ARLIS/UK & Ireland Research Award Report 2023-4

A knowledge exchange material literacy research project
University of the Arts London (UAL) x UWE Bristol (UWE)

The project and its context

Materials surround us in our everyday lives, and yet “while they do so much for us, we rarely pause to marvel at them …it’s so easy to forget just how foundational a role they play in our experience of the world” (Corbin, 2018, p.6). One way this can be addressed is through the introduction of physical materials within a teaching and learning context.

Numerous arts institutions around the world have collections of materials samples, which are used as sources to inform or inspire their students. Educators (including, but not limited to, academics, librarians and technical staff) use materials and objects to develop students’ knowledge of material properties and processes and empower them to apply a critical approach to their materials selection.

This project has been inspired and informed by various literature, covering topics such as materials libraries and collections, material culture and research, makerspaces in libraries, fabrication and hands-on learning, meta-literacies, object-based learning and pedagogy. Please see our recommended reading list to explore these texts.

We identified an opportunity to research and link teaching and making literacy provided by technicians, with librarian-facilitated object-based learning frameworks. There was also a need to address sustainability considerations and be mindful of the United Nation’s Sustainable Development Goals, demonstrated in a Students Organising for Sustainability longitudinal study capturing students’ attitudes towards learning for sustainable development, which shows that “approximately 80 per cent of students want their institution to be doing more on sustainable development [and] around 60 per cent of students want to learn more about sustainability” (United Nations, 2014).

This project has identified that there is a growing interest in the UK in creating and utilising materials libraries within higher education, and in particular by library staff for use within their information and academic literacy teaching. Therefore, there is an opportunity for library and technical staff to co-develop materials collections and jointly deliver workshops and resources to support and develop students’ materials literacy.

Inspired by CILIP’s definition of information literacy (2018), we have applied this concept to articulate materials literacy as: the ability to think critically and make informed and balanced judgements about the materials we encounter, source and select. It empowers us as citizens to contribute to a more sustainable society by developing our understanding of material origins, properties and environmental impact.

Another project gaining momentum at UWE which has informed this particular collaboration is the Bristol Materials Network which aims to build connections and share knowledge and resources around materials and sustainability, enabling the development of materials literacy for UWE students, staff and the wider community in Bristol. Originally, the network came from a project with the intention to create a materials library at UWE. However, limitations of space, budget and resourcing made this difficult to achieve. Instead, small, portable collections of materials and objects are used to facilitate learning within workshop settings. This approach works well to develop students' materials literacy and has been key to the knowledge exchange between the two institutions.

Project aims

The Research Award project was kickstarted with the shared ethos that using materials within teaching is relevant to understanding a sustainable approach, developing critical thinking and reflective skills using materials and objects as the vehicle for learning.

Through a series of events, activities, visits and knowledge exchange opportunities, we:

- created a set of resources to support educators to confidently deliver materials literacy workshops in their own institutions;
- collated a guide to prompt considerations when developing a materials library;
- delivered a webinar (available on ARLIS UK & Ireland YouTube channel, 2024) to disseminate learning, share recommendations, and seek feedback.

In addition to achieving these project aims, the process revealed the benefits of working collaboratively across institutions and across academic, professional and technical services. We also discovered that a designated and formalised materials collection was not wholly essential to achieving these goals.

About us

Billie Coxhead, Materials & Products Co-Ordinator, UAL

I lead on the Materials Collections at UAL and have worked with materials collections for around eight years, previously at Ravensbourne University London and currently at UAL. My MA Library and Information Services Management dissertation explored the user experience and context of the Ravensbourne materials library using ethnographic research techniques. The research highlighted the importance of offering access to materials knowledge through physical, haptic collections and hands-on making opportunities for students.

I currently manage two eclectic materials collections at Central Saint Martins and London College of Fashion, housing an extensive range of inspiring physical samples. The collections are used by and support a mixture of creative Arts, Design and Science programmes, such as Fine Art, Biodesign, Architecture, Jewellery, Textiles and Cosmetic Science, plus Social Sciences such as Psychology, Business and Management.

Central Saint Martin's Materials Library

London College of Fashion's Materials Library

Due to an accelerating interest in materials and collections, I am regularly contacted by schools, universities, commercial companies and brand agencies for guidance on developing a materials library collection. This is partly connected to a growing awareness of the climate emergency and the environmental impacts of materials extraction and exploitation, alongside a collective realisation of the disconnect between the consumer, materials and the chains of production and supply. The outcomes of this knowledge exchange project hope to support those interested in developing a collection and teaching with materials by sharing practices and activities.

