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Pedagogy Hub (1)

Edited by Alistair Kwan & Andrew Simpson

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UNIVERSITY MUSEUMS AND COLLECTIONS JOURNAL ◀

Thematic Edition — Pedagogy Hub

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Cover image:

A tablet thought to be from southern Mesopotamia, 1800–1600 BC. The obverse shows calculation of a square's diagonal, by multiplying the side length by the square root of 2. The reverse is not so easily legible, but seems to treat two separate problems. This tablet is in the Yale Babylonian Collection, catalogue number YBC 7289. Illustration rendered in Blender by Alistair M. Kwan from a scan by Chelsea Alene Graham (Yale University Institute for the Preservation of Cultural Heritage Digitization Lab) using an Artec Spider scanner. Associated animations show the tablet being rotated under static illumination, and the tablet held still while a light source revolves in front of it.

https://figshare.com/articles/dataset/Mesopotamian_tablet_YBC_7289/6114425

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CONTENTS

1. **Ad lectorem** 90
ALISTAIR KWAN
2. **Training opportunities in museums and collections at the Complutense University of Madrid** 95
ISABEL M. GARCÍA
3. **Educational experiences at the Montané Anthropological Museum of the University of Havana, 2017–2020** 104
JORGE LUIS GÁLVEZ SOLER, ARMANDO RANGEL RIVERO, VANESSA VÁZQUEZ SÁNCHEZ
4. **Thinking about curatorial education through an imagined museum** 113
SELINA HO CHUI-FUN
5. **Successful interfaculty restoration projects for students: saving the plaster cast collection and the botanical models of the ULB museum network** 121
NICOLE GESCHÉ-KONING
6. **Exhibiting art where it is made: educating art museum professionals and curators at the Faculty of Fine Arts, University of Porto** 128
LÚCIA ALMEIDA MATOS
7. **Training as a heritage community: undergraduate internships at the forthcoming Museum of Geography of the University of Padua** 137
CHIARA GALLANTI, GIOVANNI DONADELLI, MAURO VAROTTO
8. **Object-based narratives with Japanese traditional academic artworks at university museums and libraries of agricultural and life sciences** 147
SAYURI TANABASHI | 棚橋沙由理
9. **Coda: ad peritos** 158
ANDREW SIMPSON
11. **Contributors** 161

Ad lectorem

Alistair Kwan

One might well wonder what the journal's editors were thinking when we agreed upon 'A hub of pedagogies' as the theme for this issue, given that we did not know what a hub of pedagogies is. The absence of an obvious definition has not stopped universities from creating hubs of myriad kinds, and it might be fitting to open this issue by exploring what universities have done and are doing, perhaps through a close reading of the documents that university hubs issue, perhaps sociologically by observing these hubs at work, perhaps by reverse-engineering the graphic design behind their logos and structural depictions.

It would be more fitting, however, to give our attention to an object, specifically the Babylonian tablet on this issue's cover. Known formally by its catalogue number YBC 7289, this tablet is understood to be the work of a young child doing a school exercise still familiar today—calculate the diagonal of a square, given that its sides are 30 units long. With some consideration of the diagram and the markings, one can soon identify the 30 along the edge, $\sqrt{2}$ inside, and their product along the diagonal, all in sexagesimal notation. The tablet offers us the shape of a hub (the word's origins, though murky, seems to have meant 'a lump' or 'a bump'); can it also offer us insights into the hub's nature and character?

EDUCATION WITHIN A CULTURAL SYSTEM

We could interpret the tablet top-down: in what culture would a child do mathematical exercises like this, and like the numerous other geometric and algebraic exercises documented on other tablets? Why multiply a length by a square root, or calculate how many baskets of corn would resolve a trader's debt, or solve a quadratic by completing the square? A popular answer today is that we don't need any of that, that mathematical literacy is merely a hazing, or at best a bitter lesson in obedience and focus. Even the heartiest of naysayers, however, depend on other people being able to do these things, and may even see benefits in hazing, namely the propagation of social norms and power structures. More broadly, society overall depends on some common core of mathematical tasks being taught everywhere. Without that commonality of concepts and practices, we would not have interoperability of things like banking and accounting systems, weights and measures, record-keeping processes, or the myriad activities that depend on them—it could be said that weights, measures and calculation techniques, including this tablet, document a six thousand-year journey of international unification. The child who wrote this tablet was not just rehearsing a pointless calculation, but preparing to participate in, and to contribute to maintaining, a world in which calculations and consistency mattered. Setting an agenda so far-reaching entails high-level organisation and, importantly, a profound, long-range cultural purpose, regardless of whether the organisers be naysayers who see mathematics education as a dampener of youthful non-compliance, literati who see it as the doorway of a cultural treasury, or utilitarians who value its practical application.

We thus open this issue with a purpose-oriented case study of the Madrid Complutense, in which Isabel García illustrates how university-level structures can ensure that academics managing collections have opportunities to develop museum practice knowledge, and that students have opportunities for internships and other museum-based learning. García shows how the parts of this system support each other: for instance, the internships address the students' learning needs through projects that the collections need done. We are shown also a profound reciprocity between the collections' well-being and the university's mission: the collections are central to the university's cultural obligations, fitting both the local duties towards heritage and identity, and the Europe-wide duties towards citizens' rights to an education, notably among the elderly.

The positioning of a university administration as a hub between its museums and the outside world is considered also by Jorge Gálvez Soler, Armando Rangel Rivero, and Vanessa Vásquez Sánchez,

who examine the University of Havana's role in the national education system through the learning activities conducted in its Montané Anthropological Museum. On campus, the museum is a hub in itself, providing for undergraduate courses in biology, history, art history. On-line, it provides general public engagement via photography and photogrammetry of the museum's collections. The most special engagement, though, happens in realms that highlight the university's pedagogical involvement with the whole cross-section of Cuban society. The museum participates in primary and secondary curriculum around Havana, so that schools and university complement each other rather than splitting the turf, as we see in most countries, between children and young adults. Out in a rural village, the museum participates in a nascent agro-tourism economy, nurturing environmental and cultural heritage in a region adapting to the loss of its previous main industry.

Selina Ho's case study of Lingnan University theorises a similar dynamic, in this case by considering a university in a complex, resource-constrained urban context. Museum internships are the functional entity, a nexus mechanism for nurturing the relationship between the university and its adjacent civic community. In some ways, the relationship is only natural: the creative and heritage industries connect with the museums, providing students with realistic learning experiences, and providing industry with a conduit to its future members. The complementarity between the physical and spatial resources of the 'outside world' and the abstract and textual resources of the university's 'inside' provide for practical action, and also provide for the more challenging tasks of continually re-imagining what the university's community is, re-imagining the university as its community's museum, and for one of East Asia's few liberal arts universities to re-imagine what it should contribute, indeed what it should be and become, in the unsettled harbour of post-colonial Hong Kong.

Like our Babylonian tablet, these three case studies — Lingnan, Havana, and the Complutense — serve within something much greater, and illustrate how universities can function as pedagogical museum hubs both inwardly to their own microcosms and outwards to their macrocosms. A key, it seems, is willingness to direct their privileged resources towards their cultural, economic and social obligations, aiming strategically for a better long-term future grounded soundly in a long-term past.

AN OBSOLETE INHERITANCE

People often express surprise over the content of tablet YBC 7289, that it is the record of a schoolchild's work, and that they have long since thrown away all such productions from their own schooling, and even from their children's. It would not be an overstatement to say that modern societies keep practically no records of learning: educational archives concentrate on administration, and sometimes a little on teaching, leaving us with some outlines of what was taught, and extensive collections of grades given and degrees conferred. We also have substantial evidence of graduation stunts, menus from law school dinners, political protests, and doggerel by wits who had yet to learn what poetry is. A future archaeologist uncovering our ruined universities might search in vain for what we and our students actually studied and, if we studied at all, what we learnt. There is nothing uniquely modern or western about this; the Babylonians are special on this front largely because their children's learning artefacts, unlike ours, neither compost nor burn. We hence find them in trash-heaps and construction infill, separate from the archives and libraries distinguished by their meticulous organisation. Mathematical exercise tablets, like most material outputs of children's learning processes, are obsolete almost as soon as they are created.

The obsolete and discarded feature strongly in university museums, though *spolia academica* are more typically left by teachers than learners. This is the origin of numerous collections of science education apparatuses in particular, sometime do-it-yourself glories of mahogany, brass and glass, now largely succeeded by do-it-for-you glories of plastic and silicon and flashing lights. Yet new life appears when 'old' becomes 'historical', and when 'damage' becomes 'conservation status'. The nineteenth-century botanical models in Brussels provide a clear example for Nicole Gesché, who delineates their new role in the education and training of future museum professionals. The conservation pedagogy is set within a university-level hub that brings together all of the university's collections, unifying the scattered autonomy typical of university collection formation via a structural concordance to connect the disciplinary epistemologies and institutional structures of the past with those of the present day. The Brussels collection is also distinguished by not being entirely about the past: the Brendel botanical models still need to be handled and interpreted by botany students, adding a complexity of purpose that provides conservation students with opportunities that would not occur in a purely history-oriented collection.

Collection formation and use are also central to Lúcia Almeida Matos's study of the art collections at Porto. These collections originated, like many art collections, in the need for exemplars. Copies and casts were collected, providing students and their teachers with representations of works that they could not conveniently visit. In contrast to many collections, however, this collection is not a primer or substitute for the Grand Tour, nor a substitute for originals: as the art conservatory has grown up over the centuries, its collection has grown up with it by acquiring works produced by its teachers and graduates. The collection may thus be seen as a record of the institution's own history but, more interestingly, Matos shows its liveliness: rather than memorialising static traces of the past, the collection actively dialogues in the present, both gaining and informing new meaning through its participation in the creation of new works and exhibits. As a pedagogical hub, it connects perspectives, sources and techniques across time, in contrast against our more usual tendency to structure hubs across spatial or administrative divisions. The collection is also the very essence of the institution: without its collection, its era-spanning pedagogy could not happen, and the Porto Faculty of Fine Art, as Matos shows us, simply could not exist.

Obsolescence, then, may be partial, and by choice. While we no longer do mathematics on clay, we still multiply side lengths by $\sqrt{2}$, and our learners still use clay, and in fact numerous new kinds of clay, as a sculpting medium. We hence remain in unwitting dialogue with the past by going through similar motions even if our new curricula pay no attention to their origins. What we have lost here is not the tablet's mathematical content so much as its hub-ness: like the artworks at Porto and the flower models at Brussels, the Babylonian tablet connects us into cultures and systems that extend millennia into the past, and that continue to reach out into the future.

WHAT LEARNERS DO

Looking closely at our tablet reveals both the wedges of Mesopotamian script, and also the lines of the square and its diagonals. The hub-like shape is just right for the learner to hold in one hand—hence the rough 'back' side versus the smoothed-off 'front'—while holding a writing-stylus in the other. We can deduce from overlaps and alignments that the lines were cut first, before the numerals were written to fit, and moreover that they were incised rather than impressed: their profile and edges betray the dragging of the tool through the combined plasticity and elasticity that make wet clay tricky to engrave. We can see, from the clumsily executed vertices, both the low level of precision expected (much as with mathematics and physics students' diagrams today), and something of the order in which the lines were laid down. We see inconsistent depths, angles and misalignments in the cunei, a necessary phase towards achieving the crisp rhythms and balance achieved by master scribes. Rarely, in the history of education, do we look this closely at what learners do. Our next two essays take us, however, in that direction, revealing from close reading how hub-ness manifests in the students' direct experience.

Chiara Gallanti, Giovanni Donadelli, Mauro Varotto examine the intern experience at Padova, in the uncommon setting of establishing a new university museum. Content-wise, we find complementarity between the lecture courses and the internship, and some natural dovetailings such as learning cataloguing by actually doing it, versus the struggle of finding relevance and consequence in the theory of controlled vocabularies, taxonomies and encodings. In terms of work environment, there are interesting dilemmas around resource availability, and connectivity with the working community under not only the usual constraints on space and equipment, but also under public health measures. The interns' experience is drawn out via a written survey, conducted a year later, analysing the range of learning, practicalities and emotions during the internship itself, and the subsequent development of relevance and further insights as the interns extended their experience into the 'real' world.

Sayuri Tanabashi focusses on a particular object-based learning experience in which students interpreted a set of nishiki-e woodcut prints at the Tōkyō University of Agriculture and Technology. The collections here serve as a hub between disciplines, bringing together students from across the university for collaborative, multidisciplinary interpretation and exhibition. The re-unification of knowledge under the STEAM framework dovetails naturally with the selected nishiki-e, a set that explains, in illustrations with Classical Japanese commentary, the step-by-step processing of silk from silkworm through to finished textile. Agriculture and technology meld naturally with art, language, history and culture.

The students revealed that objects were not only a hub between the branches of knowledge, but, importantly, a hub between people. In the classroom context, the objects had students building

connections across disciplines, bridging between ways of knowing, of thinking, of doing, of perceiving, of valuing. In the exhibition context, the objects were the hub for connecting with a public, or at least an imagined public, characterised by a range of intentions, desires and backgrounds, and who do not simply read the entirety of every panel. The objects also became a hub connecting present and future, interpreted as representing an episode or era in sericulture's continuing advancement.

These two essays are important not only for what they reveal, but also in how they do it. The close reading of long-form survey responses and students' reflections, in this case without Likert-like 'satisfaction' metrics, offers a valuable example of the scholarship of teaching and learning (SoTL). Both Tanabashi and Gallanti et al. apply the students' feedback to the overall problem of course design and its superset, the overall university curriculum. They show us the importance of recent graduates as informants on early career needs, as a complement to voices from those further ahead in the industry. They show us the challenges that students face on-site in everyday activity, and the opportunity to translate inconveniences into pedagogical experiences, perhaps even the opportunity to pre-arrange inconveniences as Rousseau champions in *Emile*¹.

The key to all this is method. Tanabashi, for instance, mentions the need to draw on psychology to find out what students are learning; more broadly, the SoTL approach serves as a hub to connect the learning environment and its activities to educational theory and practice, and thus to establish a research-supported rationale and discourse for improving things locally within the course, and for extending and generalising those findings, values and outcomes to marshal our museums and collections into joint effect throughout the entire university. That move also, as Ho and Soler et al. considered earlier in this issue, clothes our work for worthwhile purpose beyond the university.

The standard scholarly approach might seem contrary to our value of objects and art, but it is essential. Our museums and collections are already widely heard; what they need is to be listened to. For that to happen, they need to be heard in language that makes immediate sense, that trades in the same currency, in the same weights and measures as used elsewhere in our institutions' curricular cultures. The stakes are broader than neo-liberal university discourse is used to: not only are we talking here about increasing the productivity and worth of learning and teaching as we conventionally understand them, but also at reaching outwards to the kinds of learning and teaching, and the kinds of knowledge and understanding, that modern universities systematically neglect. This includes knowledge transmitted by oral rather than written culture, by hands-on tactile and haptic sensation, by sights and smells and insights that defy words. It includes knowledge from systems that colonialism and imperialism diminish through their preference for words written in the singular lingua franca authorised by the gatekeepers of books and journals and the assessors of exams.

We may be looking, then, at a multiplicity of hubs that all overlap, or a hub that connects across multiple dimensions, via multiple kinds of connection. I cannot picture it—a sinolus sinolorum, a six- or seven-dimensional neural network, a cloud of comets traversing the Cartesian vortex-universe? It seems to be all of these, depending on how we look at it. We can hardly advance the idea to others, though, if we cannot yet state it for ourselves. Perhaps, though, we have a special advantage: our art, our specimens, our artefacts. Through this introduction, I had hoped to explore, and for a while held the illusion that I might successfully illustrate, how a single object might somehow bring forth and unify the many themes, perspectives, and value systems in these essays. My effort achieves less than I had hoped but, rather than delete it, I send it to press hoping that someone might be inspired or provoked into writing something better. Like the ancient schoolchild hashing out yet another routine problem in arithmetic and geometry, we must direct our actions into the surrounding system, understanding that our imperfect handwriting and crooked corners are but a step on the journey to a fuller manifestation. Like the ancient schoolchild, we have pre-existing knowledge to learn, disciplines to borrow from—in the case of this special UMAC-J issue, educational psychology and theory, and anthropology and sociology, on top of the specialisations associated with our objects—and, in doing that, we have an opportunity to re-introduce the humanities and the fullness of cultural value systems to an education industry that has largely abandoned literacy, routinely screws up even the routine statistical methods by which it pleasures its

1. For example the forest walk in which Rousseau (*Émile, ou de l'éducation*, Jean Néaulme, La Haye, 1762, t. 2, pp. 63–68) feigns being lost shortly before lunch, so that his hungry twelve year-old student is intrinsically motivated to figure out how to read the environment for natural cues to help find the nearest village.

neo-liberal masters, and concludes studies with comically self-deprecating litanies that show no concern with problems bigger than “get something published” or some version of “I still don’t know, so further research is warranted”. As this collection of essays shows, there are important things for university museums and collections—as hubs—to contribute to the scholarship of teaching and learning, and to the steering of our universities into exercising their sociocultural, epistemic and economic privileges more critically, more wisely, more ethically, more influentially over the coming century of widely anticipated struggle.

Training opportunities in Museums and collections at the Complutense University of Madrid

Isabel M. García

Abstract

The Complutense University of Madrid (UCM) pursues integrated management of its heritage using its own resources and collaboration with external entities. As the largest on-site university in Spain, it marshals a significant human potential directly involved with heritage. There are a considerable number of lecturers teaching or researching various aspects of cultural and scientific heritage, a smaller number of technicians working in this field, and a large number of students interested in it. The size of the institution implies a great deal of autonomy at its centres and therefore a dispersion of knowledge and capacities, but also the availability of valuable training opportunities at many levels. The main issue, then, is to achieve sound coordination and come up with a global strategy that might serve all Complutense museums and collections.

Isabel M. García

The characteristics of university museums reveal common problems, which focus mainly on a lack of space, money and staff. Specifically, the absence of specialised personnel is a major concern but, at the same time, it is one of the greatest university paradoxes. Most universities offer undergraduate and postgraduate programmes related to heritage, with these courses having internships which normally take place in other institutions off campus. This is the case at the Complutense University of Madrid, which has led to serious reflection from the Vice-Rector's Office for Culture, Sports and University Extension responsible for heritage by delegation of the Rector.

ESTABLISHING THE CONTEXT

The university currently has thirty museums and collections spread across the numerous faculties and departments in several campuses. These collections continue to grow, indicating high interest in heritage, which is certainly a strong and healthy indicator. As we can imagine, the numbers of objects and specimens in the collections are overwhelming, as is the associated work, but the possibilities are multifold.

The oldest collections come from institutions created in the 18th and 19th centuries by the monarchy. Thus, we find artistic collections transferred from the Royal Academy of Fine Arts of San Fernando for the teaching of the different arts, passing through the collections that formed part of the Museum of the Royal College of Surgery of San Carlos whose funds have given rise to the historical-artistic collection and the Museum of Anatomy, respectively. The other museum collections come from the teaching and research activity carried out in the centres where their collections are located, from the 1940s onwards. At that time, the University City Campus was rebuilt after suffering great damage during the Spanish Civil War (1936–1939); however, most of the collections were created from the 1970s onwards, demonstrating the breadth of disciplines in the academic programmes. These are: the Complutense Veterinary Museum, Archaeology and Ethnology of America Museum, Comparative Anatomy of Vertebrates Museum, Astronomy and Geodesy Museum, Geology Museum, Historical Drugs Collection, Children's Art Educational Museum, Geosciences Faculty Mineralogy Collection, Palaeontology Collections, and Scientific–Technical Heritage Collection.

A significant number of holdings are due to the initiative of outstanding professors or researchers who managed to gather initial material heritage related to their field of knowledge or interest that gave rise to later museums or collections. Among these are: Hispanic Pharmacy Museum (this is the most outstanding museum of the University, created by Rafael Folch Andreu and his son, both professors of Pharmacy), Professor Reverte Coma Medical Anthropology, Forensic Medicine, Paleopathology and Forensics Museum, Luis de la Macorra Dentistry Museum, García-Santesmases Information Technology Museum, Gómez Pamo Plant Histology Collection, José María Prieto Collection (oriental culture), Luis Simarro Legacy (art collection).

There are very specific collections used mainly for teaching purposes such as the Pharmacy Faculty Mineralogy Collection, Classical Models and Mural Prints for the Teaching of Botany, Numismatics Collection. There are also collections with a distinct research purpose such as the Pharmacy Faculty Herbarium, Entomology Collection and Biological Sciences Faculty Herbarium.

The most recent additions are the Optics Museum, the Education Museum (recently created by the integration of two collections and one museum), the Petrology Lithotheque Collection and the Juan Negrín Physiology Operating Room Collection. The latter collection is very interesting for its association with certain controversy: Juan Negrín was president of the Second Spanish Republic (1937–1939), so it is natural to find defenders and detractors of his policies. He was also a scientist, an outstanding physiologist who managed to create one of the most advanced laboratories of his time. The collection is located in the Faculty of Medicine, so the aim is to highlight, above all, his contributions in his field of research.

Given the great breadth and diversity of the heritage evidenced in the large number of collections and museums, coordinating resources is a key factor; these must be gradually built up and consolidated, and for this purpose there is an overall strategy that seeks to serve all museums and collections, as well as their users.

A fundamental step was taken on 29 September 2020 with the approval of the new Museums and Collections Management Policy: Regulation on the Historical-Artistic and Scientific-Technical Cultural

Heritage of the Complutense University of Madrid / Reglamento del Patrimonio Cultural Histórico-Artístico y Científico-Técnico de la Universidad Complutense de Madrid, which will regulate the principles of management of the historical–artistic and scientific–technical cultural heritage of the Complutense University of Madrid including the competent bodies to exercise this. This document is a consequence of the development of Article 3.2 of the current Articles of Association of UCM (2017) in the following sections:

- c) The dissemination, appreciation and transfer of knowledge in the service of culture, quality of life and economic development.
- d) The dissemination of knowledge and culture through university extension and continuous training.
- f) The cultural and scientific promotion of the university community, to enhance its capacity to anticipate social, ideological, cultural, scientific and technological changes.

Article 11 of the new Regulation contains the definition of the tangible and intangible heritage and the purposes and functions of the university museums and collections:

- a) The conservation and dissemination of its historical, artistic and scientific-technical heritage.
- b) Excellence in teaching and research activity.
- c) The progress of scientific knowledge.
- d) Better training of UCM students.
- e) The dissemination of knowledge for the university community and the public in general, in an accessible and inclusive manner.

In addition, the regulations establish the forms of access to the heritage, which, in the case of all university museums, is determined for three purposes: research, teaching and dissemination.

The UCM is committed to carrying out the aforementioned functions and aims to do so in the most efficient way possible, for which it counts on three management bodies as outlined below:

The Historical Heritage Committee is the collegiate body, with management, planning, supervisory and administrative functions of the historical–artistic and scientific–technical cultural heritage of UCM, set up by the competent Vice-Rectorate with jurisdiction for culture, which is chaired by all the directors or heads of the university museums and collections and the person who performs the role of the head of the Historical Heritage Management Unit.

The Delegate Sub-committee for Historical Heritage is a delegate management body that exercises the functions entrusted to it by the Historical Heritage Committee. It is represented by four members chosen from among the Directors or heads of the university museums and collections that sit on the Historical Heritage Committee, and who represent the rest.

The Historical Heritage Management Unit (HHMU), under the academic management of the competent Vice-Rectorate with jurisdiction for culture, is responsible for coordinating the different centres, services and structures where the assets that form part of the historical–artistic and scientific–technical cultural heritage of UCM are located, as contained in the inventory, for the purpose of guaranteeing the protection and conservation of this heritage (fig. 1).

This Unit carries out the technical and administrative activities related to the management of the tangible and intangible assets. For these functions, the Unit relies on only two technicians, one staff assistant and four training fellows.

In addition to the Unit, those responsible for heritage are the Directors of Museums and Collections, who are university lecturers (specialists in their scientific field but not trained in museology or museography), some with a support technician, and only one with a staff curator. The staffing is clearly insufficient, but the level of training capacity is high.

As we shall see, the existence of these governance structures facilitate the opportunities for pedagogy, especially because, at the first level, we find the directors of Museums and collections who are in charge of supervising student placements. The Regulation establishes the procedures and responsibilities of each management body.



Fig. 1. UCM Museums and collections staff working on the recovery of flood-damaged collections. Image: Isabel M. García

TRAINING PROGRAMMES

The UCM is committed to training programmes that adapt to the needs and resources of the institution.

