The Kerdroya Postmortem: Navigating the Labyrinth of Co-creative Design and Collective Vision

BRIAN MCDONALD

Falmouth University, brian.mcdonald@falmouth.ac.uk

TANYA KRZYWINSKA

Falmouth University, tanya.krzywinska@falmouth.ac.uk

TIM PHILIPS

Falmouth University, tim.philips@falmouth.ac.uk

JEFF HOWARD

Falmouth University, jeff.howard@falmouth.ac.uk

JOHN SPEAKMAN

Falmouth University, john.speakman@falmouth.ac.uk

Alex mitchell

Falmouth University, alex.mitchell@falmouth.ac.uk

Alcwyn parker

Buzz Interactive

DOUGLAS BROWN

Falmouth University, douglas.brown@falmouth.ac.uk

In this paper, the authors explore the development process for Tregeagle's Kerdroya, an augmented reality app designed to immerse players in the exploration of a real physical labyrinth on Bodmin Moor. The authors discuss the lineage of this game in previous projects from Falmouth University and WAVE, contextualizing Kerdroya within a larger set of themes involving co-creation and educational game design. The authors further unpack Kerdroya's complex design and development process, situating it within the context of debates surrounding collaborative authorship, co-design, and co-creativity. The authors then explore the specific design and development process of Kerdroya with emphasis on the strengths and weaknesses associated with collaboratively developing an experimental app whose aesthetic sensibilities run counter to many of the assumptions of commercial apps regarding usability and polish. The authors conclude that the financial and time constraints of the process allowed them to make a virtue of necessity, finding opportunities for avant-garde creativity amid scarce resources and limited time.

- CCS CONCEPTS • Collaborative and social computing theory, concepts and paradigms, Human computer interaction, Interaction Design

Additional Keywords and Phrases: augmented reality, authorship, folklore, mythology, labyrinths, co-creation, co-design, game design, games

1 INTRODUCTION

At Falmouth University's Games Academy (GA) in Cornwall, a rural part of the southern UK, the department's researchers have a history of obtaining research funding to create games and other interactive experiences with local partner companies. These partners have been focused on gallery, library, archive, and museum (GLAM) spaces in the heritage sector. They include iOi-Sphere[1] The Augmented Telegrapher [2] and WAVE [3].

Most of our work is situated in Cornwall, UK. Cornwall is primarily made up of rural communities, with tourism as one of the largest sectors in its economy [4], supported by a rich history which runs from pre-Roman Celtic archeological and sacred sites to Maritime & Industrial Revolution history and, finally, to a contemporary Literature and Art tradition. This history is also mixed with the mythic, including Arthurian legends, tales of witchcraft and stories of strange beasts roaming the Moors. The unique economic, cultural, and historic aspect of Cornwall makes for excellent conditions to foster collaborations between universities, local government, the culture sector, and creatives such as game developers.

This paper will summarize some of our relevant past projects and focus in some more depth on the most recent collaboration, the Kerdroya labyrinth project.

1.1 iOI-Sphere Overview

The iOi-Sphere was commissioned by the Institute of the Imagination in 2018. The project acts as a digital fascinator for school visits. The iOi-Sphere hosts several games which encourage co-creative and casual play. In addition, a USB port allows pupils the ability to upload code to modify the behavior of the artefact.

Figure 1: iOi Sphere in action at the Institute of Imagination

The next stage of the project was to create a web-based integrated development environment with a simple visual scripting language, a simulator and small curriculum with tutorials on how to program the sphere. iOI-Sphere helped to establish

our development process in relation to educational games intended to include younger audiences within and outside of the classroom, thereby laying the foundation for Kerdroya.

1.2 Augmented Telegrapher(AUGTel)

Much like iOI-Sphere, AUGTel was a project which's main goal was to develop new audiences, specifically younger audiences for the Museum of Global Communications in Porthcurno, Cornwall, UK[5]. To meet this main goal, we collectively designed a puzzle-based escape room for teams using the Hololens, with haptic feedback and controls which had similar affordances to the collection in the Museum.

Figure 2: AugTEL - Description of images from left to right, top to bottom: (1) WiFi enabled physical Morse code key that interacts with the holographic dichotomic chart, (2) physical puzzle box and holographic exploded Galvanometer diagram, (3) holographic radio and falling telegrams, (4) and holographic cable ship with physical hand wheel to control the ship's grapnel

There were several lessons learned from this project. A full discussion can be read in our 'Bleeding Edge' paper [3], but the following should be highlighted:

- Complement the museum's existing collection through the close co-design with the museum
- Place emphasis on learning through an experience - narrative should serve the experience
- Ensure that your dev team has a sufficiently wide range of applied skills - interaction designer, asset creators, programmers, and curators

3

- Never underestimate the time needed for testing with users;
- Upkeep may be high and outside the skills and/or resources of the museum;
- Lacking long term sustainability (novelty value wears thin; technology fails or becomes obsolete)
- High cost of development (outside the reach of many small volunteer-led museums).
- Manage dissonance arising from conflicting aims of designers and museums

By placing emphasis on heritage preservation and co-creative design, AUGTel paved the way for WAVE (and, thereby, for Kerdroya).