Morwenna Peters, Library Manager & Subject Librarian, UWE Bristol

As the Manager of the art and design library at UWE Bristol and a Subject Librarian for several programmes within the School of Arts, I design and deliver programme-specific tailored sessions which are embedded into the curriculum. In addition, I deliver academic skills workshops that are open to students at all levels of study across the whole University. These generic, optional workshops largely focus on essay writing, covering topics such as critical thinking, critical and reflective writing, planning and structuring writing. While essay writing is a component on modules within the School of Arts, it is far outweighed by a variety of other assignments and activities such as presentations, crits, zines, visual diaries and sketchbooks, objects, models and many more (as is typical in other arts institutions). Therefore, it is within the context of embedded teaching that I can explore more creative approaches, employing objects and materials as vehicles to develop these core academic skills. These sessions provide the opportunity to interweave the traditional information literacy skills, such as finding and using information, research skills and referencing, which are more relevant than ever in the age of generative AI.

Object-Based Learning session for MA Curating - Describe, Deduce, Hypothesise

Inspired by a presentation delivered online by Billie in 2021 about analysing materials, I began to explore how materials and objects exploration could be used to develop some of these key academic skills, but applying them specifically to the creative work my students are engaged in. I started with MA Design students, inviting them to bring an object to the workshop (examples included a wallet, a piece of jewellery and a wooden toy). Using an adaptation of the Jules Prown method (1982) to look slowly, carefully and methodically at the objects, describing them objectively, deducing what they might be made from, and then hypothesising or storytelling about how they might be used, I then guided them through this analytical process. Weaving in concepts of reflective thinking and writing, the workshop ended with the students choosing a reflective model to write about their experience of the workshop. Since then, I have run workshops with several programmes using objects and materials samples in a variety of ways to facilitate the development of knowledge and skills, such as prompting discussions on decolonisation, research skills, reflective practice, and critical reading, thinking and writing, predominantly linked to specific assignment or module learning outcomes.

Fiona Dowling, Materials Researcher & Technical Team Leader in Fabrication, UWE Bristol

The Fabrication area I manage comprises of several workshop spaces for physical making processes such as ceramics, mould making and casting, enamelling, metalwork and woodwork. The technical team within Fabrication supports students in UWE's School of Arts to develop practical making skills, access specialist equipment and translate their project ideas into physical objects. We work with several different BA and MA programmes, including Fine Art, Interior Design, Illustration, Graphic Design, Fashion Textiles, Filmmaking, Photography, Animation and Multi-Disciplinary Printmaking.

Previous to UWE, I worked for nearly 7 years as a Digital Fabrication Technician and then Skills Development Manager at KWMC The Factory, a community focused makerspace and part of digital arts charity Knowle West Media Centre. The Factory offers access to a wide range of digital fabrication equipment including laser and vinyl cutters, 3D printers, a CNC router and digital embroidery machine. The core purpose of my role involved developing training and

volunteering opportunities in digital design, making, and small business development, whilst embedding learning around sustainability and materials.

Materials play a key role within technical areas and makerspaces, which raises various considerations around cost, transport, waste, and ethical and environmental impact. Artists, designers, makers and engineers need to build an understanding of the properties and applications of different materials, along with their historical and cultural connotations, so that they can make the most appropriate material choices depending on the context and intentions of their project.

For me, this has highlighted the importance of embedding materials literacy within the curriculum in the context of higher education, to prepare future generations with the tools and knowledge they need to develop sustainable practices. This sparked the development of a collaborative research project with Morwenna, which has since evolved into the Bristol Materials Network. Through this network, we have facilitated events and workshops, developed an online platform of resources, and delivered timetabled sessions focused on materials literacy, laying the groundwork for this knowledge exchange project.

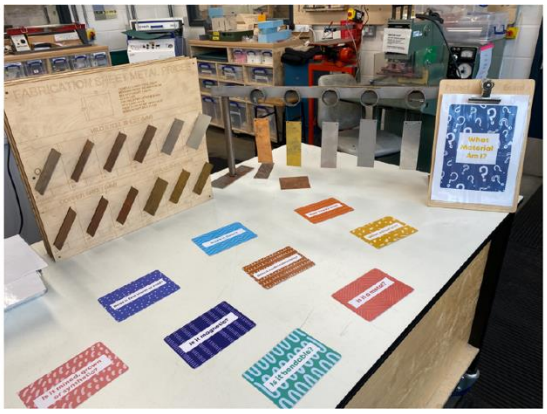
The ARLIS project: what we did

The ARLIS Research Award enabled us to exchange knowledge across our two institutions and create shareable resources.

