Practice case study

Notes from Archive to AR: towards a creative knowledge exchange

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Abstract

Archive to AR was a knowledge exchange project that took place during 2019 and 2020, and which was funded in its second phase by an XR Stories Small Collaborative R&D grant. A collaboration between the University of Sheffield, Sheffield-based digital agency Hive IT, and the National Railway Museum, its aim was to develop an idea and partial prototype for a mixed-reality game based on the National Railway Museum's archive, which could be played on a phone or a tablet. Drawing on my experience as a practitioner-academic working on Archive to AR, the aim of this article is to present and reflect upon the creative practice-related methodological outcomes of the project. My intention is to consider which principles for doing knowledge exchange (KE) emerge when embodied, creative process is prioritised and, in line with a practice-as-research approach, the KE space is cast as a site of knowledge *production* as well as exchange. Part provocation, part ethno-autographic reflection and part analysis, this paper's overall aim is to contribute to the ongoing conversation about how KE and creative work can overlap within a new 'third space' for academia in a way that prioritises process and method, but which is nevertheless conducive to high-quality artistic outputs.

Keywords knowledge exchange; practice-as-research; creative practice; museums; archives; augmented reality

Key messages

- This paper provides a reflective insight into the creative practice element of a knowledge exchange project between a university, a museum and a digital small to medium enterprise (SME), including an account of methods of encountering, interpreting and responding to archival objects, text and images for the purposes of creating a narrative for an augmented reality story app.

- The paper provides some practical ideas – expressed as three 'principles' – for practising creative knowledge exchange in a way that prioritises method over outputs, and dwells on material and embodied encounters with places, people and things as drivers of a creative process.

- The paper presents an argument for understanding knowledge exchange activity as a site of knowledge production, with a particular emphasis on the way in which practice-based methodologies can not only shape the intended outcome of a project, but also contribute to the evolving understanding of arts-focused knowledge exchange within higher education institutions more broadly.

Introduction

Alongside teaching and research, universities now pursue a 'third mission' that involves engaging with societal needs and market demands. Researchers have long worked with external partners in ways that benefit society (King and Rivett, 2015), but this activity is now formally referred to as knowledge exchange (KE), and is identified as a key part of this mission. Researchers are expected to do KE, and their work is currently recorded via the HE-BCI survey, which collects financial and other quantitative output data. The Knowledge Exchange Concordat (2020) and the Knowledge Exchange Framework (UKRI, Research England, 2022) provide a cross-institution set of principles and way of measuring all funded activity. With this formal emphasis on partnership work, and the associated auditing that must take place to monitor it, comes an inevitable focus on quantitative value and a 'top-down' view of KE activity.

In line with this focus, and as Sam and Sijde (2014: 904) note, the most common understanding of the 'third mission' of institutions is of one that is primarily engaged in 'entrepreneurship for economic development'. This economically driven model of KE can be understood as part of the deeply criticised neoliberal university agenda and marketisation of higher education (Banks and O'Connor, 2017; Shore and McLauchlan, 2012). However, in line with the original postcolonial and sociolinguistic roots of the concept of 'third space' as a site of subversive potential, and a convergence of languages, cultures and communities (Babha, 1994), scholars and practitioners have elsewhere understood KE and associated areas as rich with possibility. New 'bilateral and … organic models of engagement' (Comunian and Gilmore, 2015: 11) are emerging, for example, and entrenched power structures within the university system are challenged (Larner, 2012). Thus, the 'third mission' of universities is a highly contested realm, seen simultaneously as a key part of the neoliberal university agenda, and as a welcome shift in the structures and relationships that govern universities' relationship with the outside world.

In the arts and humanities, where 'people-based, problem-solving and community driven activities' are foundational (Hughes and Kitson, 2012: 746), KE activity is 'not well understood' (Abreu and Grinevich, 2014: 452), and it is frequently done 'under the radar' (Bakhshi et al., 2013). This results in a lack of representation in academic and policy discourses (Hughes and Kitson, 2012; Comunian et al., 2015). On a practical level, KE activity in the arts and humanities frequently involves a component of creative work – collaborations between researchers and artists, theatre companies, galleries and participatory arts companies are common. However, as performance scholar and maker Dee Heddon (2016) argues, the relationship between creative work and KE and associated areas is often an instrumentalist one. She proposes that 'the function of arts in proposed projects is often as a tool to engage, communicate,

mediate, translate and/or to enhance. Put bluntly, in this competitive interdisciplinary environment, the arts are the (very useful) catalysts to knowledge exchange, public engagement and impact' (Heddon, 2016: 82).

For Heddon (2016), employing an artist or naming arts practices in a funding application is a disingenuous way of framing humanities-based contributions to interdisciplinary projects. Where researchers working through creative practice become involved in such activity, she argues, the idea of creative work itself as research, as process and method, is under threat of erasure in a framework that privileges products and outputs.