1.3 WAVE

The WAVE project was funded by the UK Government's Costal Communities Fund to work with several museums based in the coastal areas of Cornwall and help them engage with immersive technologies, with the final goal to co-design immersive experiences which complement the museum's collection.

The following experiences were created:

- **Bude Heritage Centre**: VR experience with a Haptic ship's wheel. The goal is to pilot a boat out of the harbour.
- **Looe Museum**: Augmented reality iPad app, where you follow the footsteps of a monk and pilgrim around Looe Island
- **St Agnes Museum**: A VR tour of the ruined harbour, rebuilt in VR and showing the space in its heyday
- **Isles of Scilly Museum:** A walking companion app with a content management system that allows the curator to populate the app with audio, maps, and photographs

Figure 3: WAVE – description of images from top to bottom: (1) Bude Heritage Centre VR Experience with Haptic Wheel, (2) Looe Augmented Reality App

One of the key outcomes of this project was the development of a workflow model to support co-design.

Table 1: Workflow model of co-design

	Concept Phase	Iteration Phase	Delivery Phase
Data	Identify KPIs (key performance indicators)	Accessibility	Focus groups for public & museum stakeholders
	Identify value metrics	Usability heuristics	
	Collate Notes	Testing	User Experience survey
		evaluation	
Technical	Idea generation	Kit list & order	Museum Consultation
	Feasibility Testing	Museum heuristic	Deployment
		evaluation	Training Museum staff
		Review	
Value	Museum co-design	Museum space design	Consultation
	Public focus groups	Acceptance testing	Sign-off
	Persona building	Focus groups	
	Based on museum's culture	Location-based reviews	

Concept Phase	Iteration Phase	Delivery Phase
Consultation concept sign-off	Communication between tech team and museum	

WAVE was the direct precursor of Kerdroya, in that it allowed the developers to experiment with co-creative design as well as working in a variety of experimental forms designed to augment many sites in Cornwall.

2 KERDROYA LABYRINTH PROJECT

2.1 Background

At its core, the Kerdroya project takes the form of a 56m diameter unicursal labyrinth constructed from Cornish hedgerows situated by Colliford Lake on Bodmin Moor in Cornwall, UK. The site is open for tourists to visit and can be experienced along with a companion mobile game that tells the story of a mythic figure from Cornish folklore, Jan Tregeagle. The project exists at the confluence of multiple streams of cultural interest, expertise, and funding. Kerdroya was funded by Cornwall Council, Cornwall AONB, the National Lottery Heritage Fund, FEAST, Cornwall Heritage Trust, and Arts Council England. Its design, development, construction, and purpose weaves together the cultural heritage, arts, technology, and education sectors.

True to its chimeric roots, most parts of the project serve multiple functions or straddle a line between different fields. The physical labyrinth is part art installation, part educational tool, and part time capsule. Once finished, the labyrinth will be comprised of twelve sections with each section using a different traditional style of Cornish hedge construction. The unicursal labyrinth design is based on the stone carvings found in Rocky Valley, Cornwall, as well as similar designs found throughout the ancient world. In this way a journey through the labyrinth is simultaneously an example of twelve historical styles of Cornish hedge construction, a symbolic journey through Cornwall in microcosm, and an art piece that seeks to convey a sense of symbolic connection to an ancient, mythic landscape and culture. That same physical space serves as a backdrop for the mobile game component aiding the holistic experience of the player via atmosphere, setting, and symbolic resonance.

2.2 Mobile Companion

The mobile game companion 'Tregeagle's Kerdroya' was created with the aim of expanding on the mythic elements of the project by allowing visitors to interact with Cornish folk tales as they walk the path of the labyrinth. Visitors who come to the site having downloaded the app can follow the myth of Jan Tregeagle, a 17th century Cornish magistrate condemned for his sins to various Sisyphean endless labors. As a visitor walks along the path of the labyrinth the app will present them with 360 images of the Cornish landscape, words and phrases in Cornish, and mini games representing Tregeagle's endless tasks.