Knowledge exchange visits and networking

We developed our awareness and understanding of how materials could be used in teaching by information gathering and visiting materials libraries and collections at Central St Martins and London College of Fashion, UWE Bristol, and the London/Bristol-based architecture firm AHMM. We benefitted from peer observation across our two institutions by observing teaching sessions with Fine Art and Interior Design. Additionally, one of the unexpected outcomes of the project was sharing contacts: several meetings took place between library, technical and academic staff across the two universities, which we hope to continue beyond this project.

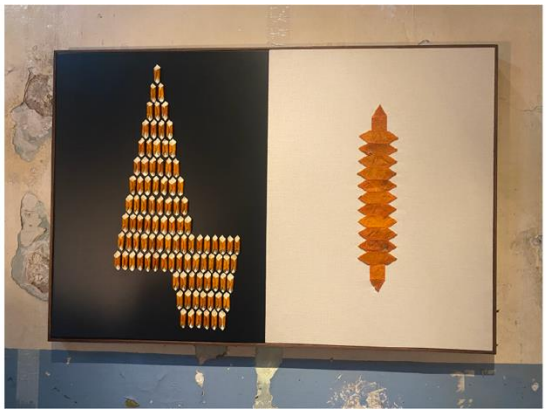
Material Samples from UAL Workshop


What Material Am I? Activity from UWE Workshop

Materials fairs/events

Employer support and award funding enabled us to visit key trade shows and industry events, including Material District, Fabrics Expo and Material Matters, acquiring samples and learning about the latest material innovations within the design sector.

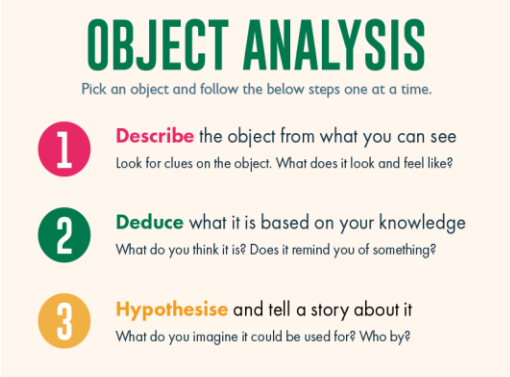
Samples at Future Fabrics Expo 2024



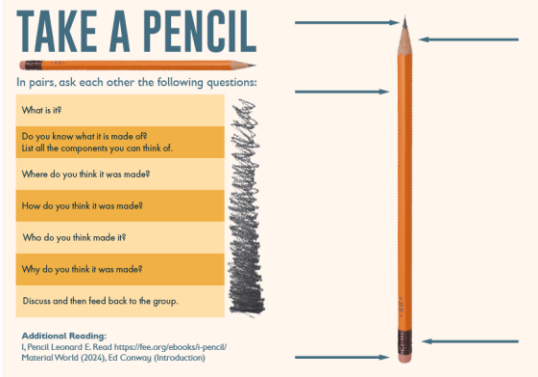
Citrus Sinesis, Alkesh Palmer, Material Matters 2024

Teaching plans and activities

We created a series of printed activity cards (also available digitally) with content that can be delivered within a range of sessions and tailored to different audiences. These activities focus on building materials literacy and critical thinking skills through sensory perception, object analysis, research, and exploration. The cards are designed to be shared widely across UWE, UAL and other educational institutions. Additional sample lesson plans are available on request.



Object Analysis Activity



Take A Pencil Activity

List of materials/suppliers

We developed a list of recommended materials and suppliers as a starting point for anyone looking to build a physical materials box or materials library: Recommended materials list.docx

Guide to starting a materials library

We produced a guidance document, tailored towards anyone aiming to start teaching with materials and/or build a physical library of materials: So you want to teach with materials.docx

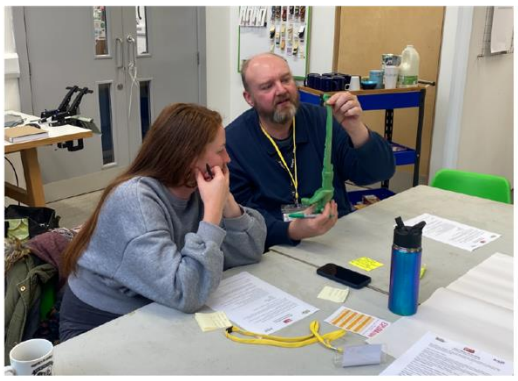
Materials Box

We created a physical box containing material samples (some purchased, some given freely)

and the full collection of resources we created: activity cards (plus instructions for use), the guidance document, and the list of materials and suppliers. A digital collection of the resources has also been made available, enabling others to create their own box. (examples of UAL's teaching boxes)

Sharing of the project

The project outputs have been shared in several formats:
i) An in-person workshop at UWE inviting technical, library and academic staff from UWE, UAL and Bath Spa University to test out the material activity cards and provide feedback on their relevance and effectiveness.