The aim of this article, then, is to contribute to the broadening and deepening of the parameters of arts and humanities-led knowledge exchange. In service of this goal, I present a case study of a KE project at the University of Sheffield, UK: Archive to AR. I use an arts and humanities-based methodology – practice-as-research, a mode of academic enquiry in which creative work is the primary method of discovery – to describe it and to analyse it, and to draw some broader conclusions from it on how to do productive, high-quality KE work with a creative element. Practice-as-research works from the assumption that new knowledge can emerge from the artistic method itself. In line with this, I use insights from the creative process of Archive to AR to draw out three practical, creative principles for doing creative KE that I hope will be useful for anyone working on similar projects, including artists, project managers and academics (especially those working through artistic practice). I present my findings based on my role in Archive to AR as a postdoctoral researcher and creative writer, but I also implicitly draw on my subsequent work as a project manager in the Arts and Humanities Knowledge Exchange team at the same university.

I begin by introducing Archive to AR, including the funding context, the structure of the project team, and my role and brief. I explain the way in which the findings shared in this article complement the wider project evaluation. I then move on to the main body of the article, which comprises an account of the creative process of archive interpretation and narrative development, arranged under three headings: Places, People and Things. Each of these sections contains an auto-ethnographic reflection, based on my journals at the time, followed by a short analysis in the form of a creative 'principle'. These principles – 'make a map not a tracing', 'understanding exchange?' and 'the work's the thing' – cover the importance of non-linear, spatial thinking and exploration, the role of subjectivity and embodiment, and the necessity of a fluid and potentially mysterious relationship with materials. They represent an embodied, process-driven approach to doing creative KE work that seeks to provide an alternative to the output-driven mode often associated with this kind of activity. The auto-ethnographic sections appear as boxed text, not because they are marginal to the primary business of academic analysis or, indeed, doing KE, but to signal a shift in voice to the reader. The experiential accounts and creative provocations should be understood as foundational to the article and its insights, rather than as illustrative or descriptive precursors to the analysis and conclusions.

To help make the case for the relevance of the creative process as an experiential and embodied form of knowing, I draw implicitly on Robin Nelson's (2013) model of practice-as-research. Practice-as-research, described elsewhere as 'philosophy in action' (Barrett and Bolt, 2007: 1), is research enquiry though creative practice. For Nelson (2013), this involves moving between three interrelated forms of knowing: 'know-how', which he describes as 'experiential', 'embodied' or 'tacit' knowing'; 'know-what', which he describes as 'the tacit made explicit through critical reflection', including knowing what 'works', and knowing which methods or principles of composition should be used in a given context; and finally, 'know-that', which he relates to the more traditional forms of knowing associated with the academy, including 'outsider' or 'distant' knowledge, and the 'conceptual frameworks' and 'cognitive propositional knowledge' found in familiar academic modes of dissemination such as books and journal articles (Nelson, 2013: 37).

Following Nelson (2013), I focus my discussion of Archive to AR in this article through a lens of 'know-how' and 'know-what'. I discuss my 'embodied, close-up' experience of a dynamic network of

people, places and things, and relate how these encounters fed into a creative process based on my prior knowledge of 'know[ing]-what' works. However, as well as relaying these methodological aspects, I want to frame Archive to AR itself as a site of knowledge production in terms of a KE that embraces a practice-as-research approach. The aspects of process that I share here have been generative of 'know-what' insights: three principles towards a creative KE.

'Archive to AR'

'Archive to AR' was a KE project that took place during 2019 and 2020, and which was funded in its second phase by an XR Stories Small Collaborative R&D grant (XR Stories, n.d.). XR Stories is one of nine 'clusters' within the Creative Industries Clusters programme which exists to fund collaborations between universities and the creative industries. XR Stories focuses on 'innovation within immersive technologies in relation to digital storytelling' (XR Stories, n.d.: n.p.), and the primary purpose of grants such as this one is to support small to medium enterprises (SMEs) to develop eventually marketable products. While the industry partner was meant to be the primary beneficiary of the activity, the funding call stipulated that the work be mutually beneficial, and that knowledge should be exchanged.

The project was a collaboration between the University of Sheffield, Sheffield-based digital agency Hive IT, and the National Railway Museum. As the SME, Hive IT were the primary beneficiary of the activity. The project addressed a problem that had been set by the National Railway Museum: the need to attract young adult audiences to the museum, one of the most under-represented groups in their visitor demographic. The work explored 'proof of concept' for an 'augmented reality' (AR) game app based on the National Railway Museum's archive, which could be played on a phone or tablet during a train journey. Players would download the app to their phone or tablet and, while sitting on the train, would hold their screen up to see a historical railway carriage overlayed via AR. They would be able to look around the carriage and interact with people and with objects; the latter would be 3D recreations of objects from the National Railway Museum archive. In playing the game, young audiences would have a chance to explore the archive without visiting the museum site, which, in turn, might encourage them to make an in-person visit. As Hive IT detail in their unpublished final project report, the collaboration set out to explore: 'the visual challenges in developing this unique visual novel, the challenges around exposing archival material to users, the creative process required to develop the story and how this could be done collaboratively …, a repeatable process for this type of project in future'. The project did not produce the app in full but, as a research and development activity, explored and tested various tools, techniques and content that would be needed if the game were to be fully developed.

