve wellbeing²⁰.

Because of security and preservation concerns, museums mostly only offer handling of original artefacts at specific events or study sessions, but may provide replicas or 'props' to explore in the galleries. Our results show that the chance to handle objects allows visitors to experience a sense of connection with the maker and appreciate its original function, and for a 'non-expert' audience, replicas are equally useful. In some museums, handling material and interactive exhibits are located in dedicated Discovery Centres, away from the original artefacts. Whilst this may help in creating separate noisy and quiet zones within the museum, there would appear to be far more learning potential when artefacts are displayed alongside handling items, 3D reconstructions and other forms of interpretation. Although adults and people with prior knowledge/experience of archaeology were more reluctant to try the handling box, it was striking that this technique resulted in much more detailed descriptions and conclusions about the objects. By eliminating the sense of sight and all contextual information, it forced participants to engage actively with each object on its own terms. In seeking to prolong the life of their collections, it may be that museums unconsciously privilege sight among the range of sensory experiences they could provide. As Woodall (2013) observes, this was not always the case. In 17th century cabinets of curiosity, "handling was absolutely central to collectors' and visitors' encounters with collections. Passing round objects to feel, observe, even smell was part of the experience."

In the introduction we noted two key questions regarding the use of digital media in museums: does it appeal to all and what impact does it have on perceptions of material culture? There are varying and surprising views on use of digital media. It does not necessarily appeal to all and for different reasons. Some do not like the demystifying of the museum experience. Others simply found the format too unfamiliar. Younger visitors were clearly enthralled with the digital form, it sparked discussion, and in many respects, it is this group that will help to broaden and boost museum audiences.

In terms of perception of the material culture, while it is clear that not every group or individual had consensus regarding the best way to interpret material culture there are ways of increasing engagement and flexible thinking. Good labelling and visual aids to link to context are fundamental; the addition of further opportunities for sensory engagement (touch, virtual manipulation) encourages visitors to engage with an object and to think about it on a range of levels. As organisations committed to accessibility for all, museums must allow for obvious differences in views, between older and younger participants, as well as those who have archaeological training or specialist knowledge, and those who have not. Developing flexible approaches to the presentation of material culture will continue to be both necessary and a challenge.

Furthermore, provision of information on the entangled history of an object allows visitors to reach a more enhanced understanding of its cultural context: and not one that can be simply diluted to being art or artefact. Based on her work on the Pasifika styles" at the University of Cambridge Museum of Archaeology and Anthropology and at the Metropolitan Museum of Art Wonu Veys (2010) argued that distinguishing between art and artefact is not necessarily helpful and that individual perceptions can lead to numerous interpretations. While it is true that distinctions between art/artefact and good/bad will not necessarily push viewer interpretation forward, such reactions are understandable in light of the fact that a central role of a museum is to catalogue, classify and select.

²⁰ Tunbridge Wells Museum and Art Gallery, 2015 . Dementia Toolkit. <https://www.museumsassociation.org/download?id=1150803> (accessed 20/08/2018)

Liverpool Museums 'House of Memories' project and app: <http://www.houseofmemories.co.uk/> (accessed 20/08/2018)

We have learned that it is not enough just to provide the object in digital form in a passive way. Classen and Howes (2006, 219) argue that even the ability to handle the material doesn't always mean that the cultural meaning will be understood. They suggest a range of senses (sound and smell) should be employed to make this a more realistic possibility (CLASSEN & HOWES 2006, 219). The more active physical exploration of the object enables contextual connections to be made as well as an understanding of the entangled life of the object. Drori (2010) argued that digital technology changed the product or experience. However, our experiments have shown that when the experience was more visual (in the museum case and on computers) it biased people towards an artistic interpretation, whereas when the experience was more physical and tactile (sensory box and handling) it encouraged them to think about function. This would also explain why object handling was generally the most effective and rewarding – it employs all senses simultaneously. For our own project development, it is clear from our user analysis that to enable deeper understanding of context, the first digital platform of engagement with the object should be through its archaeological context and then the object.

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Keywords

Digital Media - Art - Artefact

Appendix

Collated questionnaire results

Total engagement: 94

In focus groups and 40 online forms: 134

The material presented here is a summary of answers to our questions, considerations from the participants and observations from each of the nine sessions. The data is pulled together at the end to draw out a number of points of comparison and divergence with some overall suggestions for further application of the data.

Group 1: Mixed Faculty Undergraduates: 8

There was a wide range of nationalities. Many frequented museums and two were embarking on the study of archaeology at degree level. They only spent a few minutes at the cases and there was no real discussion about them. However, this changed once they were able to engage with the material. Exploring the 3-D scans increased the discussion and there was interest in the process but less to do with the actual object. In saying that, a couple of people did really like this format. One person commented that they felt that they 'became an amateur archaeologist'.

When using the handling box, because they couldn't see the object they felt that this was the point that it was most functional; the art side was in a sense erased. When they were able to handle the material this was when discussion and interest was really piqued. They commented on the fact that the weight of the objects made them seem functional whereas they were less so when they were behind the glass case.

There was a mixed response to the question of whether the archaeological material was art or artefact. Some very clearly saw the objects in a case as art. Many participants questioned what was meant by art. Many noted that bowls/lamps were seen as functional objects while figurines were seen as having artistic merit. 'If it is a bowl or lamp etc. then I see it as a functional object rather than art. But then if it is a figurine it is easier to see its artistic merit', Group 1. One person raised the point about desires to see original objects and how they went to museums with the intention of seeing such objects (not replicas) and that the 3-D material was to them was more archival than for display. Many agreed that they liked the combination of different sensory experiences with the material. 'You get different perspectives from viewing and handling them (the material culture). It is easier to gain context with all the different views of them'. Group 1.

Group 2: Children (Young Archaeologists): 12

The children ranged in age from 7-12. They had some knowledge of archaeology through their monthly meetings. They found it difficult to engage with the material in the case, the answers to their questions were very specific (more so than adults) showing that they focused in on an object rather than thinking broadly about it. The children enjoyed the 3-D format more than the museum case. They were able to examine the whole object and zoom in and out. This generated lots of discussion but they were a bit haphazard and flew through the material once they figured out what they could do with it. There were some interesting results of the handling box session. Because the box was divided into four compartments, each containing a single object, the children could only handle one item at a time. This slowed them down and helped them to focus on a specific object and its attributes. Then they were keen to answer the questions and explore more. This seems to have been the format that created most focus. The hands-on session generated lots of questions but in fact by the time we got to this stage the children were already very familiar with the objects so it wasn't as interesting to them as it might have otherwise been.

Group 3: Archaeology Society (interested adults): 5

Majority saw the objects in the case as archaeological (this is what we would expect given their training). They had also read the labels in detail. Interestingly, those who did not have a degree in archaeology felt the 3-D format was archaeological but those without a degree saw it more as art, again because of the way you could manipulate it and see it from all angles. Once they were told about the context it became a bit more archaeological. The 'ability to touch an object makes it more functional'. One noted 'presumably they are in the case because they have archaeological value'. Another noted the difference between a functional object (no décor) and an art object (décor). Although many viewed the material as both art and archaeology, the group was keenly concerned with the meaning of art and discussed the topic in depth.

Group 4: Public/Student Group (September): 8

A mix of students and the general public (2 non-students) who had little experience with archaeology. Their view of the material was that it was primarily artefact and some noted that there was art because of the intricate designs. Single objects in the case tended to grab individual attention and they were able to talk about them when asked. As with other groups before them, many individuals commented that they found that the objects in the handling box were more practical than artistic; they felt 'functional', 'sturdy', 'robust', 'less fragile'. Further to this, some noted that they could feel patterns but as they couldn't see them, they were unsure if they were intentional artistic elements: 'as I was able to continue to feel the object I could tell that the object was man-made rather than natural and that it was a functional object'. One person said they didn't like the idea of a replica as it wasn't an authentic experience; another person commented that touching the objects was more interesting than the display. Some believed that being able to touch the object made it less like a work of art: 'it cannot be an art object if you are allowed to touch it, as art objects are revered and you are not allowed touch them'. A small number of students perceived a change in the nature of the objects in 3-D form which was partly fuelled by the sense of remove that participants felt was created by the 3-D format: 'When in the case, you got a sense that the objects were a group and could get a sense of where they might have come from. Whereas on the screen they all seem isolated, distinct items.' With the handling session, participants noted the utilitarian function of the object. There was much more enthusiastic discussion of the objects and more willingness to engage with others in trying to understand the object.

Group 5: Student Archaeology Society: 12

The students asked lots of questions at the museum case and considered the material culture as both art and archaeology. One person noted that the objects were 'presented archaeologically in the case'. There was a considerable amount of discussion at the museum case but much more so at both handling sessions. Unlike any other group, they did not respond well to the handling box. Many actively said they would avoid it in a museum had it not been part of the structured focus group session. The 3-D format was most popular after the handling of the original objects. Only one object identified as art: the sgraffito bowl. One person noted that: 'you lose some of the artistic value when you see the 3-D representations'. A number of students noted that the 3-D format encouraged something of a research approach to the material and thus further appreciation and exploration. This group found the context connections easily: 'looking in 3-D was more like examining than appreciating'. As with others, the handling session encouraged discussion as well as comments regarding the utility of the object.

Group 6: Museums and Galleries Studies Students: 10

Most saw the material as archaeology (not art) because of the range of material on display. Others thought that any pottery was archaeology and a found object was an archaeological object. The 3-D format did not change the views, all but one saw the objects as archaeological. This group really enjoyed the handling box in terms of getting a sense of the object. It was 'fun to figure out what it is – more of a hands-on approach'. A small number of people said they preferred this to 3-D. All said they would approach the box and interact with it in a museum context. It was also commented that the box was good for accessibility, for example for partially sighted people. Another person said: 'Feeling and looking is a good combination – get you to use more of your senses'. Handling the real objects allowed more connection with the craftspeople/makers etc. They all felt that handling the objects encouraged them to think about the objects as having a sense of purpose. NB although all students noted they liked the handling session best, some said that they felt they got more out of the 3-D experience in terms of encouraging them to think about the object by being able to zoom in and see the details up close. They also mentioned that they felt inspired and that the website enabled them to go and explore more at home.

Group 7: Public/Student Group (October): 6

A mix of students and members of the general public. It should be noted that many people had museum experience in this session. To see if the order in which people experienced the material was impacting on their interpretation, the order of activities in this session was changed. In this instance, first the participants handled the real objects, then they worked with the material in 3-D, this was followed by the feely box and then museum case. Handling: the group consensus was that they were archaeological objects with artistic merit. They had a function. One person said that objects looked archaeological as they had been excavated and this generated discussion about whether an object was archaeological because it has been excavated... even if it was art. This group really appreciated the 3-D format. Comments included "in the ideal world I would handle everything I want in a museum, but if I can't; then 3-D is the next best thing". This group were excited about the potential for access to collections and for research too. They noted (as others did) that 'they might not have come to the same conclusions about the object if they had only used the computer'. When handling the material without viewing it, participants here noted that they had no fear of harming or the object and this helped them to understand it as utilitarian. They noted that they were able to hold the object as one would if one were using it. This led them to discuss the fact that because the objects felt robust they were more like household objects. Another commented that as they couldn't see they were forced to call on other senses to think about the material 'the handling box de-familiarises the object because you can't see it. One is so used to looking and using observation to come to conclusions, whereas the handling box forces you to use your senses, focus on the tactile aspect and experience.'

Group 8: Anthropology Students: 22

A significant majority of students felt that the material culture was both art and archaeology (12) and they questioned whether the classification mattered in the first place. With this group we reversed the order of experiencing the objects. The students approached the 3-D material first and then they handled it, so we could assess how participants responded solely to the 3-D renderings with no prior experience of the material at all. This sequence meant that students commented a lot on the scale of the objects- finding it hard to visualise the objects based solely on the screen. One girl thought the spindle whorl was a bowl until observers pointed it out in the case. This highlights how the 3-D format has to be carefully established, so as not to allow false perceptions of the material to arise. In terms of the 3-D experience and handling there were some interesting comparisons: many liked both handling and 3-D but as with group 7 before them, those who were looking at the 3-D liked the fact that they could not damage the object. One noted that the 3-D form made the objects more accessible and perhaps better in terms of conservation. There were a mix of preferences for use of the material in terms of research, some believing that 3-D was more profitable than original (and vice versa).

Group 9: Lawhead after school club (age 5-11): 11

The children considered the material to be archaeology. This may be a bit skewed as Lawhead have had quite a number of archaeology talks and know an archaeologist.

The children's experience of the 3-D images was interesting because as soon they played with the images they considered it more art than archaeology. They felt that the material looked a bit more fragile on the computer and you could get a sense of how it was made in the detail provided by the 3-D format. The children liked that they could see more details and that they could zoom in. As such the computer allowed more interaction and they could do it at their own pace. The children also felt that they could focus more with the computer. The handling box was very popular with the children and many were surprised by the weight of the objects. They could feel the décor, and in fact, many as a result felt that the objects (even though they identified them with the objects in the case) were now a mix of art and archaeology (6 children). This number increased slightly with the hands-on session. The majority of students liked the 3-D images best (7) while 3 liked the handling box and 3 liked holding the real object (some liked both).

Art engagement and the college curriculum: factors and strategies for success in collection-based teaching

Liliana Milkova

Abstract

This article identifies and analyzes key factors that have contributed to the extensive integration of the Allen Memorial Art Museum's encyclopedic collection into Oberlin College's curriculum. These factors include support from the college administration; visionary museum leadership; funding to initiate and sustain inter-departmental programs and hire staff dedicated to academic outreach; structures to equip faculty with basic art historical knowledge and skills; customized art pedagogies to match teaching and learning needs, and making collections physically, intellectually, and digitally accessible to the academic community. The article further suggests strategies for initiating and building robust academic programs at other academic museums.

Introduction

The Allen Memorial Art Museum (AMAM), also known as ‘the Allen’, is part of Oberlin College, a small liberal arts institution with a renowned conservatory of music, located near Cleveland in north-east Ohio. The museum houses an extraordinary encyclopedic collection of over 15,000 objects and has served the academic community, always free of charge, across disciplines and programs since 1917 when the doors opened for the first time. Primarily a teaching institution, the AMAM ranks among the top campus art museums in the USA and its long history of collaborations between faculty and staff has generated innovative object-based pedagogies that enable interdisciplinary thinking and research throughout the liberal arts curriculum of the college.

An acknowledged leader in the field of academic curatorship, the Allen has been integrated effectively into every level of the college curriculum. The museum, as well as art in general, has assumed an important place in the development and implementation of new courses, research projects, and student assignments, and in the way faculty from non-art disciplines construe the investigation of their subjects and their scholarly methodologies. Courses use the AMAM holdings through carefully planned class visits conducted in the galleries and the Wolfgang Stechow Print Study Room, a private and secure space within the museum where faculty and students can encounter works of art in more intimate and immediate ways. A senior neurotoxicology seminar exemplifies the museum’s broad relevance: students in this class spend one of their weekly three-hour lab sessions in the galleries and print room to explore how and why lead, a dangerous neurotoxin, has been utilized extensively for centuries by artists working in oil paint, bronze, glass or ceramics, even though they were fully aware of its harmful effects. Students also engage in a series of close looking activities designed to improve their critical observation skills but also to discover how art can serve as a primary text, shedding light, or offering an alternative perspective, on course themes such as pollution, drug abuse, addiction, and radiation. Art helps students understand more deeply both the human and scientific discourses surrounding the impact of neurotoxins, but also the necessity of keeping an open mind and multiple possibilities in sight when conducting a scientific or scholarly inquiry.

Academic engagement occurs additionally through a rigorous program of teaching exhibitions, museum-based courses, art-based assignments, research and creative projects and student assistantships. Moreover, pedagogy workshops and curriculum development grants for faculty, joint publications with faculty and students, and training sessions for students preparing for careers in health further enrich the ways and venues through which the museum exercises its educational capacity.

The museum has always functioned as a training ground for undergraduates interested in pursuing advanced degrees or careers in art, art history, museum education, or museum studies. In the last ten years, however, the Allen has taken on a central role in helping students in the sciences and social sciences better prepare for their future professions. In essence, the museum has become the site—and the collection the tool—for meaningful, authentic, and collaborative learning experiences for students of any discipline. Though statistics cannot represent the full extent and vibrancy of academic encounters at the Allen, they provide a sense of the deep incorporation of the museum into the academic life of the college. Academic outreach data from the 2016-17 academic year furnish an eloquent example of museum utilization: more than 105 faculty members (out of approximately 280 total) scheduled 370 class visits to the museum representing 173 individual courses and 47 different departments and programs. Student attendance specifically in class visits surpassed 6,000 (the student body numbers approximately 2,800) and we can estimate that self-initiated return visits (of which we are unable to keep track) are in the hundreds given how many faculty members ask students to come back to the museum to complete art-centered papers, curatorial projects, or creative endeavors.

The dynamic and diverse educational role of the museum, the extent and depth of the academic community’s meaningful interactions with the collection, and the overall flourishing of the Allen as a locus for multimodal and interdisciplinary teaching and learning are predicated on certain institutional developments over the past 30 years. This article analyzes the key factors that have contributed to the AMAM’s effective incorporation into Oberlin’s academic life. It also suggests strategies for building robust academic programming and embedding object-based learning across fields of knowledge.

Based on the author’s comprehensive, decade-long experience in academic programming, archival research and interviews with curators and educators, the key factors for an integrated campus museum can be narrowed down to: support from the highest echelons of the college administra-

tion; vision and courage from museum leaders to expand collaborations with disciplines that have traditionally excluded the arts; substantial financial assistance to initiate and sustain inter-departmental programs, as well as to hire professionals dedicated to academic outreach; equipping faculty with basic art historical and visual analysis skills; developing customized, art-based strategies applicable to any academic subject or discipline; changing the very nature of student encounters with artworks, and making the collection physically, intellectually, and digitally available to academic constituencies. The discussion that follows elaborates on these factors, while highlighting important figures and their contributions to the growth of the museum's academic weight.