Participants of the UWE workshop

Material samples for the UWE workshop

ii) A live webinar presentation delivered to members of the ARLIS network, detailing the origins of the collaboration, the project aims and outputs, and our learnings and next steps for the project: YouTube webinar recording

iii) A publicly accessible Padlet collating information, reflections, networks and links to resources from the project: Padlet

Reflections from the research project

Key learnings from the project included the collective insight that a materials library is not a necessary requirement for teaching with materials, provided you have access to a small collection of materials or some basic, everyday objects. As Hardie writes, the simple act of students getting hands on with materials and objects "can inform and inspire their thinking and design making" and our sessions evidenced "that objects can energise learning and teaching" (2015, p.5). There are many benefits to material libraries, which can act as "catalysts" (Coleman and Pompelia, 2017) and support with "bridging or at least narrowing the great divide thought to exist between the arts and sciences" (Wilkes, 2009). However, lack of access to such facilities does not have to inhibit the potential for using materials as a tool for learning.

The role of materials literacy within learning for sustainable development has also been prevalent throughout the project, with a notable growth in students wanting to adopt the most 'sustainable' material options possible, requiring an in-depth knowledge of the factors and complexities that contribute to a material's sustainability credentials. In contrast to the modern

idea that we live in a predominantly digital and “increasingly dematerialised world, where ever more value lies in intangible items”, as a society we are still “wholly reliant upon the physical infrastructure that facilitates it and the energy that powers it” (Conway, 2023, p.6-7). This highlights the continuing, if not increasing, importance for students to understand the materials they are working with, where they have come from, and what will happen to them after their use.

The resources produced as a result of this project have already been invaluable in the planning and delivery of teaching and learning at both UWE and UAL, by academic, library and technical staff. The UAL Textiles and Materials programme lead borrowed the UAL materials teaching box for a presentation and workshop with A-level Art & Design students from Ecole Boulle in Paris, and the feedback was extremely positive: “Incredible”, “Helpful”, “Inspiring”. The A-level students also sent the little booklet (pictured below) on what they learnt through the workshop, which include some of the library samples:

Workshop session with Art & Design, Craft Design and Jewellery Craft students from Ecole Boulle, Paris

The set of activity cards that form part of the box have also been used in UWE Library sessions for the Architecture programme and an Architecture Librarians group (ARCLIB) teachmeet, and have informed the planning and development of timetabled workshop sessions across the UWE BA Fine Art and Interior Design programmes. Some of the activities were also included within a bespoke workshop session presented at the 2025 ETHO 'Crafting the Future' Technical Conference in Riga, under the theme of 'Materials and Making Mindsets: playful approaches to teaching and learning and developing materials literacy' (delivered by Fiona Dowling and Rachel Davis).

Workshop at ETHO Technical Conference 2025 - Materials & Making Mindsets

Overall, the project has emphasised the value of working collaboratively across library, technical and academic teams, and bringing together different perspectives and expertise in order to nurture a more holistic approach to developing materials literacy and critical thinking skills. It highlights the need to avoid treating these concepts as separate entities within the curriculum, and instead focus on how they interact and contribute to the development of a future workforce of sustainable artists, designers, makers and engineers. The experience of working together across disciplines also helps to broaden the understanding of the staff and stakeholders involved, and building networks across and within institutions can support the ongoing sharing of knowledge and best practice, and lay the groundwork for future collaborations.

To continue to address the climate crisis and aid the progress of sustainable development within higher education and beyond, it is crucial to operate in a mode of abundance and openness in terms of sharing knowledge and cultivate a 'commons approach' where "all people become conscious stewards/managers of the Earth System and commons resources" (UN, 2014). The hope is that the outcomes of this project contribute to this in a meaningful way, providing open access to useful information and resources and supporting the development of sustainability-informed materials literacy and critical analysis skills.

Next steps

The project generated connections to grow and ideas to develop for both institutions, including:

- Further utilise and share the resources developed within our institutions and beyond, to embed materials literacy and critical thinking into our programmes
- Continue gathering feedback to refine and expand the activities

- Identify a suitable platform or process for hosting content, sharing the resources more widely and facilitating connections (currently using Padlet to host resources)
- Continue growing the Bristol Materials Network, developing materials literacy-focused content, displays and resources for UWE learning and teaching
- Synthesise and share the benefits of working collaboratively across institutions, and across technical, library and academic teams

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