Internships

Through the Gestión Integral de Prácticas Externas Integral/ Management of External Internships Programme (GIPE), the UCM offers students the possibility of internships from the university itself and from other universities. According to its website, “The objective of external academic internships is to contribute to the comprehensive training of students. To achieve this, a training programme appropriate to the student’s degree will be established for each internship period, which will be developed under the supervision and monitoring of the entity and academic tutors. This programme will define the activities to be carried out, as well as the conditions and the competences and skills to be developed”¹. These internships are not paid.

The Vice-rectorate with jurisdiction for culture can manage internships in its museums and collections. The process is the following: the Historical Heritage Management Unit contacts the directors during the first semester to find out their needs, the number of students they could accept and the tasks to be carried out in order to propose the training programme. The HHMU uploads this information to the application developed within the GIPE programme. Once the information is available, interested students register for the programme to consult the offer and upload their resume to apply. The directors of the museums and collections check the demand and select the most suitable candidates.

In the first phase, three priority actions were proposed:

Incorporate students in Master’s internships and develop projects of interest for the university’s heritage.

The Historical Heritage Management Unit has the capacity to train interns primarily from postgraduate programmes. There are several Masters’ Programs closely related to the UCM museums and collections:

- Conservation of Cultural Heritage
- Artistic Education in Social and Cultural Institutions
- Cultural Heritage in the 21st Century: Management and Research (organised in jointly with Polytechnic University of Madrid)
- Advanced Studies of Museums and Historical-Artistic Heritage
- Historical Written Heritage
- Audiovisual Heritage. History, Recovery and Management
- American History and Anthropology
- Photographic documentation. Recovery, treatment and dissemination
- Design

Annual activity reports of the museum and collections help the Vice-rectorate to evaluate needs and prioritise actions. We give priority to three areas, which are ready to incorporate training for students:

- a) Inventory. In general, the inventories are not complete, and some groups are behind our expectations, needing to reinforce registration, inventory and cataloguing or, in other cases, transfer the information to more accessible databases.
- b) Conservation. The focus is on preventive conservation. At present, the main concern lies in the design and implementation of plans adapted to the museums and collections, as well as the development of protocols for the use and conservation of the objects and specimens.
- c) Access. All museums and collections are open, although not all are accessible to the public

1. <https://www.ucm.es/ope/informacion-para-estudiantes> (accessed November 29, 2021)

(especially in collections where restrictions apply). In recent years, there has been an increase in the number of visitors from inside and outside the university, which has raised the awareness of the need for more staff to guide visits. In some cases, volunteers take on this assignment, but the university intends to engage students, who will provide new visions and proposals for activities.

These three areas were chosen for the following reasons: in the first case, inventory, it is our commitment to know the totality of the assets that are part of our heritage, in order to be able to use them for teaching, research or dissemination. Only half of the collections have completed their inventory, therefore there is a peremptory need to assist in the process. On the other hand, there must be a balance between the use and conservation of heritage collections, i.e. safe access for all users, following not only basic security standards, but also procedures based on preventive conservation, which also deals with preventing deterioration in exhibition and storage. This is a challenge in the university context, where there is generally no space suitable for such use. Finally, the need to bring heritage closer to different types of audiences has made it necessary to design specific dissemination activities.

PROGRAMME DEVELOPMENT

The work to be carried out by students in museums and collections is very diverse, depending on where it takes place.

Historical Heritage Management Unit

For the first time in the 2019–2020 academic year, the Unit incorporated students from the Master's Degree in Conservation of Cultural Heritage for their practical training in collections at the Complutense University. Students were also working on their Master's Degree Final Report.

This internship programme included other university resources that allowed for a transversal vision of heritage conservation. In this way, it has been possible to work with research institutes that carry out projects in this field: the IGEO Geosciences Institute jointly developed the plan for monitoring environmental conditions in one of the museums of the Faculty of Medicine: the Museum of Medical Anatomy, Forensics, Criminalistics and Paleopathology. Due to the pandemic situation, the internship offer was discontinued although it is scheduled to be resumed in the academic year 2021 – 2022.

In the second semester of the 2020 – 2021 academic year, Master's students joined the following museums and collections: Children's Art Museum, Hispanic Pharmacy Museum, Anatomy Museum, Optics Museum, Ethnobotany Collection and Mineralogy Collection.

Hispanic Pharmacy Museum

One student from the Advanced Studies of Museums and Historical-Artistic Heritage Master's programme completed her 450-hour internship. For internships in this Master's degree course, the aim is for the student to get to know the museum from the ground up, where practical work is essential. It is structured on specific tasks which include updating of the registration book, inventory of industrially manufactured medicines and scientific instruments, photography of objects and scientific instruments, photographing of exhibits, labelling of objects, as well as maintenance support (cleaning), labelling and sorting of the Museum's library books, filing and identification of documents.

Optics Museum and Ethnobotany Collection

Two students from the Master's degree in Design carried out work focused on the design of new exhibition materials: posters, labels, museum and collection website for the permanent exhibition as well as proposals for temporary exhibitions.

Mineralogy Collection

The main activities for one student from the Conservation of Cultural Heritage Master's programme included the reordering of materials in exhibition and storage and the documentation of objects and specimens.

Children's Art Museum

It was anticipated that four students from the Master's degree programme in Artistic Education at Social and Cultural Institutions would join together to work on a proposal of activities for the dissemination of the collections to different types of target audiences at the Children's Art Educational Museum. There were no enrolments this year; hopefully next year the offer will be maintained or expanded.

Overall, last year's situation was not conducive to face-to-face classes and internships. However, for the 2021–2022 academic year, 15 to 20 students are expected to join. December, at the end of first semester classes for the academic year, is the deadline for applications from directors who want to take on interns.

In addition to the internships managed by the Vice-Rectorate, several museums have accepted students on internships in their academic programmes, including the Archaeology and Ethnology of America and Comparative Anatomy of Vertebrates Museums. We have no official information on the tasks performed, although unofficially we know that the students helped with inventory, documentation, and organisation of the collections.

Regarding research access to heritage collections for completing final projects for degrees related to heritage: in the last semester, approximately fifteen students joined different museums to carry out theoretical–practical research. Examples include:

Entomology Collection

- A study of the research uses of the Entomological Collections.
- Distribution of the family Membracidae in the Iberian Peninsula.

Complutense Veterinary Museum

- Object-focused research on Cesáreo Fernández Losada's set of 19th century porcelain anatomical models.

Also, PhD research was conducted on the eleven scrolls in the José María Prieto collection that deal with the legendary monk known as Bodhidharma.

2. Fellowships for specialised practical training

The Vice-rectorate of Culture offers four Specialised Practical Training Grants. According to the Regulations of the Practical Training Grants of the Complutense University of Madrid approved by Agreement of the Governing Council on 28 November 2017 (art. 1), "The practical training grants consist of financial aid for students or, where appropriate, postgraduates, who wish to complement their learning by carrying out tasks involving collaboration and support for activities at the Complutense University of Madrid, in accordance with the conditions and profiles established in each call for applications. The fellows will receive financial support in addition to their collaboration at UCM".

Last year four fellows from the HHMU in conservation, restoration and heritage management, as well as in historical–artistic and scientific–technical communication and dissemination of the UCM, joined the programme.

The scholarship holders are required to collaborate in the development of the activities of the Historical Heritage Management Unit and in those related to the conservation, restoration and management of the heritage and spaces of the Museums and Collections of the UCM. These functions consisted mainly of supporting the conservation of artworks in the Historical–Artistic and Scientific–Technical Heritage of the Complutense, and supporting the management of preventive conservation of collections and spaces of the Complutense Heritage.

To date, preventive conservation actions have been carried out including climate monitoring in five museums and collections, as well as assistance in three emergencies caused by floods due to various events, one as a result of heavy snowfall and one from a burst water pipe. This led to the introduction of disaster prevention measures and the reorganisation and upgrading of equipment.

Art conservation support was also provided for the temporary exhibitions of the Complutense Art Centre (Centro de Arte Complutense). To date, fifteen pieces have been restored, specifically papier-mâché anatomical models made by the 19th century French physician, Dr. Louis Auzoux. Twelve of them were part of a joint exhibition organized by the University of Lille. (fig. 2).

Coordination support was provided for temporary exhibitions, supervising the handling, transfer and assembly of pieces of the Complutense heritage in internal or external exhibitions. These tasks were carried out for the exhibition, *The Divine Comedy: Inspiration and Reason*, which commemorated the 700th anniversary of the death of the great Italian poet Dante Alighieri (30 September to 12 December, 2021) (fig. 3).

Cross-checking, inventory and cataloguing of the historical–artistic and scientific–technical heritage of the Complutense University has been extensive. To date, almost 6,500 works of art have collated and



Fig. 2. Fellows participating in the restoration of the UCM anatomical models made by Dr. Auzoux. Image: Isabel M. García



Fig. 3. Fellows participating in the coordination of the temporary exhibition *The Divine Comedy: Inspiration and Reason*. Image: Isabel M. García

classified. For this work, several categories, such as historic and artistic significance, use in teaching and research and relevance to the university history, have been established according to the importance of the works, that help to prioritise actions.

Scholars have assisted with photography and image management of the Historical Heritage of the University. More than 50 requests have been managed to date.

Collaboration in the management of the dissemination, website and social networks of the Heritage Management Unit and the Complutense Art Centre is an ongoing project.

Collaboration in the production of audiovisual and digital graphic design. Elaboration of audiovisual capsules for the communication of activities is also an ongoing project.

TRAINING FOR DIRECTORS AND TECHNICIANS RESPONSIBLE FOR MUSEUMS AND COLLECTIONS

The need for more specialised training for the management and conservation of collections led to the organisation of a practical training course whose programme included risk assessment and the drafting of a preventive conservation plan. This course on Preventive Conservation in Museums and Collections UCM was organised jointly with the Spanish Conservation Institute of Cultural Heritage, which is under the auspices of the Ministry of Culture and Sports. The aim was to train museum and UCM collections staff in the concepts, working methods and management criteria for the conservation of cultural property. The intention was also to show the methodological model developed by the Spanish Cultural Heritage Institute (IPCE), articulated around the Preventive Conservation Plan (PCP) as a management tool, which in turn is based on the management and risk assessment scheme proposed in the ISO-31000 standard. The course consisted of several theory sessions held online and a collaborative practical part with the goal of elaborating a Preventive Conservation Plan adapted to a UCM collection as a model for its implementation in other museums and collections. The course was open to directors and staff of Complutense museums and collections. Fourteen participants attended the course.

The course consisted of three modules:

MODULE 1

Preventive conservation plan: concept, phases of elaboration and result. Overview.

- a) Establishing the context of university museums: Functional analysis of the institution.
 - Analysis of the environment.
 - Analysis of the cultural property.

MODULE 2

a) Significance of academic collections and risk management:

- Significance. Assessment of the value of heritage collections. Proposed procedure.

b) Risk analysis: identification, assessment:

- Prioritisation, proposals for emergency interventions and proposals for compatible use.

MODULE 3

a) Treatment of risks associated with scientific heritage:

- Design of procedures and protocols. Implementation.
- Verification. Reviews and continuous improvement process.

The on-site practical part applied the concepts developed in the theoretical part, integrating the results of the methodology provided in the different modules into a document that was implemented in the Museum of Comparative Vertebrate Anatomy of the Complutense University of Madrid (fig. 4).

At the same time, we are drafting a guide for the management and conservation of university collections, due for publication in late 2022, on the understanding that they require a different approach from that found in other contexts. This is a practical guide which will help those responsible for museums and collections to detect problems and take decisions to mitigate the deterioration that threatens heritage. It highlights three aspects: the importance of context, the delicate balance between use and conservation, and the need for guidelines for action and decision-making.

The title is *Museums and University Collections. A guide to their management, use and conservation*. An introductory chapter will be followed by a discussion of the organisational environment: a definition of museums and university collections and their management. It will include a discussion of human factors, such as the identification of persons involved with the heritage and their degree of involvement. Information about collections will include coverage of the uniqueness and diversity of museums and university collections, with Complutense University examples of where collections are located, how we describe and work with them, and their value. Other parts of the book will consider the context of preventative conservation, risk analysis, identification, assessment and prioritisation. There will also be practical advice on proposing measures to deal with risks, and drawing up and implementing protocols.

The guide is both simple and intuitive, and serves as a support for museum directors and technicians, but it will be available to anyone who has a relationship with university heritage.



Fig. 4. Participants in the preventive conservation course for directors and technicians of university museums and collections. Image: Iñigo Larrauri

OTHER PROPOSALS

Another of UCM's upcoming programmes intends to promote the participation of the elderly in university museums. The University for the Elderly has a large number of students. In its specialisation programme, the students are graduates in different degrees who, after reaching retirement age, decide to continue their education. This programme offers an interesting range of monographic courses on different subjects. A first course on university museums was proposed and was very well received. The main idea was to arouse curiosity and attraction for these museums with the intention of engaging volunteers to work in three of them².

The course, 'The contemporary Museum and the University Museum: Its Role in Today's Society', presented the concept of a museum, its origin and development. It introduced the world of university museums in general and focused on those of the Complutense University. In order to get to know their reality, a visit to three museums was included: Comparative Anatomy of Vertebrates Museum, Hispanic Pharmacy Museum and Professor Reverte Coma Medical Anthropology and Forensic Medicine, Paleopathology and Forensics Museum (fig. 5).

It is important to remember that the European Higher Education Area recognises the right to university education for older people throughout their lives. At the UCM, we see their incorporation as very beneficial, and try to integrate them through programmes that put them in direct contact with community and university life. These programmes are known to have a very positive impact on their health and well-being. The teaching in these programmes is predominantly theoretical, so we are committed to introducing a practical side. After several reports have shown that museums are very beneficial for health

2. 2545 students enrolled in the 2019–2020 academic year

(DESMARAIS 2018, CHATTERJEE 2019), the university decided to introduce practical activities focused on its collections. This is a pilot project that we hope will become stable, for which we have created another tool, the Association of Friends of Museums and Collections of the UCM, which will provide invaluable volunteer assistance to its museums and collections.

CONCLUSIONS

Universities, as high-level educational institutions, have the capacity to develop the various functions of teaching and research that are proper to them, and possess a large number of resources for these purposes. The university also has a third mission, which is cultural, and which incorporates academic heritage. Universities with a great heritage have the potential to use their own resources and establish collaboration with other institutions in order to train professionals in this field. The UCM has required the drafting and approval of a regulation, as well as coordination between the different programmes related to heritage and the museums and collections, so that the institution begins to see valuable results by developing a training programme that adapts to its needs and resources.



Fig. 5. Visit of the students of the University for the Elderly of the Complutense University to the Comparative Anatomy of Vertebrates Museum. Image: Isabel M. García

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CONTACT

Isabel M. García, Vice-Rector for Culture, Sports and University Extension of the Complutense University of Madrid.

Address: Complutense University of Madrid, Pabellón de Gobierno, Isaac Peral, s/n, Madrid, 28015, Spain

Email: museoig@ucm.es <https://www.ucm.es/cultura/>

KEYWORDS

Training, University Museums, Lifelong learning

Educational experiences at the Montané Anthropological Museum of the University of Havana, 2017–2020

Jorge Luis Gálvez Soler, Armando Rangel Rivero, Vanessa Vázquez Sánchez

Abstract

The Montané Anthropological Museum, of the University of Havana, School of Biology, is the anthropological and archaeological exhibition institution with the longest tradition in Cuba. This paper describes the education experiences at the museum, at different levels of teaching. The institution is visited by students, mainly to expand their knowledge of national history. In order to motivate new generations, the museum participates on social networks, and has begun to incorporate the use of new technologies including the digitization of objects, including three-dimensional modelling with photogrammetry. The museum has accommodated teaching in various university and college majors that Cuban and foreign students take. Its collection has featured in four Bachelor's theses in Art History and Design in the last four years. The Montané Anthropological Museum also collaborates with a rural community, and specialists plan to implement an ecomuseum about industrial heritage.

Jorge Luis Gálvez Soler, Armando Rangel Rivero, Vanessa Vázquez Sánchez

At the University of Havana (UH) there are four museums: the Juan M. Dihigo Museum of Classical Archaeology, of the School of Arts and Letters, the Fragua Martiana Museum dedicated to the National Hero José Martí and which is subordinate to the Directorate of Cultural Heritage of UH, and two museums belonging to the School of Biology, the Felipe Poey Natural History Museum and the Montané Anthropological Museum. The Montané Anthropological Museum was founded as the University Anthropological Museum in November 1899. On June 29, 1903, the rector approved its renaming as the Montané Anthropological Museum in honour of Luis Montané y Dardé, founder of Physical Anthropology in Cuba. It is the longest-established archaeological and anthropological exhibition museum on the island. Its functions include teaching, research, and conservation of its collections, and university outreach with communities. It has the ‘number one’ category granted by the Ministry of Culture of Cuba to institutions with scientific, artistic and historical values of important national relevance, since many of its pieces are unique in the Caribbean and in the world (RANGEL 2019).

In December 2019, the museum was reopened after a year and a half of closure due to a general restoration of the site. The general restoration of the museum building included painting, carpentry, electrical and masonry work. Regarding the museography, the showcases were redistributed by thematic areas, with the exhibition of new pieces. In relation to teaching, a classroom space was dedicated for undergraduate and graduate lectures. The assembly of the area related to human evolution was updated, which is used in the university’s Biological Anthropology teaching. For teaching the History of Cuba, new maps containing the main archaeological sites of the country were located. A space was dedicated to Mesoamerican pre-hispanic art, used in Art History classes. The museum included new pieces in showcases such as textiles belonging to various Mesoamerican cultures, Neotaíno art vessels, and ancient and modern instruments that were used by teachers and researchers. A photographic exhibition, “Faces of Cuba” was donated by the artist Chip Cooper from the University of Alabama (USA), shows the diversity of the Cuban population.

The institution is visited by Cuban elementary, middle school and high school pupils to expand their knowledge of the Cuba’s history. Professionals from areas related to cultural heritage, archaeology and anthropology, and the general public, also attend. The goal of this paper is to describe the educational experiences at the museum, at different levels of teaching.



Fig. 1. Current view of Montané Anthropological Museum

EDUCATION AT THE MUSEUM

Educational experiences with elementary and middle school students:

Two groups that museum professionals dedicate their time to are children and adolescents. Visits are coordinated with nearby schools so their teachers can exemplify what they teach in History of Cuba classes, in relation to the aboriginal cultures that inhabited the island. Fifth- and sixth-grade students appreciate the different objects that the aborigines used, and they learn words of Arawak origin such as names of fruits, other foods and the current provinces. On the other hand, middle school students studying biology visit to engage with exhibitions on the origin and evolution of man and human diversity.

In general Cuba’s universities carry out outreach and contribute to elementary-, middle- and high-school education of nearby schools. At the Montané Anthropological Museum, schoolchildren of the Plaza de la Revolución municipality, where the University of Havana is located, are the main beneficiaries. According to each school level, ideas about aboriginal cultures are explained. When students are at the elementary level, specifically in the fifth grade, they receive their first lessons on the History of Cuba, and they listen to a detailed explanation about the aboriginals of Cuba who are concentrated or classified into two groups: the fishermen–gatherers–hunters, and the agroceramists (taínos), according to their development. As pupils progress through the school grades, the explanation becomes more complex, taking into account the aboriginals’ ability to build houses and boats and navigate, cultivate and harvest, produce food, their knowledge of medicine and the influence of the

Arawak language.

The *Illustrated Encyclopaedia* and the Saúl Delgado High School:

In 2010, the Presidency of the Republic proposed an *Illustrated Encyclopaedia* comprising 1000 questions and 1000 answers on four fundamental topics: Universe, Life, Inventions and Society. Volume Two, dedicated to Life, was assigned to the coordination of the Director of the Montané Anthropological Museum, and various researchers and professors from all over the country would participate. In particular, those from the School of Biology answered the greatest number of questions.

Although the *Encyclopaedia* is not part of Cuba's teaching curriculum, it is important to recognize the museum's involvement in coordinating the Life volume, and the several meetings that the museum hosted for the authors to prepare the texts.

Once the encyclopaedia work was completed, a vocational guidance project was started in 2017 at the Saúl Delgado High School in Plaza de la Revolución municipality. The plan consisted in offering various lectures to the students and professors of the aforementioned high school and organizing visits to the University of Havana. One of the institutions that received students was the Montané Anthropological Museum. In their exchange with professors and specialists, the students were able to learn about human evolution, the aboriginal cultures of Cuba and archaeological pieces from the Caribbean and America, in addition to understanding the process of cultural fusion through which the Cuban population has passed in the last 500 years.

In the case of the University of Havana, traditionally joint activities have been carried out to support middle-education teaching in nearby schools. Recent years have seen increases in the number of university professors and students hired to teach classes in middle school in different municipalities, in a project called Educating for Love.

Science festivals at the University of Havana, social networks, and the use of new technologies in the museum:

For several years, a science festival has been organized at the University of Havana, with the aim of motivating schoolchildren of different ages in various scientific disciplines. These festivals include a museum visit for children and adolescents, who watch different documentaries on archaeological and anthropological themes. An anthropometric evaluation of their nutritional status is also carried out, their weight and height are measured with different instruments, and the result is shared with their relatives.

On January 5, 2020, in commemoration of the 292nd anniversary of the University of Havana, the science festival was celebrated in Habana Vieja municipality, outside the university campus, where replicas of museum pieces showed part of the collection to the general public. Three skulls, which belonged to the ancient Paracas culture, were shown, with different deformations. Examples of carved 'sonic olives' (seashells strung together into necklaces or wrapped around the dancers' legs to produce a rhythmic, intense sound), sections of clay pots with anthropomorphic and zoomorphic drawings, and petaloid axes were exhibited, exemplifying the utensils used by the Taino culture of Cuba. In addition, slides on glass supports were shown as one of the teaching methods used in the early 20th century. That same day, national television featured a report on the festival.

At the museum's reopening in December 2019, its Facebook account was opened, which provided for increased public interaction. In Facebook, the institution's research is published, as well as relevant information on anthropology in Cuba, and in the world, updates from ICOM (the International Council of Museums) and UMAC (International Committee for Museums and University Collections), as well as the transmission of values about the protection and conservation of the cultural, natural and archaeological heritage. During the Covid-19 pandemic, the number of views increased, therefore, a Telegram channel was enabled in May 2020, to celebrate International Museum Day. These social networks were used to announce a contest: Anthropology from the Museum. On this occasion, the object selected to identify online was the Cigar Idol, a unique piece of wood that dignifies the roots of the national and Caribbean culture and that was carried by the Cuban delegation that attended the First Ibero-American Summit held in Guadalajara, Mexico in 1991, and shown to the participating Heads of State. Three years later, it was exhibited at the Petit Palais Museum in Paris and, in 2006, it occupied a space of honour in the modern and innovative Quai Branly museum in Paris, dedicated to the cultures of



Fig. 2. Science Festival Habana Vieja with the presence of museum specialists

Africa, America, Asia and Oceania.

Information and communication technologies are a new addition to our museum. QR codes have been introduced in the showcases of the exhibit room, such as the one placed on the Bayamo Idol, the symbol of the museum. Scanning a code directs visitors to the official Facebook page with information about the piece.

In 2019, several pieces were digitized into three-dimensional models using photogrammetry. The digitized pieces include the Cigar Idol, the Bayamo Idol, as well as an *Australopithecus robustus* skull and a Taino skull that exhibits

artificial cranial deformation. All of these scans were made by the young professor Alejandro José Gómez García, from the School of Biology, University of Havana. For the reopening of the museum, a digital presentation was prepared for the public to view the three-dimensional models, and they are projected on a screen set up in the exhibition room.

UNIVERSITY TEACHING

The museum provides for students from the University of Havana, mainly from the College majors of Biology, Biochemistry, Microbiology, History, Philosophy, Art History and Design.

As part of Biological Anthropology subject that students take in the last year of the Bachelor of Biology course, a museum visit addresses issues related to human evolution, the settlement of the Caribbean and Cuba, and the aboriginal populations that inhabited the island. The museum is also visited by undergraduate students of biochemistry in association with the first lecture in the Introduction to Biological Anthropology course. In general, museum tours are carried out, with the explanations in the different spaces varying depending on the university major of the students visiting at the time.

For example, in the case of Biology, it is useful to show students the replicas of the skulls of different hominids to explain morphological changes that occurred in human evolution. In History, the maps on the settlement of Cuba and the Caribbean and those of archaeological sites are important didactic resources to integrate knowledge about geography. In Anthropology and Heritage, and subjects related to art, it is valuable that students can appreciate the details of important pieces such as the Cigar idol and the Bayamo idol, among other exemplars in the museum's collection. They can also identify how different cultures used materials such as stone, bone, wood, and ceramic utensils, by observing the pieces. The subject Anthropology and Heritage is taught for students of Biology, Biochemistry, and Microbiology, all of which are administered in the School of Biology. The students receive an overview of about museums and scientific collections and their values. Students of Art History also benefit from teaching at the museum, since the museum holds a valuable collection of art from the Palaeolithic to the Neolithic. It has an extraordinary collection of pieces corresponding to all Mesoamerican cultures that are used for the preparation of seminars.