Hive IT's role was to prototype a 'slice' of the app (including experimenting with interactions and gameplay, and creating a technical skeleton for the narrative), to test a short section of dialogue to explore characters' mouth and facial movements, and to investigate the creation of 3D models from archival objects. The National Railway Museum provided access to the archive and the 'problem' that the project would address. On the university side, I was recruited, on the basis of my recently completed practice-based PhD in theatre, as a part-time postdoctoral researcher and creative writer, and I was asked to create a story, including the script for one fully written scene. Following the activity, Hive IT produced an evaluation report, to be shared with the funders. Similarly, Jonathan Bradley, KE Project Manager at the University of Sheffield, evaluated the work from the point of view of university knowledge exchange project management. Understandably, these evaluations could not practically include academic insights – the practice-as-research-related findings – that had emerged from the collaboration, nor assess the work through that lens. Thus, the findings in this article are meant to complement the other modes of project evaluation, and to add a further, necessary dimension to reflecting on learning from the activity.

Places in Archive to AR – extract from author journal, January 2020

There is a childish excitement to the visits we make, as a project team, to the National Railway Museum in York. By the third visit, the route across the bridge, down the steps and through the back entrance of York railway station has merged into familiarity. Each time, we are met by the charismatic and encyclopaedic Dr Oli Betts, the museum's head of research, who leads us, seemingly effortlessly, on a journey through the ranging engine halls of the museum, as well as through the highways and byways of railway history. Rolling stock of all stripes: the West Japan bullet train, pale, elegant and aerodynamic (in which you can sit and imagine the mere three hours it would have taken you to travel the 320-mile line between Tokyo and Osaka); the Chinese Government Railways Steam Locomotive KF 4-8-4, class number 7 in coal black and poppy red (discarded chopsticks were found in a nook of the engine during a later restoration); the King's Own Yorkshire Light Infantry in canary yellow and forest green, emerging gaily onto the scene in 1961, two years before my narrative will come to be set.

There is a clandestine thrill to being ushered in to sit in early twentieth-century carriages normally inaccessible to the public, to peep in at folded-back, crisp linen sheets in a sleeper carriage, to file along polished wood corridors, and out into immaculately set dining cars. In walking these spaces, you can almost smell a whiff of pipe smoke, almost hear the slamming of carriage doors and the sigh of steam. And yet, there is also a tension in these half-living, half-dying forms: the inertia, an absence of movement that is palpable. Later, we slip through a side door from the main museum space, along a corridor and through a series of rooms, cold and dry, like paper: a slight chill on the skin, the unflattering shadows of functional lighting. Artefacts in their boxes, concealed from less privileged eyes, paintings stacked, and books bursting with tickets, cigarette cards and other ephemera. After a morning of wandering and listening, we rest in the cafe, buoyed by the gentle hum of the museum space, and drink up both coffee and Oli's stories of the railways.

In terms of creative process, my encounters with these places are richly generative, frame-shifting experiences that add necessary layers of understanding to the creative work I am doing. Wandering, revisiting, circumnavigating, pausing, gathering, covering old ground: these are the rituals through which associations freely emerge and ideas are propagated. Journeys through these spaces, in their non-linearity, reflect the necessarily disordered journeys through ideas, where divergent thinking, a concept developed by psychologist J.P. Guilford (1967), which generates multiple possible solutions to a problem though spontaneity, non-linearity and unexpected association, is the most productive. In this way, I find it helpful to understand creative process as a kind of spatial work, and to reflect on the process I am in as a journey through space. Indeed, as I make my way through Archive to AR, through my encounters with people, places and things, certain 'way points' present themselves – fragments of material, objects or interactions that bring a flash of insight into what to do next, and into how the narrative, the work, will come to be structured in terms of both form and content. If I am to create a compelling narrative, this is the only way to begin.

As the project progresses, the time I spend in transit between the various sites takes on a particular significance, and begins to bleed into the emerging structure of the narrative I am creating. Waiting in Sheffield, in York, sometimes in the cold, sometimes in the bright morning sun, a sense of transit and transition emerges as a theme across process, form and content. The live action of the game is to take place in a single railway carriage: the user, who, if the app is created in full, will be playing while on a train, will hold up their phone and be able to see an overlaid historical railway carriage that they can explore, and within which they can speak to characters and examine objects. In this way, the whole story is underpinned by the limitations of a certain kind of liminal space – the railway carriage. This presents me with a significant challenge – to create a compelling story that happens, essentially, in one room – but the idea of transit and transition also becomes a thematic focal point around which various materials and processes constellate.

