Communicating research to the public: creative publics, cross-disciplinary engagement and para-academic practices
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Introduction

While university museums often have as their remit to support public engagement with research through collections display, exhibitions and public programmes, much activity which highlights university research takes place outside the support structures of the university museum. This chapter addresses some of the many ways in which academic research is communicated to the public outside the university museum, with a focus on three projects at the University of Glasgow, part of the Digital Departures Lab. These examples demonstrate two-way exchanges between academic research and cultural production outside the university. They also draw analogies to notions of "para-academic" practices happening alongside and beyond university environments. These para-academic practices are often led by researchers themselves who learn curatorial skills on the fly and engage the public by design or even by happenstance. From the experience of delivering these projects it is apparent that these activities, which may be neither a clear 'deliverable' of an academic research project, nor within the remit of the university museum as a curated showcase of research findings, might, in fact, serve to broaden and deepen academic research while at the same time increasing its accessibility.[1] Indeed a public engagement activity curated in an informal manner at a different moment in the life of an academic research project, could well be the precursor to future university museum programming.

Aside from a University's own museum, within the higher education (HE) sector a number of different support structures exist to facilitate the sharing of research, both to audiences which are internal and 'publics' which are external to the University. This chapter considers these from the point of view of their programming style –the event, the residency, the programme – rather than focussing solely on university museum exhibitions. Written from the perspective of a practitioner and researcher based within the UK, the chapter concludes with a consideration of the findings from an evaluation of one such University-wide programme, and a broader consideration of the motivations for communicating research to the public within the higher education sector. The lessons a university museum might learn from para-academic practices in the arena of public engagement activity may well depend on the nature of that university museum in the first place.

Context

It is therefore necessary to clarify from the outset that the University of Glasgow, where I am based, is home to Scotland's oldest museum (opened in 1807) – the Hunterian Museum and Art Gallery – staffed by a range of curators and subject specialists who regularly collaborate with the wider academic community of the University to curate exhibitions, conduct research into collections, and engage the public through co-created programming. One such example is the exhibition about the cultural phenomena in Scotland that is Mary Queen of Scots, developed with a curatorial team including historian Dr Steven Reid.[2] The mission and activities of the Hunterian Museum and Art Gallery is not, however, the focus of this chapter, but an important context to understand how exhibitions, displays and showcases of research have been supported at Glasgow over the last 200 years. Not all Universities can boast such a renowned museum, nor the breadth of its collections to be employed in the service of engaging publics with research into a myriad of topics. These unique aspects of the Hunterian, paradoxically, make it less useful to this discussion which seeks to generalise different types of non-museum activity – such as residencies or overarching programmes – which might take place within universities, whether on campus or off.

In the UK the National Co-ordinating Centre for Public Engagement (NCCPE) describes public engagement (often abbreviated as PE) as "a two-way process, involving interaction and listening, with the goal of generating mutual benefit."[3] The guidelines and manifesto they have published have informed not only the individual PE strategies of universities but also the working practices of academic research funders. In the UK, the UK Research and Innovation body (UKRI) which distributes public (government) funding to the Higher Education (HE) sector has published a vision statement which recognises PE as a driver for "creating a more prosperous, healthy and sustainable society […] by making research and innovation more relevant, impactful and trusted."[4] A wider context for University PE activity includes a pledge by universities to improve the communities they are based within. At Glasgow, the university has signed a pledge to be a 'Civic University' which means forging agreements to actively align university priorities with those of local partners: "Alongside schools, further education colleges, local authorities, charities, the [National Health Service] NHS, civil society and businesses large and small, we want to make sure our place thrives in the coming decades. [...] we are committed to attaching a high-priority to the economic, social, environmental, and cultural life of our local communities."[5]

These strategies and pledges mean that (aside from the university's curators – who may or may not also be academic staff) there is a wide cohort of university-employed research engagement teams, with members skilled in developing and delivering public engagement activities. This chapter tentatively considers such university workers as 'para-academic' staff drawing on Bruce Macfarlane's use of the

neologism. Macfarlane used 'para-academic' to describe the condition of 'unbundling' of academic practice as a tripartite role (involving research, teaching and service) and defined para-academics as specialising in one particular aspect of academic life.[6] This framing could be useful to think in a more concrete way about the value of public engagement staff at universities, in their capacity to communicate research to different publics.