THESIS RESEARCH IN THE MONTANÉ MUSEUM, 2017–2020



Fig. 3 Cigar idol

In the last four years, four theses have been defended, two for the title of Bachelor of Art History and two for the title of Designer, all drawing on the Montané museum collection. The most important results are described below.

For her Bachelor of Art History thesis, Marinés Díaz Quintana selected thirty-four pieces of pre-Hispanic ceramics from Central America. These pieces had not been previously studied. The pieces come from Costa Rica, Nicaragua, Panama, and Guatemala. The Central American pre-Hispanic ceramic collection is characterized by its formal and cultural diversity, the topics it addresses and its typologies. There are less-elaborate vessels and others with high refinement, some with simple shapes, and others with greater complexity in their design. The decorative motifs are generally zoomorphic, with the jaguar, the crocodile, lizard and the toad

being the most represented, while the anthropomorphic ones pass to a second order and are modelled or painted (DÍAZ 2017, RANGEL & VÁZQUEZ 2018).

At the beginning of the 20th century, importation began, and even some production on the island itself, of slides on glass supports, with the most diverse scientific, artistic, and historical themes. The museum's collection of glass slides grew between 1899 and 1955 to around 820 pieces, and was used in university teaching until the 1970s. The following questions guided the investigation of Miguel Ángel García Piñero's art history thesis: does the formation of the collection respond to the legacy of scientific collecting? How representative have the slides been as a means of teaching support in university? What significance did the slides have for the university teaching process? Does the collection dialogue with the teaching of anthropology for the careers at the University of Havana? How important is the slide collection as a historical document and, therefore, as a patrimonial asset of the University of Havana? The thematic lines covered by the selected sample of slides are: biological or physical anthropology, archaeology, personalities related to these sciences, archaeological and anthropological expeditions, geology, mineralogy, palaeontology, ethnology, zoology (GARCÍA 2017, RANGEL & VÁZQUEZ 2018).

One of the Design theses originated in a request from the Artes Bellavista group to the Higher Institute of Design of the University of Havana. Artes Bellavista is a group of independent artists, represented by institutions such as the Cuban Fund for Cultural Assets, Arts Workshop Caguayo and Atrio, an engineering enterprise. Artes Bellavista have more than fifteen years' experience in industrial design, engineering and sculpture. The problem to be solved consisted in designing a furniture and lighting system composed of a hammock, a rocking chair, an armchair, a low table, a hanging light and wall lights for domestic exteriors, inspired by pre-Columbian Cuban cultures, using the technologies which Artes Bellavista has at hand. The students interviewed the museum director and carried out a study of the collection, with an emphasis on the material production of the Cuban aborigines and on the symbolic forms related to these cultures (CORVEA & ROSALES 2020).

The 2019 thesis of Diana Arnaiz Gálvez "System of Visual Identity and Environmental Graphics of the Montané Anthropological Museum of the University of Havana" describes an identity manual with examples of presentation letters, teaching instruments, catalogues for events and contributions to the museum rearrangement, referring to the setting of the objects exhibited in it. The research problem was the absence of an environmental, graphic and visual design in line with the modern changes made in the museum and its adaptation to the new-generation public. The logo design seeks to communicate the concept efficiently and, at the same time, to generate the necessary uniqueness as a visual structure that carries the institution's identity. The visual identity that she proposed is a logotype solution that alludes to the motifs and drawings found in pieces of aboriginal pottery. Colours play a fundamental role in institutional identification. For the Montané Anthropological Museum, a harmonious colour scheme of brown and green tones is selected due to the easy association of the first with the world of anthropology and the second with teaching.

FOREIGN STUDENTS

The University of Havana has a School of Spanish for non-Spanish speakers. The museum has been visited by foreign students, mainly Chinese and Americans, who are studying Spanish language or subjects related to Cuban history and culture. In the museum, they take a tour to learn about the original populations that inhabited the Island.

The Institute for Study Abroad of Butler University (IFSA-Butler), the United States of America (USA), has sent students to the University of Havana since the year 2000. They are usually between 19 and 21 years old, come from various universities and states, and they are pursuing different majors. Each of them has the opportunity to study in the upper house of studies for four months. Between 2014 and 2017, the students received the course Cuba: Culture, Art and Society, taught by museum teachers. The course included a visit to the museum to learn about the original populations. Students in this course had an active participation in and outside of the classroom, combining lectures, audiovisual presentations, and professor-guided field trips to different locations, visit to 3 museums (Montané Anthropological Museum, National Museum of Fine Arts and Museum of Regla about African religion) and a four-day participatory visit to a rural community in Yaguajay Municipality. The subject had 3 themes: Cuban population: origin and contribution of different cultures, Cuban population: Urban and rural communities, and Cuban artistic expression: vision of arts and literature.

In 2017, IFSA-Butler student Tatiana Gedeon, from the University of Pennsylvania, was inspired

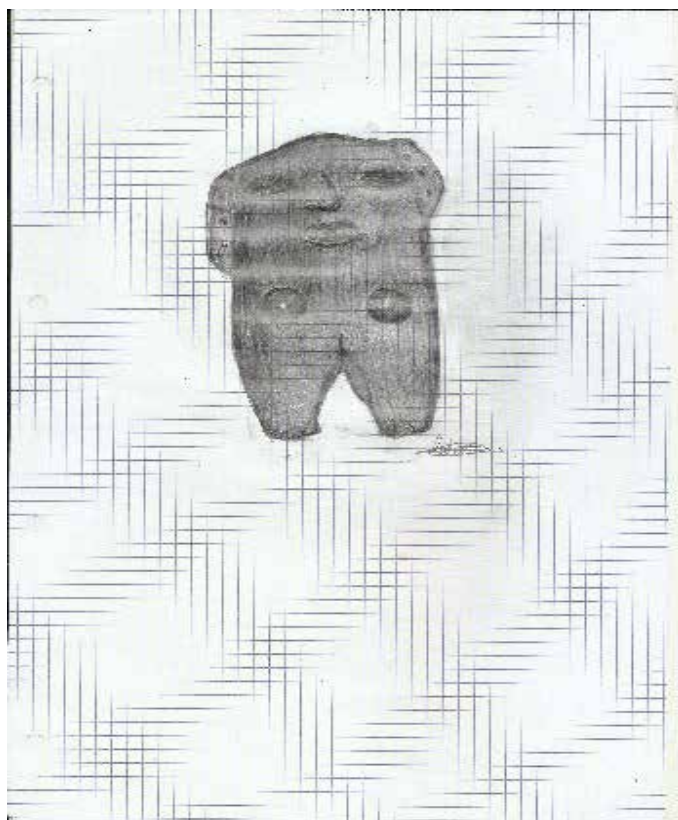


Fig.4. Drawing made by the student Tatiana Gedeon, based on clay figures from the pre-Hispanic cultures that inhabited Cuba

by museum pieces to make drawings of them. Tatiana developed her artistic abilities via the unanticipated experience and opportunity that the museum provided.

Since 2018, IFSA-Butler students have been offered the optional course, Rural culture in Cuba, which is taught at the museum for two fundamental reasons: the photographic exhibition “Faces of Cuba”, and the fact that the Montané museum researchers have work ties and do university outreach in a rural community in central Cuba, to which they take IFSA students. This course hence takes place both inside and outside the classroom. It combines lectures, audiovisual presentations and a four-day visit to a rural community in Yaguajay Municipality. The subject has 2 themes: The representation of rural life in arts and medias (which includes a visit to the National Museum of Fine Arts), and Rural culture in different Cuban contexts: case studies.

Students from the University of Pittsburgh have also received various undergraduate and graduate courses at the museum, across topics related to racial issues, Afro-Cuban history and culture, Cuban society and population. They are generally

taught during the spring break week in March and as a summer course in June. The objective of including the museum is to allow the students to develop familiarity with the pre-Hispanic cultures, the first settlers of Cuba, and the legacy of the aboriginal populations.

As the examples above show, the Montané Anthropological Museum is a teaching institution that is based on history, culture and national heritage, whose collections are used for teaching at all levels.

WORK BEYOND THE UNIVERSITY: THE MONTANÉ MUSEUM'S LINK WITH A RURAL COMMUNITY

The rural community La Picadora is located in the province of Sancti Spiritus, in central Cuba, 22 km from the municipality seat of Yaguajay. It owes its name to having been, from the 1930s to 1960s, a centre of limestone extraction and cutting. La Picadora has 230 inhabitants, among 88 houses. Before 2003, when the last of the three Yaguajay sugar mills was closed, the inhabitants worked mainly in sugar production. With the closure of the sugar industry, people had to diversify into other agricultural tasks, and joined other sectors such as agri-tourism, now one of its main economic activities. It comprises tourist activity that takes place in agricultural sites, farms, cooperatives, lands or any other type of housing or rural settlement in which the agricultural activity is active, where food, lodging and guide services are added. Tourists carry out agricultural work and enjoy activities related to agricultural culture and the attractions of the environment (DENIS & FONT 2016).

The professors of the Montané Anthropological Museum have maintained a constant exchange with the members of La Picadora since 2011. The students' learning and research experiences in the community, with support from the Montané Museum's professors, have been described in detail in two books, one in Spanish and one in English, on the La Picadora project (OLIVEIRA et al. 2016, VÁZQUEZ & RANGEL 2019).

The professors of the Montané Anthropological Museum propose to advise, in 2022, the creation of an ecomuseum project on industrial heritage in the community, which is described below. This future ecomuseum may be visited by elementary and middle school students from the Yaguajay municipality to acquire knowledge about local history, heritage and the sugar industry. At the same time, it can be attractive to tourists and university students visiting La Picadora.

PROPOSAL FOR AN INDUSTRIAL HERITAGE ECOMUSEUM IN THE LA PICADORA COMMUNITY

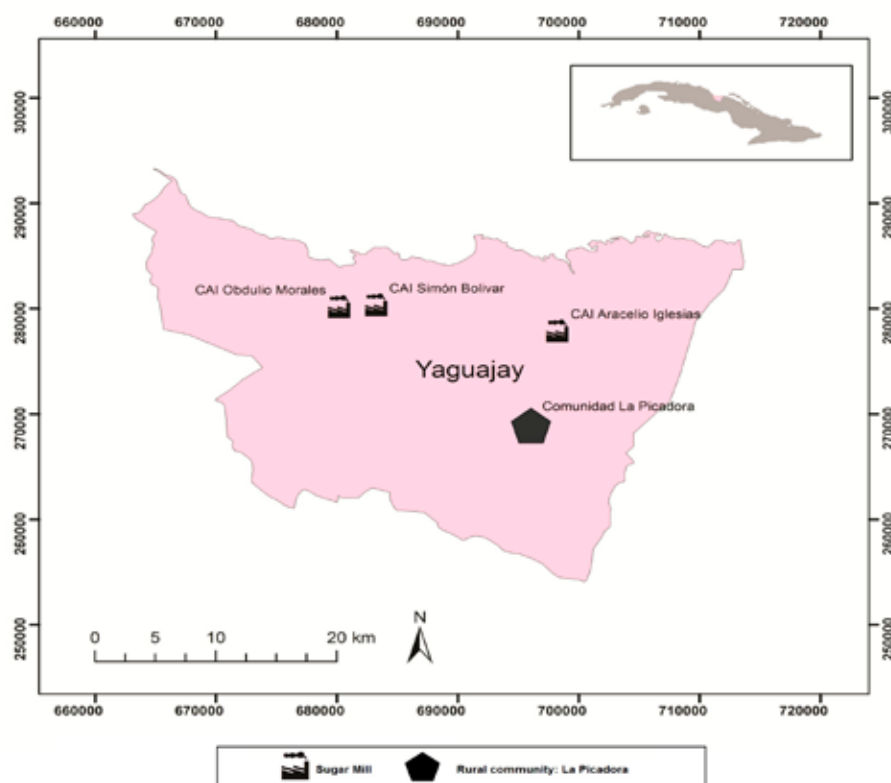


Fig. 5. Map of Cuba showing Yaguajay municipality, La Picadora rural community, and the three sugar mills with the name of Agro-industrial Complex (CAI). (Map donated by José Miguel Febles Díaz and Laura López Castañeda from the Marine Research Center)

Ecomuseums are configured as participatory processes of recognition, management and protection of local heritage with the objective of sustainable social, environmental and economic development. In them, identities are built, taking into account the techniques, cultures, productions, and aspirations of a territory, expressing its cultural assets and specificities with creative and inclusive tours based on the active participation of the inhabitants and their collaboration with associations (Agenda de Ecomuseos 2016). On the other hand, industrial heritage is made up of the remains of industrial culture that have historical, technological, social, architectural or scientific value (ICOMOS-TICCIH 2003). In the present case, the ecomuseum will be dedicated to limestone, clays, and the sugar industry.

The community owes its name to the extraction and cutting of limestone, which was crucial in the 20th century and today, specifically for the manufacture of lime in kilns. Hydrated lime has been used extensively in the Yaguajay region as a construction material. In sugar cane plantations it was used to reduce acidity and to clarify sugar. Sugar cane juice quickly darkens after being extracted due to oxidation of some of its components; for this reason it requires treatment with lime (BORROTO et al. 2019). Lime had multiple other applications in the area: as a soil pH stabilizer, for sanitizing pig sheds and dairy farms, as paint for homes, as a binder in construction, and for controlling humidity in grain stores (VALDIVIA 2016).

A problem that affects the residents of the community is the structural state of the houses. For this reason, old machinery was reused to set up a brick production line, with a mini-craft industry, taking advantage of the characteristics of the local soils and obsolete technologies abandoned by the closed sugar mills. Parts of the machinery were extracted and reused with endogenous resources from the sugar industry heritage (VALDIVIA 2016). The bricks are of proven quality, having been used in the construction of vaults in the roofs of the houses, and resisted the passage of Hurricane Irma in September 2017.

The ecomuseum will include an open space tour that will include an explanation of the brick industry and a talk about lime kilns. The visit will conclude in a classroom where, among other elements, photos from the 1980's of sugar cane in the town will be exhibited.

Cuba has great potential for the development of tourism-recreational products related to the industrial sugar heritage, due to the historical situation of Cuba being one of the first sugar worldwide exporters during the 19th and 20th centuries, and sugar the main line of the national economy for decades (SALINAS & DELGADO 2016). Therefore, the creation of this ecomuseum of industrial heritage will make it possible to teach, disseminate, and research the subject, to promote the sense of identity and contribute to the recognition and protection not only of the legacy of the sugar industry, but also of the use of the stone and clay, which are typical traditions in the community.

Visits will begin in the brick factory, where there will be a demonstration on its operation, and the different types of clay from the territory will be shown. A representation of a miniature lime kiln will be exhibited at the entrance to the ecomuseum, with some limestone around it. On the back walls of the classroom, old photos of sugar cane will be displayed, as well as current photos of farmers' faces, donated to the community. There will be a map of the Yaguajay municipality with La Picadora and the last three sugar mills that were closed. Small bags of lime and paint samples can also be displayed. Those responsible for the management and administration of the ecomuseum will be the inhabitants of the community. The project will have the support of the Government of the territory. Advice on museological issues will be provided by the professors of the Montané Museum.

FINAL THOUGHTS

The Montané Anthropological Museum has been the scene of teaching activities, conferences and courses at different levels of education and in various college majors for national and foreign students. In turn, its collection has been the object of study of several Bachelor's theses defended in the last four years.

The specialists of the museum will share their museological knowledge to collaborate with a rural community that intends to implement an ecomuseum of industrial heritage. In this way, educational experiences transcend the border of the University of Havana.

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CONTACTS

Jorge Luis Gálvez Soler, Museologist specialist, Montané Anthropological Museum

Email: jorge.galvez@fbio.uh.cu

Armando Rangel Rivero, Director of Montané Anthropological Museum

Email: rangel@fbio.uh.cu

Vanessa Vázquez Sánchez, Professor of Anthropology, Montané Anthropological Museum

Email: vanevaz@fbio.uh.cu

Address: University of Havana, San Lázaro Street, building Felipe Poey,
Municipality of Plaza de la Revolución, La Habana, Cuba 10400

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Thinking about curatorial education through an imagined museum

Selina Ho Chui-fun

Abstract

This paper examines how a university develops curatorial education through the manifestation of an imagined community (GABLE 2013) in its urban context. Based on a case study of the Lingnan University in Hong Kong, it argues that curatorial education can benefit from the imagining work that strives to connect with the professional community, the larger community, and the urban context of the city. However, curatorial education is both an academic concern as well as a keenly public practice. Consideration should be given to the ramifications of the real communities that curatorial education can serve.

Selina Ho Chui-fun

As a mega-region steering the global order, Asia has in recent decades witnessed a phenomenal expansion of museums and art infrastructure, and a rising need for human resources in the cultural and creative industries. As such, there is a notable need to scrutinise the development of museum studies in the region's higher education sector. Hong Kong deserves our attention. It has developed into an international cultural hub and one of the world's three major art markets. In 2005, the local government announced the construction of the West Kowloon Cultural District (WKCD), a strategic project to develop the city's cultural and creative industries. Regardless of the recent threat of the pandemic and the precariousness following the anti-extradition movement and the subsequent introduction of the National Security Law, the city would embrace the upcoming openings of the global museum M+ and the Hong Kong Palace Museum in the WKCD. While much debate on WKCD has centred on the cultural tension between 'local', 'global' and 'national' (e.g. LAU 2014), little attention has been paid to the role of education in the expanding museum sector in Hong Kong. Nor has research probed the role that universities or university museums can play in the creative industry and the strategies they use to create a robust museum workforce.

Furthermore, current research on the practice of museum professional training in academic settings has heavily relied on the university's physical collection, and is concerned with object-based learning and exhibition programmes that can enhance students' learning experiences in a particular discipline or inter-disciplinarily (JANDL & GOLD 2012a). The discussion has extended to the institutional missions and resources of academic museums (JANDL & GOLD 2012b) and, specifically, the power relation between university and industry in curatorial knowledge production. Inspired by Derrida's notion of 'university-come-to-be' as a 'university without conditions', a model he positioned against contemporary universities that work hand-in-hand with industries, the role of the university in curatorial knowledge production has been imagined to be cosmopolitan and universal beyond all the powers that limit democracy to come (RICHTER 2015). Though this Western philosophical-political idea has not drawn many repercussions from the university societies in Asia where crises of entanglement and contention of democracies are still under way, there is a notable need to think about the development of curatorial professional training in the region amidst the region's booming creative economy. This article intends to fill in the research gap by analysing how the Lingnan University of Hong Kong has developed its curatorial education based on a model inspired by anthropologist Eric Gable's interpretation of 'imagined community' (2013). It aims to provide a new lens for universities, particularly those where resource limitations preclude setting up a physical museum but where there is a vision in museum education, to explore their potential of imagining work in connecting with the museum professional community, the larger community, and the urban context of their city.

THE UNIVERSITY AS AN IMAGINED MUSEUM

In this paper, theoretically, I interpret 'community' in the context of a university for professional curatorial training in the sense Eric Gable (2013) that uses the term 'imagined communities', defined by Benedict Anderson (1983). Writing about urban museums, civil amelioration, and urban renewal, Gable states:

"Imagined community is an implicit correlative of how people who inhabit a space come to think of that space and their relationship to consociates. It is also at once an outcome of conscious efforts to shape the imagination by institutions such as museums. And this work of imagining can entail ignoring or overlooking communities, that is, not entering into dialogue with them, in favor of creating the potential for more utopian visions or projects. Yet all imagining must contend with the recalcitrance of the materiality of the museum itself and of the urban landscape that surrounds it and provides it a context." (2013, 33)

Gable's interpretation of imagined community centres on the role of museums in the production of community and the creation of civic engagement for urban renewal. In a general sense, he was concerned with what community means for museums, how communities work in museums, and how museums work in communities to improve a city. Inspired by his theory, this paper asks how a university encompasses the notion of community as a product of the imagination for its visions or projects in developing curatorial education, and what reciprocal benefits and challenges have arisen during the process of manifesting the imagined museum community. Taking the Lingnan University (abbreviated as LU) as a case study, I will examine how the university's curatorial education is manifested through the idea of an 'imagined museum' by connecting with the professional community, the larger community, and the urban context of the city, as illustrated in fig. 1.

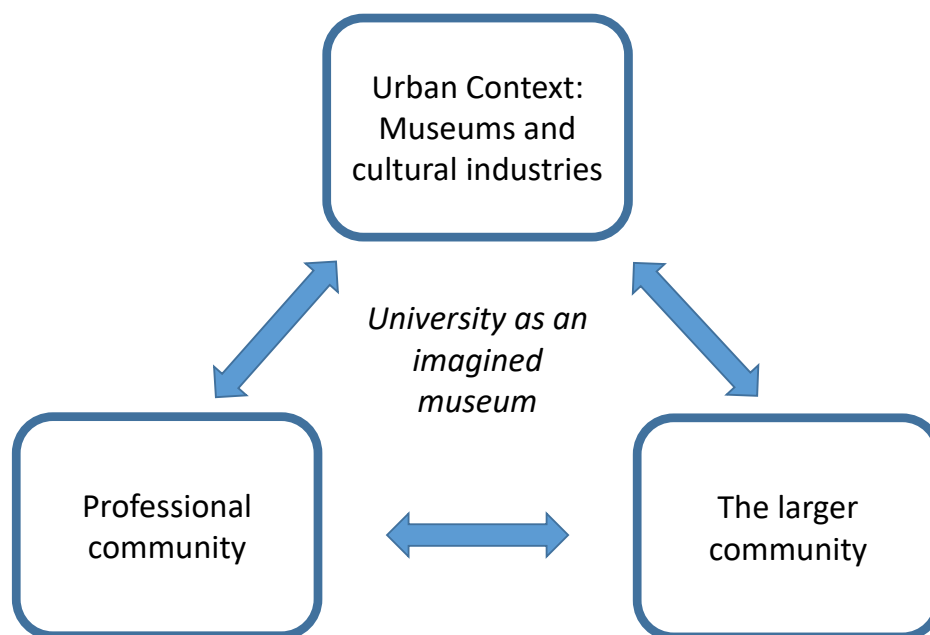


Fig. 1. University as an imagined museum for curatorial education

IMAGINING THE URBAN CONTEXT AND POLICY INITIATIVES

Lingnan University is a liberal arts university in Hong Kong, and one of the Top 10 Asian Liberal Arts Colleges in the region (ranked by Forbes in 2015). Embracing community engagement and social responsibility as one of its core values, the University has offered a liberal arts education along the lines of those available at American colleges since as far back as 1888¹. Since the late 1960s, the University has had its feet firmly on grounds provided by a civic society in Hong Kong (WONG 2017). In 1999, it officially became a university funded by the University Grants Committee of the Hong Kong government. In recent years, responding to the growing cultural industries, the University set a new policy goal and introduced new programmes and initiatives for professional training in museums and creative industries. While the policy-making process was not a radical engagement with a broad and diverse range of stakeholders and policy actors, the initiatives nonetheless opened a new chapter in the University's liberal arts education by extending its policy priority to the needs of communities in the cultural-economic sector.

In its recent 2019–2025 Strategic Development Plan, the University set up missions to boost employment in the growing creative industries and to achieve social cohesion, in response to the human resource needs and targeted subject areas set by the Hong Kong University Grants Council in cultural and heritage industries. These new missions emphasise the University's role in nurturing a new generation of professionals with the knowledge and skills they will need to forge successful careers in the cultural and creative industries. To achieve its missions, the University has highlighted policy initiatives, mainly revamping curriculum and introducing new programmes, and redesigning and refurbishing existing facilities. These initiatives have created tuition fees and funding opportunities from both the government and private donors, and have made positive impacts on the institutional ranking in quality education.