A hand-painted railway poster – one of many stored and displayed at the National Railway Museum – with the strapline 'Butlin's for Holidays' shows an ecstatic young woman on a beach, delicately poised with a beach ball. The impossible brightness of this image gets under my skin and becomes a 'way point' in my process of narrative development. I know I want it to feature in the story, and I begin to intuit that the way to do that is to juxtapose it with another, highly contrasting world. Thus, I imagine this place-ideal on the wall of a drab and dark railway carriage on a cold night. Better, I imagine it reflected in the small, slightly smudged make-up mirror of the young protagonist when she is travelling home. A flash of saccharine gloss in the rain-soaked vagueness of a winter evening: two worlds, colliding.

From this fragment of insight, other decisions about the narrative fan out. The story's heroine will undergo her own transition as she learns about life and loss. The narrative will be set in the early 1960s, a period of acute change, when, for example, steam trains were still running but, at the same time, incredibly, the Moon landings were imminent. Allowing a thematic foundation such as this to emerge from an encounter with an object, a sudden picture in the imagination or a fragment of material is foundational to my method. These 'way points' are the 'pegs' upon which to hang everything else, and, crucially, they always work 'from the bottom up'. Rather than beginning with a story structure and then finding material to fit, you allow the material to dictate the story. If, as I have suggested, creativity is a kind of spatial work, then you are always creating a map, rather than following one that has already been made. Further, your trajectory through that space is never linear, and your route cannot be predicted: returning, pausing, getting lost, taking detours are all vital operational modes.

Principle One: places – 'make a map not a tracing'

To anchor the project in a material context is to foreground the inextricability of the work from the material conditions that bring it into being, to be reminded that KE work such as this is always done *by people* working in *specific places* with a *specific set of materials*. It is a practice. As such, it involves failures, misunderstandings and the unsaid, as much as it does achievements and learning points.

By tending to the material details of places and spaces, both real and imagined, in which KE happens, the focus is shifted from an abstract, distanced picture of the activity to one anchored in doing and feeling. Comunian and Gilmore (2015) advise us to consider KE and related activity in spatial terms, but creative work provides us with a model for putting that into practice. Using a spatial approach embedded in creativity also offers up a way of planning KE projects: sufficient time must be given for circumnavigation, repetition, return and failure; embodied encounters with places and things must be prioritised as an essential aspect of creating high-quality work; appropriate methodological limitations and freedoms based on practice-oriented 'know-what' knowledge – parameters which help rather than hinder generativity – must be set in place for the creation of a product.

A useful framework for navigating a creative KE project in this regard is Deleuze and Guattari's call to 'make a map not a tracing' (2002: 12). They propose that '[a] map has multiple entryways, as opposed to the tracing, which always comes back "to the same". The map has to do with performance, whereas the tracing involves an alleged "competence"' (Deleuze and Guattari, 2002: 12). Just as places, people and things in Archive to AR dictated the nature of the emerging narrative, KE that embraces a practice-as-research approach can allow for the structure of creative projects – that is, identifying what is going to be produced and how – to emerge from, or alongside, an exploration of material and an open, reflexive process. 'Entryways' to the work might not be in the form of a predetermined idea of what is to be created, but from sudden connections with material of the kind discussed above.

People in Archive to AR – extract from author journal, January 2020

I am in the National Railway Museum picture store. It is filled with the original commissioned paintings for myriad railway posters, like the smiling lady with the beach ball, imploring us to visit regions of Britain by rail. These and other paintings – from traditional oils to movement-filled abstractions – are set in beautiful incongruity with the cool hardness of industry on display across the museum, speaking, perhaps, of a time in which art and industry were more intertwined than in our own. Worlds-within-worlds, they speak of the shifting contexts and environments of the railways, passing by me now like shunting carriages. They represent the railway lines and locomotives that move across the cultural imagination, the romance of a journey towards the new and the unexplored, the promise of a new self to be discovered at the end of the line. They remind me of the way in which the railway environment I am working with is an ever-moving series of worlds, part real, part imaginary, and always in motion.

As we leaf through sketches and studies in a drawer, the work of Clifford Rowe, an artist who had created numerous sketches of people on the railways, strikes me. A committed communist, he depicts life on the margins of this vast network: the low-paid and menial roles, women workers, people normally unseen, and yet vital for the functioning of a giant machine. His quick sketches are of figures, alone on the page, stripped of their surroundings, as if to highlight the absolute centrality of humanity to the unceasing movement of the railways. The blank space around Rowe's sketched figures makes them seem adrift – place feels conspicuous by its absence as I speculate on a series of possibilities for these missing contexts. The sheets represent a carousel of scenes, instances of fleeting coherence, windows into a chance encounter between artist and subject in an unknown location.