There visibly is a large number of national conferences and professional development opportunities for those staff specifically, including those run by NCPPE and networks such as UCAN (University Centres for Arts Network).[7] NCPPE's annual conference ENGAGE is also where university teams are awarded gold, silver and bronze watermarks, validating the two-way process of their public engagement activities.[8] Applying for an ENGAGE Watermark is a way for a university team to audit their PE activities, and work out where there are barriers for staff in developing projects which engage the public with their research. The external recognition by the NCPPE means the university can identify and thus overcome those barriers as well as recognise and reward university staff for their efforts in contributing to the cultural life of not just the university but the city.

Prior to the establishment of these networks, there already existed (in the UK) joined-up academic efforts at programming events which introduced university research to the public. These mostly included coordinated talks series, which later evolved into festivals with shared thematic focus. Being Human, founded in 2014, is an annual Festival of the Humanities which has 'hubs' at specific universities who apply for funding to coordinate activities across campuses, loosely linked to an annual topic (the theme in 2021 was 'Renewal')[9]. Explorathon (with the hashtag #makingresearchreal) is a consortium of Scottish Universities who programme shows (including stand-up comedy), talks, tours, and workshops, including online activities.[10] European Researchers Night is the last Friday in September which aims to show "the diversity of science and its impact on citizens' daily lives in fun, inspiring ways". La Nuit des Idées is the French version, held on the last Thursday in January, and considers topics beyond science, focusing on "big ideas" and how they can change the world.[11]

Therefore in this complex collaborative context, the use of 'para-academic' here is speculative since the term could be used in different ways. In the scope of this chapter, Macfarlane's use of the term relates to staff who position themselves in parallel to traditionally perceived academic work, due to precarious employment conditions (such as early career researchers taking on university service positions due to the insufficient opportunities for research tracks). Beyond Macfarlane and more recently, the term 'para-academic' has been used to describe different positions in relation to what is perceived as the traditional academic role, including by Sean Vaughan as a position occupied by certain creative practitioners or cultural organisations, whose work generates new knowledge.[12] These could be individual or

collective creative practices, or the work of curatorial and programming staff at festivals, art centres, community projects and other cultural organisations, which contributes to knowledge-making. Such activity outside of the academy, which successfully shares research to publics, could lend methods and expertise in understanding public engagement, particularly through the lens of artistic work.

Many types of research depend on the public's participation, such as in medical research, the clinical sciences and the social sciences. In some cases, public engagement is now a key requirement of funding, and a well-designed engagement programme is a criteria of assessment for research (one key example is the Wellcome Trust's Research Enrichment Scheme[13]). Funders might also insist that the public engagement programme which sits alongside the research is monitored and evaluated on its own merits, creating yet another workstream.

While the sciences are more established in supporting how to not just communicate research to the public, but also to engage publics with that research, the same cannot always be said for the arts, and particularly the humanities. In the humanities, research hypotheses are rarely required to be 'tested' on humans, and are often perceived as 'lone-researcher'-led rather than international collaborative endeavours. The public may be engaged at the end of the research project to view a showcase of findings, rather than at the beginning during which they might shape the research question based on an urgent community need, or the mid-point, where they would assess the value of the process the research is undertaking. There are of course exceptions to this, such as in the fields of history or archaeology, where co-creating research events with audiences leads to new findings. Examples might include battlefield archaeology and re-enactment, the documentation and archiving of intangible cultural heritage such as knitting patterns or video gaming, or forensic science and law, where the restaging of historic court cases with new techniques of evidence gathering leads to rewritten outcomes.

Generalising across disciplines is never helpful but these differences in PE strategies are reflected not just in the amount of funding available (much more PE funding is available in the sciences, particularly in healthcare) but also in the way in which academics set aside their time (how much and when) to communicate their research. Some humanities subjects would not develop new research projects without the input from communities at the outset, which may well have come about through sharing the results of a previous research project. The disciplinary differences also are marked as to whether academics feel they have to do the public engagement themselves, or can hire other more experienced and skilled consultants and project producers (or para-academics) to do it for them. An example of this, from the field of physics, will be discussed below.