The Department of Visual Studies is one of the most active in realising the University's new missions. Its main initiative involves introducing far-reaching revisions and new components to its educational programs. Significantly, in 2019, the department added courses with museum and curatorial studies components to its undergraduate curriculum. Since 2020, the Department has rolled out two new master's programmes—Master of Arts in Curating and Art History (MACAH) and Master of Arts in Creative and Media Industries (MACMI)—to meet demand for art curators and creative professionals. The MACAH programme in particular has been externally appraised as 'a timely and needed initiative

1. The university's history can be dated back to 1888, when its forerunner, the Christian College in China, was founded by the American Presbyterian Board of Foreign Missions in Guangzhou. In 1926, the College was registered with the Ministry of Education under the government of the Republic of China. The People's Republic of China was established in 1949. The university closed in 1952 and was subsumed into Sun Yat-sen University. A group of alumni, who had moved to Hong Kong, re-established Lingnan College as a private tertiary institute in 1967, putting their ideal of reciprocity into improving the city's underdeveloped tertiary education, under the institutional motto 'Education for Service'. Since the 1970s, the College has delved into western education, and in 1999, the College was renamed and officially recognised as a university under the Hong Kong government (WONG 2017).

for both academia and the museum sector in Hong Kong and beyond'. Its courses cover curating, art collection and provenance studies, museum learning and digitalisation, in addition to art history subjects. To cultivate arts curation expertise in a global context where Hong Kong is imagined, the programme emphasises theory and practice, offering holistic learning of knowledge in global relations and networks, and knowledge relevant to the contesting cultures in the Asian region. For liberal arts education to thrive, the persistent challenge is to develop the students' critical and creative thinking abilities and a sense of social responsibility to create their own indigenous knowledge, unique to their cultural and social context. Since its launch in September 2020, the programme has attracted students from Hong Kong, Macao, and mainland China. The number of applications tripled in 2021. Meanwhile, the self-financed programme has achieved break-even, and, as a listed programme of the Targeted Taught Postgraduate Programmes Fellowships Scheme, it can receive government funds to subsidise local students' tuition fees in intakes up to 2024/25.

Lingnan has undertaken another initiative, redesigning and refurbishing existing facilities in its archives and art gallery. As the smallest of Hong Kong's government-funded universities, and located in the peripheral New Territories, the University has to overcome various limitations, for example, the inconvenience of the campus location and limited on-campus spaces. In the past few years, the University has kept up with museum functions by engaging the library in collection digitisation and offering informal learning activities such as annual festival events and various heritage projects incorporating community-focused service-learning components supported by local museums, social and cultural organisations. In terms of infrastructure, in addition to the existing multi-purpose art gallery, the University has started to set up an exhibition hall for displaying the artefacts of Chinese early modern art on loan from a local collector. To be completed in late 2022, the hall has been imagined as an active museum for promoting the learning of Chinese art and its exhibitionary practice. Beyond its physical campus, the University has kept exploring exhibition spaces to materialise students' curatorial projects and to reach out to a wider audience. The recent exhibition, 'We Live in Frames: Invisible Disciplines' curated by a MACAH student at an artist-run gallery near the city centre, is a notable attempt. The initiative of enhancing the existing exhibition spaces, along with informal learning, service-learning activities and outreach projects, have vitalised the overall learning environment and contributed to the University's endeavour in developing quality education. The University is among the top three in the world for 'Quality Education' according to the Times Higher Education Impact Rankings in 2020 and 2021.

IMAGINING THE PROFESSIONAL COMMUNITY THROUGH PARTNERSHIP AND PARTICIPATION

Apart from its policy responses to the cultural-economic context, the University has demonstrated agency in imagining itself as part of the global professional community, and in forging its connection with that community. Departmental initiatives have been made to form strategic institutional partnerships and to co-opt industry professionals, and to create a dialogue with museum professionals on topics covering objects, collection and exhibition display, curatorial thinking, and various publics. This industry partnership and participation has helped to realise the University's vision of expanding its global education network, and the third mission (apart from teaching and research) of universities, knowledge transfer. 'Knowledge transfer' refers to 'the systems and processes by which knowledge, including technology, know-how, expertise and skills are transferred between higher education institutions and society, leading to innovative, profitable or economic or social improvements' (UNIVERSITY GRANT COMMITTEE 2021). The Department of Visual Studies focusses in particular on transferring the museum industry's expertise and knowledge to its students. Its educational programmes and affiliated activities have defined the imagined community that can support the training of professional curators. This community includes curators and museum professionals, and museums and related institutional partners. The close connection with these two clusters has drawn the University naturalistically into being part of the professional museum community, and strengthened its ties with the industry.

To forge the connection, the department has pursued strategies such as co-opting curators or directors from the museum field to its programme boards as external academic reviewers and advisors, and direct recruitment of curators and museum professionals into teaching roles. The former gives external partners a sense of ownership of the academic programmes, while the latter gives students direct access to the museum-situated expertise of curators and other professionals. Currently, the majority of current teaching staff either have previous experience of working in or with museums or the creative industries. To foster strategic partnership between institutions, the MACAH programme also runs a Summer School with the Graduate Institute of Conservation of Cultural Relics and Museology of Tainan National University of

the Arts. Through this program, students are expected to gain more international exposure and direct interaction with experts and museum professionals in Taiwan. Under border restrictions due to the Covid-19 pandemic, local museums and cultural institutions have become a buffer zone for students to undertake internships and exchange activities. The Chamber of Young Snow Curatorial Scholarships scheme, established in 2019 by the Department with the support of a private foundation, has offered financial support for undergraduate students to work at the institutions.

The internship is an effective platform for students to connect with museum professionals and to work with their community. The course is specially designed to provide an actual experience of curatorial and art administrative work, and to integrate students' theoretical learning through working under professional supervision and mentorship. The intended learning outcomes include identifying core curatorial issues at the host institution, and gaining a better understanding of curatorial issues and ideas in a practical context, and of the framework for professional practice. In the end of the course, students are assessed by their supervisors on their initiative, motivation, attendance and performance. More importantly, students are expected to reflect on their internship experience through a critical essay supported by the scholarly literature on curatorial or art-related issues. For instance, in the summer of 2021, a MACAH student completed her internship at the Centre for Heritage, Arts and Textile (CHAT). In addition to gaining work experience, the student benefitted from her supervisor's written comments on her performance and suggestions for improvement. Her essay, which offers an effective evaluation of CHAT's Unlearning Space based on Nina Simon's theory of the participatory museum, demonstrates her active and intellectual engagement with her experience and observation of the space.

Following the University's vision of expanding its global education network, the Department has organised discursive platforms where students can establish ongoing dialogues with museum scholars and curators about cutting-edge research and practice worldwide. Since 2015, the department has regularly invited both local and international scholars and curators to deliver talks. In 2018, the long-term 'Curating and Art History Seminar Series' was launched to cultivate cross-cultural exchange and knowledge transfer in museum studies, art history, and related disciplines. In 2021, the hybrid conference, 'Then and Now: Collecting Art and Exhibiting Cultures' brought together 20 distinguished scholars, researchers, and museum professionals from Hong Kong and abroad to share their cutting-edge research findings on art collecting, exhibition-making, and exhibition histories in Asia. It attracted almost 300 conference participants, some hailing from leading universities and museums in Asia, Australia, Europe and North America. In the same year, the Chamber of Young Snow Distinguished Scholars Webinar Series invited three international speakers to reflect the cross-geographic practices from the pre-modern era to today, sharing stories of transcultural encounters in the colonial and postcolonial eras that have been narrated and visualized in art history and museum practices of the 21st century. These virtual discursive platforms were a timely and needed initiative for both academia and the museum sector in the COVID-19 pandemic era. They have been providing a dialogic learning opportunity for the University's students to keep abreast of the latest points of view and practice in museums, and have created a synergy with the global professional museum community. In addition, these platforms offered an opportunity to position the University as a leading gateway for access to the intellectual resources of curating in Asia, and provided leeway for future research collaboration with the professional community.

THE UNIVERSITY'S COLLECTION AND ITS IMAGINED LARGER COMMUNITY

Knowledge transfer is understood as a two-way process whereby academics and researchers are enriched through closer ties with the larger community, and the community also enjoys realisable benefits from the knowledge transferred from universities (University Grant Committee 2021). For closer community ties, the University has positioned community service as an integral part of its education. The persistent challenge is to extend the work of imagining, from engaging the professional museum community to a larger community through the University's cultural materials. In particular, students use the University's collection as a technology to develop their own curatorial practice, and to enhance their imagination of the public. Here, I discuss how a group of students used a collection of Chinese paintings as a template for contextualising the paintings and envisaging their audience. It negotiates, as part of the curatorial process, how they navigated between their imagined outcomes and working context as invoked by Gable's concept above.

In the spring term of 2020, eighteen undergraduate students joined the 'Curatorial Practices' course at the Department of Visual Studies. Framed around a student-centred approach incorporating active learning and free choice, the course is designed to position students as an active curatorial agency. The

main aim of the course is to acquaint students with skills in collection research and display etiquette, and to engage them in the creative process of selecting and arranging objects and information. One curatorial project dealt with a collection of Chinese scroll paintings owned by the University. Donated in 2008 by the United States-based Lingnan Foundation, the collection comprises paintings produced mainly by artists from China's Guangdong Province in the 1940s. The artists include former leading members of the Guangdong National Painting Research Society, one of the largest painting associations in China in the Republican era (1912–1949), which aimed to preserve and propagate the traditions of Chinese painting. The paintings are currently kept in the University's library. In line with the University's plan to promote digital humanities in art, history, and heritage, a database containing object biographies and descriptions and digital images of the collection has been established through the joint efforts of the Department's teaching staff and research students, and the University library (Lingnan University 2021). Though the significance statements of the collection are yet to be made, the database has served as a useful repository for curatorial training.

Due to pandemic restrictions on collection access, students were unable to examine the real paintings kept in the library, so they chose to develop an online exhibition using the materials in the collection database. With their prior knowledge of art history and museum studies, the students conceived a curatorial idea and developed appropriate online display methods and digital tools to create the exhibition. As the course teacher, I served as a facilitator rather than an instructor, offering consultation and supporting resources such as literature regarding the interpretation of historical objects and Chinese paintings, and case studies of online exhibitions. During our discussion about the collection, the students devoted considerable time and interpretative efforts to rekindle the role of the collection in a new context relating to the University's history and Hong Kong's regional history. The collection is complex, with a few examples created by artists who were born in the late Qing dynasty (around 1900–1911), and also includes works from other parts of China. There are paintings by artists trained in Western technique, and ties with the Lingnan School of Painting. Many of the paintings were exhibited at the National Arts Club in New York in 1947, due to the efforts of Mr. Szeto Wai, a Lingnan College alumnus and principal of the affiliated schools of the University. The students found it challenging to establish a transnational presence for the collection through debate concerning the history and discourse of art in Hong Kong and mainland China, as well as its connection with the world.

After intensive research and interpretation, and selection of paintings, the students produced a visual plan for an online exhibition, with a Chinese title *Lingnan Hua Pai: Yishu Gexin yu Chuancheng* (Art and revolution: the Lingnan School of paintings and their inheritance). Although the title is not innovative, the curatorial project provided an experimental platform for the students to test their curatorial capabilities and to learn how to bring new life to the paintings. As expressed in their exhibition plan and reflective report, educational and aesthetic values were what the students could identify in the collection. They tended to rekindle the value of the collection in the present and find strategies to maximise the collection's potential for digital outreach to create a dynamic interface with the public. They struggled to avoid difficult terminology of Chinese painting and to make the text broadly accessible, and to stimulate the audience to reflect on the relationship between art and everyday life. In addition, based on their well-designed exhibition template, they argued that online art viewing can be enhanced through the careful design of navigation, image categorization, and the aid of key visuals and interactive engagement tools. They also suggested that an online audio guide and an English text version could be further developed to increase the accessibility of the exhibition and to reach out to the transnational audience.

In the end, although the online exhibition plan and other curatorial projects did not fully materialise, the course provided a free-choice learning opportunity in which the students had significant and meaningful control over their learning and identifying with the curator's role and profession. As shown in the post-course survey, the students mainly expected to learn what curating is about and to experience what a curator does. They expressed that they had learned how to engage the audience in their projects and to consider engagement as a key threshold for making their projects productive and stimulating. The learning outcome is concurrent with the need to further imagine the public dimension of both curatorial education and the University's collection. In the future, to expand the University's imagined community in curatorial education, the course can further expand its scope in the co-production of museum professional knowledge and practice. Such co-production will enable students to work with the professional community and alumni to co-curate so that the collection may serve as an object of learning for others, or for specific communities, or a resource to connect with a broader community.

CONCLUSION

The increasingly complex operating environment of higher educational institutions has prompted greater interest in their museums and collections (SIMPSON 2014), both among the senior leaders of institutions and the scholars (staff and students) of the institutions themselves (LOURENÇO et al. 2017).

In this study, the main actors, including the University's senior leaders, staff, and students, have devoted efforts towards shaping the University into an imagined museum that is connected with the professional community, the larger community, and the urban context of the city of Hong Kong. Their recent initiatives in policy, educational programming, and use of collections have helped the University to carve out a new identity in curatorial education and to express a distinct institutional narrative, offering a model of professional training to the city's cultural industry at the forefront of higher education in Asia.

This case study has offered an understanding of curatorial education as a manifestation of imagined community in the context of a higher education environment and its fast-changing cultural-economic context. Yet there is always a paradox in ignoring what we might call 'organic' or 'real' communities in favour of the professional community. Curatorial education is not only an academic concern but also a keenly valued public practice. In addition to setting up a policy framework to cope with the cultural industry of the surrounding city, further efforts should be made to expand beyond the university–industry boundary to organic or real communities in society. This direction will further address Gable's concern with how museums work in communities to improve a city. Parallel concerns worth considering are the production of community and the creation of civic engagement.

In addition, the case study has illuminated the dynamic of how an institution imagines itself, and then negotiates its context. Lingnan is not a 'university without condition'. It is anticipated that the University would more vigorously re-imagine its community as it faces the challenge of enticing talent and nurturing young curators in a political precariousness following the introduction of Hong Kong's National Security Law, and the new wave of migration that it has sparked. In this regard, future research can explore how university museums and museum studies address their socio–political contexts, and encourage scholarly engagement with, and critique of, society. This research direction connects with the liberal arts mission at Lingnan, providing an occasion to critically reflect on what 'liberal' means and what it aims for, under the University's changing circumstances. In addition, it highlights the need for the institution to know how its imagination of itself echoes in the young curators' imaginations of themselves, and in the future of the city.

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CONTACT

Dr Ho Chui-fun, Selina, Assistant Professor of the Department of Visual Studies

Address: 8 Castle Peak Road Tuen Mun Hong Kong

Email: selinah02@ln.edu.hk

<https://www.ln.edu.hk/visual/home>

KEYWORDS

Curatorial education, imagined community, professional community, university's collection, cultural industrial context

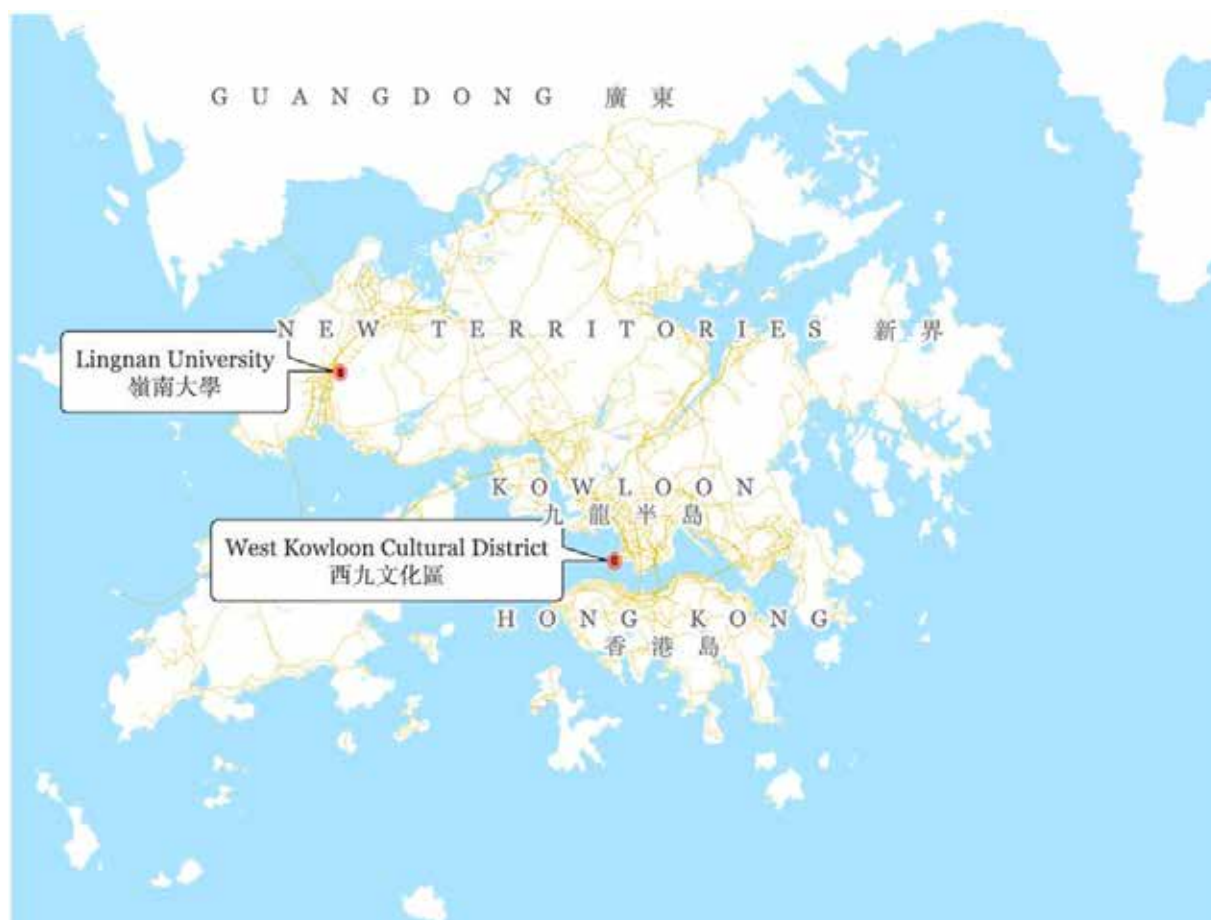


Fig.2. Map indicating the locations of Lingnan University and the West Kowloon Cultural District

Successful interfaculty restoration projects for students: saving the plaster cast collection and the botanical models of the ULB museum network

Nicole Gesché-Koning

Abstract

Students have played a range of roles in the study, preservation, and restoration of the plaster cast collection and botanical models of the collections of the Free University of Brussels (Université libre de Bruxelles - ULB) which are varied and often scattered in different departments and campuses. For greater visibility a ULB Museum Network was founded in 2003, while keeping the collections in their original locations. As the collections were mostly created under the initiative of one or more professors, their preservation needs must be questioned. What role do they play in graduate and post-graduate courses? How are they used by the students and for which skills? Have they been published? Have some led to essays or theses? What should be kept, and how?

Nicole Gesché-Koning

The varied collections of the ULB Museum Network, comprising objects of anatomy, anthropology, art works, botanical models, chemistry, computers, eco-museum, medicine, mineralogy, pharmacy, physics, plaster casts, science, and zoology have been mostly collected since the end of the 19th century under the initiative of one or more professors as teaching tools for their courses. There was no synergy whatsoever between all these collections, no common status within the university, and often a lack of catalogues. A general registration of all items still needs to be done. The plaster cast collection of the Faculty of Philosophy and Letters, comprising some 130 copies of the art history canons from Antiquity to the 19th century was inaugurated in 1931 to form, along with the anatomy, botanical, and medical collections, one of the oldest museums of the university. The existing catalogue of this unique plaster cast collection, published at that time, has enabled us to compare the original collection with what remains today, viz only 63 pieces, and to find solutions for their restoration and future preservation (GESCHÉ-KONING 2011, 2019).

Since 2003, the rich diversity of the collections, scattered in their original locations across the university's several campuses, has been the most visible part of the ULB Museum Network (GESCHÉ-KONING & NYST 2009, 2020). Within the university itself, the collections are now more accessible to both students and professors who are often unaware of the richness of the university's heritage. The Network aims also to turn itself towards the outer world by organizing, for the general public, various joint activities under a common theme linking all the collections—a rather challenging task, not only for the curators of each museum but also, for the cultural management students involved.

Throughout the years, these collections have served as study tools for the students and also for further research. There is, nevertheless, an urgent need to complete the registration of most collections and to carefully analyze their state of conservation to decide if they need to be preserved. If kept, how should they be consolidated and/or restored, and by whom? These questions were among those to be discussed in June 2020 during the UNIVERSEUM pre-conference workshop I was asked to lead on the *Functions and uses of cast models within university collections and the question of their preservation at all costs*, which has been postponed due to the Covid-19 crisis. The main aim of this workshop was to discuss, with the participants, the learning opportunities offered by such collections at the time of their constitution and how relevant they still are today. Some 20 participants were planned to analyze 8 to 10 works from the university collections. After a short introduction to the workshop, they had to question the pieces selected by analyzing their registration cards (if any), the information available on those cards, and all related publications. Then they would be asked to compare the piece with similar works from other collections and/or museums to complete the information, this leading them to define criteria for deciding whether to keep the work. The challenges they had to tackle was to critically look at the objects, note all their observations and then define which values would determine whether to keep the object, and to decide what they would prioritize for further analysis: the economic value, the value of the piece as such, as teaching model regarding present day possible new devices, their state of conservation, their possible restoration and at which cost and in collaboration with which institution.

Second, a thorough analysis of the piece would follow, based mainly on the material and technique used leading to further research in the available documentation prepared and personal research. A special condition report and proposals for restoration or treatment would then follow. This paper aims at summarizing the results of this workshop, and gives some guidelines for the analysis of other university collections used as training tools for future heritage professionals. The theme of this journal issue hence urged me to present two cases of pedagogical use of museum collections not only as learning tools, but also as part of a collection to be preserved because of the diverse values mentioned above. Conservation, restoration and preservation need to be clearly defined. A museum curator or professor in charge of a museum collection oversees the *conservation* of the objects in his/her collection. According to their general state, some pieces may need to be *restored* following international guidelines, the final purpose, in any collection, being its *preservation* for future generations.

INTERDISCIPLINARY AND PEDAGOGICAL PROJECTS

Two interesting collaborations for the preservation of the university heritage have been conducted in partnership with the Conservation and Restoration Department of the École nationale supérieure des arts visuels, ENSAV-La Cambre (Brussels), a graduate and post-graduate school for the arts (ESA). Organized by the Brussels Wallonia Federation, La Cambre is part of the Brussels Academic Pole—the regional cluster

of institutions of higher learning. It has developed a solid partnership with the ULB in terms of research and academic courses. The collaboration between the ULB and La Cambre concerned the restoration of five Brendel models from the Jean Massart botanical garden (BRAVO ALEAN et al. 2016) and several plaster casts from the Société d'archéologie classique et byzantine (CLERBOIS 2019). In both cases, students have been involved in the whole research process. Under the supervision of their professors and the museum curators, students from both institutions analyzed the works on a historical, technical, and aesthetic point of view, followed by discussions with the future restorers as to which techniques and materials to use. Moreover, they were also asked to plan the return of the restored pieces to their museums and to propose better conservation methods for the future—this in constant concertation and interdisciplinary collaboration. To acknowledge their work, the names of involved students are always mentioned.

THE BRENDEL MODELS

The restoration of five Brendel models was devised as a pedagogical exercise privileging a constant dialogue between all students, professors and museum curators during the academic year 2015–2016. The theoretical research conducted at the ULB¹ consisted in analyzing the documentation available, placing it in historical context of the reasons which had led to the creation of these models, and analyzing where and when they were displayed, as well as where and in what condition they are maintained and presented today.

The five models (*Parnassia palustris* L., *Campanula rapunculoides* L., *Geranium phaeum* L., *Euphorbia serrulata* and *Polygonaceae Fagopyrum esculentum*) out of the ten Brendel models kept at the Jean Massart Botanical Garden are still regularly used by students in botany for the high pedagogical value in the quality of the details, not to mention their aesthetic value in comparison with new models or preserved specimens. New 3D models and virtual reality *could* be used, but why not use the very models that have proven didactically successful for generations of students? The original models were mainly given by Germany, in part as compensation for war damage. Their conservation condition necessitated urgent intervention, which led the Botanical Garden to create a partnership within the university and associated institutions to have the pieces restored. After the preliminary study necessary to help the future restorers from La Cambre² to gain more precise knowledge about the origin and the materials used, the second phase of the project consisted in close observation of the models, examining the documentation at hand, and comparison with models from other collections. From the inscription found on the base of the model marked 'R. Brendel, Berlin W', the students concluded that the piece could be rather easily and precisely dated, i.e., to the second period of the Brendel Company (1898–1927), that of Reinhold Brendel (1861–1927) who had taken over his father's company in 1898 and moved it to Grünewald, near Berlin. The students' research led them to various publications regarding the Brendel company (BOGAERT-DAMIN 2007, FIORINI, MAEKAWA & STIBERC 2008), that Robert Brendel (1821–1898) founded in Breslau in 1866. Abandoning the wax technique previously used during the 18th C., Brendel created 3D models in papier mâché, making them more economical, easy to obtain and more durable. All the material used for the five models of the ULB were carefully analyzed, discussed and listed by the students of both institutions: the models were made out of papier mâché on a metallic armature and elements of wood, plaster, gelatine, horsehair, silk, hemp, cotton and glass. The models were also painted and varnished. The combination of all these materials behind the representational quality of these models makes their restoration far from easy. How have these different materials reacted with each other over the course of time, and what reactions would occur in the future, depending on the solutions and materials proposed? The success of these botanical models is due not only to their scientific quality, but also to their aesthetic aspect, praised by the contemporary Art Nouveau movement and the taste for ornament inspired by nature (BOGAERT-DAMIN 2007).