There is a pair of large watercolours – Helen McKie's 1948 watercolours of *Waterloo Station – War* and *Waterloo Station – Peace* – that seduce me because they are bursting with life and detail. Echoing her work as a fashion illustrator, McKie's railway scenes are filled with dapper and dynamic figures, and these are perhaps her most well-known works. They depict exactly the same view of the station and exactly the same figures – men, women and children, servicemen, workers, lovers, friends, colleagues – on one hand in the shadow of war, and, on the other hand, in the light of peacetime. Captured in the dance of the everyday, these figures move through this liminal space, the realities of their destinations a set of ghostly suggestions. In these images, people and place are inextricable: the identity of Waterloo station is defined by its temporary occupants, by the waxing and waning of crowds, by figures and the spaces between them.

Echoing this inextricability, my encounters with real and imagined places in Archive to AR are caught up in encounters with real and imagined people. The fictional place I land on, and then continue to work with, the carriage at night, is a meeting point of places experienced and places imagined. As this interior takes shape in my mind, so too do the figures that occupy it. The archival materials I encounter, and the places I wander through, all contain a multitude of fragments that help to constitute the characters of my story. Rowe and McKie, as historical people, who I meet through their original work, are two figures who lead me to further thematic foundations, who act as 'way points'.

Standing in the picture store, Oli points to a biro 'correction' on the surface of McKie's original painting, where a train fanatic has at some point felt compelled to overwrite the correct number of one of the trains. In an echo of this disturbing erasure, he tells a story about the painting's vantage point. The view of Waterloo station in the picture is clearly from a raised position, but McKie, as a woman, wasn't allowed the privilege of looking down on the station from the highest level, the managers' offices. In these two anecdotes, the creator of this highly accomplished and valuable work has been disallowed her full self-expression and freedom to create on account of a controlling male influence.

From my meeting with Rowe and McKie's work – and with their selves, as I imagine them to be – I find that a picture of my central figure gradually finds form. The associations between both artists and the theme of marginality seed the idea that the protagonist of the story will be a young working-class woman: Meg. As the weeks pass and I muse on it further, I realise that Meg will be joined by two other female characters, the glamorous Eva and a cantankerous, septuagenarian nun, Sister Rose. Eva, upon whose daily presence Meg will have come to rely, will mysteriously go missing from her usual carriage en route one cold, dark night. In her attempts to find Eva, Meg subsequently will be drawn into a web of Cold War intrigue and, at the same time, will begin to find her voice in the world, with the help of Rose, her new friend.

Oli tells us that amateur railway history is dominated by male voices, generally speaking – women's expressions are less prominent, erased even, as in the case of the biro correction on McKie's painting. One of the overall aims of the app, if it were to be fully realised, is to bring the National Railway Museum archive to a wider audience than it typically attracts, to undermine some of the assumptions that a potential visitor might make about who the museum is for. These themes of gender-related marginalisation converge in my intuitive decision to honour McKie's story, and to place a young, working-class woman centre stage.

In this way, I am working from my own subjective viewpoint as a practitioner-researcher and as a woman – inevitably bringing into the story that which is important to me – but also attempting to shapeshift, to look through another's eyes, to share her or his standpoint. In creating an interactive, augmented reality game such as this one, there is an extra level of subjectivity in the sense that the person experiencing the story will be 'playing' the protagonist. Working on this story, then, I attempt to engage with multiple subjectivities, shifting, for example, between the viewpoints of Helen McKie, the character of Meg, and my imagined audience member. In doing this, I attempt a practice of empathy and acknowledgement of the interconnections and interactions of people as they exist within their environments, their places, and in relationship to one another. In a methodology based on 'know-how' and 'know-what', looking and listening – and doing it with an awareness of how one's own standpoint has an effect on the encounter – are foundational processes (Nelson, 2013) for working with archival material in Archive to AR.

Principle Two: people – 'understanding exchange?'

The importance of acknowledging 'multiple subjectivities' applies as much to the experience of collaborative working as it does to story creation. As the Archive to AR team expressed at various stages – both informally and within the project evaluation – meeting new people, learning from what they do and working together was one of the most rewarding and memorable aspects of the project. In this sense, a feeling of a shared experience was as important as a sense of knowledge exchanged, and the experience

of physically visiting the various workplaces was a key aspect of this. Such visits – a chance to see into the 'world' of your collaborator – give a better understanding of them and their work than words will perhaps allow. Thus, in Archive to AR, as in other KE projects, inviting collaborators to physically visit your organisation or business, extending generosity and hospitality, is a vital part of making the project work, and it feeds directly into the end product.