To even the playing field a little, at the University of Glasgow there is a unique set-up within the College of Arts which facilitates research development. Rather confusingly

titled 'Arts Lab' (although it is not a lab) it is a light-touch financial and management structure in which academics self-select and group themselves around topics of shared interest to test ideas and develop research projects. These groups can then apply to become one of the Arts Lab's emerging 'themes' or 'labs' and then produce shared activity – arguably incubating future research projects. This is often either internally focussed – such as bringing doctoral students, post-graduate researchers, early career researchers and established academics together to discuss research directions – or externally focussed, to engage stakeholders and seek out directions for possible future research. The ArtsLabs have no formal relationship to the University Museum, although research and curatorial staff from the museum may be involved with, or attend programming by the labs (for example there is a lab about digital cultural heritage co-led by Prof. Maria Economou who holds a part-time position at the Hunterian Museum developing their digital strategy) and one about collections).

One of the ArtsLab's Labs is called the Digital Departures Lab (DDL), and is co-directed by myself, with media theorist Prof. Timothy Barker and musician Dr. Louise Harris. With the mix of research practices as well as disciplines – I'm a curator and sometime art historian, Tim is a writer and thinker, and Louise is a composer and performer – we each bring a different skill-set to an overlapping research area. The Digital Departures Lab asks how strategies and practices from the arts can disrupt shared understandings or assumptions about life in a digital age (perhaps by working to help us imagine a future where we might 'depart' from 'the digital'). A public discussion day on the topic of the 'post-digital', instigated by Louise and Tim and held at the Centre for Contemporary Art in Glasgow (CCA), was the precursor to the establishment of the DDL.

In the following sections, this chapter will look at three different projects involving artistic interventions linked to the DDL and the different strategies employed to communicate research to the public (remembering that engagement is "a two-way process, involving interaction and listening, with the goal of generating mutual benefit") within the framework of a university, but outside the structure of a university museum.

The event: sharing work in progress

A series of virtual online residencies took place in Glasgow in 2020-2021, linked to my ongoing curatorial research into artists' uses of new technologies. Hosted by the Goethe Institut and the Alliance Francais, "New Forms of Togetherness" brought together initially three (in the end, two) young/emerging female visual artists to interrogate uses of artificial intelligence and machine learning (selected from an open call). These virtual residencies were a partnership with the National Library of Scotland, and SOBA (Social Brain in Action Lab) at the University of Glasgow.[14]

There was no formal involvement with any university museum in these residencies. Instead, they were enabled by 'expert meetings' with researchers working with AI, and workshopping ideas for implementation of processes (in which the artists could use or critically reflect on AI algorithms in the creation of their work). These residencies enabled crucial thinking time, in which academic researchers were invited to reconsider the imperatives of their work in the field of AI, by discussing it in response to questioning by artists.

"New Forms of Togetherness" also benefited from online publishing about the work of the residency artists, Siri Black and Marion Carré, and two online discussion events, which were advertised to and attended by the public, one as part of the Nuit des Idées programme linked to the Alliance Francaise. These public events held on Zoom (both of which I chaired) enabled the artists to share work in progress, and to widen the public understanding of what AI research was taking place in the academic organisations to which they were linked. The format was more presentation-oriented rather than actually enabling much two-way conversation, however they did result in knowledge sharing and network building. Audience members included other artists across Scotland, and in the second event I invited Alexandra Daisy Ginsberg, a London-based artist working with AI, to present. Siri and Marion later installed their resulting art projects in public art exhibitions, taking place off-site in an artist-run gallery space (separate to the academic partners in the research). Despite not directly engaging the public with research presentations, these cultural events allowed for artistic work to mediate the audience's understanding of new technologies; and positioned the creative process as an outcome of public engagement itself where cross-disciplinary conversations were instigated between AI researchers and artists.

The residency: workshopping, thinking, and production time

Artists – visual artists in particular but also musicians and writers – are expert communicators through the medium of their work. As such, commissioning an artist as part of a collaborative research process can be an excellent way to open up ideas to wider audiences, to start conversations, and to think about how to co-design other types of activities through which research can be communicated. In 2020-2021, in the midst of the global COVID-19 pandemic and lockdowns, the DDL advertised for an artist in residence to work on ideas of repair – the repairing of our broken relationship to technology or addressing how and suggesting fixes for technologies which have broken our relationships with one another. From over 100 applicants, we selected Nastja Säde Rönkkö, in part based on her previous project "6 Months Without", in which the Helsinki-based artist lived and worked in a studio in London for six months without using the internet at all.[15] The three month residency she undertook with the DDL was, ironically, online, and did not have the requirement of completing an artwork for public presentation, thereby ensuring the shape of the

research could be up to the artist while mutually beneficial. After participating in open online forums in which she presented her practice to others at the University, Nastja proposed that we use the time we had together to engage in discussion about, and develop proposals for, ways of being together offline and generating greater understanding of one another's experiences of living with and without technology. We did this through responding to her request that we establish a network for correspondence via handwritten letter and spending pre-agreed periods of time without the internet and then reporting back to one another about what change that introduced in our lives.