For each model, students from both institutions established a list of all missing elements, unstable parts, cracks and defects on the paint, in addition to the general dust and staining they were covered with. An important question was now to decide whether these damaged models should be restored. The answer for the university was clear: these precious teaching tools are still daily used by students and each handling of the objects may harm them even more. But using the original historic Brendel models instead of newer

1. By Emperatriz Bravo Alean, Pauline Daniaux and Céline Erauw, all three students in their 2nd Master year in history of art and archaeology – option Museums and cultural heritage conservation under the supervision of Prof. Valentine Henderiks.

2. Violette Demonty (Master level 2) and Sophie Kirkpatrick, Clara Montero, Valentine Vanliefland & Delphine Rosier (Bachelor level 3) – under the supervision of Prof. Marianne Decroly

learning media matters for the university: the Brendel models have not been matched by any newer equivalent, nor, so far, by high-definition photographs or digital models in virtual reality. Not only are they of great historical value, but also pedagogically superior. The real challenge for the future restorers, then, was to find an adequate treatment to consolidate the pieces and complete the missing parts according to the damage that could be seen, and comparing the university models with those from other collections (or photographs found on the Internet) to prepare them for continuing use, yet always respecting the original (fig.1 & 2).



Fig. 1: Workshop with the Brendel botanical models. Image Nicole Gesché-Koning.



Fig. 2: Geranium model before restoration. Image Nicole Gesché-Koning.

The philosophy guiding each restoration is to keep a track of the passage of an object or work of art through each intervention, thus accruing its so-called 'life history'. If elements are to be removed, this should be carefully documented, and the removal explained (cf, for example, the vine leaves added to medieval or Renaissance paintings of naked men during pruder periods). As for the missing parts, they were easy to identify by observing the traces of wear and tear, and by comparison with other original models. A range of criteria needed to be considered to decide what part to start with: the chemistry of the proposed materials, the different phases of the restoration process, and the extent to which elements needed restoration. The students learned to carefully describe the whole restoration process, documenting each step, and eventually publishing the final result in a detailed and scientific report accompanying each 'restored' object, understanding that the decisions taken accept that no restoration is ever complete and that the restorer has often difficult choices to make regarding the object's life history (BRAVO ALEAN et al. 2016).

THE PLASTER CAST COLLECTION OF THE SOCIÉTÉ D'ARCHÉOLOGIE CLASSIQUE ET BYZANTINE

Some 160 plaster casts of works of art from Antiquity to the 19th century are among the oldest collections of the university (GESCHÉ-KONING 2009, 2017, 2019). Opened to the public in 1931 on the ULB main campus (Fondation archéologique 1932), the origin of this collection is to be found in the plaster cast exhibitions held in Cologne and Brussels (GESCHÉ-KONING 2019) aimed at travelling further in Europe. The ULB took the opportunity of the exhibition in Brussels to negotiate the acquisition of various models as teaching devices for art history students who did not have the opportunity to see the 'real' works in situ. Eighty casts represented the canons of Egyptian, Greek and Roman Antiquity, 80 others represented important works by Michelangelo, Luca della Robbia and Canova, and included some Belgian highlights like the baptismal font of Renier de Huy in Liège. The careful selection of pieces constituted a collection of immense pedagogical utility, but the collection has been unfortunately scattered through the years, mainly since WWII (some pieces had been hidden during the war, others moved to different places due to lack of space and then displayed here and there in different professors' offices). A first search was

conducted in 1990 under the leadership of Professors Charles Delvoye and Georges Rapsaet, which led to the conclusion that most pieces had been destroyed or had disappeared. One explanation may be the fact that, with the birth of abstract art, academies were no longer interested in analyzing the human body and started to neglect their plaster cast collections. This has truly been the case for the collection of the Royal Art Academy in Brussels which for lack of space resulted in a decision to abandon part of its collection. Between 2006 and 2009, Prof. Clerbois's students in art history were asked to start a first inventory of the collection. A proper catalogue was established as a master's thesis (DEPAS 2011) under the supervision of Prof Athéna Tsingarida. It was then decided that the 64 extant models needed thorough attention. With members of the La Cambre conservation department, a first inventory of the works at threat was conducted (2013–2014). It became clear that the basement where some works were kept was totally inappropriate and that they needed urgent removal to a more suitable environment. Before relocation in the attic of the A building of the Solbosch campus, some works were analyzed both at the ULB and at La Cambre by students in art history at the ULB—option Museums and Cultural Heritage Conservation—and the conservation department of La Cambre, leading to a rich pedagogic and interdisciplinary project between the two institutions (DECROLY & HENDERIKS 2019). The art history students gathered all the information they could find regarding the objects and their historical significance (origin, date of entrance at the university, institution providing the cast), and technical analysis to give the conservation and restoration students a necessary foundation to start further investigations preceding the restoration itself (fig. 3). The students thus came to realize that plaster cast collections were spread all over Europe and that some institutions like in Berlin, Paris or in Brussels at the Cinquantenaire each had their own characteristics. A comparison study of the different techniques used is still to be conducted, as the restoration of these plaster cast collections is rather new. A whole study day was devoted to this question at the Institut royal du Patrimoine artistique in Brussels.³ The conclusion of this study day was to try and save the present existing collections as witnesses of a teaching model which has proved successful for many generations of students. To be saved, some pieces needed to be restored, hence this collaboration between ULB and La Cambre. Not only did the students restore the models, they were also asked to further think of the best way to transport the restored pieces and how to display them for a better sustainability (fig. 4). Being less used nowadays, in contrast to the Brendel botanical models, this collection is now preserved less for its rather obsolete pedagogical value than for its historical one: a witness in the history of pedagogical tools.



Fig. 3. Geranium model after restoration. Image Nicole Gesché-Koning.

CONCLUSION

Plaster cast collections and models are often considered as an obsolete pedagogic tool, a value that may be questioned, they nevertheless have a lasting role to play as teaching witnesses from the past—not so old fashioned at all—and their use could be privileged in all curricula from the early stages of the students' studies. Due to the destruction of many plaster casts, the conservation of those still extant is even more crucial. They are just replicas, so why bother, would some think. But sometimes these replicas are the only remaining witness of works which have been destroyed through time, stolen, or politically damaged (see the latest diasporas' quests to destroy any witness of colonial times and the ongoing debate on the use of replicas at the core of today's discussions on restitution).

Today, the restored works have been shown by the students on various activities organized by the ULB Museum Network (Museum Days, Museum Nights) thus bringing the university collections closer to non-academic audiences who truly appreciate these initiatives and are always looking forward to further ones. New relationships are being built with the public suddenly aware that conservation is not only reserved to specialists, and that preservation (keeping objects in the best condition for future generations) concerns us all—evidenced in public feedback on the occasion of the European programme, 'Let us preserve our heritage together' (PERIER-D'ETEREN 1999). Future cultural heritage practitioners trained both at the

3. Symposium 'Uniqueness and multiplication: plaster as an art material' (October 10–11, 2017) <http://org.kikirpa.be/programs/plaster.pdf> (last accessed March 1st, 2021)

ULB and La Cambre are offered, on these occasions, an interesting opportunity to put their theoretical skills into practical action and to share their enthusiasm for these interdisciplinary projects. Communication is a crucial element of their training which is no longer only limited to academic research. Popularisation is not an easy task, either for students in art history accustomed to being as ‘scientific’ as possible, nor for the restorers having to explain the different stages they have gone through before touching the object and the choices they had to make. Through these two examples, I hope to have shown that both the learning experience and the spreading of knowledge have been essential in shaping the students’ learning experiences, critical vision and further development.

On an international level, these activities have been presented at various international museum conferences within ICOM (UMAC & CECA Committee for Education and Cultural Action), the EU (MUSACCESS program) and at the Royal institute of cultural heritage in Brussels on the occasion of the symposium ‘Uniqueness and multiplication: plaster as an art material’ (October 10–11, 2017) (<http://org.kikirpa.be/programs/plaster.pdf> (last accessed March 1st, 2021), enhancing the identity of the ULB and its collections. By disseminating these interdisciplinary programmes, not only has the university inspired other colleagues, but has also defended the use of ‘real’ pedagogical tools and borne witness to their historical value.

Both examples prove successful not only regarding the preservation of models at threat, but also as a perfect example of interdisciplinarity between faculties and exchange of expertise for the benefit of all students involved.



Fig. 4. Plaster cast model prepared for exhibition. Image Nicole Gesché-Koning.



Fig. 5. Plaster cast model prepared for transport. Image Nicole Gesché-Koning.

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CONTACT

Nicole Gesché-Koning, Honorary professor Royal Art Academy Brussels, former assistant at the ULB Museum Network.

Address: Université libre de Bruxelles, Faculté de Philosophie et Sciences sociales

Département d'enseignement d'Histoire, Arts et Archéologie (HAA)

Campus du Solbosch - CP 133/01 - Avenue F.D. Roosevelt, 50 – BE-1050 Bruxelles

Email: Nicole.Koning@ulb.be & ngesche@me.com

<https://musees.ulb.be/fr/le-reseau-des-musees>

KEYWORDS

Plastercasts, models, synergy, cooperation, popularization.

Exhibiting art where it is made: educating art museum professionals and curators at the Faculty of Fine Arts, University of Porto

Lúcia Almeida Matos

Abstract

University art museums and collections benefit from high-level research and pedagogical resources while providing professional training opportunities. Embedding the museum or collection in an Art School creates a virtuous ecosystem where artists can contribute to the enrichment of the collection and work with students learning and practicing the skills involved in presenting, documenting and communicating art. Such dynamics facilitate the development of alternatives to established operating models of art museums. This article explores a variety of exhibition strategies inspired by the creative environment of the Faculty of Fine Art, University of Porto, leading to meaningful ways of public engagement.

Lúcia Almeida Matos

The collection of the Faculty of Fine Arts, University of Porto (FBAUP), was first established to address the needs of the teaching program of the Porto Academy of Fine Arts, founded in 1836. The Academy was preceded by a Public Drawing Class, founded by royal decree in 1779. The first major figure appointed to teach the class was artist Francisco Vieira who, at the beginning of the 1801 school year, explained his vision in his opening speech: “quality examples are more valuable than many lessons” (VIEIRA 1803, 6). This thinking led to the acquisition of hundreds of prints, soon followed by old-master drawings and plaster casts. As the Drawing Class grew into the Porto Academy of Fine Arts, scholarships were established for students to train abroad, typically in Rome and Paris. Scholarship recipients made copies of significant works in museums, in addition to producing original works. These were sent to the Academy as proof of progress, and incorporated into the growing collection of “quality examples” needed for educating art students. Also, in each school year, the best works produced across the different topics of the curriculum were collected with the same purpose of becoming examples for newcomers. As the curriculum changed over the years to accommodate new approaches to art practice, so, too, did the types of work collected. Collecting reflected how experimentation and innovation became central to art practice, incorporating unexpected works under the traditional categories of Painting, Sculpture or Drawing. In the 1960s, the curriculum expanded to include Photography and Video, and the blurring of the traditional disciplines encouraged the production of Installations which the collection also took in. Today, FBAUP acquires, each year, a few works selected from the annual Art and Design graduation shows, introducing works that challenge established practices and narratives in new ways that, in recent years, have included issues related to gender, race, environmental degradation or urban gentrification.

Since the foundation of the Porto Art Academy, and along the various phases of its development into the Porto Art School, and, more recently, as part of the University of Porto, the institution has considered the exhibition of student work, both in annual graduation presentations and as part of curated exhibitions, crucial to art students’ development. The exhibition has been, from the beginning, a pedagogical tool, a moment to assess the work outside of the classroom, using an established format of institutional and public display, open to evaluation and criticism beyond the academy. Of course, exhibitions promoted by the school were also a first step for aspiring artists to enter the art market by making them known to private collectors and policy makers who could provide opportunities for architects and artists to participate in public projects. Later, most notably in the 1950s, the annual exhibition was also a vehicle for building *esprit de corps* around the idea of a progressive academic environment open to innovation, a space of relative creative freedom during a long lasting authoritarian political regime. More recently, Art and Design students have been challenged to find their own exhibition strategies, both individually and collectively. This activity fits within art and design course syllabuses and is viewed as a valuable component of their education. The school provides a variety of exhibition spaces that include white-cube type galleries, black boxes and a garden for outdoors works¹. Additionally, students can use hallways, stairways, elevators and other spaces or architectural structures to respond to assignments and make their work visible.

In addition to student work exhibitions, which can last from a few days to a few weeks, the Faculty of Fine Arts now has a program of three to four exhibitions a year in its Exhibitions Pavilion, which was built as part of an expansion initiative in the 1950s, and recently renovated to meet current environmental and security standards. This program is designed to be both an additional teaching and learning tool for the art and design students and an outreach channel to a wider audience. As such, the program embraces the risk-taking, experimental and creative nature of the art and design undergraduate and graduate programs, in the thinking of the topics and narratives as much as in the choice of display solutions, label formats, content, lighting, etc. The formulation of the annual program involves teaching staff, alumni, young and established artists, in-house or external curators, and uses works in the collection in articulation with external works from institutions, galleries and private collections.

The fact that the collection is regularly used in art classes in programs at the core of FBAUP’s undergraduate and graduate education, underlines the continuing relevance of its initial purpose as an instrument for training art students. Today, this happens mostly through the medium that is the exhibition. Art classes

1. Partnerships with neighboring organizations, from small artists-run spaces to national museums provide additional exhibition opportunities for students and the collection.

often take place in gallery spaces and, depending on the particular class subject, students discuss historical narratives, individual art works, produce new work drawing on the ones on display, and so on. Although this can be done outside the school, in a museum or gallery, the actual exhibition program in FBAUP is set up to address one or more topics of pedagogical value to the art and design curricula and thus be a useful tool in the teaching and learning process.

THE ART EXHIBITION: EXPLORING POSSIBILITIES

The multiple unseen activities carried out in any museum or collection lead to the most public enterprise, i.e. the exhibition, be it a long-term setup or a temporary event. This is particularly true for art museums and collections, as the exhibition is central to the very practice of art, being the means by which the work becomes known. While the centrality of the exhibition in the art world has been acknowledged, especially since the 19th century, attention to the meaning as well as the impact of particular exhibition strategies is relatively recent. This new attention to the relevance of the exhibition to the wide field of art has taken the form of exhibitions history (ALTSHULER 2008, 2013)—studies of particular exhibitions², exhibition remakes³, published interviews with groundbreaking exhibition organizers—and it has encouraged innovation and experimentation, challenging perceived truths and established canons.

While the debate about *The Two Art Histories* (HAXTHAUSEN 2002) was very much alive in the late 1990s, its premise—the divide between the museum culture “input, taxonomy, comparison, and provenance” versus the academic culture of “output, meaning, purpose, and wider cultural resonance” (HAXTHAUSEN 2002, p. 5)—has evolved as the two worlds came to understand the need to collaborate not only for mutual benefit, but also not to deprive the public of the best of both. The dilemma of modern art museums to choose between experience or interpretation, as famously enunciated by Nicholas Serota (2000), has been navigated in multiple ways, especially by institutions dedicated to presenting contemporary art. As Serota explains, this is in part due to the involvement of the artists themselves in the display of their own work.

In fact, the driving force behind imaginative ways of organizing exhibitions in museums seems to stem from contemporary art itself and its contingent (BUSKIRK 2005) nature. As Howard Fox (ALTSHULER 2005, 22) suggests that “when it comes to contemporary museum collections, their biggest weakness—incompleteness and constant revision—are also their greatest strengths”.

I believe that such strength is most effectively present in a university art museum or collection, specifically in one that is part of an art education institution. A collection built by incorporating current artistic production at any given time is, by definition, permanently evolving, and thus requires adjustable museum practices ranging from methods of cataloguing to strategies of exhibiting and ways of communicating. Such a collection is more about the connections of those practices with the actual materials, formal canons, ideas and concerns raised by art works than about establishing hierarchies among works that have endured the test of time, or bestowing the seal of quality by the History of Art.

A university art collection, especially one embedded in an art school whose business is the teaching and learning of Art and Design—including materials and techniques, history and theory, of encouraging experimentation and developing individual creative paths—is a unique place also to experiment with approaches to the presentation, mediation, and communication of art and design. Most importantly, the university art collection is an opportunity to develop ways of looking and discussing art of the past in connection with the practices, ideas and concerns of today.

Also, most of what is collected is what is recognized as innovative or opportune in the moment when it is produced. Therefore, criteria such as masterpiece status or art-historical relevance do not come into play. Neither is being “promising” on the art market. FBAUP’s collection has been built over a long enough timespan to reveal many possible angles of approach to organizing exhibitions that, while showing powerful or intriguing works, tell untold stories such as why so many works by female students were considered worthy of collection even though most of those students never became professional artists, pose unusual questions such as how and why a light installation can be presented as the graduation work of a student in the painting program, and reveal previously unforeseen connections as may happen between a Renaissance drawing and a contemporary performance.

In 2006, a new MA program was launched, aiming to provide Art and Design graduates with knowledge

2. As is the case of the series Exhibition Histories, published by Afterall.

3. As was the case of Cellant’s remake of Szeemann’s *When Attitudes Become Form at the Prada Foundation*, Venice, 2013, among several others.

and skills complementary to their undergraduate studies and also to bring in students and professionals from other areas, interested in developing alternative research interests or in pursuing professional careers in the creative environment of an actual place of art and design production. The MA program in Art Studies offers two paths—Art Theory and Criticism, and Museum and Curatorial Studies. Both paths intercept in shared courses, some mandatory, others elective. They differ in the emphasis of their core courses. Art Theory and Criticism is designed for professional artists, producers or professionals of the wider cultural sector who seek a deeper theoretical basis in which to anchor their practice; Museum and Curatorial Studies is oriented towards graduates from a variety of fields, and to professionals already working in the museum and art gallery sector who seek either a career alternative or to expand and deepen their own practice.

From the very beginning, the program has attracted a diversity of candidates considering nationality, age, level of professional experience, academic and professional profile. Each year, a group of 15 to 20 students typically includes around 20% foreign students from Europe and further abroad. The prevalent nationality is, unsurprisingly, Brazilian, as is the case with most higher education programs in Portugal. Regardless of nationality, students can be graduates in Art, Architecture, Design, Communication, Theatre, Dance, Art Education, Art History, even Law and Engineering, but also professionals working in museums and other public and private art organizations. Cultural differences bring additional inputs that enrich discussion in class, and different profiles and backgrounds allow for the building of truly multidisciplinary teams to organize an exhibition project. Each team will collectively decide on an exhibition concept, and student backgrounds help to decide the role of each team member—be it to engage in the necessary research to select the artists and the works for an exhibition, to design an exhibition plan for a specific space, to develop a communication strategy, to prepare a budget—all that is necessary to bring an exhibition into being.

Part of the learning experience of both paths of the MA in Art Studies is to participate organising the exhibitions that, each year, constitute FBAUP's program for the Exhibition Pavilion, and to contribute through research about the collection. These are valuable learning experiences, and students see their work credited in each exhibition credit panel and in the collection management platform.

EXHIBITION DISCOURSES—LINKING PAST AND CURRENT ART PRACTICES

When Seth Siegelaub, interviewed by Obrist, discusses his project “The Context of Art/The Art of Context” which looked back to the art scene in the late 60s, he points out that what made the project interesting to him was that it included people “who had not been successful, who were left by the wayside for one reason or another, or changed profession, and so on” (OBRIST 2014,118). He explained that project revealed a perspective on the period that moved away from “the way art history is traditionally written, i.e., through the eyes of those who have been most successful”.

If ground-breaking curatorial projects were inspired by the experimental nature of art in the 60s and 70s, innovative and imaginative ways of exhibiting and communicating certainly best suit collections built for and from an art learning and researching environment—an art school—which, by definition, encourages experimentation and innovation from both students and educators. Three recent examples are briefly presented below. These demonstrate a range of curatorial answers to issues raised within an art and design school context while translating them to a wider audience probably more familiar with museum-like approaches to the same type of objects.

EXAMPLE 1. MASTERPIECES.

As has been established, FBAUP's art collection is not about masterpieces; except when it is:

In 2019 the world celebrated Leonardo da Vinci's legacy, 500 years after his death. FBAUP owns the only work by Leonardo in Portugal, a small, beautiful drawing of a domestic scene—a young woman bathing a baby. On the occasion, the drawing was loaned to the Teylers Museum in the Netherlands for an early celebration, and later travelled to the major exhibition in the Louvre which opened in October.

Between the two international events, FBAUP programmed its own celebration of Leonardo. The main goals were to provide public access to the actual artwork and to establish links between the Leonardo's drawing with later practices over the centuries with an emphasis on current drawing productions. Two events were organized.

The University of Porto marked the date of Leonardo's death, May 2, by exhibiting the drawing during



Fig. 1. Exhibition view The Porto drawing – Leonardo da Vinci (2019), image: Luís Pinto Nunes. FBAUP

kind of visual stroll as the camera's gaze slowly followed the details of the drawing, highlighting different ways of considering it: as a museum piece—the camera focused on details to do with provenance such



Fig. 2. Screenshot of Leonardo da Vinci drawing (2019), video still: Patrícia Viana de Almeida. FBAUP



Fig. 3. Exhibition view Dreams and reasoning (2019), image: Paulo Luís Almeida. FBAUP

that one day. Predictably, the event got extensive media coverage and long lines of visitors looked forwards to the rare opportunity to see the actual work. In FBAUP's main exhibition hall, the single framed drawing was on display (fig. 1), too small to be examined in detail by the hundreds of people queuing up to spend a mere moment with it. When preparing the event, the concern was to find a way to move beyond the exploitation of the unique masterpiece status of this artwork, offering alternative ways of enjoying it while eventually learning something from the experience. To this end, in addition to providing documentation of the exhibition and research history of the drawing, a video was made designed to visually underline different perspectives and ways of seeing the drawing. This was not a documentary but rather a

Leonardo's celebration extended into another exhibition in the same hall, this one dedicated to his enduring legacy across the centuries with an emphasis on contemporary practices. The point of departure was, again, the Porto drawing, but, this time, only the video was presented. Titled *Dreams and Reasoning*⁴, the exhibition explored several aspects present in Leonardo's drawing and in other drawings from the collection, as well as in works by invited artists; both established and young, national and international, in a variety of media. One of the points that visitors would recognise right away was that drawing can be practiced not only using charcoal or graphite on paper, but can also take the form of a woven piece, a performance, or a video.

The exhibition was organized along five elements identified in Leonardo's drawing by the curator, artist and teacher in the Drawing Department, Paulo Almeida: *Variant and Variation*, *The Gesture of Writing*, *Minimum and Excess*, *Everyday Gestures*, *The Intimate Gaze*. Some of these themes stemmed from the vocabulary of drawing, as is the case of *Variant and Variation* which showed alternative or transitory stages of registering an idea; others, such as *The Intimate Gaze* revealed the singular way in which each artist engages with his or her subject in a setting

4. 'Dreams and Reasoning' is an expression borrowed from a 1560 manuscript with the same title, by the Florentine painter Gian Paolo LOMAZZO, which describes an imaginary conversation about Leonardo's life and work.

of close proximity; others, as is the case with *The Gesture of Writing*, reflected on the effect obtained by combining drawing with other forms and techniques of representation (fig. 3).

The works on display were visually strong and chosen to emphasize the conceptual, visual and technical relationships between the long-standing language of drawing across time. The themes that organised the works were unobtrusively printed on the walls high above each group so that, while indicating the theme presiding over their selection and arrangement, they did not stand in the way of experiencing each work on its own or in dialogue with other works alongside.



Fig. 4. Exhibition view *From the Antique* (2019), image: Cristina Ferreira. FBAUP

EXAMPLE 2. PLASTER CASTS.

From the Antique discussed the significance of plaster casts for the training of artists in the past and now. The large exhibition hall was filled with plaster casts and drawings from the collection and, to clarify the various historic and contemporary roles played by casts from the antique, the exhibition was punctuated by unusually long texts written by faculty members who are also artists (rather than by art historians or critics). One such example dealt with a cast of Venus of Milo and two drawings by the same author, Acácio Lino (1878–1956)—the earlier one (1895) when Lino was a student in the Porto Academy, the second (1905) when finishing his training at the Paris École des Beaux-Arts, nine years later (fig. 4). The wall text pointed out that, while both drawings showed the same object, they approached the question of representation in different ways: the earlier drawing

builds an exemplary image, a clear isolated form achieved by a clean contour line that encases the shadowing strictly within its boundaries; the later one represents the same figure but situated in a specific space which, in a way, disturbs the perfect image achieved in the earlier drawing introducing the outside world which conditions and, in some ways, models the figure. The text ended by commenting on the paradigm shift from neo-classical training to the unstable view that characterises modernity. The efficacy of the wall text was enforced by the positioning of the Venus de Milo cast in relation to the drawings which were, in turn, shown side by side, bringing home the ideas explained in the text.