3 DISCUSSION

Kerdroya challenged notions of single authorship through its development process, which followed a model of collective creativity in keeping with contemporary understandings of both art generally and indie game development specifically. The developers thus charted a middle course between postmodern theories of the death of the author (which annihilates the author and removes all agency, making them a construct and prisoner of discourse) and the monolithic creative direction of a single force (client or lead designer). In so doing, they created a shared game world in ways theorized by both Mark J.P. Wolfe and Noah Wardruip-Fruin, especially in his notion of "vast narratives" [11, 13]. This shared world was based on a foundation of folklore by way of the Cornish legend of Jan Tregeagle, an infamous Cornish magistrate who was

consigned to a series of endless tasks (such as emptying Dozmary pool with a leaky limpet shell) as punishment for his wickedness and as a way of delaying his eventual return to hell after being summoned as a ghostly witness in a trial. Playwright and client Will Coleman wrote a script about players helping Tregeagle to seek redemption by completing 12 seemingly impossible tasks. Kerdroya developer Jeff Howard, drawing on his own book about quest design, structured these tasks as a "rod of many parts" quest to gain the pieces of a broken stained-glass window in Roche Cathedral, where Tregeagle sought sanctuary from the hellhounds pursuing him across the moors [12]. Howard conceptualized the use of the phone's augmented reality features as akin to Tregeagle, with his body stuck through the shattered window: trapped between the worlds of the sacred and the demonic, the spiritual and the material, the past and the present. Players thus faced a quest in liminal space: "half-in and half-out," in the words of fictional occult detective John Constantine. Once this world was established, each developer who contributed to the game added a puzzle piece to the world through programming (of mini-games, location-tracking, and menu flow) and art assets (voice acting, sound effects, intertitle art, opening and ending cutscenes, and 360 photos).

In terms of the design of the game at the level of narrative and art, the game ultimately benefited from the juxtaposition of multiple art styles based on the need to recruit artists with a variety of skillsets and styles. Kerdroya juxtaposed the surrealist, R. Crumb inspired work of Dane Watkins, the atmospheric classicism of Jason Walker's stained-glass windows, and the monochromatic landscape paintings of Tanya Krzywinska.

In this respect, the game resembles the practices of collage, bricolage, and the cut-up method advocated by experimental artists Gysin and Burroughs. Juxtaposition is an aesthetic strategy especially well-theorized and practiced in relation to comics, as discussed by Scott McCloud in Understanding Comics and practiced in Dave McKean's covers for The Sandman, in which McKean placed found objects next to photographic backgrounds and painted images. The resulting aesthetic is haunting and atmospheric, reminiscent of a baroque, Gothic structure resembling the very physical labyrinth that it is meant to augment.
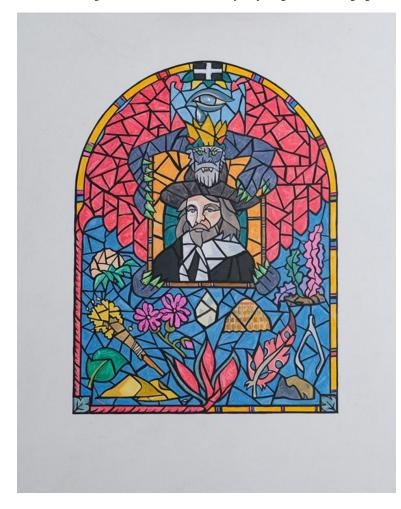
Figure 4: Intertitle art from Kerdroya depicting one of Jan Tregeagle's labours, created by Dane Watkins

Figure 5: Portrait of Jan Tregeagle on a Stained-Glass Window by Jason Walker

At the same time, these aesthetic effects of multiplicity and interwoven texture came at a price. There is a roughness in the finished product that exists in stark contrast to the expectations of usability and polish often associated with AAA products. In particular, the game often lacks clear guidance for the player on how to move between its many modes (e.g., from solving a puzzle to locating an object in 360 view, or from walking to triggering the next mini game). While more usability testing would have ironed out many of these rough spots, it also would have removed the experimental, indie charm of the finished app. This charm can be understood with reference to the work of experimental designer Liz Ryerson, who argued in her GDC talk "The Power of the Abstract" that "abstract, strange and 'unprofessional' approaches to design and aesthetics are actually a secret strength of the medium that should be embraced as powerful and progressive communicative tools" [14]. Because of the circumstances of development resulting from scarce funding, COVID restrictions that limited on-site testing, and severely limited time due to teaching responsibilities, the developers made a virtue of necessity. The

developers embraced roughness, strange juxtapositions, and glitchy disorientation as analogues to the experience of exploring a labyrinth while seeking redemption for Jan Tregeagle's imperiled soul. As with all spiritual redemptions, there is no final point of completion and no rest for the wicked, but only the gradual, iterative quest for a haunting and atmospheric app consciously at odds with commercial development.