While the virtual residency and its activities did not reach a wide public audience, it did enable the DDL researchers (Louise, Tim and myself) to communicate with colleagues across the university the importance of recognising the behaviours that come from our time being programmed by our dependence on technology. This enabled further discussions about self-care in the context of the overwhelming digital environment we work in. Similarly to the researchers' engagement with "New Forms of Togetherness" discussed above, the residency contributed to 'thinking time' – something essential to research which is often not apparent in a HE culture focused on outputs, outcomes and impact. Researchers who participated in Nastja's residency have since gone on to establish new research projects that consider digital accessibility and exclusion (in Dr Mark Wong's work in particular), and (in the case of Dr Louise Harris) have experimented with the move from creating work digitally to creating work in analogue formats.

The activity underpinning these residencies (both the DDL experiments in being offline instigated by Nastja and the expert meetings about AI through "New Forms of Togetherness") arguably took place not in the public eye. Nevertheless, they engaged an artistic audience specifically and created a platform for communicating emerging research questions to one another across academic boundaries – such as between departments within the university, or between the university and other cultural partners (the National Library and The Goethe Institut). In one clear case, an academic researcher who met the artists through their residency was positively influenced in developing of a new undergraduate course in AI in the Arts and Humanities.

Another example of an artist-residency which began at the end of 2022 in the University of Glasgow's Advanced Research Centre demonstrates how sustained engagement between scientific and artistic practice can enact the two-way exchange required for public engagement. The artist group 'Semiconductor' (Ruth Jarman and Joe Gerhardt) are working with the Extreme Light Group in the quantum and nanotechnology research lab led by Professor Daniele Faccio.[16] They are experimenting in capturing the line of flight of entangled photons, and trying to understand how light works both as a wave and a particle in its quantum state. Some of the questions the artists are asking of the scientific researchers are leading to new

technical set-ups, and new 'computational imaging' experiments. A difference with this residency is that while, on the surface it may seem that the artists' work might help the public become engaged in research into optics and quantum physics, in fact the artists are also engaged in their own material and conceptual research about particle detection, lightwaves, and the making of images – research which continues in their studio outside the university lab. Engaging the public with the artistic research being undertaken by Semiconductor will necessarily have to happen through presentations and exhibitions of their work. Engaging the public with my own practice research into how art-science collaborations happen – the unwritten histories of art-science collaborations, how they are curated, and how their outputs are valued by the public – will take another raft of events and activities, yet to be organised. While this residency may yet involve university museum staff (the Hunterian's curator of scientific instruments could illuminate objects in the collection which have previously been used to detect waves or particles, from the long history of scientific research at Glasgow going back to Lord Kelvin), to date there has not been any public engagement activity on either the artist's side or the scientist's side, while the collaboration between them is finding its footing on common ground of experimentation and exploration.

The (overarching) programme: building lasting engagement

In line with this trajectory of artist residencies facilitating collaborations between research and creativity and sustained interest in ideas of how our experience of the world is programmed by digital technologies, in 2021 the DDL initiated a further series of conversations with artists, for public release. Under the title "Programmable Nature" these conversations were long-form interviews or studio visits, filmed and released podcast-style.[17] By using the practices and perspectives of artists working with technology, these videos enabled research questions shared by DDL researchers, such as how programming influences the natural world around us, to be foregrounded. Listening to artists working in the cultural sector then became a way of us, as academics, to reflect on what questions are important for our research to focus on next. In a sense, this was a way of engaging a creative public specifically, in order to reflect on the research and prompt further dissemination and engagement with research through exhibitions and discourse of artistic work.