Following this, the anecdote relating to McKie's literally limited standpoint is potentially illustrative of the extent to which KE is about acknowledging that partners, including the university, approach a project from their own peculiar, partial position. An important part of working together is making time for explicitly addressing differences in outlook and method to find a common ground. According to Stefan Collini, (2012: 77), 'the goal of work in the humanities … is better described as "understanding" than as "knowledge"'. He argues that:

> whereas knowledge can be seen as in some sense objective, 'out there', a pile or hoard that exists whether anyone is tending it or not and which any suitably energetic person can climb to the top of, understanding is a human activity that depends in part upon the qualities of the understander. (Collini, 2012: 77)

In line with Collini's (2012) argument, an extra dimension to 'knowledge exchange' emerges. As well as exchanging knowledge, an exchange of understanding or viewpoints occurs. Beginning KE work with an assumption that collaborators are not necessarily coming to a project with the same aims, expectations and working methods, and making time to address this collectively and in person is a vital aspect of the activity.

Things in Archive to AR – extract from author journal, January 2020

Each of the rooms in the National Railway Museum, both in public and backstage areas, has its own distinct material character, and the constellations of objects in each create a certain texture or logic of distribution and presence that affects the experience of, and movement through, a particular area. In the huge 'open store', things are piled high and close. With less space around them than in the main exhibition areas, their arrangement gives the public a glimpse of a secret, more functional life, but it is also forcefully striking in its poetics of juxtaposition. Glistening tea sets and fanning constellations of cutlery, a bench from a railway platform, a spray of signage pointing us in all directions, cases of hand-crafted model railway carriages bathed in a warm yellow light, helmets of all kinds, horse tack, fraying suitcases, sheets, a mosaic of notices warning us not to trespass, brass ashtrays and a graffitied station clock. This peculiar assemblage guides the body through space, a network of corridors and holding spaces shaped by accumulated matter.

The idea of Archive to AR is to research and develop possibilities for an augmented reality game that features objects from the archive. For my part, as creator of the story, I am reminded that this involves much more than selecting some objects and building a narrative around them. In fact, the archive is stubborn in that regard, unrelenting in the way it refuses to offer up easy things for co-option into a story. It is proving hard to prise these objects from their context and, based on 'know[ing] what' works, my approach, as I have discussed, is to allow material fragments to emerge as 'way points'. I move through this network of archival things, objects in place, alert to the possibility of what they might offer in terms of the developing narrative and aesthetic, or just to a feeling of being drawn to them.

Over the course of my visits to the archive, I gather material and textual archival objects and fragments that seem to speak to me: cigarette cards, a series of classified documents about what the railways will do to prepare for a nuclear attack, aerial photographs of Leeds station, two short films, *Terminus* (1961) and *Snow* (1963), a story about a man who worked in a railway yard and could hold on to a lamp post and lift his body to ninety degrees with the ground. In a book of oral histories of the railways, I find an anecdote that describes a piece of railway folklore: a suspicion that the crows swerving over the tracks but always miraculously missing the train are the reincarnated souls of engine drivers who must be placated with small food offerings flung from the windows. This piece of information buzzes with a certain energy that demands its inclusion, and this is what I am looking for in my archival wanderings. Experience has taught me to 'know-what' works: these 'stranger than fiction' fragments can give a seductive texture to the narrative, and a depth that can be difficult to achieve with pure make believe.

Jane Bennett (2010: viii), in her book *Vibrant Matter*, argues for 'the capacity of things – edibles, commodities, storms, metals – not only to impede or block the will and designs of humans but also to act as quasi agents or forces within trajectories, propensities, or tendencies of their own'. She urges us to 'tune in to the strange logic of turbulence' that comes from things. I keep her ideas in mind as I seek out strange and captivating material, and as I consider how I am affected by the archive. I acknowledge that the archive acts upon me, propels me through space, pulls and repels me, entices me, seduces me, is at once effusive and reticent. In an augmented reality game such as the one we are exploring, whose purpose is to use archival material, I think about whether it is important to retain some of these qualities of otherness and mystery in the virtual encounter. Presenting the archive to an audience who are not in its physical presence may not only involve rendering 3D representations of archival objects, but also encompass something of what it feels like to be, physically, in its company.

Dramaturg Mark Bly (2003) describes interpreting or approaching a play or piece of theatre as 'pressing an ear against a hive'. In describing it in this way, he urges us to approach material in acknowledgement that we may not understand it straight away, and that we should listen and look before acting. Similarly, my encounter with the archive in this project means a tentative approach towards a world – dynamic, humming with life – that may not be willing to give up its secrets. In choosing materials, I must ask myself if I am satisfied that I am attempting to allow their unique characteristics to influence the shape of the narrative, rather than the other way around. Wandering the museum, engaging these processes, trusting them to happen, is a vital part of a methodology that seeks to look and listen, and to encounter things, in the first instance, as they are. Rather than trying to impose a predetermined idea of form and content, a fundamental part of the process is allowing the shape of the work to emerge gradually from your embodied interactions with the material environment – namely, places, people and things.