Academic Curatorship as Field and Pedagogic Practice

The emergence of academic curatorship as both a field and pedagogic practice dates to the early 1990s. After recognizing that campus museums in the United States were becoming divorced from the academic pursuits of their parent institutions and thus losing some of their educational value, the Andrew W. Mellon Foundation initiated the College and University Art Museum Program (CUAM). The program aimed to identify and institutionalize effective means for campus art museums to strengthen their curricular role in the teaching and training of undergraduate and graduate students, and to establish productive collaborations with academic departments. CUAM catalyzed a series of changes in how museums conceive of their relationship with the curriculum and core populations on campus, and faculty members' and senior administrators' perceptions of the value of the arts to pedagogy and liberal education.

By CUAM's successful completion in 2005, after a fifteen-year run and the disbursement of millions of dollars, a number of academic museums across the U.S. had revitalized their pedagogic relevance and visibility. Key to this process was the inauguration of dedicated staff positions to liaise with the faculty and students in order to maximize the capacity of museums to serve their academic communities. These positions stand perhaps as the most significant outcome of the CUAM program, their timeliness and necessity made evident by the fact that institutions that did not participate in CUAM have since designated their own academic liaisons. To date, there are more than 70 academic coordinators, liaisons, or curators in the U.S.

Through the funding of academic museums, the Mellon Foundation resuscitated not only the educational function of the college or university art museum, incorporating object-based learning in disciplines as varied as chemistry, economics, philosophy, and music theory, but also advanced, if not accelerated, the interdisciplinary current that was beginning to gain momentum in academic instruction and inquiry. Moreover, participating museums designed curriculum-structured programs and collaborations that as Goethals and Fabing (2007, 19) note "positioned them as a nexus for cross-disciplinary and experiential learning".

Having tipped the scale toward collection-based learning in the humanities, social sciences, and natural sciences at many leading U.S. colleges and universities, in 2011 the Mellon Foundation extended funding to an overseas institution with similar goals in mind. The recipient of two consecutive grants from the Mellon Foundation, the Ashmolean Museum of Art and Archaeology launched in 2012 the University Engagement Programme (UEP) to further partnership with its parent institution, the University of Oxford. UEP and its staff enhance the impact of cross-disciplinary teaching and learning through objects across departments and all four of the university's academic divisions. They also work to embed the Ashmolean's collections into the academic curriculum and make them part of Oxford's overall pedagogical environment.

Academic Outreach at the Allen Memorial Art Museum

In 1962, AMAM director Charles Parkhurst (1962, 6-7) acknowledged that "it is the aim of the museum to serve the entire student body of the college, not just those in the art department." But it wasn't until the early 1990s that the museum began to serve more purposefully and increasingly as a vital educational and cultural resource. The Allen participated in the first round of three-year Mellon grants awarded to a total of fourteen college and university museums in 1992 and 1993¹, but

¹ These include the art museums at Bowdoin College, Cornell University, Dartmouth College, Emory University, Kansas State University, Harvard University, Oberlin College, Princeton University, Smith College, University of Chicago, University of California - Berkeley, University of North Carolina at Chapel Hill, Williams College, and Yale University.

the conception of a curator devoted to academic outreach preceded the receipt of Mellon funding by three years. In late 1990, Oberlin College President S. Frederick Starr endorsed the renaming of an existing education position to “curator for academic programs” with a focus more heavily on the college curriculum. Anne F. Moore, who had been hired in 1988 as the AMAM’s curator of education and who had already been conducting academic outreach to non-art departments, became the museum’s first curator for academic programs, serving in this capacity from January to July 1991 when she was appointed the museum’s acting director². Moore initiated the museum’s first systematic academic outreach to departments other than art history and studio art. Within a year, Moore had expanded and diversified curriculum-related programs: according to the AMAM’s 1990-91 annual report, class visits to the museum well exceeded one-hundred, with ten courses outside the Department of Art utilizing the collections. A firm believer in the museum’s extraordinary educational role across disciplines, Moore continued to broaden and deepen the pedagogic use and impact of the AMAM. When in 1992 she became museum director, she set out not only to make the collection an integral part of the curriculum, but also to change individual and institutional thinking about the place of the college museum. “Given the strength of our collection and the college’s history of innovation in education,” she explained to a journalist (MILLER 1992), “we have an important role to play within higher education and an opportunity to redefine the position of the college museum.” It was under Moore’s directorship that in 1993 the AMAM received from the Mellon Foundation a grant of \$193,000 to be used over three years for strengthening the educational role of the museum’s collection and programs. Over the course of the grant period, which in 1995 was extended by one year, Mellon funding supported four strategic areas: the conception, development, and production of an innovative, scholarly CD-ROM catalogue of the AMAM collection; faculty stipends for the development of course-related exhibitions and programs; funding for museum staff for curatorial research and development; and the coordination of interdisciplinary public forums. The scope and depth of the grant activities not only engaged a more diverse audience and allowed the museum to pursue more aggressively a number of scholarly collaborations with the faculty and students, but also, according to Moore (1995, 6), “sent a signal to administrators, faculty and trustees confirming the lasting value of a significant art collection to the teaching mission of the college”.

Moore’s unwavering pursuit of the collection’s meaningful curricular role in active learning at the end of the 20th century created a dynamic precedent for the focused integration of the AMAM across campus that her successors—both museum directors and academic curators—built upon and adapted to suit the teaching and learning needs of the 21st-century classroom. Under her leadership, the museum set new standards for exhibitions and acquisitions that reflect the interests and weight of the curriculum college-wide. Today, the AMAM works closely with faculty members when planning exhibitions and gallery displays, as well as when considering new acquisitions. In addition, through research, publications, public presentations, podcasts, and course assignments, faculty contribute to the interdisciplinary, scholarly understanding of the collection and its rich interpretive dimension.

In 1997, soon after Moore resigned from her position as AMAM director, the museum was awarded \$185,000 in the form of a second three-year Mellon grant to further solidify interdisciplinary connections to the curriculum by creating permanent and effective avenues of interaction with students and faculty in various departments. Like the first grant, the second was extended by a year in 1999. In addition to supporting the museum’s growing popularity as both an educational space and resource, as well as the increased number of class sessions taught by curators and faculty members in the galleries, the grant enabled the 1999 appointment of Stephan Jost as the first Mellon-funded curator of academic programs and exhibitions, a position dedicated to outreach to the faculty and students.

Jost had joined the Allen in 1997 as curatorial research assistant, subsequently serving as assistant curator of western art while the AMAM’s curator of western art before 1850, Marjorie “Betsy” Wieseman, was the museum’s acting director. In these two capacities he proved instrumental in encouraging use of the collection by a broad range of departments, engaging faculty and students with works in every area of the museum holdings. The grant further sponsored a series of interdisciplinary collaborations, such as the exhibition, symposium, and publication titled *Changing Visions of the North American Landscape* (1999-2001) and the introduction of new museum-heavy courses, such as the first-year colloquium “Poetry, Place and Landscape: Three Traditions,” taught

2 In an email to the author ANNE F. MOORE (2016), who in 1992 became the AMAM’s first female director, noted that S. Frederick Starr was responsible for her appointment as the museum’s first curator for academic programs, and that both the idea for and the coinage of the title of the position were President Starr’s, to whom she had expressed her concern regarding the dearth of non-art students using the museum.

by Longman Professor of English and Creative Writing David Young. During the 1999-2000 academic year, Jost gave fifty-nine class lectures at the AMAM, some in collaboration with the collection curators and many for courses outside the art department. In an interview (MORGAN 2001), Jost explained: "My goal is to make the museum relevant to College classes outside the art history department. I give about fifty classes a year." For example, he continued, "a North American landscape exhibit was used by eight non-art classes ranging from geology to environmental studies." Regrettably, after Jost left the Allen in 2001 to become director of the Mills College Art Museum in Oakland, California, Oberlin experienced a campus-wide hiring freeze, preventing the AMAM from appointing a successor.

Jost's position remained unfilled for six years, a period during which the director, together with the curator of Western art and the registrar, made every effort to continue outreach to faculty and students. Inevitably, the number of curricular collaborations diminished. But in spring 2007, Oberlin College President Nancy Dye provided the museum, then led by Stephanie Wiles, with funding for two-and-a-half years to reinstate the Office of Academic Programs. After a national search, Colette Crossman joined the AMAM as the new curator of academic programs.

With Crossman's expert guidance, the Allen's curricular collaborations flourished again: class visits to the museum nearly doubled and more than twenty departments utilized the collection during her first semester at the museum. Although Crossman worked at the AMAM for just two years, her impact was significant: she strengthened and cultivated relationships with many academic departments. Crossman organized collaborative interdisciplinary teaching exhibitions and conducted individual class visits, as well as faculty pedagogy workshops, and museum residencies for faculty recipients of curriculum development grants. She also initiated the museum's participation in the training session for faculty members new to the First Year Seminar Program and hosted museum events as part of the college's weeklong New Faculty Orientation. Crossman (2016) recalls that, within her first year, "museum usage by Oberlin classes had grown exponentially," and that, "faculty were already predisposed to museum-based learning" due to "the foundation Stephan [Jost] laid and the culture of interdisciplinary study at Oberlin".

By the end of Crossman's tenure, two key developments had occurred. One was the receipt of a third Mellon grant. In 2008, the Mellon Foundation awarded the museum a challenge grant of \$1.25 million to permanently endow the infrastructure essential for curricular outreach and to encourage new directions in interdisciplinary learning. The Mellon grant was to be matched by \$750,000 raised by the museum over the course of the following several years. The second important occurrence was a change in how the faculty approached their engagement with the museum. The style and format of teaching in the museum, both by the curator of academic programs and by the faculty, began to shift toward true collaboration, in which each party shares the same goals and takes an active role in accomplishing them. To effectuate change, Crossman required more investment from faculty members in the process of planning and conducting their class visits to the museum. At the same time, through workshops and personal mentorship, she provided professors opportunities to acquire the tools and confidence needed to teach more independently in the museum (CROSSMAN 2016). Crossman also trained a core group of professors from nearly every department on campus, who have actively taught with the AMAM's collection, and served on various occasions as museum advisers, ambassadors, collaborators, co-curators, and co-authors.

Maximizing Art Engagement across the Oberlin College Curriculum

The author, Crossman's successor and current curator of academic programs, arrived at the Allen in 2009, and over the course of the following eight years academic programs began to reach their full potential, placing the museum on the campus map alongside other vital educational resources such as the library and the archives. Through the development of robust, diverse, and effective curricular programs, the Office of Academic Programs repositioned the museum as a fulcrum of learning for the entire college community, regardless of disciplinary focus or course level.

To meet the high demand for customized student encounters with original works of art, the Office of Academic Programs expanded in 2010 to include a second full-time staff member: a curatorial assistant who each academic year coordinates hundreds of class visits to the museum and organizes, with the museum preparators, more than 1,300 movements of art objects from storage to the print study room, where the works are exhibited by request for curricular purposes. This yearlong position, designed for a recent Oberlin graduate with an interdisciplinary academic background and paid for from the Mellon endowment fund, offers practical experience to those interested in

pursuing careers or advanced studies in a wide range of fields, from art, art history, archeology and curatorial work to cultural and area studies, library science, pedagogy, literature, and history, among many other possibilities.

The first curatorial assistant in the Office of Academic Programs, Anna-Claire Stinebring (Oberlin College class of 2009), sums up the importance and impact of such a position. A doctoral student at the University of Pennsylvania, Stinebring (2016) describes her experience at the AMAM: "The position helped prepare me for the exciting ways art history has been changing as a discipline. Both in academia and in museums, scholars are thinking more globally and are calling into question traditional national and disciplinary borders. My time in the AMAM Office of Academic Programs encouraged me to continue to be inquisitive about what meaningful cross-cultural and cross-disciplinary connections can be made in my own study of art. It also inspired me to be more collaborative in my work, to reach out to students and scholars beyond my area of study." Stinebring (2016) zeroes in also on one of the challenges facing curatorial staff at academic museums, namely "adapting research on individual works of art to suit the unique needs of diverse courses." "These courses," she continues, "were often using works of art from the museum's collection in productive and surprising ways that were very different from how art history courses might approach the same works." The ability to adopt different perspectives or frameworks and use art historical knowledge to illuminate content in other disciplines constitutes an enormous asset, which if not readily available, should be intentionally fostered among collection and education curators.

With the growth of the Office of Academic Programs, the scope, depth, and innovation of curricular interactions in the museum also expanded. In close collaboration with Steven S. Volk, professor of history (now emeritus) and director of Oberlin's Center for Teaching Innovation and Excellence (CTIE), the author developed and published an art-centered pedagogy applicable to any course subject, based on her experience teaching with art across disciplines. Termed "Crossing the Street" (CTS), this pedagogy is informed by Oberlin's specific layout, where the buildings of the humanities, sciences, conservatory of music, and AMAM are all across the street from one another. Faculty, students, and museum staff must literally cross the street to reach the others. As argued by Milkova and Volk (2012), in the CTS pedagogy, art is employed to scaffold student learning and does not always need to be tied to course content. Rather, CTS emphasizes interactive encounters in the museum space to defamiliarize the site and manner of learning, as students leave the classroom and their entrenched—and seated—positions as passive recipients of information. CTS further insists on cultivating certain habits of mind such as deep attention, self-reflection, slowing down, and empathy, all of which can serve students in their academic, extracurricular, and professional pursuits.

While each CTS museum visit is shaped by course goals and involves conversations between the instructor and academic curator at every step of the planning process, it is rooted in learning theory to deepen student understanding and to heighten students' awareness as learners. Research has demonstrated that frequent productive disruptions spur student learning and the temporary relocation of the classroom to the museum offers such a possibility. In the museum, non-art faculty and their students meet more as novices than as experts, and because learning for novices is different from learning for experts, faculty can model how to engage constructively with unfamiliar contexts, material, and methodologies. Collaborative learning has been shown to benefit the development of critical thinking, and peer learning techniques are often employed in the gallery or print study room to offer a concrete context in which students working in small groups can explore, analyze, and then teach the rest of the class about an artwork selected carefully in advance. Recent scientific findings (IMMORDINO-YANG 2015) further suggest that emotions play a positive role in student interest, motivation, engagement, and knowledge retention: interactions with original art and its physical presence can trigger meaningful cognitive and affective experiences that anchor student learning and connect it to real-life situations. Milkova and Volk (2014) have similarly discussed the importance of engaging emotions, as well as other effective approaches to teaching and learning in the museum.

The AMAM's close partnership with CTIE has been formative in terms of cultivating a core group of faculty who utilize the museum in all of their courses, but also for reaching out widely across academic departments and divisions. The partnership extends beyond designing and implementing new art pedagogies specifically conducive to higher education. Collaborative endeavors include numerous thematic or general workshops for faculty to introduce object-based learning and train them in teaching with original works of art on their own. These workshops could be geared towards new hires, or science professors, language instructors, or faculty in the conservatory of music; they could also precede special exhibitions, equipping professors with the knowledge and conceptual

frameworks needed to approach an entire exhibition as an alternative modality through which to achieve certain course goals and/or learning objectives. Whatever the topic, however, all workshops aim to train faculty in non-art disciplines to understand art as primary text or cultural document, and to use inquiry-based techniques, coupled with close and slow looking exercises, to facilitate students' interactions with the art.

An important factor in the AMAM's expansive educational role on campus has been the concerted effort to adapt teaching methods to the learning needs of millennial students (those born between 1982 and 2002). There are distinct generational changes in the learning needs, styles, and environments of millennials, and research has shown that they learn most effectively in a diverse and active setting, by engaging in groups discussions and activities, by doing rather than reading, and when given a teaching role. To respond to these learning needs, AMAM educators have moved away from lecturing in the galleries towards deploying interactive, collaborative, and self-reflective activities, often coupled with mini interdisciplinary curatorial projects. Exercises in the museum engage students' intellects, emotions, and senses alike, and further task students with teaching their peers about a concrete issue as seen through, or elucidated by, the work of art. Moreover, gallery activities frequently focus on cultivating self-aware learners, who for example understand their own perceptual tendencies or biases and can differentiate between assumptions they make and facts supported by the visual data. In addition, with every class in the museum, staff strive to foster stronger observational skills and the ability to describe thoroughly and accurately what an image depicts and exactly how it does that. Such approaches to visual material are especially conducive to the so-called STEM (science, technology, engineering, and mathematics) disciplines where students must acquire both content knowledge and specific skillsets, such as the ability to analyze complex visual data and to visualize otherwise abstract results.

Today, the model of the museum as laboratory quite literally applies to the Allen's curricular collaborations with science courses. Science faculty utilize the collection for thematic explorations of art, for posing museum-based scientific problems, and for curatorial group projects, among others; they also focus on scientific content comprehension, skill building, and real-life applications. For instance, students in biology and neuroscience meet in the museum to put their theoretical knowledge to practical use, as well as to exercise close looking and the analysis of visual data. A course on human physiology studies artistic representations of love from lust to pair-bonding. The class considers how strong emotions are portrayed in Eastern and Western works of art and whether these depictions align with emerging scientific understanding of the biology of love³.

Lodewijck Kuijpers (Oberlin College class of 2015) notes that students in a perceptual neuroscience seminar, when viewing works by two leading proponents of the Op Art movement, Victor Vasarely and Bridget Riley, "are given the opportunity not only to feel the sensation they learn about, but also to put their knowledge to the test, working backwards from a felt sensation to the neural processes that might create it" (KUIJPERS 2016, 7). Kuijpers, who double-majored in neuroscience and studio art, explains: "Much like working in a lab, these museum visits are hands on, require active problem solving, and teamwork." The critical, tangible, and emotional aspects of the face-to-face encounter with art have the capacity to push students of any discipline as Kuijpers further observes, "to consider the importance of continually asking questions, of approaching questions from different angles, and understanding the interconnectivity of everything we do" (KUIJPERS 2016, 7).

