Collaborative Registers of Interactive Art

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Abstract

The ubiquity of interactive technologies has given rise to new forms and opportunities for interactive digital art. Collaboration has been identified as a way for artists to engage in complex technologically based projects. This paper considers different forms of collaboration in relation to two interactive art projects. Collaborative and participatory art practices operate on multiple registers. The findings of the research discussed in this paper corroborate previous work on co-creativity and interactive art and extend to considerations of institutional collaboration, materiality, prototyping and the advantages of creative collectives.

Keywords: Interactive art, collaboration, screen-based, e-textiles, prototyping

Introduction

Interactive technologies have become ubiquitous, giving rise to new forms and locations for interactive digital art. Co-creation through collaboration has been identified as a productive way for artists to engage in such complex, technologically based, projects. This paper considers different types of collaborative production that have taken place in the context of two interactive art projects run through *Colab*, a trans-disciplinary *collaboratory* for creative technologies based at the Auckland University of Technology. The first project, *Digital Art Live* (DAL), is an ongoing programme that has co-produced and presented over twenty-two original screen-based interactive works in partnership with THE EDGE Performing Arts Centre. The second project, *Dynamic Textiles*, involved collaboration between research staff and students from different discipline areas in the development of interactive e-textiles for dance and performance.

Two different interactive formats - screen and e-textile – distinguish the two projects under discussion. These formats embody fundamental differences – of medium, types of engagement and forms of sensory perception engaged in the making and drawing of meaning - which highlight the fuzziness of the term 'interactive art.' The particular methodologies, aesthetic concerns and contexts of these interactive art projects informed different collaborative strategies. This study recognises such formal and proccessual distinctions, while acknowledging broader trans-disciplinary groundings such as affect theory, which underpin the discourse of interactive art.

The development of interactive systems, such as consumer games consoles and commercial marketing platforms, has driven some remarkable technical innovation over the past decade, overcoming certain technical issues (for example motion detection and gesture recognition) that once presented considerable hurdles for interactive artists. While collaboration between artists and technologists in the production of interactive art has been recognised by other researchers [1], forms of collaboration are changing in response to the introduction of new development platforms, new data capture and display systems, maker cultures and associated forms of knowledge sharing and the ubiquity of interactive systems.

In light of the widespread availability of interactive media, the relevance of interactive art has been called into question. However, in the current context, the study of interactivity as a medium that produces meaning remains an important area of artistic and philosophical inquiry [2]. The specialisation of art separates it from everyday life and opens up a critical and experimental space that can facilitate people's engagement with deeper understandings of art, culture and technology. This study recognizes that while audience engagement and participation are central to the form, reception and meaning of interactive art, collaborative modes of production also contribute to the critical and experimental project of art and its contemporary significance.

Collaborative Framings

Four collaborative registers of interactive art production and reception were identified in this study. These included collaborations between institutions supporting the production and presentation of interactive art; collaborations between artists and technologists designing and realising new interactive art works; collaborations between artists and the technological media being employed; and collaborations between the work of art and the audience through the participatory nature of interactive art. These findings were then considered in relation to other literature and research into co-creativity and collaboration [3].

Institutional collaboration includes cross and inter-organisational partnerships that can support trans-disciplinary activities such as the development and display of interactive art. While larger national economies are able to support specialised centres of electronic art production and presentation spaces, this opportunity is not available in New Zealand. *Digital Art Live* is currently New Zealand's only permanent venue for presenting interactive art. The institutional collaboration between THE EDGE and *Colab* allows a pooling of resources and provision of different types of expertise and support. While from an institutional perspective, DAL is primarily a curatorial and capability-building project, there is also an important critical dimension to this partnership. The requirement for cross-disciplinary expertise challenges traditional academic structures and institutional practices. Institutional collaboration can help create a more exploratory, trans-disciplinary space for experimentation and creative production.

The second framing identified in the study is collaboration between artists and technical specialists, in the production of interactive art. Creative collaborations developed during the *Digital Art Live* project corroborate the findings of earlier research into interactive art production [2]. They also introduced some new collaborative models, such as artist's co-operatives, that present longer-term opportunities for both conceptual and technical development, and make it possible to build more extensive critical and artistic explorations over a number of projects.