Principle Three: things – 'the work's the thing'

I have focused in this article on creative process, but the quality of the process is intimately bound up with another kind of 'thing', that which emerges from it – the product. A focus on method is not just something practised for its own sake; it also has a direct impact on the quality of what is produced. To return to Jane Bennett (2010), her work on 'vital materialism' encourages an approach to matter as unpredictable, potentially fluid, and semiotically unstable. Echoing her thoughts, creative KE involves a looser view of the kind of product that will be created, and a stronger focus on method. Although it is unrealistic to think that endless months can be spent on an artwork for a KE project, it is important to involve artists and/or artist-researchers at the planning stage, to help establish the way in which form, method, content and product relate to one another in a given project.

Theatre director Anne Bogart (2001: 124) writes that 'You cannot create results; you can only create conditions in which something might happen.' Her observation foregrounds the importance of the material and lived realities of creative labour, the spaces in which we find ourselves, the people and things that surround us, and the actions we take or processes we engage with in these contexts. Attending carefully and generously to the details of these realities, and 'know[ing]-what' action needs to be taken in relation to them, is conducive to making good creative work. Following this, artists and artist-researchers can be understood not as experts in producing creative products, but as experts in understanding and creating the conditions in which quality art-making can happen.

To focus on creative process is not to disregard the importance of producing something in a given time, especially in knowledge exchange partnerships with busy organisations working to deadlines. In an article presenting findings from a series of interviews on knowledge exchange, Hughes et al. (2011: 51) report of one of their interviewees:

> he found that working with public sector clients (including HEIs [higher education institutions]) was all about process rather than delivering a good outcome: 'as long as you show how you got there it doesn't really matter if what you've delivered in the end from our perspective doesn't look very good'.

This is an understandable concern, but I argue that, in the case of creative practice, attending as much as possible to the process, and using 'know-how' and 'know-what' modes of knowledge, are the approaches most conducive to the creation of high-quality artistic outputs.

Conclusion

In this article, I have presented a part auto-ethnographic, part analytical account of the KE project Archive to AR from the point of view of a postdoctoral researcher working through creative practice. Under the headings Places, People and Things, I have shared some of the material realities and embodied experiences of the project, and discussed the ways in which interactions with these form part of my creative method. I have explored the importance of a certain kind of approach to archival and other material in which form and structure are not imposed upon material from the outset, but an open, attentive and fluid position is adopted in the first instance. Such a focus on process or method, I argue, is in service of the production of a high-quality artistic product.

Placing a value on creative process within a project is important not just at the stage of documentation and evaluation, but also in the planning and delivery stages. In evaluating the activity for the funders, the Archive to AR project team agreed that a key learning point had been a misalignment between the amount of time needed for creative exploration of the archive and the planned result. In that sense, the emphasis on the output – the story – at times overshadowed the exploratory archival work that was needed. We also speculated that there was a lack of a coordinator with artistic expertise who could oversee the relationship between the archival, story and technical elements. Having an input at an earlier stage of the project based on creative specialism – whether professional or academic – would have been helpful for ensuring a more productive balance between process and product.

Overall, it was difficult to do justice to the uniqueness of objects from the National Railway Museum – one of the central aims of the project – *and* to create a story that might be worthy of an audience within the allotted period. A key learning point, especially from a practice-as-research point of view, was that the ambitions for what could be created needed to be at the same time expanded and reduced. Expanded in the sense that the genre, form and structure could have been allowed to emerge through creative research and development work with archival material. Reduced in the sense that a more modest aim – for example, the choosing of five archival objects, each accompanied by a fragment of character-based narrative and/or dialogue or monologue – would have meant sufficient time could be allowed for sensitive, open interactions with material, of the kind I have described.

Comunian and Gilmore (2015: 18) advise considering KE and related activity in spatial terms. Practice-as-research methods can provide a model for putting that into practice, in terms of planning and doing KE projects. The traditional temporal approaches to project management – progress, milestones and outputs – could be complemented by a process-driven approach in any given creative KE project. In practice, this would mean taking up an embodied, experiential and exploratory approach of the kind I have set out here in the form of creative principles: giving sufficient time for circumnavigation, repetition, return and failure; prioritising embodied encounters as an essential aspect of creating high-quality work; acknowledging difference and positionality within the collaboration; acknowledging the strangeness of material; and setting in place appropriate methodological limitations and freedoms based on practice-oriented 'know-what' knowledges (Nelson, 2013).