Fig. 5. Exhibition view *Sonic Annotations: Space, Pause, Repetition* (2018), image: Pedro Tudela. FBAUP

EXAMPLE 3. SOUND.

Sonic Annotations: Space, Pause, Repetition was the first experiment in exhibiting a piece of sound art. The exhibition showed new work by two faculty members, Pedro Tudela and Miguel Carvalhais, who invited contributions from a large number of international sound artists, all part of the label Cronica⁵, which has published experimental music and sound art for over fifteen years.

The challenge was to develop a sound piece (which can be individually experienced anywhere using a playing device and headphones) into a site-dependent installation. How to ground sound in a gallery space?

Drawing on the architecture of the large exhibition hall, the artists produced a rectangular metallic structure, punctuated by light features, which replicated, in size and shape, an existing free-standing wall. These two structures delimited two ends of a carpeted rectangle. Speakers hanging from the ceiling added an overhead boundary to this listening area, functioning as much as material components of the full space installation, as they did sound sources (fig. 5). To complete the multisensorial experience, a ‘metallic’ fragrance was

5. <https://www.cronicaelectronica.org>

developed for regular deployment during visiting hours. Visitors could sit or lie on the carpet while listening to sound compositions for computers and audio monitors. Fifty-two artists contributed with sound pieces ranging from a few seconds to ninety minutes long, plus a sixty-minute segment that was used by the two authors to produce algorithmic compositions. While the spatial experience could be the same in each visit, the sound experience could never be anticipated or repeated, thus ensuring a uniqueness to each visit which motivated visitors to return multiple times over the three months when the exhibition was open.

EXHIBITING BACKSTAGE ACTIVITIES

One topic of the MA program in Art Studies concerns conservation issues raised by contemporary art, an issue crucial to the collection as it expands its variety of works. Students are informed of the international discussions, publications and research projects⁶ on this topic, of issues related to preserving works that may be intrinsically ephemeral, and of the many strategies that have been discussed, and guidelines and protocols being adopted by major international museums.

The course does not deal with restoration (which requires specific training programs) but instead, after discussing the changes in conservation theories over time and teaching fundamental preventive conservation guidelines, introduces students to the role of documentation and the forms that such process can take, and the students engage with actual cases. Documenting contemporary art is one of the main sources of the information required to preserve a range of contemporary art practices and make sure that they can be reinstalled is a complex as well as creative endeavour (MATOS et al. 2015) that may involve working closely with an artist, developing interviewing skills, consulting archives and establish levels of relevance for the information gathered.

Additions to the collection are typically acquisitions from the annual graduation exhibitions of the Art and Design programs, plus gifts from alumni who, recognising the teaching and research value of the FBAUP art collection, donate works that they consider pivotal in their careers, often early works that are not easily identified with their current, more recognised production. These new additions require documentation procedures inherent to collection management, leading to the ultimate conservation step, viz. the exhibition (MATOS 2010).

Learning, in the Faculty, happens through practice-based research: from the very moment when new works enter the collection, they are assigned to student teams for documentation. That includes such practical tasks as filling out the record in the inventory data base, writing a condition report and developing storage and travelling recommendations, as much as researching biographical and professional information about the artist, the context of production, and formal or conceptual links to other works by the same artist. The most illuminating tasks are always the artist interview and the re-installation of the new arrival to the collection. These procedures lead to the organisation of an exhibition where the process is presented step-by-step, highlighting the discoveries made while enunciating some of the future foreseeable issues. In addition to producing new knowledge in areas such as art conservation, museum and exhibition studies or art history, these exhibitions are also discovery opportunities for the wider public who may be familiar with a particular work and still find out unexpected aspects such as its fabrication process or the risks of it being lost over time.

Such was the case with Fernando José Pereira's *Installation* of 1991, which entered the collection in 2016. A gift from the artist, *Installation* was made for the Europalia festival of that year and had not been shown since. It includes sculpture-like vertical elements and wall panels, set up according to a specific spatial plan. Though their qualities are sculptural, each element results from painted canvases applied to wooden quadrangular- and rectangular-based prisms, upending the traditional practice of stretching painted canvas on a flat surface. As explained by the artist, the geometric volumes arranged in the exhibition relate to minimalism while the muted, multilayered acrylic paint refers to Rothko, whose work FJP admires. Some 25 years after its first and only presentation, the first sketches, installation diagrams and instructions had to be retrieved to develop a better understanding of the spatial relationship of the elements with one another in a given space. Most informative were the interviews with the artist, who revealed the close connection of this work with his appreciation for the music of Steve Reich and the experience of contemplation.

6. Such as The Marie Skłodowska-Curie Innovative Training Network New Approaches in the Conservation of Contemporary Art (NACCA) funded by the European Union H2020 Programme (H2020-MSCA-ITN-2014). The Faculty of Fine Arts at the University of Porto was part of this European project coordinated by the Faculty of Arts and Social Sciences at Maastricht University.

After discussing how to effectively present the work and the documentation process, the decision was made to use the two separate spaces of the gallery to provide, on one side, opportunity for the quiet contemplation of *Installation* as intended by the artist and, on the other side, to display the graphic documentation while playing Reich's music (fig. 6).



Fig. 6. Exhibition view *Matters of conservation #* (2019), image: Fernando José Pereira. FBAUP

about the administrative process and revealed the main concerns and priorities of each party. Another component of the research was learning about the enlargement techniques used in the 1950s. These were to scale the small plaster studies in FBAUP's collection, into the full-size stone sculptures on the building. For this, the artist's son, himself a sculptor, was interviewed, and the MA students visited the Sculpture department to see for themselves how part of the process is actually done. Yet another essential step was to visit the actual building, familiar to everyone, as it is located in the centre of Porto, but with the specific purpose of really looking at the sculptures and taking photographs to inform the setting-up of the exhibition. This was a good opportunity to talk about how what we see is dependent on what we look for, and it helped the decision-making on what aspects to highlight, and how, in the exhibition. While discussing different approaches to exhibiting the documentation process for these pieces, the choice fell on a design that, in some way, would underline the linearity of the group of sculptures and the formal clarity of the building by establishing formal and methodological correspondences: the five plaster studies were lined up on a large low table; in front of them, closer to the viewer, documents resulting from the investigation were displayed; a photograph of the building was projected on the wall behind the table showed the final placement to reinforce the stage-like display of power exuding from the court building (fig. 7).

CONCLUSION

University art collections can be laboratories not just to learn in general, but specifically to test new modes of using acquired knowledge in a variety of areas to find effective display strategies. Creative freedom is an essential component of art education and, in the Faculty of Fine Arts of the University of Porto, this very freedom is enacted in the MA program in Art Studies alongside rigorous academic training and active hands on-learning of skills that are essential in the professional world. The mindset needed to set up an exhibition is strongly akin to that of putting together an art or a design project, and this may very well be one of the reasons why so many artists engage in curating exhibitions.

The examples discussed above highlight some of the questions that stem from art practice, suggesting that,

Another set of conservation issues were raised by the five plaster studies for the stone representations of the *Source of the Law* for the façade of a new main court building for the city of Porto commissioned to Barata Feyo (1899–1990), a sculptor and teacher at the Porto Fine Arts School, in the late 1950s. The program called for five female hieratic figures, 3 metres high, carved in stone, each displaying an attribute, to be placed in a row over the doors of the court building. Part of the documentation process involved consulting law manuals to learn about each law source, in order to make sense of the attribute that the artist assigned to each one. Correspondence between the artist and the commissioning officials provided information



Fig. 7. Exhibition view *Matters of conservation #3* (2018), image: Rita Marinho. FBAUP

when it comes to exhibiting art, beyond Art History or Museum curatorial criteria, questions related to the actual practices of art can be staged—exhibited—in illuminating ways. Such exhibitions may deal with such diverse questions as: how do protocols and formal canons change across the centuries? Why and how are historical pieces relevant today, not only for their Art History status but also to current practices? How can you provide a spatial physical experience of a time-based acoustic work? How do public sculptures come into being?

As the graduates of the MA program go out into the world of private collections, art galleries, or museums, big or small, they will take with them these experiences and be agents of change upon established protocols and predictable solutions. Maybe they will pleasantly surprise visitors and promote more active engagements with art by offering opportunities to find out about the actual processes and methods used to produce it, the array of formal and material solutions that artists have found across the centuries to answer everlasting enquiries, or by simply encouraging visitors to go check out, in town, how a study kept in a museum turned into a monumental public art piece?

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CONTACT

Lúcia Almeida Matos, Associate Professor, Faculty of Fine Arts, University of Porto.
 Address: Faculdade de Belas Artes, Av. Rodrigues de Freitas, 265, 4049-021 Porto, Portugal
 Email: lmatos@fba.up.pt

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Training as a heritage community: undergraduate internships at the forthcoming Museum of Geography of the University of Padua

Chiara Gallanti, Giovanni Donadelli, Mauro Varotto

Abstract

Between 2015 and 2018, when it was still in its project stage, the Museum of Geography of the University of Padua hosted sixteen student interns in Heritage and Tourism Studies, who were asked to participate in various tasks connected to museum set-up. Their involvement in the crucial mechanisms of the nascent museum activated strong personal motivation, reflected in the high quality of their work. Moreover, they had the chance to experience, as main actors, their belonging to the academic heritage community. Even though the internship programme's context cannot be reproduced exactly, the programme nonetheless offers good practice insights that can guide the design of future training proposals.

Chiara Gallanti, Giovanni Donadelli, Mauro Varotto

The Museum of Geography of the University of Padua was inaugurated on 3rd December 2019. During its project stage between 2015 and 2018, the museum hosted trainees from the university's History and Preservation of Cultural Heritage and Planning and Management of Cultural Tourism programmes. This positive experience had to be interrupted during the busy set-up period immediately preceding the inauguration, due to the impossibility of dedicating enough time to supporting and supervising the trainees' activity. Unfortunately, as soon as the museum was ready to resume this practice, risks related to the diffusion of Covid-19 led the Italian government to close all Italian museums on 23rd February 2020, and then to apply a general lockdown on 9th March 2020, impeding this project as well as several other planned initiatives. Persistent uncertainty forced the museum to postpone the project until January 2021.

We believe that the experience gained in the 2015–2018 period provided some clear guidelines for effectively supporting current internship proposals. The paper aims, therefore, to retrace that positive experience and to identify and share the good practices that developed from it.

STUDENT INTERNSHIPS IN ITALIAN UNIVERSITIES

Although official data are not available, it is estimated that every year in Italy 150,000 to 200,000 students undertake a curricular internship (VOLTOLINA 2020). Unlike extracurricular internships, which are directed to recently graduated students (the so-called 'first impact' internships), curricular internships are "experiences provided within a formal education or training course, whose purpose is not directly to promote job placement, but to refine the learning and training process"¹. In alignment with the current workplace flexibility trends, as well as allowing students to gain concrete experience in the subjects whose theory they are learning in the classrooms and to acquire new and useful expertise for the professions they are training for, curricular internships aim to meet students' need for 'learning information about the mechanisms of the world of work; of knowing, understanding and addressing their own interests; of identifying and evaluating, in a concrete way, their aspirations; of recognizing and experiencing their abilities; of developing and evaluating their social skills'² (DI BARI 2016, 69).

In academic contexts, curricular internships may involve bachelor's, master's, and other postgraduate students, whether on a mandatory or voluntary basis: variability reflects the fact that internships are still not fully regulated (IUZZOLINO & LOTITO 2015)³, and that universities have developed their own internal guidelines. Students can normally carry out their internships after applying either to internal university structures (e.g., offices, laboratories, museums) or to external entities, and, in both cases, they are unpaid. Internship activity is not officially assessed but gets a report from the supervisor and provides part of the educational credit⁴ needed for the final qualification.

The lack of regulation is one of the factors that makes it difficult to assess curricular internship effectiveness, but a focus on their impact on job hunting is included in the annual report concerning the employment situation of graduated students in Italy released by the Consortium *Almalaurea*, which collects and processes data from 76 Italian universities. The 2021 report mentions that, among 2019 graduates, those who undertook a curricular internship were 12.2% more likely to find employment within a year from graduation compared to those who, *ceteris paribus*, did not⁵.

1. Translated by the authors from the Nota n. 4746 of 14th February 2007 of Italian Ministry for Labour which introduces the distinction between curricular and extracurricular internships (ITALIAN MINISTRY FOR LABOUR AND SOCIAL POLICIES 2007). On the complex situation of internships in Italy see also IUZZOLINO & LOTITO 2015 and, online, Guida Best Stage 2021–2022 (downloadable from the website www.repubblicadeglistagisti.it/).

2. Translated by the authors.

3. The most recent directive on curricular internships is the ministerial decree 42/1998;

as several things have changed since then, for instance the distinction between curricular and extracurricular internships has been introduced, an updated law is needed (Guida Best Stage 2021–2022).

4. One university educational credit (in Italian Credito Formativo Universitario, shortened to CFU) corresponds to 25 hours of work (lessons, home study, etc.) and is the unit which quantifies the load of work required by a curricular activity (course, internship, etc.). The duration (and therefore the value in credits) of curricular internships depends on the regulations of the single degree course (usually 75 or 150 hours, i.e. 3 or 6 CFUs).

5. ALMALAUREA 2021. The datum confirms the positive trend registered during the previous years: for 2018 graduates the probability of finding a job within a year was +9.5% (ALMALAUREA 2020); for 2017 graduates, +9.1% (ALMALAUREA 2019).

FIRST INTERNSHIP EXPERIENCES AT THE MUSEUM OF GEOGRAPHY OF THE UNIVERSITY OF PADUA

At the University of Padua, from the academic year 2014/15 to the academic year 2018/19, the number of internships (both internal and external to the University) has increased from 20,582 to 25,539 per year (Nucleo di Valutazione di Ateneo 2020)⁶. Included in these significant numbers are the sixteen bachelor's students from the University of Padua programmes in History and Preservation of Cultural Heritage and in Planning and Management of Cultural Tourism, who, between 2015 and 2018, were hosted as trainees by the Museum of Geography of the University of Padua (GALLANTI, DONADELLI, ROCCA & VAROTTO 2019). The trainees, for whom a 150-hour internship was compulsory (as stated by the internal rules of their degree course), were not all inducted at the same time, but were hosted in different periods over the four years under consideration.

The very first group of six was selected out of a larger group of thirty-nine who answered the first call for trainee candidates in 2014, proving that the idea of an internship at the Museum of Geography seemed particularly attractive to undergraduates in Cultural Heritage Studies. We believe that, in general, university museums have strong potential in attracting this kind of candidate. Their institutional, territorial and disciplinary proximity to dimensions familiar to students tone down the aura that normally surrounds museums external to the University (DORRIAN 2014), preventing excessive intimidation and promising a more comfortable introduction into the new context. From their point of view, academic museum staff are accustomed to dialogue with students and are normally aware of their educational backgrounds (e.g. what they have studied, the kind of experience they have already had during their studies, the digital and practical tools they have had the possibility to deal with, etc.) University museum staff know, in advance, the starting point of the joint work to be done: what can be asked, what should be taught, the kind of duties that can be entrusted. Belonging to the same university community, even with different roles, and sharing a common background and identity, simplifies the interaction on psychological, practical and administrative levels. Moreover, on a pedagogical level, academic museums are jointly responsible for the quality of the training proposals provided by the university as a whole, particularly with regard to the didactical effectiveness of their internship offerings. Therefore, to contribute a significant effect to the students' educational path, academic museum staff are required to be deeply involved in the process of training them, promoting their agency while leading them towards autonomy and responsibility.

However, any consideration of the efficacy of the internship requires the opinions of the former trainees themselves. Therefore, a questionnaire was put to the trainees after their graduation and entry to the workforce, to evaluate their satisfaction with their internships in relation to the development of their careers.

Administered some time after the experience, an unstructured questionnaire was developed which included the following eleven open questions, grouped in sections:

Section 1: Former trainees' present working situation

1. Are you currently employed? If so, what is your job?
2. Do you consider your current professional situation coherent with your studies?
3. Would you like your job to be more aligned with your studies?

Section 2: Former trainees' opinion about the value of the internship for their career

4. Why did you choose an internship at the Museum of Geography? Do you consider it a useful experience for your professional career?
5. Could you indicate the aspects of the internship that you found most useful?
6. In what way do you think the experience could have been more suitable for your training?
7. Is there any aspect of the work you are doing that you had already experienced during your internship at the Museum of Geography?

Section 3: Working in pairs: a value or a disvalue?

8. Did you work in pairs during the internship? If so, do you think your experience has been favored or disadvantaged by this way of working?

6. Unfortunately, the data concerning curricular and first-impact internships are not separated.

Section 4: Trainees' sense of belonging to the university community

9. Do you feel that having participated in an internship at a university museum has increased your sense of belonging to the university community?
10. Did the handling of items used in the past by professors and students of your university evoke any particular emotion or reflection? Is there a particular item that touched you in this sense?

Section 5: Final considerations

11. Is there anything that you would like to add and let us know?

We were able to contact eleven of the sixteen former trainees, nine of whom returned the questionnaire.

BENEFITS: THE MUSEUM STAFF'S POINT OF VIEW

Despite the above-mentioned limited legislative attention paid to internships in Italy, they can positively contribute not only to students' entry into the workforce, as previous reported data attests, and moreover to a better organization of the hosting institution (BITTERS & LEON 2019, DI BARI 2016). The introduction of trainees to the museum work team was aimed, in fact, towards mutual benefit.

During the four-year period the Museum received, first of all, an *administrative* benefit consisting of an increase in staff numbers when time-demanding preliminary steps were necessary for its actual set-up. The trainees multiplied the forces, making it possible for the museum staff to manage a greater number of tasks: for example, the presence of trainees made it possible to undertake the coeval census of various kinds of items (maps, instruments, photographs), as the staff role could shift, after a training phase, from census takers to supervisors. At the same time, despite the time-consuming organizational matters linked to the creation of the museum, the trainees' help made it possible to keep running the Third-Mission activities that the museum already hosted⁷, from science outreach initiatives (e.g. the Researchers' Night), to workshops with schools. (fig. 1.).

On a *museological* level, extending the museum family during the project phase allowed for the inclusion of more and various perspectives in the development of the museum: it was possible to learn from the opinions of a group of motivated young people working on the museum heritage how to include their interests and expectations in the project. Trainees' input, as well as that of every other member of the museum team, helps, in general, to put in place an effective visitor-focused approach, as theorized by

Design Thinking methodology (NASTA & PIROLO 2020).

Moreover, the new teaching role that the members of the museum staff found themselves involved in (activating their potential as members of an educating society) entailed an introspective phase concerning objectives (what do I want to convey?) and methods (how do I transmit it?) which ended up producing a clarificatory *methodological* benefit with regard to several aspects of their own work: preparing explanations of some of their duties, clearly identifying and defining objectives and work phases, improving mental order and procedural accuracy.

The benefits that the museum staff expected for the trainees consisted of the chance to face the first practical issues concerning work at the museum, gaining the related soft and specific skills, and, on a more general level, to test museums as suitable destinations for their career aspirations. An additional value to be found in this specific internship proposal was, in the museum staff's view, the rare opportunity



Fig. 1. Student interns in History and Preservation of Cultural Heritage helping to reorganize the wall map collection in 2018, when the current Discovery Room was still available for space-consuming trainees' activities. Photo by Chiara Gallanti.

first practical issues concerning work at the museum, gaining the related soft and specific skills, and, on a more general level, to test museums as suitable destinations for their career aspirations. An additional value to be found in this specific internship proposal was, in the museum staff's view, the rare opportunity

7. The Section of Geography of the Department of History, Geography, and the Ancient World of the University of Padua, which hosts the Museum of Geography, has been involved in Third Mission activities since 2002, particularly addressed to schools and teachers (VAROTTO, DONADELLI, GALLANTI & CANADELLI 2020). As the idea of the museum concretely took off, were embedded within the "Museum-to-be activities".

of participating in *creating* a museum.

A comparison between the staff's expectations and trainees' experiences is enabled by the trainees' answers to the questionnaire.

BENEFITS: THE TRAINEES' POINT OF VIEW

From the post-experience survey, besides the most expected "possibility to get an on-the-job training in continuity with what I was studying in theory", the uncommon possibility of "witnessing the birth of a museum" emerges as the main incentive in choosing an internship at the Museum of Geography. The answers testify that, in general, trainees' participation was characterized by a strong motivation right from the internship selection phase. The museum staff tried, therefore, to strengthen this essential resource by emphasizing, during the trainees' work, their role in the crucial mechanisms of the museum creation process, knowing that the actual *lack* of the museum itself might otherwise consume their enthusiasm.

Other strengthening strategies consisted in assigning tasks of some importance, and in leading interns towards an increasing degree of autonomy.

The main duty that interns were involved in was conducting a census of the collections. A general example was provided by the census that Museum staff had previously undertaken of the relief models.

After being briefly introduced to the history of the collections during a face-to-face lecture, trainees were led to familiarize themselves with the spaces and tools they had to deal with (e.g. storage and storage arrangements, available workstations and software, inventory registers and their structure, etc.).

Then they were taught, both by being shown and by contact with the objects, about the general characteristics of the specific collection they were assigned to (instruments, globes, maps, photographs, or wall charts) and the kinds of information these objects can provide.

Trainees were then introduced to a database purpose-built by the museum staff by which they could pre-catalogue the collections, the final aim of this census. The database represented a preparatory step towards the official cataloguing activity, which is one of the more typical duties of museum administrative work in Italy⁸: the database included all required record fields, but the trainees were asked to fill only a selection of them.

The working phases and methodology were finally illustrated: assigning the object a museum code, opening a corresponding record on the database, identifying the historical inventory labels on the item, searching the related inventory register, copying the corresponding data into the database, then filling the database with information that the object itself could provide (dimensions, material, production techniques, etc.). Interns were also encouraged to carry out basic investigations on a selection of items by means of simple archival and bibliographical sources.

This allowed them to start gaining confidence in both the procedures and the technical language that are typical of museum professions.

All job phases were initially demonstrated and commented by the museum staff. Then, after a shadowing phase, trainees were entrusted with the autonomous continuation, discreetly supervised but encouraged to act independently.

It should be noted that cataloguing is not currently taught to Heritage Studies students at the University of Padua: the on-the-job experience at the Museum of Geography gave its trainees, therefore, a concrete chance to enrich their learning path with methodological and practical competence.

We believe that the high quality of the outputs, as for example the constant care and detail given to the databases, together with the awareness of their contribution to the museum project emerging from the survey ("I cannot wait to come and see what results our small but, I believe, fundamental contribution has made possible", "I trust that the catalogue of the photographs we worked on is still a useful tool for the museum") confirm the persistence of the motivation for most trainees.

In the "Strong aspects of the experience" section of the post-experience survey emerge as leading trends

8. Since the end of the XIX century in Italy, cultural heritage has been the object of a systematic and unified cataloguing process, aimed at assuring protection and enhancement. The result is the General Catalogue of Cultural Heritage, recently developed also in an open access repository: <https://catalogo.beniculturali.it/>. The cataloguing process follows a long set of rules, whose undeniable complexity depends on the necessity of standardizing fundamentally different object typologies.

words like “touch”, “contact”, “direct observation”, proving that the chance to handle items and documents directly, experiencing the quantity and quality of information that they can provide and finding answers autonomously were perceived as major benefits of the experience. One trainee, who worked with tools, defined more specifically the usefulness of direct contact as gaze- and intuition-coaching: “the constant, direct observation of scientific instruments makes it possible, in my opinion, to develop intuition regarding their original use”.

The post-internship survey also shows appreciation of the learning outcomes connected to the chances of practicing research and critical thought. This appreciation was linked to the chance of both learning how to use research sources (someone underlined a “stimulating approach to archives”, some other was inspired by “the use of books to decipher objects”) and of practicing the research process itself (“I experienced that the more you collect information the more you can develop hypothesis about the function of tools, that you must then carefully test”).

The soft skills improved by “having had the chance to autonomously find solutions to proposed issues”, as well as by “learning how to use databases”, by practicing “the organization of a big amount of information” and, on the other hand, by “meticulously and patiently researching details” are also mentioned in the survey.