In order for the museum to be thought of as a flexible, hands-on and accessible resource conducive to learning in any discipline, its collection must be fully digitized and made available online. When more than 10 years ago the AMAM provided online access to the entire collection (now fully digitized) it enabled faculty to learn about the collection by browsing thousands of objects and to conduct a variety of searches to locate relevant works and larger thematic threads. This unprecedented access spurred the imagination, as well as intellectual curiosity and creativity: faculty, much intrigued by their findings online, became keen to explore the collection in person, whether artworks on view in the galleries or brought out from storage; they were also eager to share their curiosity and enthusiasm with their students and together to explore the myriad ways in which objects connect us with distant moments and places. And since the academic community is the Allen's primary audience and at any given time less than 10% of the holdings are on display, museum staff extends faculty and their classes the courtesy of requesting works to be brought from storage for educational purposes.

³ For an extensive overview and qualitative assessment of a biology and art class project at Oberlin College, see Milkova et al. 2013.

In addition to digital and physical access to the collection, the introduction of policies and guidelines for faculty use of the AMAM holdings has proven essential. Online access allows faculty to conceptualize museum visits based on geographic, temporal, content-related or other connections to their courses even prior to meeting with curatorial staff to discuss the possibilities. The existence of rules regarding the preparation for, implementation, and following up on museum sessions, however, has enhanced the positive impact of art engagement for both faculty and students by offering concrete parameters and structures for collection use, but also for managing roles and expectations. Based on extensive faculty feedback (collected from surveys distributed over the course of two academic semesters), museum staff crafted a protocol for planning and executing effective class visits⁴. Professors are expected to work hand-in-hand with museum staff to determine the most appropriate terms for their class visit to the Allen. For example, faculty must share their learning goals for the museum visit and participate in selecting artworks and designing the specific lesson plan. Faculty are also expected to take an active role in introducing their students to the idea of thinking and learning with objects and how that relates to the course; assigning readings or other homework in advance of the visit prepares students further for their art encounters. Besides that, professors are required to be actively involved in leading the museum session, although often with assistance from curators or museum educators, and later to follow up on ideas or content examined in the museum through short readings or written assignments, class discussion, or simply referencing, whenever relevant, the museum experience. Additional rules govern how many and what kind of artworks faculty can request from storage to be viewed in the print study room during their class visits. Determined by the museum's registrarial and curatorial staff over the course of several years, these rules not only ensure the safe movement of art through the building, but also take into consideration students' capacity to engage actively and productively with art within the typical 50- or 75-minute class period without becoming visually or intellectually overwhelmed or fatigued. We create opportunities for slow and close looking at art, deep exploration of a small number of works rather than a broad swath of material, and for sharing individual responses to and insights gained from the artworks over (or in addition to) the standard scholarly narrative. It must be noted that the educational role of the AMAM often, indeed almost always, goes beyond traditional and strictly art historical framings. When teaching from original works of art in disciplines as varied as African-American studies, chemistry, English, mathematics, music history, neuroscience, theater, Russian, and politics, art historical knowledge is the means, not the goal – it supplies students with the foundation through which to generate new connections on the course subject and to become the producers, not just the consumers, of knowledge.

Suggested Strategies for Success

The final section of this article comprises a selection of strategies for building a successful outreach program at academic museums and galleries. Presented as a list, these recommendations stem from extensive practical experience, learning theory, and input from AMAM staff and Oberlin College faculty.

- Create a full-time position for a trained art historian, archeologist, anthropologist or another specialist with interdisciplinary background, deep knowledge of material culture, extensive teaching experience, and dynamic and engaging personal style to conduct outreach to the academic community.
- Work with your campus teaching and learning center to determine awareness of and interest in object-based pedagogies among the faculty, as well as the constituencies that would benefit the most from them.
- Secure the support of the museum/gallery director and the college/university's academic deans; be prepared to discuss the benefits of teaching with art and to present data from other institutions.
- Develop short informational sessions on teaching with collections and implement them within existing pedagogy workshops, departmental meetings, training sessions, academic gatherings, centers, etc.

⁴ AMAM and CTIE staff conducted detailed pre- and post-museum visit surveys among all non-art faculty utilizing the collection during fall semester 2012 and fall semester 2013. The data from these surveys and the conclusions drawn from them were published in Milkova and Volk 2014.

- Enlist faculty who already have taught with collections to share insights and conduct short teaching demonstrations for their colleagues who can see first-hand the kinds of learning experiences that can be orchestrated for their students. Allow time for discussion and collective brainstorming.
- Design museum/gallery workshops specifically geared towards all newly hired faculty and select new staff members. Include interactive components and presentations from current faculty. Conduct workshops before the start of the academic semester, so there is sufficient time for faculty to conceive of and add museum visits to their syllabi.
- Establish clear rules or expectations for individual roles when planning and implementing museum class sessions.
- Seek investment from the art history and studio art departments in making art accessible and relevant to all academic disciplines and in utilizing tools and methods from art history, an intrinsically interdisciplinary field. Typically the most frequent users of the museum, art history and studio art faculty may feel that expanding the museum's integration into the curriculum might limit their and their students' own access to the collection, so it will be helpful to secure their support and assistance early on.
- Consider offering social occasions (such as receptions) to bring faculty and senior administrators to the museum and/or financial support (grants, fellowships) to faculty interested in working with curators and the collection to develop museum components for their courses.
- Stress to all audiences that collections offer many possibilities beyond content-related connections. Also emphasize that works of art can be used as the vehicles for cultivating or enhancing a variety of skills and thinking dispositions.
- Educate key campus populations about your museum/gallery's operations, why museum rules exist and why they must be followed.
- Produce short informational brochures (with concrete examples and useful tips) to distribute to faculty and staff.
- Attend general faculty meetings and other events, where useful knowledge can be gained and the museum/gallery presence will be noted. Campus visibility for museum curators and educators is very important.
- Consult other academic museum/gallery staff about strategies that have worked for them.
- Identify courses with close ties to the collection and contact their instructors with concrete suggestions for artworks and ways to integrate them into the course syllabus.
- Create opportunities for faculty from many disciplines to meet and mingle with the curatorial staff – often new ideas and collaborative projects emerge from exactly such situations.
- Keep your museum/gallery staff informed about new pedagogies and what makes them effective for millennial learners.

Conclusion

The roots of the Allen's educational flourishing lie in the leadership of AMAM directors, the work of highly competent staff with extensive curatorial and teaching experience, substantial funding from the Mellon Foundation, as well as intellectual and administrative support from former presidents, provosts, and faculty members from across dozens of disciplines. The establishment of full-time positions and financial resources dedicated strictly to academic outreach and collection-based teaching was crucial to growing and sustaining the museum's meaningful place on campus, as was the faculty members' desire to adapt swiftly and effectively to a changing educational climate in order to become even better teachers. But what must be acknowledged perhaps above and beyond all other factors is the AMAM staff's intellectual and professional agility – their willingness to be challenged, to meet faculty in non-art disciplines halfway, to adopt other disciplinary vantage points, to see the museum through the eyes of the novice, to engage in open-ended dialogs and occasionally

to leave the comfort zone of their expertise and take a risk, just like the students who cross the street every day to come to the museum.

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Keywords

Collection engagement - Interdisciplinary approaches in higher education

Museum of Education: challenges and successes in a Greek University Museum

Magdalini Ntinou & Evgenia Vafeiadou

Abstract

University museums can perform as fundamental social agents while contributing to research and education. As such, it is important to explore and build on three key elements: effective student engagement, digital projects, and financial sustainability. This paper highlights the Museum's overarching goal to critically assess the integration of technology in order to enhance the visitor's experience without overshadowing the exhibits. Additionally, it presents the Museum's strategic plan which includes volunteering, sponsorships and partnerships. Finally, we elaborate on how the problem of restricted funds is addressed, what scientific expertise the Museum offers and how we invest in audience development.

Introduction

According to ICOM (2007, art. 3) a “museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyments”. This is the precise mission that a university museum (u-museum) aims to achieve. The fact that university museums are part of a larger educational institution adds to their identity, as they “comprise a wealth of information, documenting and representing cultural and natural diversity from across the globe” (CHATTERJEE 2010, 179).

The first example of a museum established within a university or an academy is traced in the original Lyceum of Aristotle around 4th century B.C. (BOYLAN 1999). Most of the u-museums were founded during the 17th century A.D., the first being Oxford University’s Ashmolean Museum. Today, there is an increasing interest in the international literature regarding u-museums as they “are the only keepers of the material evidence of how scientific knowledge was constructed and taught, and of when the physical archiving of nature started” (LOURENÇO 2002a, 52). Notably, their main objective is dual: the enrichment of academic teaching and the establishment of research. Possibly the distinctive role of u-museums lies in the nature of their service as they support not only the students but the faculty and the administration (GUTHE 1966).

In order to fully capture the role of u-museums it is essential to understand the role of the university itself as u-museums are built and organized within the university and they are often also integrated in a specific university department. Stanbury (2002) notes that universities are dynamic institutions that produce learning and research by sharing resources with the community and the public. They provide their museums the unique opportunity for cross disciplinary study among collections of exceptional artifacts, artworks and specimens. Therefore, u-museums “have been one of the important symbols of academic excellence and commitment in universities for several centuries and a valued part of the learning and cultural experience of students and the university’s wider community” (BOYLAN 1999, 55).

During the past decades u-museums were subjected to many transformations and as Lourenço (2008) notes they face continuing challenges in an era of crisis. Their aims, policies, needs, and methodologies are profoundly affected while they seek to keep their identity intact. It is, thus, evident that now more than ever u-museums need to re-evaluate their agenda and practices so that they remain relevant in the modern era.

Regarding the Greek museum landscape, the first u-museums and collections were established during the 18th century, today there are more than a hundred (TROULI 2006); the Universities of Athens, Thessaloniki, Ioannina, Patra, to name a few, house u-museums in many of their departments. The development of Greek u-museums is parallel to the historical development of the Greek university system (BOUZAKIS 2006). Their subject areas are defined by the departments they are attached to, while many of them belong to leading international organizations such as ICOM, UMAC, UNIVERSEUM (European Academic Heritage Network), UMG (University Museums Group).

Karavasili and Mikelakis (2003, 13) point out that their mission “is not only producing knowledge, but foremost place emphasis on the value of exhibited heritage and consequently highlighting the significance of its preservation and protection”. Nowadays, their operation has to overcome many obstacles, which applies to the majority of u-museums globally. However, we should consider these obstacles as an opportunity which has emerged in order to bring forward their research and educational role and further reveal their potential in acting as social agents.

Our agenda

The National University of Athens, is the first Greek University as well as the first university which was established in the whole Balkan Peninsula and in the broader region of the Eastern Mediterranean Sea. The University of Athens celebrated its 180th year anniversary in 2017; 180 years of promoting knowledge, research and culture. Its mission is to respond to new challenges such as the advancement of science, the upgrade of teaching and studying, the evolution of basic and applied research and the contribution to the social and economic development of the country. As Gavroglou (2014, 262) emphasizes “the University of Athens is the spine of the intellectual and academic life in the country”. Within this framework, the University of Athens hosts 16 museums, each attached to a specific Department according to its collection. The exhibits are scientifically and culturally important covering a vast range of disciplines.

This paper presents the Museum of Education which was founded in 1993 and housed at the School of Philosophy, the University of Athens. The Museum of Education preserves and presents exhibits from the whole spectrum of modern Greek history, as it has developed in time, through rich primary sources (pupils' objects, teaching equipment, textbooks) and vast secondary sources (photographs, maps, texts, models).

According to Labraki (2005) the Museum aims to:

- a) preserve the cultural heritage related to education and schooling;
- b) promote the research and study of history of education, pedagogy and schooling in Greece, both at an under- and postgraduate level from antiquity to the present in relation to Balkans, Europe and the world;
- c) train graduates in the fields of 1) museology and 2) documentation and conservation of school material which would be otherwise lost; and
- d) stimulate the interest of the educational community and society.

At this point, we will refer to the Museum's history, aims and programs. To begin with, the Museum's first long-term exhibition opened in 2000. Since 2004 the Museum has established its permanent exhibition entitled "Images of Modern Greek Education" based on the progress of Greek Education from the 19th to the 20th century. From 2013 onwards the Museum runs six educational programs and hosts school groups on a daily basis. The educational activities have been designed to address the needs of primary and secondary education students.

Our museum professionals participate in conferences, symposia and seminars related to education and culture. The Museum also organizes workshops that relate to its collections on subjects such as technology, sciences, books and theatre. These workshops are part of our outreach program to engage more audiences. In addition, students and professors of the University are often actively involved in museum activities and their contribution helps towards the Museum's development. Finally, the Museum of Education has created partnerships with other museums, institutions and organizations and they create collaborative exhibitions, activities and programs which are hosted outside of the Museum space. Geladaki (2006) summarizes the Museum's profile in the following sentence: it sets an example of a u-museum which has been transformed into an open, cultural and educational institution.

Museum learning meets technology

Every museum opts to most effectively promote thinking and discussions by continuously improving the presentation of its collection. Today, new technologies offer new possibilities in the museum experience, with digital tools museum spaces can create more relevant connection between visitors and museum exhibits. From 3-D scanning and 3-D printing to virtual reality and apps, digital technology is being used in a multitude of ways (ILNYTZKY 2016). Technology helps more people engage with art and culture and to bridge the gap between museum content and audiences (RIDGE & BIRCHALL 2015).

Nevertheless, using technology in the museum context must follow certain guidelines and should not be considered as a substitute of content. As Murphy (2015) warns that technology is not a magic wand that can alter the state of museum's outlook its ideas and objects. The use of technology needs to be carefully considered by museum professionals. Museums should not invest in digital components for the sake of keeping up with trends. It is important to embrace digital components in a more critical and constructive way which sets people and communities at the heart of museum practice.

University museums can deploy their community, both professors and students, to produce web tools which will enhance their collections' presentation. Corradini (2012,135) noted in her research that "web tools support an open and fluid approach to information in order to spread the community of university museums, to promote the participation of audiences and social inclusion and to involve them in the interest for cultural heritage".

In this vein, the Museum of Education embraces the benefits of technology as it complements our human resources - museum educators, facilitators and volunteers-but it doesn't substitute for museum content. More specifically, we have created an account on all popular social media, namely Facebook, Twitter and Instagram, in order to communicate essential information to audiences and attract more visitors. Furthermore, the Museum encourages the participation of postgraduate students - affiliated with different departments - who wish to undertake research on the development of educational software and the design of new mobile applications.

One such educational software ('Gaea: Approaching Earth') suggests an interdisciplinary approach for junior high school lessons of Geography, Physics and Mathematics. It contains four microcosms which engage the student with problems that need to be solved in a non-linear way. Students are asked to solve the problematic scenario using complementary data from different databases. The role of the teacher is to facilitate the whole process.

The educational software 'From the Present to the Past' was designed to familiarize students with periods of Greek history. Students choose a topic to be researched using historical sources, such as documents, pictures and objects. Then, they fill in a worksheet and discuss with their schoolmates the best way to approach the historical issue. The members of each team exchange views and then present their strategy and defend their chosen methodology. This program, can be used by school groups aged 12 to 15 years and offers a critical approach in seeking historical information both in shorter and longer historical periods.

The following mobile application applies the popular digital storytelling practice and is addressed to Primary School class visits. The key character of the narrative is Angeliki, a Greek pupil attending Primary School a century ago. A scenario is played during which this pupil guides the young visitors around the Museum of Education in a playful fashion. In every step the visitors examine one exhibit for which Angeliki provides some information and interesting facts. Through this 'trip' children engage with forty exhibits in an original and interactive way.

Experimenting with new technologies is part of our innovative approach which means allowing access to different stakeholders and sharing information and knowledge. We believe that the previous examples of collaborations are successful as there was a genuine dialogue and exchange of ideas between curators, university students and audiences providing positive feedback after their visits.

Sustainability and the Museum of Education

As many countries worldwide are now under serious financial strain, there is a direct impact on Europe with a dramatic effect on culture. Economic crisis has generated a drastic decrease in public and private financial support for museums (ICOM 2013). Thus, the mere existence of many museums and their collections is under serious threat, the resources are diminishing and the working conditions are deteriorating.

Since 2009, the Greek Government debt crisis has been profoundly affecting the financial and social status of our country. This crisis leads to critical consequences for culture as already limited government funding for cultural institutions is reduced further. According to the Committee for Cultural Policy (2015), the state authorities cannot implement any more projects concerning the effective protection, conservation and preservation of monuments and sites; research and excavations are being abandoned; and museums are closed or shutting down galleries and collection access. Due to budget cuts most of the Greek museums cannot afford to pay utility bills, keep their staff members or fund new exhibitions (DACIC 2016).

This particular situation also applies to the academic sector whose budget has been cut considerably with a direct effect on the operation or even the existence of university museums. This year a few network meetings were organized with the university museums' representatives from across the country in order to establish the Greek national branch of UMAC. During these meetings university museum representatives discussed the challenges of each university museum, the common needs and the possible implementation of a joint project seeking to confront the gloomy reality and deal with it drastically. The major aim is to bring these to the attention of the Universities' Governing Councils so that the financial status of the museums is secured and their collections are protected.

The Museum of Education is continually trying to ameliorate the preservation of the exhibits, improve the museum practices and implement a digital agenda despite the discouraging circumstances, always with the support of its affiliated Department which is responsible for its funding. More specifically, new showcases have been set up in the Museum, new equipment for necessary conservation procedures have been purchased and a new storage space has been established for the preservation of numerous exhibits. Furthermore, the Museum has accepted donations of new objects that will enrich the permanent collection. Last but not least, staff specialists in education, museology, conservation and computing have been employed for the most effective use of its programs.