A key area that emerges from our critical reflection on the work that we did for the Kerdroya project is that of authorship. This is an arena that intercedes with a raft of theory around the meaning and uses of authorship across history and more specifically in contemporary culture (Foucault, Barthes, Neale el al). The concept of the sole author has been widely analysed in terms of its economic function within consumer culture – the author becomes a marketable brand and is a useful tool in identifying copyright. A core thread of the argument is that the notion of the sole author disavows the vast connective network on which any artwork or artefact rests; this might be in terms of

a) meaning creation – where all meaning is collectively and intertextually produced,

b) the rendering invisible of all those hands and minds that inputted into an artwork (paint makers, software developers, producers, etc), denying the 'means of production', as the materialists would have it, and

c) authorisation and inclusion – in allying an artwork or cultural artefact to a single visionary 'voice' social hierarchies become manifest, the 'voice' often tallies with those with the most agency and power in a society, rendering other voices less powerful.

As the Guerrilla Girls, an art collective, have said, 'The concept of the individual genius artist is outdated…kept alive by an art market that needs super-expensive art objects made by 'geniuses.' And, as Jacques Ranciere claims 'Art no longer wants to respond to the excess of commodities and signs but to a lack of connections.' Kerdroya was a project that was very much about connections, in its production and in its aim to connect users with the Cornish landscape and its cultures: "activation of the audience in participatory art is positioned against its mythic counterpart, passive spectatorial consumption." (Bishop, 2012: 275)

We look back on Kerdroya as a project flying in the zone of emergence, a space that was afforded by the nature of our funding and our collective interest in pushing the boundaries of what a phone app can be.

4   CONCLUSION

Our project took a more collective approach to authorship, but we arrived at this through a circuitous route (as befits a project focused on a labyrinth). Our partner in the project had a strong authorial voice as a theatre director but had never worked with a game or digital app before. In relation to that voice, our team worked together in a flatter directorial way than might otherwise have been the case. Our working modality transformed to become collective and heterogeneous in its approach to authorship and decision-making. The strong directorial element was channeled into the writing of the dialogue, giving the space for the visual aesthetics, the ludic elements, and the overarching structure to emerge through collective and relational practice. While it might have been great to have started out with this approach as a piece of evaluative research, it was very much a result of circumstance. We did set out with an 'art-based' approach to the project that was never intended to run on predefined 'waterfall' lines, nor take off-the-peg short cuts. Most importantly what we

produced was the total of heterogeneous voices, each of which had a strong emotional investment in a project close to our hearts – the Cornish landscape and the culture it engendered. It was therefore not a project designed to produce user data but rather a project intended to immerse its audience in the folkloric resonance of a meaningful location.

REFERENCES

[1]   Alcwyn Parker and Michael James Scott. 2018. Crafting Engaging Programming Experiences for Young People in GLAM Spaces: The iOiSphere. In Proceedings of 23rd Annual ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE'18). ACM, New York, NY, USA, 1 page. https://doi.org/10.1145/3197091.3205827

[2]   Michael James Scott, Alcwyn Parker, Edward Powley, Rob Saunders, Jenny Lee, Phoebe Herring, Douglas Brown/ 2018. Towards an Interaction Blueprint for Mixed Reality Experiences in GLAM Spaces: The Augmented Telegrapher at Porthcurno Museum. In: Proceedings of the 32nd BCS Human Computer Interaction Conference. https://doi.org/10.14236/ewic/HCI2018.135

[3]   Tanya Krzywinska, Tim Phillips, Alcwyn Parker and Michael Scott. 2020. From Immersion's Bleeding Edge to the Augmented Telegrapher: A Method for Creating Mixed Reality Games for Museum and Heritage Contexts. ACM Journal on Computing and Cultural Heritage, 13 (4). ISSN 1556-4673

[4]   UK Office for National Statistics – Local Authority profile: Cornwall https://www.nomisweb.co.uk/reports/lmp/la/1946157349/report.aspx#tabempocc

[5]   Porthcurno telegraph museum : https://pkporthcurno.com

[6]   Bishop, C 2012, Artificial hells: Participatory art and the politics of spectatorship, Verso, Brooklyn

[7]   Barthes, R 1967, 'Death of the Author', in Aspen journal no. 5-6, Aspen

[8]   Foucault, M 1969, 'What is an author?', in Bulletin de la Société Francaise de Philosophie no. 63, Paris (original publication in French)

[9]   Foucault, M 1979, 'What is an author?', in Textual strategies: Perspective in post-structural criticism, Cornell University Press, Ithaca (English translation)

[10] Klinger, L 1993, 'Where's the artist? Feminist practice and poststructural Theories of Authorship' in Theories of Contemporary Art, 2nd edn, Prentice Hall, New Jersey, pp. 189-199

[11] Wolfe, M J.P. 2012. Building Imaginary Worlds: The Theory and History of Subcreation. Routledge: New York.

[12] Howard, J 2022. Quests: Design, Theory, History in Games and Narratives. CRC Press: Boca Raton, Florida.

[13] Wardrip-Fruin, N 2017. Authoring and Exploring Vast Narratives. MIT Press

[14] Ryerson, L 2015. The Power of the Abstract. Game Developer's Conference