Trainees were also involved in other aspects of the museum-to-be’s life: their help was occasionally requested for organizing cultural events, such as book presentations or didactical workshops. Moreover, their presence and help made it possible to embrace a range of special activities that normally could not be included due to their organizational complexity; a prime example is the “Bear Hunt” workshop inspired by the beloved picture book (ROSEN & OXENBURY 1989), which required the reconstruction of different environments within the museum’s building and garden and can be offered only if the collaboration of several persons is assured (ROCCA 2015). One former trainee wrote that “the most useful aspect of the internship was the participation in the educational activities”.

In one case, though not included in the sixteen, the outcome was unsuccessful. This trainee decided to cancel his internship after only a brief time. No clear explanation was given for his choice but, as one of the functions of an internship for a future worker is to test its consistency with “one’s personal characteristics and expectations” (CALLANAN & BENZING 2004, 82), different reactions from different temperaments are expected. However, to turn the failure into a growth possibility, we asked ourselves about the possible reasons. To help determine any issues, a confrontation with the answers to the survey question concerning the weak aspects of the internship was very useful. “I would have liked to participate in the life of an actual museum” was surely and expectably the most recurrent answer. The staff’s idea that participating in the process of the foundation of a museum could represent an additional value for the internship experience, though confirmed by several trainees among the reasons for choosing to come to the Museum of Geography, was probably too optimistic, and the ‘humble’ cataloguing activity and, in general, the fluid, in-progress situation collided too strongly against the common conceptualization of a museum. We were afraid of that and, in fact, in one case the disillusionment led to a renunciation. It is significant that this aspect emerges less among the trainees who were hosted later in time, as the museum project became progressively more evident.

A SUCCESSFUL ‘COMMUNITY’ EXPERIENCE

Most of the trainees were introduced to the museum team in groups. The supervisors’ perception was that this could strengthen their team spirit, both among themselves and towards the museum staff members. More specifically, the trainees were organized into pairs, each of which was assigned a different object type, and worked in parallel. “Working in a pair was useful, because, by combining our knowledge, we were more effective and precise in finding the information about the photographs we were cataloguing”; “Working in a team with a colleague allowed a useful exchange of opinions about the provenance and use of instruments, but also about the best way of finding information. It was also helpful from a physical point of view, as sometimes it was necessary to move heavy objects”. The trainees identified the main advantage of working in pairs in the possibility of integrating different cultural backgrounds into the more critical work passages, together with general reciprocal support.

In addition to a *simultaneous* teamwork, a *diachronic* one was also put into effect, via a shadowing period between the outgoing and incoming group of trainees. This was fruitful for the museum staff; it revealed to them the grade of awareness reached by the trainees who were concluding their experience: outgoing trainees’ explanations often underlined the most complex phases of the work. In addressing their

peers, they were naturally more talkative. By listening in on the dialogue, the museum staff could better understand the most critical aspects of the proposed work, and intervene if necessary. New trainees, on the other hand, received a peer-to-peer perspective on the proposed tasks in addition to that of the staff which, we believe, was of practical and, in some cases, also motivational utility (fig. 2.).

On a more general level, this experience gave university students the possibility to discover and investigate pieces of heritage originally handled by their colleagues in the past or created or used by former university professors—the possibility, one can say, to tighten the bond between past and present. To test whether the internship actually activated such awareness, the survey included two questions, one asking generically



Fig. 2. A moment of shadowing between student interns in Planning and Management of Cultural Tourism working on the museum photographic archive in 2016. Photo by Giovanni Donadelli.

if the experience increased their perception of being part of the academic community; the second focused on any piece of heritage which particularly raised emotions or reflections in this domain⁹. One participant stressed the positive sensation of being “useful to my university” in various answers. However, it is in the dedicated section of the questionnaire that the majority confirmed the internship to have increased their sense of belonging to the academic institution: “It was nice to feel an active part of the university community while being involved with one of its museums (and not only as a passive participant of lectures)”; “while cataloguing photographs of the old

university excursions, I started thinking about the excursions I took part in myself and how such a practice is still in use but has changed over time”; “dealing with objects related to the history of the university was exciting, they had so much to tell; an hand-made map, in particular, was fascinating because at first we could not understand the writings which were hard to distinguish from the graphic signs; only after asking an Egyptian PhD student in Geography we discovered that the language was Arabic and the map represented a river, probably drawn by one of the professors who conducted fieldwork in North Africa... there was so much history in that and every map!”.

The answers, in general, confirm the activation of a dialogue towards the previous university community, and lead us to believe that, in general, internship experiences in museums of their own universities increase students’ identification with the academic heritage community in the sense depicted by the Faro Convention (Council of Europe 2005). Not only are the trainees working on a set of museum items, they are the natural consignees of the cultural tradition they are taking care of (DONADELLI & GALLANTI 2020). Under this perspective, the cultural value of their trainee experience is strongly accentuated, both in itself and as a formative step toward a career focused on the care of cultural collections.

AN OVERVIEW OF THE TRAINEES’ CAREERS

The aim of distributing the questionnaire to the former trainees about two years after their experience (i.e. after their possible attainment of a master’s degree and/or entry into the workforce) was to solicit their opinions of their internship experience from the point of view of their current work situations. A first and main point, in discussing their answers, is represented by the former trainees’ actual attainment of a job within the cultural heritage domain. Of the nine who answered, two were not yet working, but seeking a job in this field. Of the other seven, three were employed in different areas; one of them was, however, still looking for a position more consistent with her studies. The remaining four answered that their jobs were coherent with their studies; these included a visual arts teacher and an entrepreneur in publishing. The other two were employed, respectively, in tourism and in cultural events management. One should underline that, in Italy, the occupational situation in cultural heritage shows a general imbalance between the number of people looking for a job and the actual jobs available: there is an exceedingly large number

9. The interpretation of the results coming from this section of the questionnaire would certainly have been enriched by the possibility to compare them with those emerging from a pre-experience survey. A useful lesson for future internship experience is to lead surveys concerning both incoming and outgoing trainees’ opinions.

of training paths, both from academic and nonacademic institutions, that often do not really take into account the professional skills that are really needed in the museum domain (BOCCELLA & SALERNO 2012). The consequent expectations apparently encourage job seekers to consider a wide range of jobs in the cultural field to be consistent with their studies.

In most cases, however, the internship experience achieved the goal of being a positive occasion for orientation and self-awareness. In one case, it directly influenced the decision of the trainee to complete her education in Heritage Studies: “An episode during my internship made up my mind about what I wanted to do next: it was when I watched my supervisor cataloguing an old globe, using books in three different languages to unveil its secrets, while explaining the procedure to me. In that moment I understood what I wanted to do in my life!” In two other cases, gratification experienced while assisting in educational workshops contributed to the choice of a child-oriented career: “I particularly enjoyed participating in the organization and tutoring of workshops for children, which is still one of my current tasks”; “I am a teacher now, and for me that was the first approach to engaging with school-age groups”. Another answered that, even her job turned out to be distant from her educational path, “I would like to find something more similar to what I experienced while I was a trainee”, hinting that, nevertheless, the internship achieved the goal of career orientation.

THE GENERAL TEACHINGS OF A SPECIAL EXPERIENCE

It cannot be denied that several of the conditions that positively affected the internship experience are not fully reproducible. Even if strongly encouraged toward autonomy, the trainees were constantly supervised by the small number of museum staff. Supervision was no longer possible when the set-up phase of the museum started, requiring all staff energies to be focused on the practical organizational tasks, forcing temporary suspension of the internship programme. Opening the museum also drew the staff into numerous new activities, inevitably shortening the time that can be devoted to supervising trainees.

Moreover, the spaces available for the trainees’ work from 2015–2018 corresponded, for the most part, to those of the future museum. As the museum was still in its project phase, these areas were ‘suspended spaces’, available to house the work teams and the commodities they needed (e.g., tables, chairs, computers, collection objects, inventories, cameras). This condition also expired as the museum approached its definitive form. Additionally, the volume of hard resources required by the student teams became progressively less compatible with the availability of space in the developing museum.

However, even though the new space and time conditions have reduced the number of trainees who can be hosted at one time, two spare workstations equipped with laptops have been established in the museum’s two storage areas. Moreover, the unusual conditions determined by the pandemic have inspired alternative solutions, like alternating periods of individual in-person activity with periods of remote work (fig. 3.).

Even though the internship programme was determined by almost unique conditions, we decided to treasure the experience as good practice, and to repeat it, albeit adapted to a different phase of the museum’s life cycle: the difference with today’s internships lies not only in the number of trainees that can be hosted at one time, but also in the kinds of tasks they are entrusted with; these are currently more focused on communication and digitization.



Fig. 3. Trainees working in-presence in the Discovery Room of the Museum of Geography in 2021. Photo by Giovanni Donadelli.

Finally, some general reflections about internships in academic museums of undergraduates in Heritage and Tourism Studies are worth sharing:

- 1) Academic museums are a particularly appropriate context for hosting trainees from university courses, as they offer a natural inclination for dialogue with students, and students are likely to find university museums less intimidating than extra-academic ones.
- 2) Involving undergraduates with a strong motivation to gain experience in a museum context

represents a mutually beneficial situation both for trainees and museums, as long as sufficient staff are available to supervise them.

- 3) Trainees' work is more driven and effective if they are introduced into the museum team in small groups or pairs, rather than alone.
- 4) The museum spaces should include at least one dedicated workstation for trainees, equipped with computer, Internet access and enough room to accommodate collection items, books, documents, etc.
- 5) Even though they are often employed in menial duties, trainees can take on challenging assignments. Making them feel like a responsible part of the team is essential to achieving good results.
- 6) It is important to make room for autonomy to allow trainees to gradually express their potential.
- 7) Trainees enrich the diversity that museums are invited to deal with. They bring with them the needs, interests, and wishes of their generation, providing opportunities to investigate their preferences, for example, by conducting simple communication experiments. Their inputs contribute to an effective visitor-focused approach.
- 8) For students in Cultural Heritage Studies, undertaking an internship at a museum within their own academic institution represents a concrete and unique chance to 'inaugurate' their career while dealing with a heritage they are the natural consignees of, therefore experiencing the academic heritage community that they belong to.

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CONTACTS

Chiara Gallanti, Postdoctoral fellow at the Department of Historical and Geographical Sciences and the Ancient World of the University of Padua

Address: Università di Padova, Dipartimento di Scienze Storiche, Geografiche e dell'Antichità, Sezione di Geografia, Via del Santo 26, 35123 Padova, Italy

Email: chiara.gallant@unipd.it

Giovanni Donadelli, Technical and Educational Supervisor of the Museum of Geography of the University of Padua

Address: Museo di Geografia dell'Università di Padova, Via del Santo 26, 35123 Padova, Italy

Email: giovanni.donadelli@unipd.it

<https://www.musei.unipd.it/en/geography>

Mauro Varotto, Associate Professor of Geography and Cultural Geography at the University of Padua

Address: Università di Padova, Dipartimento di Scienze Storiche, Geografiche e dell'Antichità, Sezione di Geografia, Via del Santo 26, 35123 Padova, Italy

Email: mauro.varotto@unipd.it

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Museum of Geography, Cultural Heritage Studies, internships, good practice, Academic Heritage Community

Object-based narratives with Japanese traditional academic artworks at university museums and libraries of agricultural and life sciences

Sayuri Tanabashi | 棚橋沙由理

Abstract

This paper elucidates that object-based learning (OBL) accelerates cross-disciplinary interactions between collections and objects in university museums. In a curatorial training course, students practiced OBL using nishiki-e. They learned from various perspectives after understanding how to handle objects and interact with one another about nishiki-e. This paper demonstrates (1) the first example with content analysis of a practice based on the theoretical framework of OBL in a Japanese university museum, (2) that the OBL method accompanied authentic Japanese traditional artworks with artistic value and academic value, and (3) OBL's effectiveness for cross-disciplinary learning through narratives among students from their respective fields.

Sayuri Tanabashi

Science museums and centres focus on allowing visitors to cultivate their scientific thinking and to experience artistic, multisensory activities (MUJTABA et al. 2018).¹ This strategy is currently accepted in modern society to increase the number of science, technology, engineering, and mathematics (STEM) personnel who can problem-solve sustainability issues from the present to the future. Historically, the notion of STEM education was affected by the national policies of the United States (SHANAHAN et al. 2016). Subsequently, it was associated with strategies enabling STEM personnel to lead ‘innovation’ globally. STEAM education, including the arts, has been raised as a pedagogical strategy to foster scientific thinking and creativity through artistic multisensory activities (SEGARRA et al. 2018).² University museums are uniquely organised to play a pivotal role as academic hubs or cultural commons that meet, and cross, the interdisciplinary/transdisciplinary knowledge between the past and the present for the future. To this end, the present study explores museum curation at science university museums in Japan and asks the question: what contributes to problem-solving sustainability issues in university museums?

For some time, Japanese universities have been collectively developing education and research for a sustainable future. Thus, teaching both discipline-specific and cross-disciplinary content is essential. From this perspective, university museums can play a crucial role in the collective assembly of educational and research activities across various disciplines. How can the development of education and research in university museums occur more effectively, and what helps them achieve the position of academic hubs or cultural commons in institutions? This paper illustrates object-based learning (OBL), a well known and established learning method in museums, which accelerates cross-disciplinary learning and informative interactions with authentic collections and objects in science university museums.

OBJECT-BASED LEARNING

The term “objects” includes not only traditional handicrafts, archaeological relics, and natural history specimens but also three-dimensional (3D)-printed artifacts as representations of replicas with comparable representational functions that can make sure hands-on activities for visitors (e.g., WILSON et al. 2017).³ OBL was originally derived from the fields of educational psychology, cognitive psychology, science education, and museum education (PARIS 2002).⁴ The notion is based on experiential learning (KOLB 1984)⁵, and its value has been proven in engaging collections and objects for mediating meanings and contexts (HOOPER-GREENHILL 2007).⁶ Additionally, OBL can be applied to multisensory activities to encourage embodied experiential learning, to make sense of learning through constructivism, and to contribute contextual diversity in learning (FALK & DIERKING 2000)⁷.

OBL is a reciprocal teaching method under experiential learning. One of its characteristics is the use of museum collections and objects (HANNAN et al. 2013, MARIE 2010).⁸ In the 21st century, the predicted benefits and advantages of OBL on various case studies were assembled within the pedagogical theory framework of the higher education sector with the hope of initiating another expansion of its application (JACOBS et al. 2009; SIMPSON 2014, THOGERSEN et al. 2018).⁹ For example, OBL might broaden its use inside and outside the museum, such as in hospitals and virtual digital spaces. Recently, OBL’s benefits and advantages have increasingly focused on the higher education sector, including universities. The application of this teaching method within museum collections and objects has undergone some reconsideration at university museums primarily located in the United Kingdom and Australia (CHATTERJEE 2010, CHATTERJEE et al. 2015, SIMPSON 2014).¹⁰

What is the difference between conventional OBL and this current OBL? The two are closely related, but the latter is a result of bringing the former into the higher education sector, where it has been

1. MUJTABA et al., “Learning and engagement,” 41–67.

2. SEGARRA et al., “STEAM,” 1–7.

3. WILSON et al., “Evaluation of touchable 3D-printed replicas,” 445–65.

4. PARIS (2002). *Perspectives on object-centred learning in museums*

5. KOLB, *Experiential learning*.

6. HOOPER-GREENHILL, *Museums and education*.

7. FALK and DIERKING, *Learning from museum*.

8. HANNAN et al., “Object-based Learning,” 159–68; Marie, “Role of object-based learning,” 187–90.

9. JACOBS et al., “Beyond the field trip,” 5–27; Simpson, “Rethinking university museums,” 18–22; and THOGERSEN et al., “Creating curriculum connections,” 113–120

10. CHATTERJEE et al., “Introduction to object-based learning,” 1–20; Simpson, 18–22.

rethought and found to be an effective teaching method for cross-disciplinary learning. The OBL academic framework in university museums has been demonstrated (e.g., CHATTERJEE et al. 2015)¹¹ and OBL is acknowledged as a kind of experiential learning that involves collections, objects, and museum staff. Since its expansion within the higher education sector at the beginning of the 21st century, OBL has been studied extensively. For instance, engaging with 3D material objects was found to enhance learning more effectively than engagement with two-dimensional (2D) digital images at Macquarie University (SIMPSON & HAMMOND 2012).¹² A project at the University of Oxford indicated that the digitization of collections and objects allows the integration of OBL into a traditionally text-based curriculum alongside a range of additional digital media (ECCLES 2019)¹³. Another study showed that object therapy in medical welfare had a positive psychological impact on patients at hospital settings at University College London (UCL) (CHATTERJEE 2008, CHATTERJEE & NOBLE 2009). These examples support the proposal that application areas for OBL range extensively from museum education to medical and non-medical welfare (WILLCOCKS 2019, WILLCOCKS et al. 2017).¹⁴

Significantly, UCL has developed OBL as an institutional pedagogical strategy with more than 100 course units associated with OBL (DUHS 2010).¹⁵ When asked about their experiences, UCL students answered that OBL enhanced both their knowledge and their understanding (SHARP et al. 2015).¹⁶ As such, it was surmised that a curatorial course could help students acquire museum-curating skills, including identifying flora and fauna specimens, or constructing a system through digital archiving (KADOR et al. 2018).¹⁷ While current OBL can be practiced both inside and outside museums, its theoretical framework has mostly not yet been applied to, or utilized in, Japan's higher education sector. The reason for this is unclear, but relatively few museum scholars in Japan, including curators and researchers, are actively engaged in international discussion.

This study suggests that OBL with Japanese traditional artworks, including *nishiki-e* and botanical art rich with both artistic and also academic value, functions as a useful tool for learning and teaching in the curatorial course and/or liberal arts course of university museums. These curatorial courses are designed to prepare people for museum employment, whereas the liberal arts courses lead to the generalist undergraduate degree. This study undertakes a qualitative content analysis of OBL among Japan's university museums using authentic collections and objects. The goal was to prove OBL's potential for cross-disciplinary learning with Japanese traditional artworks. Here, authentic Japanese artistic objects, such as a *nishiki-e* (polychrome woodblock prints, with the separate inks applied using their own blocks), were used in the curatorial course in Tokyo University of Agriculture and Technology and authentic Japanese academic objects, such as botanical art, were used in the liberal arts course or in the University of Tokyo in an informal learning context.

EXPERIMENTAL ENVIRONMENT, MATERIALS, AND PROCEDURES



Fig. 1. Nature and Science Museum. The Nature and Science Museum is the university museum at Tokyo University of Agriculture and Technology, located in Koganei, Tokyo. Photo: S. Tanabashi.

The Nature and Science Museum of the Tokyo University of Agriculture and Technology (TUAT); The Museum features prominently at TUAT, with its main building on the Koganei campus, and its annex on the Fuchū campus, both occupying buildings at the campus main gates, and houses and exhibits materials from the sericulture and textile industries (TANABASHI 2020) (fig. 1). The main building was originally the reference exhibition room in the Laboratory of Silkworm Diseases of the Ministry of Agriculture and Commerce in 1886 (Meiji 19). It grew to be a key institution fostering the sericulture and textile industries during the Meiji era when silk was Japan's the most important export. More than 13,000 objects related to the sericulture and textile industries were displayed in this building, ranging from silkworm cocoon specimens and various fibres, to drivable textile machines including mechanical looms,

11. CHATTERJEE et al., 1–20.

12. SIMPSON and HAMMOND, "University collections," 75–82.

13. ECCLES, "University museums," 13.

14. WILLCOCKS, "Object-led wellbeing," 12.

15. DUHS, "Learning from university museums," 183–186.

16. SHARP et al., "Value of Object-based Learning," 97–116.

17. KADOR et al., "Object-based learning," 157–176.

embroidery and sewing machines, yarn spinners. Presently, TUAT has two faculties: the Faculty of Agriculture and the Faculty of Technology. The students were majoring in either faculty. Originally, both faculties were derived from an institution that led the educational and research activities of the sericulture and textile industries. Learning and teaching with collections and objects in university museums has traditionally been limited to museum-specific disciplines, such as natural history and archaeology. For example, prints using *nishiki-e* technology, which originated in the Edo era (1603–1868) and depicts Japanese life up to the Meiji era (1868–1912), were conventionally used as learning objects by students majoring in arts faculties of Japanese universities. Through OBL, such objects can be applied in cross-disciplinary learning and teaching. Faculty and students from various fields can use *nishiki-e* to learn and interact with one another because using specific objects that reflect the common culture of their country can initiate mutual understanding. Thus, understanding the other person as well as acknowledging one's own cultural background is crucial in enhancing the pedagogy. Furthermore, the cross-disciplinary OBL with students majoring in history, arts, chemistry, anthropology, and computer science engages the objects more widely in learning, teaching, and research.

From this perspective, sericulture *nishiki-e* were selected as the objects to demonstrate OBL in this study. More than 400 examples of sericulture *nishiki-e* are housed within the museum, thanks to a professor's personal collecting interests at the university during the Shōwa era (1912–1989). At the time, the collection was driven by personal interest in it, and without a pedagogic objective or framework. Currently, it is organized as an extensive collection of traditional art pieces, and is offered to visitors in parts. The collection was not envisioned or utilized as learning materials for students, which became an intriguing and stimulating idea in its own right to students, researchers, and curators. Sericulture *nishiki-e* depicts the sericulture landscape beautifully, and includes texts in classical Japanese, which many modern Japanese find very difficult to read.

From the wider collection, two items of sericulture *nishiki-e* were selected, neither of which had been previously interpreted. One is the *Full Landscape of Sericulture* (養蚕之全図), by Utagawa Yoshifuji (歌川芳藤), a famous artist in the 1880s. The *Full Landscape of Sericulture* series consists of ten pictures that depict the order of older sericulture work, labeled from the First to the Tenth. The Ninth picture, however, is absent within the museum (fig. 2). Notably, most *nishiki-e* is adopted the technique of Japanese printing so that it is possible to house and exhibit complete version of this *nishiki-e*. The other is the *Sericulture Board Game* (新版養蚕繁栄壽語六), where sericulture processes are depicted as a board game. It was published by Arakawa Tōbei (荒川藤兵衛) in 1887 (fig. 3). This series is comprised of 25 segments that show sericulture work in more detail.

The students who participated in the curatorial course were provided an opportunity to observe and carefully handle the *nishiki-e*. They were also asked to translate the Classical Japanese texts on both the *Full Landscape of Sericulture* and the *Sericulture Board Game* into modern Japanese, and then into English, and to make exhibition panels through discussions based on their respective disciplines. The students also added instructions and arranged the *Sericulture Board Game* for children to play. This

game can bring museum learning of sericulture to one's home such that the understanding of children and parents about sericulture can be enhanced simultaneously. Players become involved in sericulture work, an attractive aspect. For instance, a player skips a turn when a silkworm gets sick, a player stops or moves forward three squares and a square reeling goes well when the player stops. This game can expand learning and enjoyment across generations.