The Museum of Education is currently carrying out a strategic plan for the two-year period 2016-2018 tailored to its needs and potential. In more detail, the Museum is receiving support not only from the undergraduate and postgraduate students of the University but also from volunteers regardless of age or background. This year a number of university student-volunteers took part in the programs assisting in delivering educational programs. They suggested that the experience acquired would prove invaluable both academically and professionally. The Museum has been sponsored by three companies either by covering various expenses or by supporting its outreach events. One Supermarket ('Sklavenitis SA') has provided bottles of water for daily school visits and one Bakery ('Mylonas SA') snacks for educational program participants. The stationery company 'Pelikan Greece SA' has contributed to all the activities of the Museum by supplying all stationery and crafting equipment, promoting the advertising of the Museum's work and enabling communication with educational consultants.

All the partnerships that have developed have offered the Museum the opportunity to revitalize its image and to reach out for more visitors beyond its basic audience, the school groups. We believe that all sections of the community should have a voice and be reflected in a museum's collections and displays. Indeed, we try to offer opportunities to people with less initiative to visit our collections and motivate them to learn more about our work while, at the same time, we try to inspire them to make their own voice heard.

Based on this rationale, we established collaboration with the local authorities and Care Centers so as to give the opportunity to elderly people to visit the Museum and create a program which will also use their personal stories. We implemented a joint project with the Ministry of Culture for engaging refugee families with the Museum. Through these activities the children not only learned about how Greek schools operated 100 years ago, but also compared their educational system with the Greek one. The aim of this project was to familiarize refugees with a new culture and to facilitate their integration in the host country. Events were launched in many cities of Greece at museums of the same subject areas but addressed to a wider community. Workshops for parents and their children were designed around themes such as modern Greek theatre, traditional Greek tales and scientific subjects (e.g. Chemistry, Astronomy). The members of the staff participated in national and European conferences in order to present their research projects, join the wider university museum community and to gain an insight into other museums' approaches and reflections. Our museum professionals seek to exchange ideas with university museum professionals from other countries and enrich their ideas in pursuing feasible solutions to ensure the improvement of the Museum.

Conclusion

University museums in Greece, as with the whole world, have improved their museological panorama immensely. More specifically, they have set up their legal framework, improved their educational operations, systematized their engagement with the students and audiences; and foremost they have established collaborations between researchers and practitioners.

The example of the Museum of Education demonstrates the overall progress of the u-museums in Greece, but at the same time the challenges they encounter. A systematic study of their history, as yet been uncompleted, is imperative. As Lourenço (2002b, 25) explains: "for as long as their history remains unstudied, the scientific and social roles of university museums and collections will remain undervalued, their identities will remain in crisis and their heritage will always be at risk".

To conclude, there is a prosperous future for the u-museums: they can re-invent themselves when needed, play a substantial role and receive the attention they deserve. Public u-museum are public actors at the epicenter of political, social and environmental discourses; they speak through their exhibitions and programs in order to anticipate concrete social needs and problems. In short, u-museums constitute a significant part of the nation's historical, artistic, cultural, and scientific heritage (THOMPSON 2002) and they commit to excellence (KELLY 2001).

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Student engagement – Technology – Financial sustainability

University museum as a multifunction platform | A preliminary proposal of initiator-activity-function theory

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Abstract

In addition to the traditional roles and functions of a museum, some university museums gradually develop a new way of operation, namely as a multi-function platform, to satisfy increasing expectations by offering various kinds of related services to connect the university and the community. Based on recent observation, a simple model about the relationships among exhibition, collection, and platform is proposed in this paper. The model consists of an "Initiator", a "Main Activity", and an "Extra Function" with at least four modes describing the order and roles of them. Examples from National Cheng Kung University (NCKU) Museum and other university museums are described.

Introduction

Background and Literature Review

The first and also the most important purpose of a university museum and its collection is to provide a nurturing environment for research to university members, and even to the public (COLEMAN 1942, 5). A university museum is usually a place to collect university history, materials, and artifacts (HEINÄMIES 2008, 33). It also frames its collection and exhibition policies according to the university curriculum (KING & MARSTINE 2006, 266–291). But its management and finance usually depends on the professors, students, boards, alumni, and the public (DYSON 1990, 68).

At the turn of this century, it has been observed that the opportunity for university museums to re-define their roles within higher education institutes has been coming with the transformation of higher education in this century (WALLACE 2003, 5).

New museology has been challenging traditional museums since the last quarter of the previous century. It emphasizes new services responding to the society's expectations (VERGO 1989). A new challenge for university museums is to reach out to the society and connect with the local community, then improve from the experience of promotional programs and related activities. In particular, university museums need to work on the communication and cooperation with communities, in order to attract those who don't visit museums. Thus, new promotional activity, marketing plans for certain targets, and new training for the front-of-house staff are all needed (PICKERING 2009).

On the other hand, university museums also face challenges within the campus. In the era of fast information technology, the values of collections and their utilities are doubted and questioned by some people. Others consider the values in teaching and research are the keys to their preservation (SOUBIRAN 2009). However, using museums as important teaching aids or "tools" is not rare (GARRADAS 2010). The problem may be how to properly use, transform, and translate the exhibition and collections. One of the important tasks is to assist inter-disciplinary learning. This idea is also shared by the Museum of National University of Singapore. They explored how to extend exhibitions to multiply learning (LIM 2010). Therefore, the education function of a university museum is not questioned anymore. Nevertheless, it is well noticed (CHATTERJEE 2010), especially in object-based learning (OBL) activities (DUHS 2010) that have been promoted over the last two decades.

Society needs leaders with a deep and broad understanding of humanity, far sighted perspectives and cross-disciplinary integration and communication capabilities in many fields for facing the new challenges. Hence, the education system and related institutes need more foresighted actions. How do we cultivate this sort of future leader within its cultural environment? This is a big challenge for cultural and education policies.

Practical Problems of University Museums

There are at least three kinds of practical problems for a university museum in this rapidly evolving higher education environment. Firstly, for museums in a developing country or a place without a long history, it may not be easy to have a special collection as the first thing of its kind in the world (FINDLEN, 1994: 130). Thus, how do we collect and research valuable artifacts, how do we position ourselves, whether being a science education center instead of a science museum, and whether we lack social science museums are all questions requiring answers (CHEN 2011). In our experience at the National Cheng Kung University (NCKU) Museum, we developed similar ideas and proposed some preliminary concepts of new functions and methods for science and technology museums, such as providing a policy forum in an exhibition as was done in "NCKU-Purdue Cooperation" Exhibition. This aspect was noticed and developed (CHEN & HUANG 2010).

Secondly, since more and more science controversies and debates occur in society, museums can play some active roles in this regard. A British case of two thousand year old bones generated controversies about the cause of death and the interpretation of such. The museum's exhibition was passively involved in the controversy (SITCH 2009). This shows that museums' exhibition and promotion activities can generate controversies, but may also propose appropriate solutions. It is worthy to explore and conduct experiments for further studies on proper new roles, functions and methods for a museum.

Thirdly, perhaps with the exception of the university museums of China and the USA, most university museums face a very practical problem of limited resources. This can be due to the

limited resources of the university's main body, or the distribution policy adopted by the university resulting in the main investment being more focused on formal education, research facilities and human resources directly, instead of the cultural environment or informal teaching.

Objectives

Based on the above observations, because university museums have dual roles as university and museum, they can be a good test site for innovation research when facing cultural challenges. That's why the innovative operation and management modes are worthy of study. This approach was also noticed in recent education reform. For example, university museums as an informal education site could be used in the integration of science, technology and society (STS) with professional education (HONG et al., 2010). This is a good opportunity for a university museum to participate in secondary and higher education reform. Therefore, the objective of this research is to build a theory which can describe and help people to understand the relationship among various kinds of university museum roles and functions, especially as a means to inform educational practice. The contribution of this new theory and the operational models it described may possibly help universities in both formal and informal education, and also university museums to build their own multifunction platform for more and more complicated roles.

Research Methods

The research method for developing this new theory consists of three stages: the first is to observe and collect the information of existing exhibition outcomes with experimental parts. The second is to analyze these exhibitions regarding its motivation, purpose, functions, and whether the exhibition has played a role as a platform for anything. The third stage is to develop the theory by organizing the roles of various kinds of activities related to exhibition and other museums tasks.

To clarify the ideas used in describing the theory, we need to define some terminologies used in the following theory. This is a theory about the university museum as a "multifunction platform" where multifunction has many implications. Of course, it indicates that there are more roles or function than traditional exhibition, collection, education, and promotion. It can have many new functions such as entertainment, policy forum, recruiting students, wedding photo venue, etc. Moreover, it also means that these old and new functions work simultaneously. For the platform, it indicates a place where exchange takes place, and it is the medium. But I emphasize that exchanges are not only between curator/museum and visitors, but also between visitors and between visitors and other actants, where "actant" is borrowed from "Actant Network Theory" (a.k.a. Actor Network Theory, ANT) in the field of science, technology & society (STS) study (LATOUR 2005) implying an object, no matter whether it is a life form or not, can act by itself.

The proposed theory in the following section was developed after an analysis of the relationships among museum administrators, curators, visitors, outsourced workers, collections, exhibitions, sponsors, governments, universities, and scholars by ANT. That is treating these actants as independent individuals with their own willings and goals, and making analysis of their relationships through their interactions considering their interests, environments, limits, resources, and possible ways of work. Any possible ways of work is due to the existing of "obligatory passage point" (OPP) which could be one of the actants, as described in ANT. Then, some museum activities were summarized into a few special categories. The proposed theory describes the relationships among these categories, showing various ways of conceptualizing tasks and roles in a museums' daily work.

Proposed Theory

Initiator-Activity-Function Theory

Usually, in a museum, collections are the base for other activities and hence play a role of initiator or motivation. Then, some activities are designed to use these collections. For example, exhibition is usually the major activity curated using some collection objects to achieve some goals like educating students or promoting the related academic fields. This is the most common way of a museum in daily work. However, sometimes, in addition to the original designed functions, the museum could also obtain an extra, unexpected, accidental function. So, we consider the relationships among the "Initiator" (motivation), the "main Activity" and the "extra Function" in this theory, and thus, name the theory after the first letters of these words, i.e. IAF Theory.

The first mode of the IAF Theory is the most common and traditional relationship among them: the collection as the initiator, the exhibition as the main activity, and the extra function could be the multifunction platform. The idea comes from the example of the “National Cheng Kung University-Purdue University Cooperation” exhibition in NCKU Museum when we discovered that high ranking scholars from academia like to discuss higher education policies in front of certain two exhibition boards that only contain text and a simple list. The place in front of these two boards became a temporary public policy forum. Hence, this “public policy forum” was an unexpected, extra function and we can also view it as a platform for academia to communicate with each other. This story gave us the first mode of IAF Theory, namely Mode A. We then can explore more possibilities of the combination of collections, exhibition, and platforms with initiator, activity and extra function.

Since the university museum may play as a multifunction platform, we can expect that this platform is the major activities while the collections are still the initiator. Thus, for the second mode, the exhibition is the extra function that is carried out additionally as a direct result of platform activity. Is this Mode B possible? In the next section, an example in NCKU Museum will be shown.

The third possible mode of IAF Theory is that when an exhibition is the initiator. This can be quite common when two units are willing to design a new travelling exhibition for culture exchange. So, the initiator is the exhibition in this case. The result is that the major activity designed and prior to the exhibition is to collect new objects for the museum in order to make the exhibition better. However, an unexpected result is the exhibition also plays as a platform in an unexpected aspect, as another NCKU Museum exhibition, “I C Taiwan”, will show.

One may be curious about what this newly developed platform can do for a university museum. By moving the platform’s role from either the extra function (Mode A & C) or activity (Mode B) to the initiator, we then expect that either exhibition or promotion will be the major activities designed by this platform. In such case, the extra function shall be collection (Mode D)! Is this possible? An example from University of Tokyo is outlined. A summary of the above four modes of IAF Theory is listed in Table 1.

Table 1
The four modes of IAF Theory
relating collections, exhibition and
platform

Mode	Initiator	Activity	Extra Function
A	Collection	Exhibition	Platform
B	Collection	Platform	Exhibition
C	Exhibition	Collection	Platforms
D	Platforms	Exhibition / Promotion	Collection

One may be curious about whether there are more modes of IAF Theory. Logical possible combinations of these three positions leads to six modes in total. But so far, we have only identified examples in the above mentioned modes. The other two possible modes are “Platform (I) -Collection (A) – Exhibition/Promotion (F)” and “Exhibition (I) – Platform (A) – Collection (F)”, respectively. They remain to be discovered and documented in the future.

Examples in East Asia University Museums

In this section, at least one example will be given for each mode to prove outcomes of the theory. Mode A: as described in Table 1, the history of Purdue-NCKU Cooperation in the 1950’s was designed in a traditional way. So, the collections from US-Aid Projects within various departments of NCKU, such as instruments in teaching laboratories, were the Initiator to finish the exhibition (main Activity). But then, it becomes a good platform (extra Function) for discussing higher education reform. As seen in fig. 1, when Nobel laureates visited this exhibition, they discuss higher education policy with NCKU senior professors.

Fig. 1

Mode A: NCKU Museum's NCKU-Purdue Cooperation Exhibition.

Source: Author & NCKU Museum



Mode B's example also comes from NCKU Museum. The exhibitions of NCKU's university history collections (a set of formal dress of the first president) is the Initiator because repair and exhibition had become an important issue. Interestingly, after the discussion and an international collaboration of repairing and exhibition, this issue also led to a new platform for education policy discussion (Activity) due to the necessity of proper interpretation of this exhibition in the context of education policy in Taiwan's Japanese Colonial Period. What is unexpected is that this discussion in the new platform for education policy did not lead to a new exhibition nor any publication, but a special small experimental exhibition of "Customized University Ranking" (Extra Function), as seen in fig. 2, because curators thought a reflection on higher education policy in the contemporary context is more interesting and meaningful.

Fig. 2

Mode B: the platforms' discussion led to an unexpected "Customized University Ranking" experimental exhibition.

Source: Author & NCKU Museum



The example of Mode C is the large scale *I C Taiwan*¹ Exhibition held in Czech Republic by NCKU Museum and local museums from July 2015 to the end of January of 2016. It consisted of an international exhibition as the Initiator. Then it needs to acquire new collection materials (Activity) for the exhibition (some ancient Chinese locks donated by a senior professor to NCKU Museum), and then it also became a platform for international academic exchange, cultural diplomacy, and domestic outreach networking. For example, the NCKU president visited several neighboring universities for further cooperation and promotion in the trip for the opening ceremony. Taiwan's diplomats also expanded their local connection through the preparation process and contact with opening ceremony guests. The last two functions were not expected at all at the beginning stage of curating the exhibition.

As to the Mode D, Tokyo's newly developed INTERMEDIATHEQUE Museum² is a good example. It is a "public facility jointly operated by Japan Post Co. Ltd. and the University Museum, the University of Tokyo" and located within the JP Tower in the Marunouchi district. It was designed for "interdisciplinary experimentation venturing into cultural creation of a new kind based on the fusion of every means of expression." (IMT 2017), hence, it is a very typical multifunction platform. So, the platform can be the Initiator as seen in this example. Its main activities then, not surprisingly at all, includes many kinds of creative performance arts (theatrical plays, for example). With an increasingly higher standard of performance created and played at IMT, University of Tokyo gradually found they should start to "collect" these works in some way, namely digitally recording the process of every kind of creation or performance, collecting key objects used in the performance, and some promotional materials such as posters (TERADA, 2017). This is the unexpected function that IMT generates, collections from creativity activity.

¹ *I C Taiwan* Exhibition won the 2nd prize of the 2017 UMAC Award.

² See: <http://www.intermediatheque.jp/>

Circulatory operation

To summarize the four found modes of IAF Theory, we can view them in a circulatory operational ring as shown in fig. 3. In the order of Initiator, main Activity, and extra Function, we can draw arrows to connect them. Mode A (in black) initiated with Collection and rotates clockwise, while Mode B (in red) rotates counterclockwise. Mode C (in green) begins with Exhibition and move counterclockwise. Mode D (in blue) begins with Platform and also rotates counterclockwise.

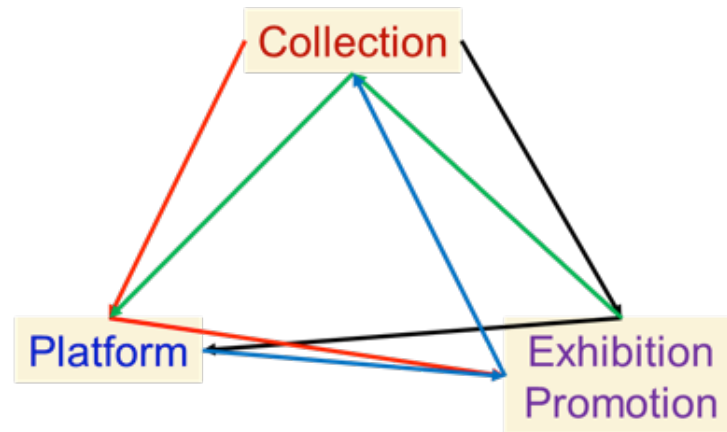


Fig. 3
Circulatory operation of four
modes of IAF Theory

Conclusion

It's possible to develop university museums as multifunction platforms. The Initiator-main Activity-extra Function (IAF) Theory can describe the relationships between platform and other museum activities (collection, promotion/exhibition). There are six logical possibilities of combination of roles in IAF Theory. However, there are only four modes have been identified from real museum cases so far. Real examples are given to show these possible modes. It is anticipated that further research will reveal the discovery of other modes. The perspectives on multifunction platforms are that we may need more experimentation in university museums, which may bring further theoretical development.