The DDL's project "Programmable Nature" was created for and launched as part of "The Dear Green Bothy" (DGB) – University of Glasgow's highly successful cultural programme in response to COP26, delivered though the College of Arts.[18] DGB's goal was to showcase the role of the arts and humanities in addressing the climate emergency through the programming of public events drawing on research at the University. The programme organised and showcased over 50 different creative and critical responses to the ecological crisis.[19] Devised by the College's "Arts Sustainability Working Group" (ASWG), the programme involved over 2500

participants, and worked with over 30 Higher Education Institutions (HEIs) and 25 external partner and community organisations in a range of in-person and virtual events. The Hunterian Museum and Art Gallery was one of the partner organisations who programmed exhibitions and events for COP26, which were also highlighted in the DGB programme. While not curated per se, the DGB programme was instead an opt-in umbrella-style framework for a large range of public-facing activity including walking tours, workshops, exhibitions, screenings, discussions and talks. There was an application and selection process, and the project delivery was critically supported by the University's public engagement staff. University investment funding has confirmed that the DGB platform can continue to programme public-facing research events going forward as part of the legacy of COP26 being held in the city, to continue to foster the relationships built and to ensure civic relevance to University research.

This further investment is a direct result of a rigorous evaluation report of DGB, commissioned by the College of Arts and conducted via research into both organisers and participants' impressions of the programme. The report detailed the project's successes and shortcomings as well as, crucially, how individual events related to their respective organisers' research. Not surprisingly responses from the public who attended DGB programming confirmed that they had gained a heightened sense of knowledge regarding the climate emergency by attending one or more DGB events. In some instances, this new understanding came as a surprise, even if they had expectations for learning. However, in interviewing and surveying organisers and practitioners who were both organising their own events and attending others within the DGB programme, the evaluation team also found that working on DGB enriched those organisers' understanding of the ecological emergency and moreover gave them ideas on how they can incorporate and communicate ecological ideas through their work. Furthermore, academics themselves found value in the programme for how it also created resources of various kinds (now used, for instance, in teaching). Importantly, DGB served as a platform for sharing research with the public in an accessible way while allowing for cross-disciplinary impact within the University community.

The DGB realised a network of HE institutions, cultural organisations and charities in Glasgow and further afield. The overarching programme was particularly praised for its collaborative nature and the relationships it fostered within the university and beyond. The Hunterian Museum introduced a new kind of event to their typical programme by hosting 'Collective Care: Renewing Perspectives on Museum Collections' – an evening of performance and music which took over the museum's main hall. The event was in collaboration with the Being Human festival, it was inspired by research by the Hunterian Associates and showcased research by practice-based PhD candidates at the University. Importantly, DGB opened space for visibility for many practice-researchers working on multidisciplinary projects at the university, such as Minty Donald or Deirdre Heddon. The DGB's evaluation showed

that participants were interested and curious about research outputs and impact and were able to better understand what the university does, particularly in arts and humanities research.

The DGB was very successful in pulling together internal university groups or networks, other HE institutions and external organisations in heritage, the arts and climate justice. This allowed for a convergence of both academic and non-academic or 'para-academic' research. One excellent example for this was the project 'Local Women of the World', led by Zarina Ahmad, a climate change educator and communicator, who had been working as a para-academic (after Vaughan) in the charity sector conducting research (perhaps appropriately characterised as practice-research too) on engaging marginalised communities with the climate emergency - a topic which could often be accessible only through spaces of economic and intellectual privilege. Having worked for CEMVO Scotland and Keep Scotland Beautiful, Zarina identified the gap in formal research outputs on the work she was actively doing for ethnic minorities communities in Scotland. Challenged to find funding for this research through the Scottish Government, Zarina pursued PhD study at the University of Manchester. In the context of DGB, Zarina led on a project pairing mentors from the University of Glasgow with Glasgow-based women from marginalised ethnic backgrounds, who developed artworks communicating their impressions on the ecological emergency. Varying from film, music, and poetry to craft and digital gaming, these projects built relationships between the university and new publics through creative exchanges. Such bridging of communities and engagement of academic staff with research emerging from the third sector could be identified as para-academic.

Other examples of communicating research to the public

One advantage of the types of programming discussed above is the way in which they might benefit the researcher and research project as much as the public who are engaged in the topic at hand. These often collaborative practices with life outside of academia too, ensure time for workshopping, thinking, and production, as well as opportunities to discuss work in progress, and to connect with others to begin the process of building lasting engagement with the research being conducted.