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Declarations and conflict of interests

Research ethics statement

Not applicable to this article

Consent for publication statement

The author declares that research participants' informed consent to publication of findings – including photos, videos and any personal or identifiable information – was secured prior to publication.

Conflicts of interest statement

The author declares no conflict of interests with this work. All efforts to sufficiently anonymise the author during peer review of this article have been made. The author declares no further conflicts with this article.

References

Abreu, M. and Grinevich, V. (2014) 'Academic entrepreneurship in the creative arts'. *Environment and Planning C: Government and policy*, 32 (3), 451–70. https://doi.org/10.1068%2Fc11144r.

Babha, H. (1994) *The Location of Culture*. Abingdon: Routledge.

Bakhshi, H., Hargreaves, I. and Mateos-Garcia, J. (2013) *Nesta: A manifesto for the creative economy*. Accessed 23 May 2021. https://www.nesta.org.uk/report/a-manifesto-for-the-creative-economy/.

Banks, M. and O'Connor, J. (2017) 'Inside the whale (and how to get out of there): Moving on from two decades of creative industries research'. *European Journal of Cultural Studies*, 20 (6), 637–54. https://doi.org/10.1177%2F1367549417733002.

Barrett, E. and Bolt, B. (eds) (2007) *Practice as Research: Approaches to creative arts enquiry*, London: Bloomsbury.

Bennett, J. (2010) *Vibrant Matter: A political ecology of things*, Durham, NC: Duke University Press.

Bly, M. (2003) 'Pressing an ear against a hive or new play explorations in the twenty-first century'. *Theatre Topics*, 13 (1), 19–23. https://doi.org/10.1353/tt.2003.0002.

Bogart, A. (2001) *A Director Prepares: Seven essays on art and theatre*. London: Taylor and Francis.

Collini, S. (2012) *What Are Universities For?* London: Penguin.

Comunian, R. and Gilmore, A. (2015) *Beyond the Creative Campus: Reflections on the evolving relationship between higher education and the creative economy*. London: King's College London.

Comunian, R., Gilmore, A. and Jacobi, S. (2015) 'Higher education and the creative economy: Creative graduates, knowledge transfer and regional impact debates'. *Geography Compass*, 9 (7), 371–83. https://doi.org/10.1111/gec3.12220.

Deleuze, G. and Guattari, F. (2002) *A Thousand Plateaus*. London: Bloomsbury. (Original work published 1987.)

Guilford, J.P. (1967) *The Nature of Human Intelligence*. New York: McGraw-Hill.

Heddon, D. (2016) 'Engaging arts, impacting PaR'. *Studies in Theatre and Performance*, 36 (1), 79–87. https://doi.org/10.1080/14682761.2015.1111016.

Hughes, A. and Kitson, M. (2012) 'Pathways to impact and the strategic role of universities: New evidence on the breadth and depth of university knowledge exchange in the UK and the factors constraining its development'. *Cambridge Journal of Economics*, 36, 723–50. https://doi.org/10.1093/cje/bes017.

Hughes, A., Kitson, M., Probert, J., Bullock, A. and Milner, I. (2011) *Hidden Connections: Knowledge exchange between the arts and humanities and the private, public and third sectors*. Arts and Humanities Research Council and Centre for Business Research. Accessed 14 June 2022. https://www.researchgate.net/publication/262818528_Hidden_Connections_Knowledge_exchange_between_the_arts_and_humanities_and_the_private_public_and_third_sectors.

King, L. and Rivett, G. (2015) 'Engaging people in making history: Impact, public engagement and the world beyond the campus'. *History Workshop Journal*, 80 (1), 218–33. https://doi.org/10.1093/hwj/dbv015.

Knowledge Exchange Concordat (2020) 'Eight guiding principles'. Accessed 23 May 2021. https://www.keconcordat.ac.uk.

Larner, W. (2012) 'Beyond commercialisation'. *Social Anthropology*, 20 (3), 287–89. https://doi.org/10.1111/j.1469-8676.2012.00209.x.

Nelson, R. (2013) *Practice as Research in the Arts: Principles, protocols, pedagogies, resistances*. London: Palgrave.

Sam, C. and Sijde, P. (2014) 'Understanding the concept of the entrepreneurial university from the perspective of higher education models'. *Higher Education*, 68, 891–908. https://doi.org/10.1007/s10734-014-9750-0.

Shore, C. and McLauchlan, L. (2012) 'Third mission' activities, commercialisation and academic entrepreneurs'. *Social Anthropology*, 20 (3), 298–303. https://doi.org/10.1111/j.1469-8676.2012.00207.x.

UKRI, Research England (2022) 'Knowledge exchange framework'. Accessed 23 May 2021. https://re.ukri.org/knowledge-exchange/knowledge-exchange-framework/.

XR Stories. (n.d.) 'Projects'. Accessed 24 May 2021. https://xrstories.co.uk/projects/.