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Keywords

University museum - Platform - Initiator-Activity-Function Theory

University of Tartu medical records

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Abstract

In 1980 the University of Tartu Museum received one of its largest collections: Universities Clinic of Internal Diseases case histories spanning from 1847 to 1962. The medical case histories give an insight into the world of medicine in an era when science started to take precedence in diagnostics and medical treatment. Due to resource management and funding the museum has only been able to properly research and categorize the papers up until 1885. Now we aim to find the financial resources and personnel to open access to these case histories for historians all over the world via digitization.

Background

The University of Tartu Museum has been the keeper of science history records, and science equipment, in Estonia since 1976. The collection is mostly focused on materials or objects owned by the University of Tartu and its staff.

In 1980 Kuno Kõrge, then professor and physician at the university's Clinic of Internal Diseases¹, gave the museum its largest collection - the clinic's medical records, spanning 120 years from 1847 till 1962. This collection had been maintained by the clinic's archive division under the watchful eye of Mrs. Eleonora Aaslava. It was also looked after by Kõrge, and it was he who was the first to publish papers documenting the history of medicine based on the records (KÕRGE 1977, 1982). The records are divided into 700 folders, but the number of records within the folders is still undetermined due to the fact that only the records until May 1885 are registered as musealia². In her overview of the collection, Ela-Heigi Martis³ estimates the number of records to be approximately 25,000 (MARTIS 2000) but research conducted since 2016, due to a funding application for the science collection, of which the files are the largest component, has shown that the number is closer to 100,000. The records seem to focus on the nature and progress of a patient's disease, and treatment procedures which have been conducted by medical students. There is a family history provided by the patient on the first page, lists of tests conducted and their results, temperature measurements, cardiograms and a dissection overview. The latter only if the patient died in the clinic.

The Clinic of Internal Diseases of the University of Tartu – then Kaiserliche Universität zu Dorpat, and the only German language university in the region during the 19th century – was created in 1804 and was used as a teaching hospital (EINASTO & PUNGA 2004). Medical students were required to note the “nature and progress” of the disease and treatment used in a *krankengeschichte*⁴ during their rounds (SIILIVASK 1982). The case files registered as musealia are from the period when the University of Tartu attracted high ranking academics and physicians from across Europe. Physicians such as Ernst von Bergmann, Nikolai Pirogov and Alexander Schmidt did their rounds at the clinic, and it is their medical students who wrote the medical records (TOOMSALU 2006). The Professor Institute, which trained lecturers for the Russian Empire higher education institutions, was also based at the clinic and it was this environment that assured that the latest procedures were tested on the patients (KÕRGE 1982). The clinic was not large and in his research of the clinic Karl Siilivask states that the number of beds increased from 10 in 1808 to 50 by the end of the century (SIILIVASKS 1982). Consequently, Kõrge found that the annual average patient number increased from 200 in the 1850s to 500 by the turn of the century (KÕRGE 1977), which correlates with the numbers in the records.

Conservation and access

Little is known about the collections storage conditions prior to its transfer to the museum. Museum staff collected the case files from the attic (KRIIS 2001), but Kõrge's Ph.D. student, the late physician and lecturer Sulev Maramaa remembers them being in the basement of the clinic in the 1960s (MARAMAA 2013). Furthermore, the archival method remains unclear: were the records organised for teaching⁵, the clinic's historical record keeping purposes⁶ or for another purpose altogether? We know that Kuno Kõrge hired Aaslava to systemise and arrange the collection based on his instructions, but no records survive to indicate the foundation of that systematisation (KRIIS 2001). Following historical archives' best practices, the museum has made no changes to the organisation of the folders. Since early 2017 we have asked four interns - two Estonian, one Dutch and one native English speaker - to assess randomly selected folders and to list the necessary qualifications needed to understand them. In order to get the most out of these records requires a knowledge in abbreviated medical Latin and knowledge in the changing names of diagnoses, and of course, knowledge in German and Russian and the ability to read 19th century gothic texts. As for the information contained, the past focus has been on Estonian diseases, but a number of patients were students of

1 Due to the political changes the clinic has had multiple names that are present in the case records: Klinik zu Dorpat – Inner Station, Юрьевская медицинская клиника, Sisehaigla

2 Curator Leili Kriis registered 2465 of the medical records in 1980. They have the inventory number of ÜAM 72:1-2465. Further registration was halted due to lack of funding and staff.

3 Ela-Heigi Martis (1939 – 2015), was one of the creators of the University of Tartu Museum and its director from 1979 till 2005.

4 The documentation of the period is in German and the medical records are filled with Gothic German and abbreviated Latin medical terminology. Diagnosis on the first page is marked with Latin letters.

5 There are collections of the same disease placed in a separate folder

6 The folders have been organised based on years. The year in the clinic started in August, but the records have been organised with the entry into the clinic in January.

the university who came from all over Europe. There were patients coming from the neighbouring states as well. Professor Kõrge in his research focused on the changing pattern of diagnosis, yet his personal notes indicate that he believed the highest value of these documents to be historiographical of not only Estonian medicine, but of academic medicine (MARAMAA 2013). The material also provides a possibility for social studies and statistics, for example a study could be used to see the correlation between quality of note taking and the passing marks of that student⁷.

In conservation terms, the collection has clear signs of water damage, we are unable to clearly state when the damage was been done. It could be from the 19th century or the bombing during World War II or much later. The matter is further complicated due to the uneven quality of the paper- the collection spans over 120 years and as such different papers have been used with various degrees of quality, changes have also occurred in the quality of printing ink as well as writing ink. Other specific damage can be seen in the collection such as; signs of discoloration and colour change, both yellowing and browning; paper deformations such as dog-ears, ragged edges, stains, dirt and brittleness; and the water damage has also caused tide lines. There is also mould damage which has caused colour migration and bleeding. There is no live mould present at the moment, but any moisture exposure would be problematic. There are ink corrosions in various stages as well as ink bleaching. There are even occasional signs of felting as well as physical loss - there are missing case files and even a few folders missing. But these are only the most extreme cases and generally the collection is in good condition.

Keeping in line with the Data Protection Act, and Freedom of Request Act, the museum ensures the medical records that are younger than 100 years are not made publically available. Medical research allows access to the entire collection on the premise that no personal information is provided. As for the future, our hope is to make the case files until the end of World War I available to researchers around the world by scanning them and arranging access via the Estonian Information System of Museums (MUIS). MUIS has been developed according to CIDOC (International Committee of Documentation) standards on data groups and categories. We have decided that while the law allows us to make the medical records until 1917 publically accessible, we will only allow complete access to the scans upon request based on academic research needs or genealogy research. MUIS records do not show up on internet searches and as such one has to be aware of the collections existence and location. Nearly a thousand are currently listed on MUIS, with an outsourced large scale scanning of the selected records scheduled from early 2019. This requires the registration of records as musealia up until that point as well.

Conclusion

The medical records collection is the museum's largest and its importance is recognised through its ability to bring in vital funding that allows us to maintain the scientific collections. The span of the collection provides an overview of the historical landscape of Estonia, from its fledgling emergence during the Russian Empire, through to the creation of Soviet Estonia, from its height as a hub of cultural and scientific exchange, to the Russification programs of the 1890's that saw so many of the German speaking staff forced to adapt or leave, only to be replaced by Russian physicians in the soviet era. Throughout that all, we have the international language of medicine. For at the university the language of medicine was still Latin and as such the diagnosis was always in Latin. As any museum faced with the problem of space management we want to make sure that the collection does not become the victim of funding or storage issues which is why high resolution scanning for future generations seems to be the most logical solution. With the changing regulation of personal information that all museums have to deal with, we will continue to regulate the access and if needed, the names of patients will be digitally removed from the online records.

⁷ *Album academicum der Kaiserlichen Universität Dorpat* (1889) lists the matriculation numbers and later history of students and there is a clear correlation between graduates who were attentive record makers and those who were not.

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Keywords

History of medicine - Medical records - 19th century medicine

Problems and challenges with exhibiting donated mummies

Jaanika Anderson

Abstract

The story of the mummies of the University of Tartu Art Museum (Estonia) began in 1819 when the Baltic-German district magistrate Otto Magnus von Richter donated his son's collection of Egyptian antiquities to the University of Tartu. The article focuses on the respectful exhibiting of human and animal mummies. With the new exhibition, a context was created for ancient Egyptian mummies that enable an offer of educational activities to achieve different targets. Today, it is possible to narrate about ancient cultures and create connections with current themes via the Mummy Chamber.

Introduction

The University of Tartu Art Museum, at the oldest Estonian university (founded 1632), accommodates two Egyptian human mummies and mummies of a canine and an ibis. They were donated in 1819. For a long time, the mummies have been an integral part of the permanent exhibition space, but in 2015 planning started for a special exhibition on these unique items that were entrusted to the university for educational purposes. The idea and need emerged during the preparation works for the exhibition “A Journey to the Orient” to celebrate the anniversary of the orientalist Otto Friedrich von Richter (1791–1816).

One purpose of this paper is to address several questions the curators had during working with the idea of the Mummy Chamber, another is to outline how educational activities are woven into the exhibition aimed at different target groups.

Museum as educator

Throughout the last century, the role of the museum in society has changed. The museum is no longer sacred and untouchable. University museums are undergoing similar changes to other museums. For a long time, university collections were only accessible to privileged people such as researchers and students. Earlier collections were mainly established by the ruling powers and powerful individuals of Europe. Collectors usually collected for their own personal pleasure or the aggrandizement of their families, not for personal or public usage. Many of the private collections became a part of public collections as a result of donations or sale transactions. Collections were put into national or municipal buildings for purposes of preservation and study. Putting them to wider usage was not originally under discussion (DANA 2004, 17).

In the case of university museums, the collections have had another focus – to be a part of the learning process. Collected and donated objects were preserved as valuable items but were also used in university education. The University of Tartu Art Museum was established a year after the re-opening of the University of Tartu (Kaiserliche Universität zu Dorpat) in 1802 by Alexander I of Russia (SILIVASK 1985). Under the direction of Professor Johann Karl Simon Morgenstern (1770–1852), the museum acquired a multifaceted collection consisting of several types of artworks during the 19th century: prints, paintings, sculptures, antiquities, including Egyptian artifacts and mummies, casts of sculptures, gems and coins.

The collection of the museum has similarly been used for educational purposes since its inception in 1803 (ANDERSON 2015a). Nevertheless, the principles of utilizing collections have changed considerably over the centuries and decades since and some key points of the new paradigm have been taken into account during the development process of the new exhibition of the Mummy Chamber. The focus is now on the audience, being visitor-oriented, relevant and forward looking, having knowledge about the audience, and being welcoming (ANDERSON 2004, 2). Today, most museums are coded for educational purposes in one way or another. As a university museum and the only museum in Estonia dealing with ancient cultures, the University of Tartu Art Museum has a clear aspiration to fit in with the informal education landscape.

The Otto Friedrich von Richter collection of Egyptian antiquities

The first owner of the university's Egyptian mummies and antiquities was Otto Friedrich von Richter (1792–1816), born in Vastse-Kuuste (*Neu-Kusthof*) manor in South-Estonia (*Livland*)¹. He first found out about ancient cultures and languages from his home teacher, Gustav von Ewers (1781–1830)² and later continued his education at the University of Heidelberg and in Vienna. After improving his linguistic skills, scientific expeditions took him to Egypt, Asia Minor, Greece and Lower Nubia (STADNIKOV 2003, 125–161).

During the journey (about 1815–1816), he obtained a collection of more than 120 Egyptian antiquities, animal and human mummies. It is likely that he purchased the items from local people. In 1816, von Richter sent most of his collected manuscripts and antiquities to Sweden during a stop in Constantinople, these were later brought to Estonia to his father's manor in Väimela (*Waimel*). Von Richter's travels and a promising academic career ended shortly thereafter due to his sudden death on 13th August in 1816 in Izmir (Smyrna) in Asia Minor (JÜRJO & STADNIKOV 2013).

¹ Baltisches biographisches Lexikon digital - www.bbl-digital.de (accessed November 21, 2017).

² Rector of the University of Tartu in 1818–1830.

Von Richter's Egyptian collection was donated to the University of Tartu in 1819 by his father, the Baltic-German district magistrate, Otto Magnus von Richter (MORGENSTERN 1821, 464–466). His purpose was to honor the memory of his son, the young orientalist, as well as to encourage future generations to undertake similar scientific endeavours (HINDIKAINEN et al. 2006, 26–27). According to the wish of O. M. von Richter, the antiquities were given to the University of Tartu Art Museum, the manuscripts and publications were given to the University of Tartu Library (STADNIKOV 1998, 286).

The collection of Egyptian mummies (two humans, a canine and an ibis) at the University of Tartu Art Museum enjoy a high public profile as do several other Egyptian collections elsewhere in the world. These mummies stayed in the University of Tartu Art Museum until 1862 (VERZEICHNISS 1809, 375). In 1858, the art museum's collecting policy was changed and a decision was made to collect only ancient art; therefore, non-art collections as well as the collection of paintings and prints were given to other university units³ and the mummies were sent to the university's anatomical theatre as human bodies (ANDERSON 2015b, 128–130).

The mummies were preserved in the university's anatomical theatre for more than one hundred years and were eventually sent back to the university's art museum in 1980⁴. Meanwhile, the University of Tartu had lost the rest of the collection of Egyptian antiquities because, on the orders of the Russian Military Commander in Chief, valuable art objects of the University of Tartu were evacuated to the central part of Russia because of World War I (TAMUL 2010). The works of art and Egyptian antiquities were dispatched by train in 1915 (ANDERSON 2015b, 201–211). Only the mummies stayed in Tartu – the mummies of a child (KMM A 63), an adolescent (KMM A 64), an ibis (KMM A 71) and a dog (KMM A. 64: 1), they were exhibited as objects without any context in the same room as the permanent exhibition of plaster casts made from Greek and Roman sculptures, the walls framed with murals in Pompeian style, which remained a part of the museum's interior until the beginning of 2017.

Ethical questions of exhibition

Before starting with the construction of the Mummy Chamber, the museum's staff had to answer several questions and consider different options, because handling human remains is a delicate issue. Ethical debates and disputes about the management and treatment of human remains are nothing new. Despite a long history of discussions about the controversies, exhibiting Egyptian mummies has continued globally. The debate about displaying Egyptian mummies is actually not about the museum, but about Western public values: the failure of our culture to educate people to look at bodies, living or dead. People need to understand art to envision the lives of the dead (DAY & JASMINE 2014, 41).

The Mummy Chamber of the University of Tartu Art Museum aims to teach people how to look at the body with respect and with positive intentions – to see, behind each body, a life, and their various customs, traditions and beliefs. Our museum is full of bodies, classical Greek beauty ideals as well as portrait figures with touches of personality and psychology. Although the culture of ancient Egyptians and Greeks is different from the culture of Estonians, we can still look for similarities and differences and thereby learn to understand the development of our own culture.

The problem is not that Egyptian mummies are on public display. The problem is that some members of the public can bring the wrong mindset to the encounter with them. The solution is a combination of public education about death, the body and cultural differences and rethinking issues to enable curators to produce displays that efficiently cultivate a sense of respect for ancient Egyptians in visitors (DAY & JASMINE 2014, 41). An exhibition of human remains is not inherently offensive, but can be regarded as such by visitors whose cultural background fails to prepare them for encounters with the dead. Displaying mummies constitutes a challenge in finding ways to respect the dead by facilitating encounters with them (DAY & JASMINE 2014, 29). It generates everything from a child's first awareness of death to an emotional connection with the ancient Egyptians, understanding Egyptian archaeology, history, religion and burial practices (DAY & JASMINE 2014, 32). The same principles can also apply to exhibiting human remains of local origin, but in this case the focus is on Egyptian mummies donated to the university.

³ In the middle of the 19th century when several archaeological excavations began, a paradigm shift took place and collecting ancient art became popular.

⁴ Archive of the University of Tartu 150-66-5.

We did not want a debate about whether the mummies should be shown or not. Removal of the mummies could create a sense that experts and the museum's staff are reserving the right to look at the mummies and denying this opportunity to visitors. This might become especially problematic in this situation as this is the only museum in Estonia that covers ancient cultures and has good pre-conditions for educational work.

Context as a storyteller

The documentation and context of the funerary history of the mummies of the University of Tartu Art Museum was incomplete. It is obvious that the context of the objects is the key to achieving greater relevance and providing a wider perspective on the culture, people, and natural and cultural history. We understood that a contextual display can help visitors understand an object, including its meaning and importance, in a clear and more obvious way (LORD & PIACENTE 2014, 125). Since the earlier history of the mummies is unknown, time and effort was directed towards creating a context similar to their original environment in Egypt. The goal of contextualization was better understanding the nature of the mummies and perceiving them as a part of ancient culture and the worldview of their society.

Knowledge about a great civilization like Egypt is largely acquired through the study of funerary architecture – the protective shell that bears valuable witness to the context in which the buried persons had lived. In the case of the University of Tartu Art Museum, many canonic elements and scenes from different Egyptian tombs were borrowed (fig. 1). However, the museum could not replicate the tomb even if it looked similar in some ways. The parents of these boys could hardly have imagined that the bodies of their children, mummified for afterlife, would eventually be preserved on public display somewhere far from Egypt.

What became the Mummy Chamber was a small room (10m²) with thick walls and without windows in the heart of the museum. It was previously used for depositing the university's employees' salary in cash during 19th century. The size and original appearance of the room became an essential precondition for the final design of the chamber. Yet, displaying is not just showing. It was challenging to turn a limited space into exhibition opportunities. Planning the display was considered with possibilities for contextualizing and redefining the physical space in which visitors could move and mapping out spaces for this (ROMALDI 2006, 82).

We hope our visitors will learn from the museum, even when that experience is modest in comparison with others. The personal, social and physical context of visitors shapes their learning experiences, but these three contexts overlap and interact (RENNIE & JOHNSTON 2007, 67). It is always a challenge for the museum's staff to provide education considering the broad context, a broader view of the visiting experience and the possible long-term impact on the visitor.