There are numerous other examples of ways of curating which communicate academic research to the public, each of which deserve chapters of their own. These would include the art-science work done in galleries and engagement spaces on university campuses the world over, such as the Science Gallery international network[20], or LifeSpace Dundee, which I co-founded and curated for its first five years of existence[21](discussed in my chapter in the book "Curating Lively Objects"[22]). The work of Hannah Star Rogers is beginning to map this field in the context of Science and Technology Studies.[23] Some standout examples of university

museum programmes which are based around research projects, rather than collections – such as those thematic group art exhibitions co-created with curator Chris Clarke at the Lewis Glucksman Gallery at University College Cork in Ireland[24] – deserve greater attention and scholarly analysis.

The three types of practice noted above – the residency, the (discursive) event and the (overarching) programme – all potentially benefit from different curatorial skillsets to those which might usually be found in the staff of a university museum whose programme priorities are based primarily around exhibitions and collections displays. This is certainly the case in university museums with longstanding traditions of scholarly collection-based research, compared to more recently established university museums, which might be less object-heavy and more fleet-footed. The Glucksman, for example, describes itself as "an important venue for public art and socially engaged arts practice [with] an educational mission to work with the community to enable people of all ages and abilities to engage with visual art." In particular, it highlights the role of working on collaborative arts projects for "bridging university research and civic and social justice issues".[25]

Conclusion

"Para-academic practice" is a flexible term which has been used to encompass the activities of those who undertake research processes, often in public, without the security of academic employment in a university (they may be precariously or under-employed in the HE sector) or who engage in knowledge-producing practices in cultural environments outside of the academy altogether. Curators often sit in this category of para-academics, as their projects and programmes contribute to public understanding of topics of concern and interest, but are often borne from non-institutional or precarious contexts (artist-run organisations, city or local authority funded festivals or galleries). Similarly, University-employed public engagement or research engagement staff members working to 'support' the dissemination and sharing of the research could be characterised as para-academic (and may have begun their careers outside academia, or may be 'former' academics or researchers who have moved sideways from the lab bench to the stage). These PE staff may also differ from university museum curators who are themselves crucially involved in research – usually around the university's collections. Such workers, who have external perspectives on academic research are instrumental in making its outcomes more transparent and accessible to publics.

It is difficult to generalise lessons from this activity outlined above which could be useful to university museums, given the different shapes and sizes of university museums and the different emphasis that universities place on their public engagement missions and civic responsibilities. In smaller university museum services, the curator may be one of only a few members of staff within the university

who understand the public engagement landscape and clear benefits of communicating research. Indeed the curatorial role may pre-date the hiring of PE staff (often an off-shoot of the University's own marketing or communications department) meaning there are no other staff undertaking programming or curation in informal ways. On the other hand, in newer or younger universities without formal collections and museum accreditation, public engagement with research may be a much higher priority to ensure greater global attention and other strategic goals of the university.

'Conventional' ways of disseminating research – through delivering exhibitions and lecture series – of course may entail working in partnership with organisations that tend to work outside formal academic structures, and there are no doubt many examples of this across the university museum sector. Exposure to the different programming styles and practices of those organisations could lead to a rethink of the ways in which university museums have, until now, programmed their calendar of public events. What differs with the types of programming discussed above, is that their experimental and in-progress nature, clearly benefits the research (and researchers) in developing new projects, new lines of enquiry, or translating research into teaching assets or other academic-focused activities, as well as engage the public with current issues of importance to wider communities.

Within the UK academic context there is a financial incentive to sustaining public engagement with research and meeting the university's civic mission. Greater research funding, increased reputation and therefore student enrolment, all come from co-creation and dissemination of 'world changing' research. The UKRI funds 'impact acceleration accounts' for universities to employ research engagement managers and impact champions, and to fund the time and resources necessary for documenting, and evaluating, the activities in which the public are engaged with research outputs, and ideally research processes. Remembering the key definition of public engagement as "a two-way process, involving interaction and listening, with the goal of generating mutual benefit", puts into question museum methods and formats which tend, in their formal or traditional formats, to 'show and tell' rather than listen. Rather, this chapter positions cross-disciplinary interactions throughout the academy but outwith the university museum, as well as involvement and collaborations with creative practitioners, as a public engagement strategy communicating university research to new publics and allowing for a mutually enriching exchange of knowledge. Communicating research to the public is rewarding when it is not just a time-limited one-way broadcast, but is intended and designed to bring lasting change, to publics, as well as to the ambitions and future work of researchers. The examples discussed here offer a potential 'beyond the museum' approach which could help with a rethink of how universities communicate research.