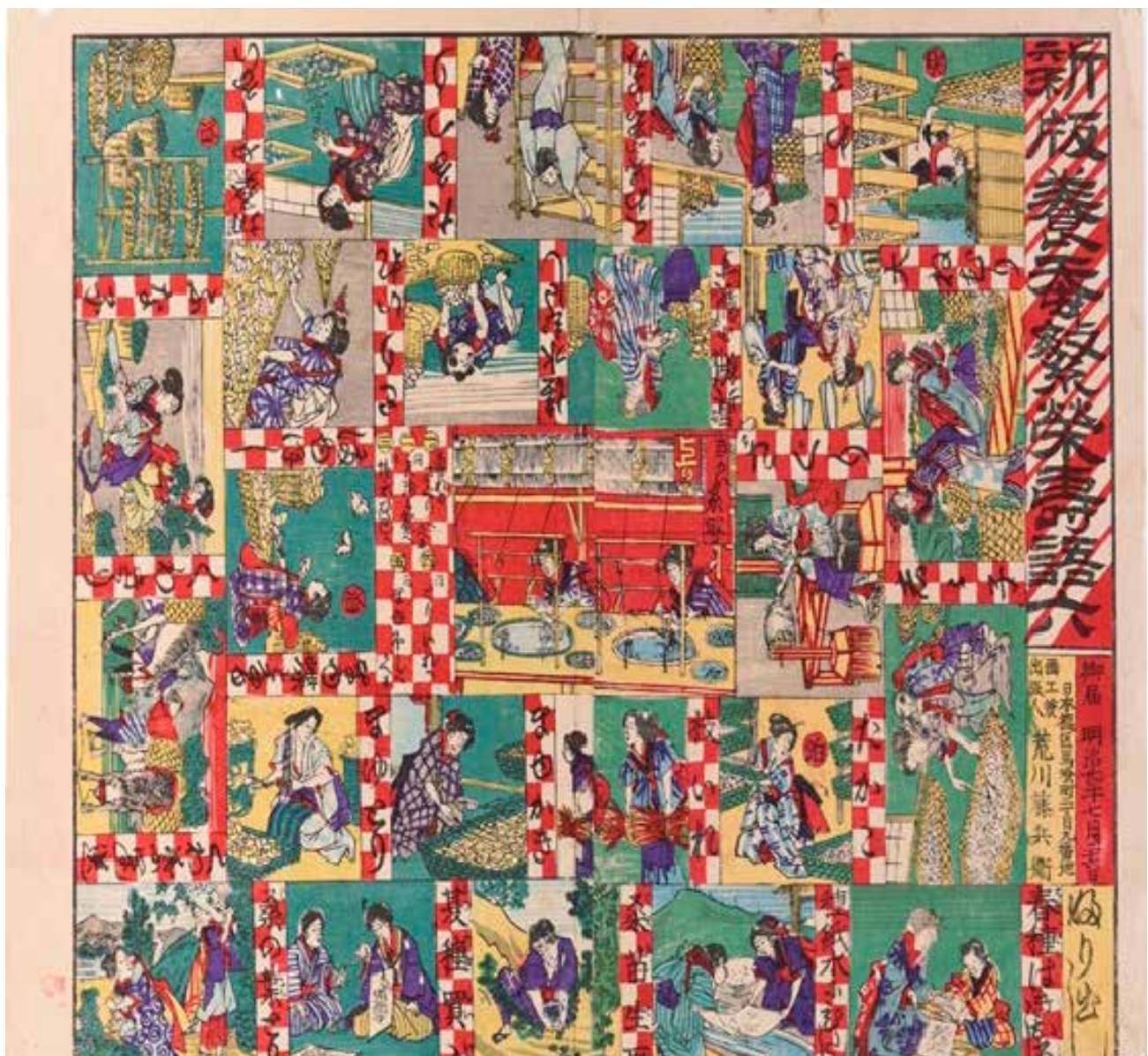
THE MAKING OF EXHIBITION PANELS

The students translated both of the Classical Japanese texts into modern Japanese, and subsequently English. The *Full Landscape of Sericulture* was primarily known as a series of graphic images, and had not previously been translated into modern Japanese. Hence, none of the students could interpret the text in any detail. Briefly, the first image depicts the hatching of silkworms, the second and third exhibit the feeding of mulberry leaves to silkworms, the fourth illustrates the silkworms growing, the fifth shows the silkworms molting, the sixth displays cocooning, the seventh indicates the drying of cocoons, the eighth conveys flossing from cocoons, and the tenth shows the reeling of silk. The students' translation is shown in Table 1.



Fig. 2: (above) Full Landscape of Sericulture

Fig. 3: (below) Sericulture Board Game. Roll the dice and proceed based on the number you roll. Starting from the lower right frame, players spiral in clockwise towards the centre frame.



Name	Title	Translated contents
The First	Hatching of silkworms	Silkworm eggs are placed on a paper, which are born during the spring March rain (currently around April 21); this is called hatching.
The Second	Feeding of mulberry leaves (1)	When a silkworm is born, it picks up mulberry leaves from the mountain and gives them to the silkworm, and the silkworm gradually grows to make a cocoon.
The Third	Feeding of mulberry leaves (2)	For silkworms, the first hatched one and the one hatched the next day or two days after are not integrated, but they are put into the tray separately and finely chopped with mulberry leaves.
The Fourth	Growing of silkworms	Silkworms grow larger as they are fed mulberry leaves. They are transferred to outside the bamboo blinds and are continually fed with mulberry leaves.
The Fifth	Molting of silkworms	The fourth rest is called the “great sleep.” Increasing the supply of mulberry after molting is crucial. Here, the cores of rice ears may be given together.
The Sixth	Cocooning of silkworms	Lay down the leaves and twigs of the vertebrae, place the mature silkworm larva in the state before making cocoons, and then make them cocoons. Remove the cocoons created four or five days later from their scaffolds. This work is called the “cocoon storage”.
The Seventh	Drying the cocoon	Dry the cocoons. Thereafter, the cocoon may be soaked in salt. Bamboo slates are placed on the bottom of a large jar, and paulownia leaves are laid on it and sprinkled with salt.
The Eighth	Flossing from the cocoon	Of the cocoons, the one of coarser quality becomes floss, as it is a redundant and low grade product. The cocoons are ranked in the upper, middle, and lower ranks, and several pieces are bundled into a single floss after shaping.
The Tenth	Reeling of the silk	Of the cocoons, the pure white ones are used for thin threads, and the dark ones are employed for thick threads.

Table 1.

An English translation of classical Japanese texts from

Full Landscape of Sericulture

HOLDING A STUDENT EXHIBITION

The participating students were asked to organise a three-month exhibition, in both a substantial museum setting and virtual digital space (online), to combine their museum-curating skills with their scientific backgrounds (ALLEN 2004, SAND et al. 2017). They were going to speak about sericulture *nishiki-e* in front of each exhibition panel produced using their respective disciplinary backgrounds as a public program. Unfortunately, they were limited to curating for, and, acquiring responses from, a smaller number of walk-in visitors, as the museum was mostly shut due to the COVID-19 pandemic.

Additionally, a print of the *Sericulture Board Game* was translated from Classical to modern Japanese and offered through the student exhibition to visitors, including children, who expressed a desire to own it. An explanatory text accompanied the translation to enable visitors to understand sericulture. The game is played with a pair of dice. It was hoped that both in-person and virtual visitors, including children, would become more interested in the museum exhibition through the experience of playing this game at home. The author hopes that children, who will become the future workforce, can learn to resolve sustainability issues by visiting the university museum more often, become interested in collections and objects, and engage with students and museum staff via multisensory activities that include game playing. Through a series of processes, opinions and feelings about the practice of OBL were surveyed using content analysis through an open-end questionnaire.

EVALUATION

The students were questioned about their interests and scientific background as well as their experiences with OBL. Next, the effectiveness of OBL was surveyed through open-ended questionnaires in which the students were asked to express their opinions on topics ranging from museum curation for sericulture *nishiki-e* to the ways sericulture related to their respective disciplines. The opinions of the four students are outlined below.

CONSIDERATION FOR APPRECIATING VISITORS VIA OBL

Student A wrote, “I felt that OBL was effective because the creation of exhibition panels required a wide

range of abilities and skills. First, when making the panel, we had to collect a wide range of information about the material objects, even when some of them were not displayed. I think this process had the effect of training our comparative analysis and our descriptive capability because the correct information was obtained from several resources including the Internet. The color scheme and layout of the exhibition panel are important in attracting attention and ensuring readability, and as such visibility is required when considering the layout. Additionally, to this example, I felt that it is important to have a solid knowledge of the material objects for OBL as museum staff. I realized it during our exhibition panel-making process and from the exhibition panels of other groups. It seems that visitors who see the exhibition panel do not read all of it and only look at the objects and captions. Therefore, when communicating via material objects, it was not enough to simply read the caption. Sufficient knowledge for collections and objects is necessary to transmit more information to visitors who have various purposes to come here (museum setting). From this perspective, cross-disciplinarity is considered the key. In university museums, the relevance of the old exhibits to the new research generated at the university is important. Exhibition panels and curatorial talks should communicate with visitors who can spread interest that ranges from the university's research and other related topics in various fields based on the material objects themselves. In this respect, since it is necessary to collect a wide range of information, it is considered that abilities and skills like comparative analysis would be important."

She noted that the material objects and the museum personnel function as mediators facilitating connections between the past and the present. Accordingly, she emphasized that the colour scheme and layout of the exhibition panel were important means of attracting attention and ensuring readability. Thus, the museum staff members should comprehensively understand the material objects in the museum to communicate appropriately with visitors.

UTILIZING OBL AS A COMMUNICATION TOOL

Student B wrote, "When OBL was explained in the first lecture in the curatorial course, I could not understand what she (the author) was saying. After looking back to this course again, I was surprised that the activities we have been doing so far were the actual OBL. It would be natural to continue this learning method. When working with people who have just met for the first time, as in the curator course, OBL is successful. For example, group work brings together vague themes, various opinions from various aspects, and diversity and meaning that may take time to integrate and align the opinions of the group. Comparing the object use with it, OBL begins to collect information visually. Though the appearance may vary between the students, there is less deviation from the theme than in other, more vague practices. The time for group work was limited due to COVID-19 pandemic, but I think, because the OBL aspect was so successful substantially and virtually, we could complete an exhibition panel in such a short time. Moreover, in most conventional group work, the division of roles has not been explicitly determined, which can cause a difference in the amount of work each student undertakes. After roughly determining the direction, I felt that OBL would suppress conflicts within the group and in human relationships, enabling us to learn about each individual's interests. I think OBL is especially easy to use when learning and teaching takes place within a museum. You can look at the objects and can directly connect our feelings and questions that we have about it to our learning. It is a very simple and smooth learning method because we can start by sharing each thought and not start talking about a new theme from scratch each time. I think OBL is a method that is easy to use, not only for undergraduate and graduate students, but also for children and adults more generally. I felt that the fact that anyone could use it, regardless of age or subject, fits well with the philosophy of the museum. In the curator course, the theme I dealt with in the exhibition panel making was something I hadn't learned so far. Therefore, although I was wondering if I was ignorant at first, I could learn a new field of sericulture by relying on the 'objects' within the museum. It was a great opportunity." She realized that material objects enhanced human relationships by encouraging positive feelings, which enhances mutual interpersonal interactions and eases communication (well-being measures in CHATTERJEE AND KADOR 2020). From the perspective of constructivism, individuals across generations who face each other for the first time can construct their feelings about one another through objects. Through her first panel-making exhibition experience, she came to believe that OBL could be effectively applied across generations of museum visitors.

FOCUSING ON ADVANCED TECHNOLOGY VIA OBL

Student C wrote below, "The practice in the curator course was to make exhibition panels for a student exhibition at the museum. It was more difficult than I had imagined it would be to understand the objectives and convey it in an easy-to-understand manner. Particularly, I realized that visibility, spatial

recognition, and literacy (reading/writing) are all very important, and the training I received while working was important in devising how to communicate and design the exhibition panel. I felt like I was there. Given both the size and number of characters, working out how to convey the necessary information was the most difficult part of this training. I realized that it is possible to make more diverse exhibition panels by having multiple people exchange their opinions and work together. One of the communication effects expected from OBL is to facilitate dialogue smoothly. I realized I could conduct communication through the material objects naturally, and it was fun to actively discuss how to interpret the target object during the practical training. Furthermore, I feel that collaboration and integration of different fields will become more important in the future. Through this course, I have learned that, by grasping something from several different perspectives, we can bring out a different aspect from that which we have seen before. In Japan, production has decreased, and sericulture is declining. Still, I felt there was the possibility of finding a new way of life for this industry by combining it with new technologies. Some examples of this include developing new silk medical and cosmetic materials, creating vaccines against intractable diseases with genetically engineered silkworms, and producing fluorescent-coloured raw silk. When returning research results to society properly, I thought it was important to make the general public aware of such efforts in an easy-to-understand manner. OBL would thus be an effective method for disseminating such knowledge more widely.”

She asserted that it was important to establish OBL-based practices aimed at attaining social returns from research results generated through the collaboration and integration of discrete university disciplines. Interestingly, her vision appears to be fixed on future technologies originating from currently available material objects. This objective is one of the most desired targets of the curatorial course, and this promising STEM scholar grasped the conceptual span required for cross-disciplinary collaborations in the future.

FUTURE DIRECTIONS

I plan to further develop the practice of OBL by preparing another trial using old botanical illustrations in the University Library for Agricultural and Life Sciences of the University of Tokyo (Tōdai) on Yayoi Campus. Tōdai is the only national Japanese university that has departmental museums and libraries, in addition to its main museum its General Library on the Hongō Campus. The Agricultural Training School of the Ministry of Home Affairs, the predecessor of the Graduate School of Agricultural and Life Sciences, was established in 1874 (Meiji 7). It became the College of Agriculture of the Imperial University with three departments: Agriculture, Forestry, and Veterinary Science. It was renamed as the Faculty of Agriculture of the Imperial University of Tokyo in 1919 (Taisho 8). The Imperial University of Tokyo was renamed as the University of Tokyo in 1947 (Showa 22) and reorganised under the new education system.

The University Library for Agricultural and Life Sciences functions not only as a faculty library but also as a museum. A large collection of atlases with zoological and botanical illustrations has already been digitally archived, and these illustrations are often exhibited for students, researchers, and the general public. The museum of the Faculty of Agriculture was used as a common space with a permanent exhibition on the faculty's history. Currently, advanced studies related to resolving global sustainability issues have been instigated by the Graduate School of Agricultural and Life Sciences. I anticipate supporting the liberal arts course using botanical illustrations for OBL both materially and virtually (fig 4). From the perspective of sustainability, this is a critical matter as academic botanical illustrations include rare and precious materials, such as endangered plants in a contemporary Japanese environment. The University Library for Agricultural and Life Sciences opens its collection of images¹⁸, including metadata of digital archiving, which functions as a mobile museum like the University of Oxford's digital cabinet¹⁹. In the near future, if this digital archive can be utilized to enable discussions regarding collections and objects in the digital space, it will steadily develop to form the basis for cross-disciplinary learning, teaching, and research. The liberal arts course will then foster innovative STEM personnel with not only specific, expert knowledge but also wide-ranging knowledge for problem-solving sustainability issues. Japanese traditional artworks can be advantageous as cross-disciplinary learning materials in this context.

DISCUSSION

Through the practice of OBL, students learned from diverse perspectives after understanding how to handle objects, narrating and interacting with one another about noteworthy sericulture *nishiki-e*. They could

18. <https://iif.dl.itc.u-tokyo.ac.jp/repo/s/agriculture/page/home>

19. ECCLES, “University museums,” 13.

use their institution's historical resources to obtain new perspectives, as well as learning how to develop their ideas for the future with personnel in various research fields. Among the stream of research that exists alongside current OBL in university museums, Simpson (2019) argued that this practice can cultivate a range of broader abilities and skills among students who handle objects in museums: visual literacy, partial literacy, descriptive (linguistic) literacy, communication skills, comparative analyses, and negotiation skills.²⁰ Despite it not being easy for the students majoring in agriculture and technology (rather than literature) to interpret historical language, they dealt with it and acknowledged the significance of multisensory engagement



Fig. 4. Digital archives of botanical illustrations. Digital archives allow free access for learning, teaching, and research. Courtesy: University Library for Agricultural and Life Sciences, University of Tokyo.

for material objects, cross-disciplinary learning, and interaction. Although OBL as a cross-disciplinary learning method has yet to be broadly utilized in the Japanese educational system, including university museums, this paper shows that it can play a unique role in learning and teaching with collections and objects in Japan's universities, even in those disciplines with no clear affinity for museums and no history of object-based pedagogies. STEM personnel working on problem solving for a sustainable future should, therefore, be taught the importance of interactions beyond the barriers of their respective disciplines.

Overall, this paper demonstrates: (1) the first example, with content analysis, of a practice based on the theoretical framework of OBL within a Japanese university museum, (2) that OBL imparted authentic Japanese traditional artworks with both artistic and academic value, and (3) OBL's effectiveness for cross-disciplinary learning through narratives among students across various disciplines. It might be significant to have students from humanities participate in the practice of OBL, as this study only involved students majoring in agriculture or technology. I hope that this study will be recognized as a scaffold for the practice of OBL in the Japanese educational system and prevail as one example of an effective learning method. Currently, both active and experiential learning are considered strong learning methods for fostering innovative STEM personnel with problem-solving capabilities. The concept of OBL will gain greater recognition, and as such various case studies exemplifying the practice of OBL will be accumulated in Japan.

The task of quantifying and qualifying the effectiveness of OBL for the near future must draw on cognitive psychology or educational psychology. As such, the significance and challenges of research approaches were discussed considering the way visitors' museum experiences are related to their distant memories (ANDERSON et al. 2016). It is already of considerable interest to the museum field that visitors' nostalgic experiences at museums allow them to draw connections between material objects and their own life histories. From the perspective of psychology, the relationship between visitors' long-term memories and their museum experiences could benefit museum fields. Therefore, the use of authentic Japanese traditional artworks as vividly genuine learning objects can play a unique role in creating an exciting or memorable museum experience for students. I hope that the students' museum experience via the curatorial course will help underpin their future fruitful works as innovative museum personnel.

CONCLUSION

In Japan, many people have realized the importance of diversity and social inclusion, and ask that teaching methods foster a sustainable future in the Reiwa era's (2018–) emergence from the Heisei era (1989–2018). Hence, I am hoping that OBL can be actively adopted in the Japanese educational system, because OBL is a journey of "object deciphering," given its nature as cross-disciplinary learning. It can promote collaboration in learning about and through material objects, and through interaction between students, curators, and researchers. From this perspective, the process of OBL is a bit like a treasure hunt to discover new values and perspectives about collections and objects.

20. SIMPSON (2019).

Ultimately, the valuable role that object therapy, mediated by real objects, plays in human well-being (KADOR & CHATTERJEE 2020) will prevail both inside and outside museums. I believe that museums will keep functioning as an interface between people and objects.

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CONTACT

Sayuri Tanabashi, Project Research Associate of the Graduate School of Agricultural and Life Sciences
 Address: The University of Tokyo, 1-1-1, Yayoi, Bunkyo-ku, Tokyo 113-8657, Japan
 Email: sayuri.m.tanabashi@gmail.com
<https://researchmap.jp/cent.titech.ac.jp?lang=en>

KEYWORDS

object-based learning; cross-disciplinarity; *nishiki-e*; botanical arts

Coda: ad peritos

Andrew Simpson

The examples of professional practice via the university museum that have been brought together in this volume reveal, as we might have anticipated prior to this exercise, a diversity of pedagogies operating through an organisation (museum) within a larger organisation (university). The essays show that materiality can act as different forms of cognitive pivot point: they can be the anchor of an idea, a physical manifestation of the metaphysical; they can be a bridge, metaphor, allegory or even creative inspiration. The technology of a museum collection structure, by virtue of the inter-relations and interactions of component parts, establishes epistemic frameworks that can, in the right hands and right context, both enable and enliven multiple pedagogies.

What was perhaps not anticipated, at least for me, was the diversity of audiences for whom the pedagogic practices of the university museum are designed in contemporary higher education. It is generally agreed that many collections in higher education first developed to serve specific and singular teaching purposes (SIMPSON 2019). The disciplines of geology, archaeology and anthropology, for example, have a tradition of object-based pedagogy, and these collections served no other purpose than instruction for enrolled students, the collections being something akin to a three-dimensional textbook. Perhaps the era of these specialised, fit-for-one-purpose and one-audience-only university collections is over? Those that still exist in the academy no longer have a singular utility or a singular audience. The pedagogies used through the university museum now serve multiple audiences.

As the essays in this collection show, there are learning experiences designed for primary and secondary students, future professionals, current professionals, life-long learners and the general community. The university museum can support all areas of university business activity with its education and learning programs. It is also apparent from the essays that materiality in higher education is both the obvious interface for opening up interdisciplinary learning spaces for different audiences, and for the development of cultural production, innovation and creativity. These may well become important functions of higher education in the future. There are some significant implications for both the professional community of academic museologists and UMAC itself from this.

We have published UMACJ as an open-source journal now since 2008. Initially, issues were housed on a Humboldt University server; more recently on our own website. It has been four years now since we abandoned the exercise of producing conference proceedings and aimed instead to be an open-call academic and professional journal about museology in higher education. This was the first time we compiled a thematic issue of the Journal and, given the origin stories and history of many university museums and collections, it is appropriate that the theme should be pedagogy. It is the first time also that we have published under a Creative Commons licence. What has been learnt from this experience?

Did the thematic focus allow our authors to explore issues and analyse case studies in more depth than is usually found in conference proceedings or the open call, non-themed journal editions? The essays began within the UMAC project *Professionalising museum work in higher education: A global approach* undertaken with partners that aimed to develop a global perspective on how the university museum was being used for the training of future professionals. At different stages of essay development, we requested authors explore certain lines of argument and analyse and reflect on certain outcomes, as a way of strengthening and aligning theoretical content with the prescribed theme of pedagogy. In many ways our role was more curatorial than editorial. If it has produced a more interesting and more professionally useful volume of writings, then there will be more thematic editions in the future, possibly even including the current theme.

Furthermore, the increasing higher education interest in, and deployment of, object-based learning, as apparent in this collection of essays and elsewhere in the literature (e.g. THOGERSEN et al. 2018) raises a couple of interesting specific issues. One is related to the idiosyncratic institutional setting; the other is related to technology.

If museums and collections make such a fundamental contribution to the work of universities, not just in teaching, but in a range of other functions as well, why are they not simply ubiquitous throughout the higher education sector? If they can be used in many different ways, why is it that many legacy collections in higher education are simply discarded once they are seen as being of no further use?

Probably one of the most famous incidents was in 1755 when Oxford University, on the order of university authorities, burnt the natural history collections of the Ashmolean Museum (BOYLAN 1999), including the stuffed extinct giant flightless pigeon of Mauritius known as the Dodo (NOVAK-KEMP & HUME 2017). At the time Oxford University's leadership didn't anticipate the Linnaean and Darwinian revolutions in understanding the natural world that would require large natural history collections to underpin teaching and research progress. Perhaps a wise and visionary academic leader at the time, with or without a crystal ball, could have foreseen the folly in such an abrupt administrative decision, but alas, the pragmatists won the argument and had their way, as they often do.

A number of essays in this collection clearly demonstrate that objects can be reused and recycled through different types of learning and teaching utility. The pedagogic uses of university museums and collections change over time as do the audiences using them in learning programs; they are iterative and constantly evolving in response to institutional needs. Yet, even though text and object are both seen as dialogic enablers of learning, when it comes to economic decisions about resources, cuts to museum programs will almost always come before cuts to library programs. Is this simply a result of the traditions of textuality in higher learning, or are other factors involved in shaping such familiar outcomes?

More cynical observers of the contemporary corporatized academy might claim it is a reflection of the fact that the decision making of leadership groups is more informed by hedge fund management and property development principles rather than any understanding of how learning works. The need to advocate on behalf of the value of museums and collections to the constant churn of personnel passing through the revolving door of higher education leadership positions seems to be an eternal challenge (MARES 1999).

The technology issue and where it could lead us in terms of learning perhaps provides us with exciting and optimistic potential in contrast to the somewhat sanguine reflection on the nature of the institutional setting above. The ability to reproduce accurate digital avatars of objects from photogrammetry is becoming ubiquitous. There are examples, both in this collection of essays and the broader literature (e.g. NELSON 2014, ECCLES 2019) where digital objects themselves and the process of converting objects into digital data, are being increasingly incorporated into higher education learning programs. It could even be claimed that the easy and infinite replication enabled by an analogue–digital intersection is becoming a new pedagogy dialectic itself.

The educational potential for university museums and collections is immense. Imagine a future where you could enlist access to objects in some of the best university collections from around the globe for curriculum design and direct incorporation into classes. This could forearm educators with powerful tools to really bring the delivery of subject matter alive. If digital avatars of objects from the university museums of the world are made readily accessible to education developers and curriculum designers, the higher education experience for an increasing number of audiences could become a truly transformative one. Such developments would undoubtedly take time to build resources and require evoking the collaborative capacity of higher education networks.

Perhaps there is a role here for UMAC and perhaps also many more themes to be explored in the journal?

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List of contributors

GIOVANNI DONADELLI

137.

University of Padua; giovanni.donadelli@unipd.it

CHIARA GALLANTI

137.

University of Padua; chiara.gallant@unipd.it

JORGE LUIS GÁLVEZ SOLER

104.

Montané Anthropological Museum; jorge.galvez@fbio.uh.cu

ISABEL M. GARCÍA

95.

University of Madrid; museoig@ucm.es

NICOLE GESCHÉ-KONING

121.

Université libre de Bruxelles; nicole.koning@ulb.be & ngesche@me.com

SELINA CHUI-FUN HO

113.

Lingnan University Hong Kong; selinah02@ln.edu.hk

ALISTAIR KWAN

90.

Scholar and editor, New Zealand; alistair.kwan@aya.yale.edu

LÚCIA ALMEIDA MATOS

128.

University of Porto; lmatos@fba.up.pt

ARMANDO RANGEL RIVERO

104.

Montané Anthropological Museum; rangel@fbio.uh.cu

VANESSA VÁZQUEZ SÁNCHEZ

104.

Montané Anthropological Museum; vanevaz@fbio.uh.cu

ANDREW SIMPSON

158.

Macquarie University; andrew.simpson@mq.edu.au

SAYURI TANABASHI | 棚橋沙由理

147.

The University of Tokyo; sayuri.m.tanabashi@gmail.com

MAURO VAROTTO

137.

University of Padua; mauro.varotto@unipd.it

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