Fig. 1

Making murals at the Mummy Chamber

Photo: Andres Tennus, University of Tartu Art Museum

In the service of education

Museums are visited by families, friends, children, teachers, or individually for different reasons such as leisure, enjoyment, experience or education. The University of Tartu Art Museum had one big aim in terms of opening the Mummy Chamber – educational work, formal and informal, guided and unguided visits. The museum plays an educational role and while preparing the exhibition there was potential to re-evaluate educational provision. Like Low (2004, 36) has stated about museum education, “purpose in educational field is in all its varied aspects from the most scholarly research to the simple arousing of curiosity”. Planning the exhibition involved not just the co-operation of designers and curators, but also the museum educator, artists, technicians, IT-specialist, translators etc. As we know from experience, groups of students tend to be perceived as a single entity during a museum visit. Today, the emphasis on looking at the learning processes of individual students has increased, as they often have clear views about learning and their personal interests and motivation, choice and social interactions and learning style (GRIFFIN 2007, 31). During the planning of the Mummy Chamber exhibition, it was considered that the result needed to be applicable for a range of educational purposes, it must offer different challenges, address different target groups, make the learning interesting, smooth and, at times, unnoticeable.

Educational programs for schools to support the national curriculum

The museum had to consider that effective learning is dependent on the behaviors, attitudes, expectations and regulations. There are three main factors: the student, teacher and educator. On the whole, it is recognized that the parents and the curriculum, the attitudes of the school and the museum have an impact on the museum visit (GRIFFIN 2007, 31).

The museum with its Mummy Chamber provides educational programs to acquire and develop knowledge about the history and art of Ancient Egypt – this topic is dealt with in the 6th grade and on the high school level ⁵. Students need some freedom to choose specific aspects of their learning. Although the structure of the educational program is based on the themes of the curriculum, the students themselves can direct a more precise focus. The educational curator is able to direct the course of the program after considering the more interesting issues that emerge from discussions with students. For example, the museum educator could focus on mummification, modern research on mummies, Egyptian religion, everyday life or art and culture. The exhibition room affects students in different ways and encourages them to ask questions.

The museum educator has also developed worksheets, but these are usually used at the end of the program at the museum or even at school to conclude the fieldtrip. Research shows students who are given worksheets behave differently from those who are not, because the sheets tend to narrow the focus. Students try mechanically to collect answers and their own curiosity to explore the exhibition may remain unsatisfied (RANDOL 2004). However, we have integrated hands-on activities into the educational program in which students can use their creativity and also develop a dialogue with other students and the museum educator.

Our educational programs have been designed to develop the value competences, e.g. the ability to evaluate human relations; to sense and value one's ties with other people, nature, the cultural heritage of one's own country and nation and those of others, and events in contemporary culture; to value art and to shape the sense of aesthetics (Riigi Teataja - National curriculum for basic schools).

There are still possibilities for the development of educational work, especially in terms of co-operation. Nevertheless, we have started discussions with teachers and are introducing the museum and education programs via special school visits. In the case of the Mummy Chamber, we invited teachers to a special opening ceremony where the exhibition and education programs were introduced and their expectations and needs mapped. Museums and schools have different roles but similar goals and they need to form a closer alliance.

⁵ The University of Tartu Art Museum has experience in the modern museum education field from the year 2000 when traditional excursions were replaced with special education programs of ancient art and culture for schoolchildren.

Encouraging family visits

The museum has the capacity to stimulate meaningful learning in their visitors, linking new information with existing concepts. Each visitor will experience the museum differently because there are different ways in which people acquire, retain and use knowledge (MUNLEY 2004, 245). Each person looks at the exhibition from their personal perspective and has their own motivation, expectations and prior knowledge and beliefs. Studies have identified families as unique learning groups of mixed ages and backgrounds bound together by a complex shared system of past experiences, beliefs and values. Families have certain ways in which members interact and learn together and bring an extensive array of personal and co-operative learning strategies to their experiences in museums. Therefore, families function like learning institutions that utilize the learning resources to build their individual and collective identity (ELLENBOGEN et al. 2007, 17–26).

Exhibition curators have ideas, visions and experience of how to educate and engage visitors. However, the exact behavior of a visitor in a museum is unpredictable. Investigations have shown that via integrating the settings that foster discussion, challenge the learner and make connections with the interest of the learners, it is possible to increase the number of visitors who learn something. At the same time, these measures lengthen the average duration of the museum visit (GRIFFIN 2007, 39).

In the Mummy Chamber, non-formal groups with educational purposes can take a guided or unguided visit. They can choose which medium to acquire information. Possibilities are available for combining information: models, visualization techniques with interactive multi-touch tables, audio-guides, literature room in addition to more specific information shared by the museum guide. For families, there are also special events like the Museum Night, Researchers' Night, workshops, and meetings with curators (fig. 2).



Fig. 2

Researchers' Night 2017 in the
Mummy Chamber

Photo: Andres Tennus, University of
Tartu Art Museum

Co-operation with the university

As a university museum, we cannot forget the university audience. The museum provides several traineeship programs for undergraduate students, most often used by the Faculty of Arts and Humanities. Our scientific collections, including mummies, are a good base for research and interdisciplinary work.

In this field, a co-operative project investigating mummies was started with a number of young researchers and doctoral students of archaeology, chemistry, pathology and genetics. The goal is to gather as much information as possible about the mummies and to use all the modern methods, technologies and laboratories available at the university. In addition to getting the research results and scientific publications, the researchers gain a co-operative experience with other scientists, the opportunity to popularize their activities and specialty via the museum's environment and to get communication experience with the public. The museum can use the research results in educational activities and in complementing the exhibition.

Visualization has the potential to narrow the gap between the general public and the research, as it allows scientists and curators to share methods used to interpret and analyze the collections with visitors. Bringing the original research data to the public and providing tools enabling learning and exploration is an exciting and challenging scientific adventure both for researchers and museum visitors (YNNERMAN et al. 2016, 72-81).

Conclusion

The curators of the museum spent almost a year in the working group to work out how to exhibit human and animal mummies respectfully and to enrich the educational activities. Despite the various past controversies, exhibiting Egyptian mummies is a common practice. As a result of discussions about how to exhibit mummies in a respectful manner, the planning shifted from choosing a form similar to the actual ancient Egyptian tombs to one that is full of ancient culture and information about the life the people lived back then. It is known that contextual displaying and storytelling can help visitors understand an object, including its meaning and importance. It will expand the possibilities for making education more meaningful and diverse.

The University of Tartu Art Museum has created a meaningful context that offers diverse educational activities to schoolchildren. Integrating various topics and subjects in this exhibition has been a great challenge, but we have found ways to speak about the Egyptian culture along with contemporary themes that touch a chord with people. Mummies and their new contextual exhibition have given us a neutral platform to deal with the important and often sensitive issues of the present. The museum also began a new dialogue with teachers because the two different places, the museum and school, work for one purpose – so that the student would find learning pleasant.

As a university museum, the University of Tartu Art Museum has the potential for contributing to research with its historical and scientific collections. The research project on mummies conducted by the university's researchers and doctoral students includes the popularizing of results and implementing new knowledge in exhibiting and educational activities. Thus, both parties benefit and acquire new knowledge at the same time.

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A collection care program for/with school students | Broadening stakeholder engagement

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Abstract

The Museum of National Taipei University of Education, Taiwan, is a newly-founded university museum whose core collection comprises over 100 plaster cast sculptures. While the museum has won critical acclaim for its groundbreaking exhibitions, it continues to run on a shoestring budget in the current economic climate. To attract funds for collection care and outreach activities, the museum needs to be adaptive, and in this case, 'workshop exhibitions' on conservation and an educational program to provide primary, secondary and tertiary students with basic curatorial training were proposed as an approach.

Introduction

The Museum of National Taipei University of Education (hereafter MoNTUE) is a university museum established in 2011. Headed by Director Lin Mun-Lee, a professor in the university's Department of Arts and Design and a former director of the National Palace Museum, the young museum is dedicated to arts and education. While the museum puts on award-winning modern and contemporary art exhibitions¹, its core collection is a series of plaster casts made after some of the most canonical pieces in Western art. In 2015, MoNTUE launched a project called "One Piece Museum" to send out its newly cleaned and restored casts to various elementary and high schools for educational programs. Supported by extensive funding resources from the public and private sector, this project illustrates how the museum tries to care for its collection and reach out to new audiences in a difficult economic climate.

The 100-strong storytelling plaster casts, permanently loaned by the Metropolitan Museum, New York, themselves represent an eventful story. When the Metropolitan Museum was founded in the late 19th century, the ambitious museum board came up with an ingenious idea to bolster its not-yet-mature collection: plaster reproductions of the best and finest examples of Western art. Admittedly, these casts of statues and monuments were not originals, but the museum took comfort in the knowledge that they were the next best thing for arts education (PROVAN 2016, 139). In addition, what the collection lacked in authenticity, it made up for in magnitude. By 1908, thousands of casts had been amassed and displayed in the central hall of the museum (NOBLE 1959, 139). Yet as the museum's originals grew, the casts inevitably lost their appeal. To find better homes for these once-treasured exhibits, in the 1980s, the museum started to lend out or give away the stored casts to academic institutions with MoNTUE, Princeton University and Carnegie Mellon University being among the recipients.

After decades of languishing in the warehouse, some of the casts that arrived at MoNTUE looked in poor condition. A little attention to their condition was urgently needed in order to send them back to the frontline. But like many university museums where underfunding is a chronic problem (KELLY 2001; University Museums Group & University Museums in Scotland 2013), MoNTUE is pressed for money. The budget appropriated by the university endowment barely covers the operating expenditure and the salaries of three full-time employees, and a 30,000 euros donation from a private foundation, Su Tien Chai Foundation (hereafter STC Foundation), had to be secured by the director for the selected items to undergo restoration. Eleven of the restored pieces, endearingly called *Metro 11* as the university is in close proximity to a metro line, were later installed in MoNTUE and became prominent architectural elements of the museum's modern glass-lined building.

Encouraged by the results of *Metro 11* and the following *Metro Plus*, the director sought another 150,000 euros from the same foundation for a five-year cleaning and restoration project. In the midst of a financial crisis, we were aware of how significant this funding was for a newcomer like us. But how could we make the most of the donation to achieve the mission of the museum?

One Piece Museum project

Museums frequently showcase newly cleaned or restored collection objects to the public as indisputable evidence of how they fulfilled their role as collection custodians. Yet lately, many museums have attempted to display not just the results of conservation, but the conservation process itself.

There are three reasons that may account for this trend: 1) to show behind-the-scene work to curious audiences; 2) to provide transparency about often controversial conservation decisions, and; 3) to reduce the need to withdraw 'star' objects from the spotlight. For instance, Michelangelo's masterpiece *David* had resided inside Florence's Galleria dell'Accademia since the 19th century, and it was given a thorough cleaning in full view of the public from 2002~2004. Unlike the free-standing *David*, the 1812 *Star-Spangled Banner* in the National Museum of American History in the Smithsonian Institute had to be taken down from the hanging rod to lay flat for restoration, but the museum's purpose-built laboratory was equipped with large windowpanes to allow the audiences to view the process. The Minneapolis Institute of Art was also devoted to broadening access. A web-cam was used to transmit the conservation process taking place in the gallery for people who lived afar (SAYRE 2000).

¹ Many of the past exhibitions have been selected into the annual 'Top Ten Exhibitions in Taiwan' list, for example, *Stray Dogs* at the Museum in 2015 and *Yōga: Modern Western Paintings of Japan* in 2017, to name just a few.

In July 2017, the Boston Art Museum announced that they will publicly restore a giant Ming dynasty painting *Demons and Demon Quellers* so that visitors “can observe the elaborate process unfold, and, at specified times, interact with conservators at work” (Museum of Fine Arts Boston 2017)².

Attracted by the educational value of ‘exhibiting the conservation process’, MoNTUE decided to adopt this innovative approach as the principle of the five-year project. It is hoped that this will help the museum to re-imagine how its collection can connect with existing and potential audiences. The first program of the project, *One Hundred Years in a Flash*, was an open-studio style restoration carried out on the third floor of the museum. Junichi Mori, the Japanese conservator in charge of the *Metro Plus* restoration, led the program with assistance from museum staff and student volunteers. During the 10-day restoration period (11 to 22 March 2015), visitors who had made reservations could attend the guided tour and see the conservators at work from a short distance. The immediate changes to the casts, no matter how subtle they seemed, ensured a fresh and dynamic experience for the onlookers.

Given that very few non-museum professionals have the chance to actually assist professional restorers, even only marginally, the student volunteers were the first group to benefit from the program. The volunteers had all been with the museum for at least a semester and were given this chance to gain new skills irrespective of their university majors. But the visitors were naturally the biggest beneficiary group. As the ‘workshop exhibition’ drew to an end, the museum began to explore the possibilities to extend this well-received experimental endeavor. It is often said that a university museum has dual functions: to serve the university public and the wider community (MACDONALD, NYST & WEBER 2009; MACK 2001, 29). In this regard, could we take the project out and send newly restored pieces to primary and high schools, the wider community? Above all, the university, once a teacher training college, has always been active in the policy-making of school education, and many of its own students are set to become school teachers. It is not too much of a leap for the education-oriented museum to foster a relationship with this audience segment, who may soon become university students themselves.

The museum contacted a few art teachers who had previously worked with us. There was no scientific sampling as far as the partnership was concerned, but the understanding was that the schools needed to show commitment to the project. Two primary, one junior high and one senior high school in Taipei and our neighbouring cities, Keelung and New Taipei City, were chosen to be our partners. Of these four partnerships, the involvement of the two primary schools was school-wide while that of the two high schools was limited to only students from ‘artistically gifted and talented’ classes. Nonetheless, all the headmasters or head teachers responded to our call with acute interest to channel outside resources for the development of the students.

MoNTUE gave this project a self-explanatory name: One Piece Museum. Each time, only one piece/set from our collection would travel to the designated school. The educational theme would always be centred on the piece and the restoration, and all expenditures would be underwritten by the museum, but every collaboration was unique, a product of intensive meetings between the museum and the schools. Although the time-consuming meetings put a serious strain on the museum’s already stretched human resources, they provided valuable insight in understanding the spectrum of expectations and possibilities. Basic cleaning techniques were demonstrated in all four schools, yet a variety of classes such as field trips, creative writing, sociology or history were added by the school teachers as they saw fit.

The collaborations lasted either one semester or one year, but all culminated with an exhibition curated by the students themselves. Guided by the museum staff and school teachers, the students converted disused school spaces into galleries, designed their posters, produced their own artworks inspired by the restored pieces, and gave docent tours to media and visitors.

The Education Bureau of New Taipei City was an instant fan of our project, and word got around. One day, the Cultural Bureau of the same municipal government called, asking whether the museum would like to hold a restoration workshop in next year’s Children’s Festival in their gallery. We were keen to take part but during the discussions, an extended idea emerged. Why not turn the gallery into a mini MoNTUE outpost for the One Piece Museum project? The New Taipei Gallery is a public amenity donated to the city by the building’s developer in exchange for a permit for additional floor area. Located on the third floor of a high-rise building, the gallery was originally

² This paper considers cleaning to be part of restoration as ICOM-CC (2008) defines ‘conservation’ as embracing preventive conservation, remedial conservation and restoration.

furnished as a boutique store to sell products by up-and-coming local designers in a bid to nurture the creative economy, but the imposing façade of the expensive building deterred many would-be walk-in shoppers. Except for occasional events like the Children's Festival, the gallery seldom drew a crowd. The bureau hoped that our project would increase the exposure of the city's children to arts and improve the traffic to the gallery.

The proposal we came up with combined the strength of our previous two programs: *One Hundred Years in a Flash* and school-based One Piece Museum: an open-studio restoration workshop and conservation-related educational activities mainly for children aged seven to fifteen. Since these were museum activities, not school curriculum, we were aware that many of the audiences would be individuals or "one-off" participants, not classes or long-term followers, but the gallery would still serve as a complement to the school-based One Piece Museum. The gallery is much more open than any school, and it welcomes children and their parents from all school districts. Having a base in the gallery would help the museum to reach out to people not yet familiar with us.

The bureau invested 40,000 euros for the museum to redesign the gallery, in which the bureau also kept a room to display other cultural heritage conservation projects sponsored by the bureau itself. Only a part-time assistant from the bureau staffed the gallery, but whenever there was a group visit or an educational activity, the MoNTUE team would take charge. For the eight-month 'workshop exhibition' (July 2016 to February 2017), the bureau paid for the cost of all hands-on educational activities, while the expenses incurred by Mr. Mori's three-month stay were covered by the museum.

The workshop exhibition *Med#161 Touch and Time, One Piece Museum in the New Taipei Gallery*, proved to be a resounding success. Most Taiwanese parents with children aged seven to fifteen are looking to create weekend schedules packed with educational activities, even though a lot of parent-approved activities do not strike children as fun. Happily, conservation is a multidisciplinary science where background knowledge in art, history, chemistry and physics interlock. When the families gathered to watch conservator-in-residence Mr. Mori restore the Middle Ages lion cast (Metropolitan Museum accession No. 161), and when children donned a white coat to brush the dirt off the cast under supervision, the ideal of 'making learning fun' was quietly realized.

Fifteen more pieces from our collection were treated during *Med#161*, and special sessions for the 2016 Children's Festival *Fairytale Castle* were unveiled. The second 'workshop exhibition' in the New Taipei Gallery, from March to August 2017, saw a few more casts being restored, and the third 'workshop exhibition' commenced from September 2017. Meanwhile, with seven schools becoming the latest partners, the school-based One Piece Museum project has also entered a second phase. As more and more institutes join in, an extensive funding network is formed. At present, the project is jointly funded by the university, the STC Foundation, the education bureau and the culture bureau of New Taipei City and the Ministry of Education.