Sarah Cook bio

Sarah Cook is professor of Museum Studies in the subject area of Information Studies at the University of Glasgow and a curator of contemporary art with over 20 years of experience in commissioning and exhibiting media and digital art in museums, galleries, festivals and online. For five years she led the programme at LifeSpace Science Art Research Gallery at the University of Dundee. From 2020 to 2022 she held a senior academic fellowship at Tate as part of the Mellon-funded project 'Reshaping the Collectible: when artworks live in the museum'. From 2023 she holds a part-time guest professorship in Art and Artificial Intelligence at the University of Umea as part of the WASP-HS programme.

Endnotes

[1] This chapter benefited from the editorial assistance of post-graduate researcher and curator Bilyana Palankasova, and draws on the Dear Green Bothy evaluation project led by Dr Nicole Smith and realised by post-graduate researchers Bilyana Palankasova and Christie (Oona) Dooley.

[2] "Mary Queen of Scots Project," accessed January 18, 2023, https://mqs.glasgow.ac.uk/.

[3] "What is Public Engagement?", National Co-ordinating Centre for Public Engagement, accessed January 19, 2023, https://www.publicengagement.ac.uk/about-engagement/what-public-engagement.

[4] "UKRI Vision for Public Engagement," UK Research and Innovation, accessed January 19, 2023, https://www.ukri.org/wp-content/uploads/2020/10/UKRI-1610202-Vision-for-public-engagement.pdf.

[5] Glasgow signed the civic university agreement in 2019 (https://www.gla.ac.uk/myglasgow/news/newsarchive/2019/unordered/headline_637610_en.html), which was itself an outcome of one of two reports produced by the Civic University Commission (https://upp-foundation.org/about-us/civic-university-network/)

[6] Bruce Macfarlane, "The Morphing of Academic Practice: Unbundling and the Rise of the Para-academic," *Higher Education Quarterly* 65, no. 1 (January 2011): 59.

[7] University Centres for Arts Network. See https://www.ucanuk.net/

[8] Engage conference. See https://www.publicengagement.ac.uk/nccpe-projects-and-services/engage-conference

[9] Being Human

[10] Explorathon

[11] European Researchers Night and Nuit des Idees

[12] Sean Vaughan, "Confidence in Practice: Positioning institutional and individual creative Research as para-academic", in *Institution as Praxis: New Curatorial Directions for Collaborative Research,* eds. Bill Balaskas and Carolina Rito (Berlin: Sternberg Press, 2020), 203.

[13] Wellcome Trust Research Enrichment scheme

[14] New Forms of Togetherness documentation can be be found online at

[15] Nastja Sade Ronkko "Six Months Without" - documentation can be found online at

[16] For more on the extreme light group research aims see https://www.physics.gla.ac.uk/xtremelight/projects.html

[17] Programmable Nature can be found online

[18] Dear Green Bothy programme documentation can be found online

[19] in Scotland, a bothy is an informal shelter cared for by its users.

[20] Science Gallery Network began in Dublin at Trinity but has venues for public science communication worldwide, all affiliated and based within universities, and organises touring shows often using an open call approach on topics of public interest such as the climate emergency, dark matter, justice and contagion. See sciencegallery.org and https://sciencegallery.org/opencall

[21] LifeSpace Science Art Research Gallery in the School of Life Sciences at the University of Dundee was curated as part of a partnership with the School of Art and Design, with four exhibitions per year, many on multidisciplinary themes, curated by myself in collaboration with artists and scientists. The archive is available at https://www.dundee.ac.uk/lifespace

[22] Sarah Cook, "Curating data-driven information-based art: Outlive or let die" In Lizzie Muller and Caroline Langill, Eds. Curating Lively Objects: Exhibitions Beyond Disciplines, Routledge, 2021

[23] Hannah Star Rogers is editor of the Routledge Handbook of Art, Science, and Technology Studies and author of Art, Science, and the politics of knowledge, Cambridge: MIT Press, 2022

[24] Chris Clarke has curated exhibitions about artificial intelligence, biodiversity, gut health and sensory perception among other topics of research

[25] The Lewis Glucksman Gallery is described on the University College Cork Civic and Community Engagement pages of its website as meeting this mission: https://www.ucc.ie/en/civic/initiatives/theglucksman/.