The goal and the fundraising opportunity of the project

In today's precarious economic state, there are two critical issues that every museum must constantly ponder: how do we stay relevant and how do we stay afloat? Compared to the challenges encountered by mainstream museums, these issues are perhaps even more compounded for university museums (KOZAK 2016). University museums are expected to achieve the eminence of scholarship and serve the university as well as the society. But few of them have full 'autonomy': they are frequently asked to take departing professors' teaching specimens, instruments or artefacts even when they have no staff to carry on the research; they are situated inside the campus, standing aloof from the outsiders; and more importantly, they have to compete with faculties for internal funds and they are rarely high on the university hierarchy of financial need (KELLY 2001). All these circumstances seem to hamper the prospective development of university museums. The talk of selling off the museum collection by Brandeis University is an extreme case, but it is fair to say that many university museums struggle to have a distinct identity and adequate financing. MoNTUE is probably an atypical university museum as it is not weighed down by accumulated historical baggage, but it still needs to acknowledge the gravity of these two issues. What the museum opts to do is to take collection conservation as an opportunity to engage new audience segments and, in so doing, it aligns itself with the objective of the university, justifies its existence and raises its funds.

Audiences are central to a museum's purpose. In the past decades, many university museums have progressively looked outward to enlarge networks and cultivate new audiences (BOYLAN 1999; University Museums Group & University Museums in Scotland 2013; MACK 2001, 34). MoNTUE's

strategy follows the same logic: it extends its target audiences from university students to school students. This is a reasonable step to take as our university used to be a teacher training college and art education is fundamental to the museum's mission. Museologically speaking, demographic analysis has also identified that school and family are two of the most important clusters of audiences (ZELLER, PONTE & O'NEILL 2014). Building up these two audience segments will certainly help MoNTUE's general audience development.

But how can we expand our reach without alienating our currently prioritized audience, university students? A tested-and-tried formula for museums is loan boxes or resource boxes, which contain collections or replicas of collections and can be used in different types of learning environments, thus allowing museums to remain homebased while enhancing their overall accessibility. Thanks to the STC Foundation's generosity, MoNTUE is able to turn a similar design into an enriching educational project. Even though object-based learning is an education mode less employed by schools, its close connection to pedagogies of active and experiential learning has been examined by University College, London, and many others (CHATTERJEE 2010). Moreover, through the project, the significance of museum collection, a concept sometimes difficult to convey to the general public, is laid bare and a sustainable relationship between the museum and the young can emerge.

As French sociologist Pierre Bourdieu argues in his book *In the Love of Art: European Art Museums and Their Public*, culture is a form of capital that comprises knowledge and skills. Despite the commonly accepted notion that art appreciation is an innate ability, those not armed with cultural capital would easily feel helpless when facing the 'inscrutable' objects in the museums and would rather exclude themselves from the haughty 'temples of learning' (BOURDIEU 1997). Since cultural capital is linked to a person's habitus and social position, and family and school play an influential part in the formation of habitus, museums may need to work closely with families and schools for greater audience diversity. As long as the 'intellectual disposition' needed is inculcated into children, they will at least not be intimidated by museums, and may grow to enjoy visiting museums.

School and family visitors inevitably come in groups. Whenever the school-based One Piece Museum project opens an exhibition, there is a ripple effect onwards to almost every corner of the school. Even children not directly involved in the project would drop by with friends to see the show. Many of our hands-on activities in the New Taipei Gallery require children to be accompanied by their parents, and more often than not, parents would bring other children along. Going out into the field means the museum is literally out of its comfort zone, but fortunately in this case, the rise in the number of visitors is clearly discernable, and that is prompt and invigorating feedback for museum staff.

To a certain extent, the increasing visitor numbers also underpins the fundraising ambition of this outreach project. Research has indicated that many philanthropists are motivated by the pleasure associated with giving or supporting a cause when making donations to nonprofit organizations, and they do not always demand to see the performances of the organizations (Chamber Collective 2015). The prevailing altruism means that nonprofit organizations seldom have the need to sell their impacts to funders. But what with the rising of 'performance philanthropy' and the austerity measures brought on by the economic downturn, nonprofit organizations are now urged to evolve and learn to emphasize their leverage. The growing visitor number therefore permits the museum to articulate its success to interested sponsors with relative ease and conviction.

Our project's funding opportunity is further boosted by the visible transformation that restorations can present. Plaster is a porous material that absorbs moisture and dust particles. The removal of the dirt not only makes the cast less susceptible to erosion, but also visibly alters its appearance (RUNE & MARCHAND 2010). The before- and-after contrast revealed in the 'workshop exhibition' is a powerful performance indication for anyone wishing to assess how the museum works towards the strategic goals of the project. Our 'shop-fronts' in schools also help to keep the project never out of sight for the funders. For all intents and purposes, the One Piece Museum project stems from our desire to disseminate collection and conservation-related knowledge to school children, but it is true that the Culture Bureau initiated the collaboration because of the positive impacts that our project had generated. Once the New Taipei Gallery joined the project, the gallery's high profile has invited in even more potential sponsors, including other public sectors, to 'invest' in the project. The project's complicated funding structure is indeed administratively complex, but it guarantees that the museum is not vulnerable to budget cuts from the university or any single funder's whim, and can avoid manipulation from commercial sponsorship.

Conclusion

The aim of this paper is not to advocate 'workshop exhibitions' in museums. In fact, 'exhibiting the conservation process' can only happen when certain conditions are met. Besides, although the approach seems innovative, what MoNTUE does is simply to go back to the basics: look after the collection and nurture and extend the audience through new programs.

In marketing terms, 'optimization' is the process of improving the marketing efforts of an organization to maximize the desired business outcomes. But what should a museum 'optimize'? According to Blattberg and Broderick, aesthetic values, community interests and the preservation of the museum should be the ideal outcome of an art museum (BLATTBERG & BRODERICK 1991). Yet on the other hand, we are reminded that university art museums "cannot depend on one stable source of funding anymore" (KING 2001, 23). So how can we implement 'optimization', collection-care and education, in the aftermath of cuts in public funding? The One Piece Museum project is a prime example of how a museum tries to adapt itself in financially lean times without compromising its mission. The necessity of periodic cleaning and surface treatment of plaster casts means that MoNTUE needs to have an ongoing conservation program in place to ensure appropriate care of these casts. We are yet to know if this ongoing program will continue taking the form of One Piece Museum once the five-year project runs its course, but one thing is for sure: to have financial resilience, MoNTUE and the program will always need to be museologically robust first.

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Keywords

Object-based learning - One Piece Museum - Outreach

Engaging museums: developing collection- centred activities for visitor involvement in the universities of Wuhan, China

Luwei Fan, Wan Ni & Hao Jiang

Abstract

Ninety percent of the world's data has been created in the last few years. Digital media, combined with the internet and personal computing has caused much disruption in many fields, including museums. Accordingly, digital exhibition designs are frequently adopted in museums to expand community engagement. A comprehensive digital strategy has become a critically important part of planning for long-term institutional sustainability. However, some museums, especially university museums, may have budget restrictions and complex management systems that hinder the development of an innovative digital strategy. Meanwhile, concerns about the distractive effects of technology in the museum are prevalent in some quarters. How do we design interpretive experiences that facilitate profound visitor engagement with museum collections in the digital era? This is a question for all museums. This paper explores key trends and challenges for university museums in the new era, and proposes a solution, through a case study, that balances the technology and collection objects by organizing themed activity related to the museum collection. This is a cross-institution collaboration that matches the formal training of visiting groups. We outline the successful experience of a field trip activity on the themes of the optical effects of gemstones developed by the Hubei University Museums Association. Among the collection-centered theme activity, a university-company-school model is created to enhance visitors' understanding and interest in the collections.

Key trends, challenges for university museums in the new era

Digital exhibition designs are frequently adopted in museums to expand their communities in recent years as the result of rapid developments of digital media. Predictions about the trends in museum work include increasing collaboration between museums, and a focus on the power of data analytics to inform museum operations (New Media Consortium 2015).

Challenges for museums in the coming decade are summarized as:

- a. expanding the boundaries of creativity,
- b. rise of private companies in museum education,
- c. increasing cross-institution collaboration,
- d. increasing focus on data analytics for museum operations,
- e. expanding the concept of visitors,
- f. increasing focus on participatory experiences (New Media Consortium, 2015).

As a result, digital strategies including mobile-friendly apps and social networks are developed in most museums. Meanwhile, the unique practicality, innovative expression and powerful impacts on the senses enable museums to develop interactive aspects in formal education.

Under the influence of the rapid development of the economy, science and technology, regional human environment and quality of life in China, the status of museums in public services has been continuously improved, and their functions have been constantly evolving. Education has become an important social responsibility of museums. Museums have been highly valued by China's government. In 2007, the joint proposal of the Chinese People's Political Consultative Conference (CPPCC) National Committee members "to bring museums into the national education system" suggested that "the relevant departments pay more attention to the resources and position role of museums, and study the establishment of museums to participate in the national education system... Realize the effective connection between museum education and school education, make the museum really become the necessary supplement of classroom education for teenagers and the important content of off-campus education, and provide better service for building a learning society".

University museums as one of the most important "members" of the museums family undertake more responsibility in public education, they are exposed to the similar challenges of public museums. However, as a secondary unit within a university can face more difficulties with administration, funding and qualified human resources in comparison with public museums to develop the digital strategies to adapt to new audience demands.

Besides, ongoing studies continue to highlight the distractive effects of technology on the human cognitive function (PUENTE 2017); a recent psychological study proved the existence of a "photo-taking impairment effect" among test subjects who remembered objects in less detail because they had captured images of them (National Public Radio Staff 2014). With the abundance of new media content, technologies, and emerging participatory options combined with a long tradition of a reflective atmosphere, there is a growing concern that museums should maintain an ambience that lends itself to deep contemplation and reflection on cultural works (KOVAL 2017). In these circumstances, museum programs encouraging audiences to have profound interactions with collection objects, while also making the most out of digital tools seems an appropriate way for university museums to develop their own education style for the public.

Development of Hubei University Museums Association

University museums in Wuhan

Hubei, with the land area of 185,900 km², is located on Jiangnan Plain, central China (fig. 1). As one of the best developed provinces in education and scientific research, Hubei possesses 129 higher education institutions, including two of the Top 10 Universities in China and 7 universities listed in the National Top Level University 211 Project. Project 211 is a project of National Key Universities and colleges initiated in 1995 by the Ministry of Education of the People's Republic of China, with the intent of raising the research standards of high-level universities and cultivating strategies for socio-economic development. During the first phase of the project, from 1996 to 2000, approximately \$2.2 billionUSD was distributed (LIXU 2004).

Among the remarkable number of higher education institutions in Hubei, Wuhan, the capital city of Hubei is a significant metropolitan area which has the biggest share in the number of both universities and undergraduate students in Hubei. It is reported that there are 89 universities with an undergraduate population of 1.2 million at the end of 2017.



Fig. 1

Wuhan located in eastern Hubei

From: http://weili.oopic.com/weili_10495667.html

Fig. 2

Distribution map of main university museums in Wuhan

From: http://weili.oopic.com/weili_15987836.html



One third of Wuhan universities have museums. Coincidentally, most of them are concentrated in the Wuchang district (fig 2). However, university museums in Wuhan differ from in size, development, expenditure and professionals etc. Table 1 lists some representative information about the university museums in Wuhan.

University museums in Wuhan have the following three features:

1) Abundant collections supported by discipline expertise

Compared with the other types of museums, university museums in Wuhan have abundant collections related to university disciplines. For example, Yifu museum at China University of Geosciences has a collection of 30,000 items covering fossils, gemstones, minerals and rocks (fig 3). Some collections items in university museums have a unique value. The ancient coin "Taichangtongbao" (fig 4) stored in the museum at Zhongnan University of Economics and Law is the only coin left from the Ming Dynasty, about 600 years ago (fig 5).

**Fig. 3**

Fossil wall of *Traumatocrinus guanlingensis* sp. nov covers 15 m2

In: Yifu Museum at China University of Geosciences

Fig. 4

Numismatics stored in Zhongnan University of Economics and Law illustrate the financial history of ancient China.

- a. Money cowry was used in the Xia dynasty, China (2097 BC)
- b. Knife coin used in Spring and Autumn Dynasty (770 BC)
- c. Ant nasal currency in Warring States Time, China (475 BC)
- d. First Emperor of Qin standardized the currency (259BC-210BC)

**Fig. 5**

“Taichangtongbao” coin stored at the museum of Zhongnan University of Economics and Law is the only one of its kind known in the world



2) Obligations on professional education and science popularization

When we look back at the early development of university museums in Wuhan, it is not hard to identify that professional education was the only task at that time. As time has progressed, the abundant collections, logical scientific knowledge, rich research background of university museums can attract the interest of public audiences. Recently, most university museums are open to the public and take on the obligation of popularizing science.

3) Imbalance of development

Even university museums in Wuhan that have frequently come to public attention in recent years are sometimes trapped in a predicament due to complex administrative arrangements, shortage of funds and a lack of professional development. At present, most of the museums in universities in China are under the administrative management of universities. As a result, these university museums have no independent legal entity, which means they are not qualified to be registered with the Tourism Ministry and they cannot get policy and financial support from the other departments outside of the Education Ministry. However, the Education Ministry doesn't have a corresponding department to organize the development of university museums. This restricts the progress and the social educational function of university museums (RONG ZHENG TONG 2017).

The imbalance of these university museums can show in exhibition areas, specimen quantity, visitors and staff numbers. Some museums have special collections but limited exhibition space (e.g. No. 2, 4 & 5 listed in table 1), some museums have vast space for exhibition but do not open to the public (No. 3 listed in table 1), while some lack staff (No. 2, 4 & 5 listed in table 1). These museums all face the challenge of budget shortfall and rapidly developing technology.

No.	Name	Area	Collections	Visitors	Staff
1	Yifu Museum at CUG	5000 m ²	30000	124000 p/year	14
2	Bee Museum at HZAU	350m ²	3000	10,000p/year	3
3	Naval Museum at WHNEU	8000m ²	5	By reservation	19
4	Naval Museum at WHNEU	600m ²	2000	Internal open	2
5	Specimens Center at HZNU	700m ²	24,010	By reservation	1

Table 1

Basic information of representative university museums in Wuhan

Notes: CUG-China University of Geosciences, HZAU-Huazhong Agricultural University, WHNEU-Wuhan Naval Education University, HEC-Hubei Economy College, HZNU-Huazhong Normal University

Establishment of Hubei University Museums Association

In the spring of 2013, a meeting was held at Yifu Museum, China University of Geosciences under the auspices of the Hubei Museums Association (HMA) to discuss the idea of planning a conference to address the status and future of research within university museums in Hubei (fig 6 & 7). In recognition of the cross-disciplinary nature of the topic, but also in an attempt to explore common and diverging concerns, Hubei university museum committee, chaired by Xu Shiqiu, was formed. The committee included willing representatives from art, history, and science museums. The members were expanded from 13 to 27 over the following four years.

The purpose of the Hubei University Museums Association (HUMA) is to integrate resources, share experiences, solve problems, and stimulate development. Activities take place in the association are an annual assembly, conference, seminar and investigation.

Fig. 6

HUMA member - Yifu Museum at China University of Geosciences



Fig. 7

HUMA member - Wanlin Museum of Wuhan University



In 2014, Hubei Provincial Science Association formed the basis for popular science education, university museums and popular science featured as tourist attractions in a “popular science tour in Hubei” and associated activities, through information technology, the internet and other modern means of communication.

This series of activities shows that the Hubei government has realized the importance and necessity of the integration and utilization of university museum resources. But the interaction in between the university museums is still in an early stage, it has not yet been deeply integrated and linked. In order to explore the potential of university museums in education, strengthen the cooperation between the museums and enterprises, provide the museum audience with personalized education program, HUMA designed a series of programs which integrated the energy and resources of its members.

Collection-centered theme activity

Collections in university museums are the tokens of local prestige, displaying and viewing the variety of nature and the products of human culture demonstrates a community’s wealth and commitment to self-improvement. The focus on University museums had much in common with the development of a capacity for science popularization of specialized research and technical training for the public (WEIDENHAMMER & GROSS 2013). However, the basic exhibition of an isolated specimen cannot deliver multi-level connotations to audiences. Moreover, it is hard to develop the cultivation of scientific exploratory spirit and an aesthetic sentiment with static specimens. HUMA organized a work team to explore the interdisciplinary connotation behind the exhibition item, followed by the design of activities centered on it. One of popular collection-centered theme activity was “Magic gemstones” based on the optical effect of chatoyancy (also known as “Cat’s eye effect”).

Concept design of magic gemstones activity

Introduction of exhibition item

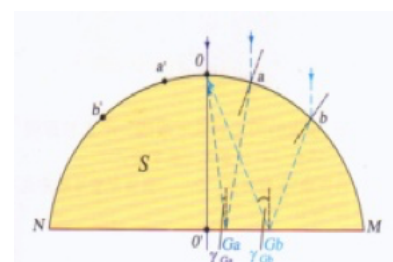
The Gems & Jade Exhibition Hall is the audiences’ favorite location within Yifu Museum at China University of Geosciences. In among the “Optical Effect of Gemstones” exhibition is the chatoyance, color-changing, asterism, play-color effects of special gemstone items. However, some investigations with a questionnaire and interviews about the visitors experience in the museum indicated that visitors had no notion of the theory of these effects on account of the limited didactic labelling and inflexible display. In fact, the theory of the chatoyance effect accumulates knowledge from mineralogy, crystallography, photology, gem cutting processes and aesthetics. The chrysoberyl minerals “cat’s eye effect” is a media to connect these disciplines. Knowledge about chrysoberyl cat’s eye is also linked with instructional objectives of junior high school science in China.

Fig. 8
Optical effects of gemstones
From: Zhang Beili 2012



Fig. 9
Schematic diagram of chatoyance
effect

From: Zhang Beili 2012



Designing scheme of education activity based on chatoyance effect

a. Principles

The activity is designed to follow the principles that delivers accurate scientific opinion, focuses on the essential issues concerning resources and the environment, emphasises discipline integration, pays attention to the cultivation of an explorative spirit and ensures the integrity of the activity with regards to auditing and evaluation.

b. Objective

Provide access for participants to understand the mineralogy, optics theory, gemstone resource of chrysoberyl cat's eye; develop the operational ability of participants with a cat's eye cutting and polishing activity; exploit the potential scientific inquiry ability by designing the cat's eye gemstone model activity.

c. Target population

Junior high school students (age from 11-14)

d. Activity scale

20 students

e. Places

Yifu Musuem, jewelry quality inspection station, gemstone cutting and polishing lab, multifunctional hall

f. Arrangement

Date	Time	Contents	Location
Day 1	Morning	8:40-9:30	The opening of camp
		9:30-10:00	Introduction lecture of activity
		10:00-11:30	Visit the museum (fig. 10)
	Afternoon	11:30-13:00	Lunch
		13:00-14:00	Lecture on mineralogy and gemology
		14:00-16:00	Design cat's eye model (fig. 11)
		16:00-17:00	Visit Hubei provincial jewelry quality inspection station (fig. 12)
Day 2	Morning	8:40-9:30	Gemstone photo skill practical course
		9:30-11:30	Cat's eye practical course (figs 13 & 14)
		11:30-13:00	Lunch
	Afternoon	13:00-14:00	Seminar on cat's eye effect
		14:00-17:00	Presentation preparation
	Evening	17:00-18:30	Dinner
		18:30-20:30	Presentation

Table 2
Arrangement and contents of
chatoyance effect activity

g. Material

Items	Quantity	Items	Quantity
Gemstone identification instrument set	3 sets	Fiberglass	20 pieces
Jewel torch	5	Jewelcrafting tool set	3 sets
Arc roof mould	5	Fancy iron wires	100
Lecture PPT	1	Instruction leaflet	20 pieces

Table 3
Materials list

Activity effect and enlightenment

"Magic gemstone activity" was implemented 3 times during 2017. The program covers knowledge on mineralogy, gemology and optics. Concerning methodology, the program combines theoretical concepts and practical content together in a seminar and presentation. The learning process follows the study law of teenagers; that is *observe-study-think-explore-analyze-conclude-review* (ZHENG YI 2015).

Three types of cooperation are reflected in this process. The first type is collaboration between different units inside the university. Yifu museum, Geology Department, Gemmological Institution, Gems Identification Lab appeared in each section, to serve educational purposes. The second type of cooperation happened between university museums and enterprises dealing with the business such as organization of education activities, souvenir product design etc. Some of the experts from education companies joined the design process for this program. The enterprises also sponsored us with funding and program materials. The most important cooperation, however, is the university museum collaboration. By the organization of HUMA, the committee discussed and planned all the details of the program. The committee created the linkage between the HUMA members. In this program, Yifu museum at China University of Geosciences is the "home court". As assistant institutions, the museum at Huazhong Agricultural University provided the material on cat's eye, while Wanlin Art Museum at Wuhan University curated an art exhibition on the optical effects on gemstones. HUMA's online social media carried on the advocacy work for the program. The feedback results collected from participants, junior high school teachers and media journalists showed that the program successfully achieved the educational targets. The program helped the participants to better understand the theory behind the exhibition, built their practical experience, enlightened their curiosity, increased their concern about mineral resources, and also improved their team-work.

Fig. 10

Students visited the museum
during the Technology Elites
Program

Photo: Luwei Fan



Fig. 11

Students designed cat's eye mould
during the Technology Elites
Program

Photo: Luwei Fan



Fig. 12

Students visited Hubei provincial
jewelry quality inspection station
during the Technology Elites
Program

Photo: Luwei Fan



Fig. 13
Cat's eye mould designed by
participants during the Technology
Elites Program
Photo: Luwei Fan

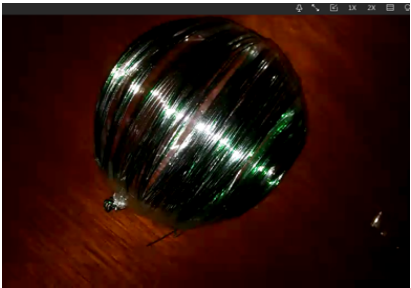
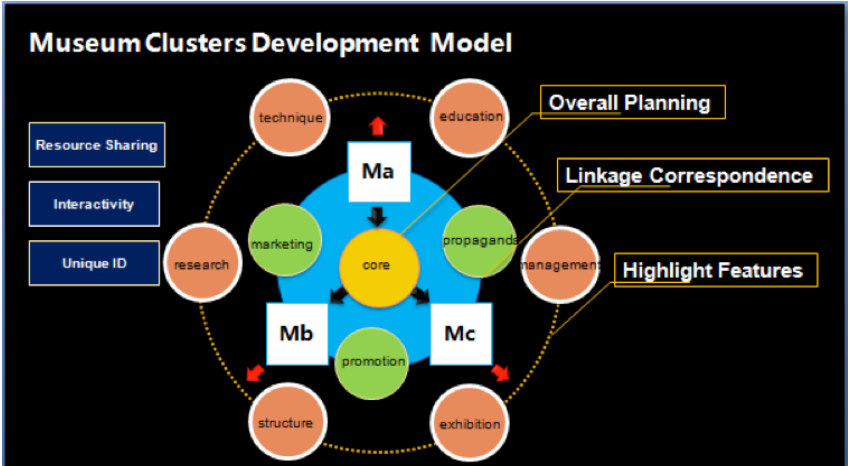


Fig. 14
Glass cat's eye cut and polished by
participants during the Technology
Elites Program
Photo: Luwei Fan



As mentioned in earlier sections, opportunities and challenges exist side by side for the university museums in Hubei. Central to this is the question of how to explore the connotations behind the exhibition items, search the connections within a variety of disciplines and match the needs of visitors with limited funding. These are the issues that face the university museums in Hubei. The natural advantage of a concentrated geographic distribution of university museums in Hubei inspired the HUMA as a solution to accelerate the development of the entire group by the creation of a museum cluster (fig 15) and construction of a platform to share resources. In this way, the collections in the museums are no longer isolated and unchanging. The collection-centered activities show possibilities for developing the education potential of exhibition items. In addition, the programs designed by HUMA include a preparation section, a practical section, an evaluation section and a modification section. In this way the program becomes dynamic and personalized.

Fig. 15
Museum cluster development
model



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Keywords

University museum - Theme activity - Cross-institution collaboration

University collections: some recent developments in Albania

Dorina Xheraj-Subashi

Abstract

The definition and concept of university museum activities, covers the collections, research, publications and exhibitions undertaken. Many nations have already examined basic issues and focused on the contemporary challenges facing university collections. In the Albanian higher education sector, university museums and collections have not as yet received attention or are not conceived as potential tools for academic studies. The benefits and utility of cultural collection material in higher education has not as yet penetrated the Albanian academic mindset, they do not feature in pedagogic traditions. While this paper discusses this situation, this analysis addresses aspects related to the contents of university museum collections and the new possibilities that future endeavor will offer for academic institutions in Albania.

Introduction

Over recent decades the role of university museums has changed. They have become more open and receptive to the cultural needs of the public by focusing on educational programs and playing important role in object-based learning¹. In many European countries, comprehensive museum collections have developed since the 19th and early 20th centuries². The same evolution can be seen in some Balkan countries³, but it is difficult to identify any similar university museum developments in Albania. This is possibly due to continued instability and socio-cultural changes. It is important to note that for the Natural Sciences Museum, scholarly literature, reports on the didactic use of collections and records of visitor numbers are missing. This hinders recognition its educational activity as well as an understanding of the ways the museum has previously used its collections. Such documents would have been relevant and enabled comparative studies with other university museums in the Balkans. This history serves as an indication of the many challenges the university museum has still to overcome? However, in recent years, several new initiatives are underway such as establishing educational exhibitions installed by university students and using them as learning tools.

Background: The Natural Museum, from the establishment to actual challenges

The Museum of Natural Sciences has been recognized by the state since 1996 as a university museum. Its main mission is to serve as a focus for educational activities and to support the university research purposes of several disciplines of the Natural Sciences Faculty, with which it is affiliated⁴. The museum preserves a comprehensive natural history collection covering the diversity of Albanian flora and fauna, as well as some important representations of mineralogy and petrography. The establishment of museums started after World War II. In 1948 the first specimens collected came from other collections that already existed prior to the war. They came from a Jesuit and Franciscan Monk College in Shkodra and the Harry Fultz American School, both closed after the war⁵. In the first years of its establishment the museum operated as a subordinate branch of the Institute of Science, until 1957, after which the State University of Tirana was established, the first academic institution for studying, teaching and academic research in Albania.

It is important to point out that at the time of its establishment and in the years that followed, many museum practices did not form a smooth continuum. Nevertheless it was important on a national level for collecting different aspects of Albania's natural heritage, even though collecting for academic purposes was still a novelty at the time. But the establishment of the Natural Sciences Faculty brought new perspectives for this museum such as more advanced collecting enabling the commencement of discipline-based research. Academic staff was appointed to develop the specimen collections and instigate teaching and research with the Zoology Department. Scientists, professors and students were all involved in this task. The entire collection has been expanded through several campaigns of accumulation, selection and sometimes donation after a rigorous and systematic process to seek appropriate specimens for the Zoology collection.

Today this museum has a considerable number of specimens studied by a range of professors and other specialists, and is used for enhancing further studies in the natural sciences. It is also available to all through exhibition work. This museum has a mission to recognize and make available to students, pupils and visitors the flourishing natural patrimony of Albania. It has been recognized as university museum, a term that was used for the first time in 1996⁶. Its contribution is using its collection for university purposes in a way that impacts academic life. After several years of dedication collecting and studying the natural history of Albania, the museum has 3000 taxidermy specimens of animals from Albanian territory and some from other countries.

1 Chatterjee, H. J. (2011). Object-based learning in higher education: The pedagogical power of museums, pg.179

2 Guthe, A. K. (1966). The Role of a University Museum. *Curator: The Museum Journal*, 9: 103–105.

3 Doxanaki, A (2017) The development of Balkan Medical Museums and their contribution to the history of medicine: examining the role of medical collections of the national and Kapodistrian University of Athens, *Archives of Balkan Medical Union*, (pdf) March, vol.52, no.1, pg.73.

4 Cf. https://sq.wikipedia.org/wiki/Muzeu_i_Shkencave_Natyrore, (accessed June19, 2017).

5 Artan Lame, <https://www.shqiperia.com/shqip/opinionart/alD/490/Ish-shkencat-dhe-ish-natyra>, (accessed August 5, 2018).

6 Cf. https://sq.wikipedia.org/wiki/Muzeu_i_Shkencave_Natyrore, (accessed June 19.2017).

The museum has five rooms where different specimens are displayed. There are two entire rooms of birds, including a hoopoe, curlews, a great- crested grebe and pelicans. The mammal section is on the ground floor. In room four there is a herpetology collection with preserved snakes and lizards, as well as turtles and tortoises. Room five has a collection of insects (including moths and butterflies). The last room displays shells and corals, most of them from the tropics⁷. Some of the collections displayed in this museum are divided according to their specimens' types, as follows: aquatic invertebrates, 693 individuals of 488 species, represented by a diversity of sponges, sea stars, mollusks, gastropods, etc., some species, such as large sponges and giant shells are from the Indian Ocean and other tropical regions. The insects section is composed by 12 different families with a total of 217 individuals including butterflies and beetles; they are labeled in Latin and Albanian languages and include locality data. Fishes are composed of 167 specimens of 157 species, found in seas and lakes; this section also includes a group of amphibians consisting of 15 species of salamanders and frogs. Reptiles consist of 37 native species, including sea snakes, the 'thin arrow', the 'blind serpent', and venomous snakes, there is also an aquatic turtle with a shell of 1m diameter.

Birds are represented by 380 individuals of 224 species including 'air kings' (canary birds, mountain eagle), they are displayed in two large halls. Mammals are represented by 52 individuals of 44 species representing the most common individuals of this class. In this classification beside the wolf, jackal, fox or wild cat, there are also African and South American monkeys and forest deer⁸.



Fig. 1
Butterfly collection: University
Museum of Natural Sciences. June
2017
 Photo: Dorina Xheraj-Subashi



Fig. 2
Bird collection: University Museum
of Natural Sciences
 Photo: Dorina Xheraj-Subashi

⁷ Gillian Gloyer, Albania, Bradt, 4 edition, pg.75

⁸ Muzeu i Shkencave të Natyrës «Sabiha Kasimati», <http://www.fshn.edu.al/qendra-kombeetare-e-florees-dhe-faunees-shqip-tare/muzeu-i-shkencave-tee-natyrees>, (accessed August 22,2018).

Discussion

Despite the already established collection, there is an absence of documentation relating to museum function. In fact the museum itself doesn't have a webpage which would obviously help with visibility and promotion of activities. Facts are known only through personal communication with the museum keeper⁹. This is the only source of information about visitors, education programs and other information about collection usage. This information is incomplete and not enough to provide accurate insights into museum functionality.

Now we come to the key issue regarding the importance of creating university collections and their impact on future academic life. During the period from 2005 to 2017, Albania saw an increase in the number of new public and private universities (12 public universities and 11 private ones), this has significantly changed the role of academic life in Albania. Many of the first attempts to develop curricula by these private universities has been based exclusively on literature, none of these universities had established or donated collections or donated ones, instead they are making their own heritage based on the creation of small objects (material culture) that are used for explanatory purposes during lessons. These new practices can be a starting point for their first university collections.

Some private universities have involved students in their educational projects using special themes that aim to revitalize cultural heritage and develop knowledge about ancient crafts, this might therefore result in a small collection for the university. This was undertaken by the following universities: Polis University, created a clay exhibition called "Modelling and Artistic Technique" on 29 June 2016¹⁰. The idea had the purpose recreating ancient techniques and understanding a specific process of production for important objects of every life, and examine their role, as decorative object today. Polis University is an institution focused on design and architecture. This project deepens research knowledge of the heritage of ancient societies and also serves a learning agenda through collaboration. Another project at Metropolitan University involved students undertaking historical research into an archive of the architectural industry of Albania. The educational outcome from their spirit of curiosity resulted in the rediscovery an architectural engineer, through the creation of an interesting exhibition entitled "Pieces that created history".

Fig. 3
"Pieces that created History"
 exhibition, by Metropolitan
 University
<http://www.aqtn.gov.al/index.php?pg=aktiviteti7>
 accessed June 8, 2017



The European University of Tirana (UET) involved their students in another project called "Art, Sketches and the American's Presidents in the Hosteni journal" an exhibition for a young demographic that focused on the communist ideology in Albania and ignited debate and dialogue about a particular time period on diplomatic relationship between Albania and USA. This exhibition was about the historical reality of how was America perceived through Hosteni sketches, during the communist and socialist regime.

Fig. 4
"Art, Sketches and the American Presidents in the Hosteni journal".
<http://alb-spirit.com/2017/06/06/si-dermohej-shba-karikaturat-e-hostenit>
 accessed June 8, 2017



⁹ Personal information inside museum June, 2017

¹⁰ Modeling and Artistic Technique. <http://www.universitetipolis.edu.al/?q=sq/node/1705>, (accessed June 8, 2017)

Both of these private universities have organized and created contemporary exhibitions in recent years that aim to connect students with special themes based on interpretation of political and industrial heritage with didactic exhibits carrying an educational purpose. It is interesting that each of these projects was carried out by students in collaboration with their professors. This can be seen as a new era that brings fresh ideas and commences the creation of a new heritage archive, that in the future might turn out to be an important tool for further reflections. What I want to emphasise and recall is the fate of all material collected and displayed in these exhibits. I don't know with certainty where they are archived and preserved and in this phase [I believe that this is the most important part and role of these universities] if they have created the proper environment that ensures documentation and storage to develop and enrich archival collections. Attention is required on how to benefit from the past exhibits in order to collect materials in university collections to support future work. Without this, these new developments will not have a lasting impact and will not form a foundation for future work.

Aleksandër Moisiu University, located in Durrës and established in 2006, is one of the youngest academic institutions. The number of students has been growing and for it to have a viable future, it should create a sense of its own history and legacy. The Tourism Department of the university offers students specific studies that, in my opinion, need to embrace object-based learning, such as the "Management of Archaeological Tourism" and "Management of Cultural Tourism" among others. Other faculties and departments can also benefit from having a material culture archive to support their learning and teaching.

Fig. 5

Exhibition of initiative "

**Trashegimia Ime-Trashegimia per
te Gjithe"**

[My Heritage-Heritage 4All]

a. <https://www.facebook.com/111437802780247/photos/a.113223065935054/220772991846727/?type=3&theater>

b. <https://www.facebook.com/111437802780247/photos/a.113223065935054/220773078513385/?type=3&theater>



a



b

We believe we have the opportunity to create a University Museum, an urgent matter, that has already been proposed and highlighted previously, and which we hope will be taken in consideration soon. In the 21 Century, despite the political transition currently underway, we must not overlook other institutional possibilities and values that can play a constructive role in society. This is truly an important issue that the public and the private universities in Albania have to face.

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Si dërmohej SHBA me karikaturat e Hostenit: <http://alb-spirit.com/2017/06/06/si-dermohej-shba-karikaturat-e-hostenit/> (accessed June 8, 2017)

Veprat Që Ndërtuan Histori” exhibition: <http://www.aqtn.gov.al/index.php?pg=aktiviteti7> (accessed June 8, 2017)

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Keywords

Collection - University - Albania