The third form of collaboration with which I am concerned pertains to the engagement between the artist and their materials. This notion of materiality is inclusive of digital technologies. Interactive technologies can be regarded as expressive materials that show themselves in use [4]. Collaboration is normally thought of as being between human beings, but there is also a collaborative aspect to materials, because the artist doesn't simply impose a vision upon those materials, "but rather discovers it there" [5]. While distinctions - between artist and technologist, and between the physical and the virtual, characterised the early discourse of interactive art, such polarities have been challenged as practices, technologies and theories have evolved over the past twenty years. In the context of expressive, interactive e-textiles, the polarity between virtual and physical is further eroded through the digital materiality of fibretronics.

The fourth framing addresses collabo-

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ration and affect as audience interaction with or through the work of art. Considering the audience as collaborator shifts the focus away from notions of interaction as a functional relationship between the user and the machine to "the act presentation of temporal behavior" [6] that acknowledges human interaction with technology as meaningful. This position recognizes the unfinished nature of the interactive work of art that requires embodied engagement and the influence of human behavior to be complete

Digital Art Live

The *Digital Art Live (DAL)* project was initiated in March 2011, to develop a programme for *THE EDGE's* new interactive screen, located in the foyer of the Aotea Centre in downtown Auckland. While this appeared to be a relatively straightforward curatorial process, it proved to be a complex proposition. This was because there are very few New Zealand artists working in the field of interactive art, and these artists have different levels of experience, conceptual understanding and technical ability. The audience for this work is also small. The *DAL* project has become a focus for the development, exhibition and research into interactive art in Auckland and has helped establish a community of interest.

THE EDGE management, prior to the partnership with Colab, determined the format and position of the interactive screen. Located on a wall in the foyer beside the main theatre, the screen consists of twelve flat screens organized into a large composite unit. While the multiple-screen set up presents certain challenges for artists, it has other advantages, including the clarity and definition of image and the ability to support single or multiple screen works. A variety of interactive technologies have been employed, although a majority of the new works produced to date have used motion detection and camera-based tracking systems. All the works have been documented on the *DAL* website [7].

The two institutional partners support the employment of a part-time programme coordinator, are represented on the project committee which oversees the conceptual direction and sustainability of the project, and provide technical staff and facilities to support development and testing (at *Colab*) and physical installation (at *THE EDGE*) of new interactive artworks. *THE EDGE* provides a budget for the development of a new works, while *Colab* works with the coordinator to secure additional external funding for special projects and related events. In 2013 these have included projects extending beyond the screen space, such as Kim Newell's *Wandering Creatures,* an augmented reality based installation at the Auckland Zoo. *Colab* is responsible for project documentation and both organisations contribute to marketing and associated project events. For *THE EDGE*, *Digital Art Live* is a programme of interactive art exhibitions, for *Colab* it is a research project. However these different perspectives on the project are compatible and the institutional collaboration is productive and valued by both organisations. While the technical and organizational aspects of the commissioning process were a major focus during the first two years of DAL development, more recently the project focus has concentrated on ways it can help develop a sustainable community of practice and deeper critical and aesthetic engagement.

DAL has involved a number of experienced practitioners who have both technical and conceptual understanding of the medium and a track record of independently producing interactive art, including Stewart Foster (2011) Kim Newall (2011, 2012), James Charlton, (2011), Jeff Nusz (2012) and Luke Munn (2013). However the development of new works created by pairings of artists and technology experts, organized through *DAL* and supported by the wider *DAL* team, has been an important strategy in further developing the programme. Candy has identified two types of artist/technologist collaboration [8]. They include the "partnership type" where the artist and technologist work closely together on the development of a work and the "support or assistant type" which is a more discreet, problem-solving role. While each *DAL* project has been unique, collaborations have tended to be of the partnership type, where a high level of engagement by both collaborators is required. For example, this was the case with the work *Typeface* (2012) by Vaimaila Urale in association with Johann Nortje, where audience movement activated an association between traditional Polynesian mark making and ASCII art.

Another mode of collaborative practice evident in *DAL* has been with creative collectives such as *The Interrupt Collective* (2011, 2012) and *Unguarded Intersection* (2012). These self-formed groups are made up of individuals who bring different areas of expertise to the interactive projects, which they create together. These established collectives have developed considerable experience and understanding of the medium, and of working together, over a number of projects. Both collectives evolved from professional connections in creative industries that are based on teamwork rather than individual artistic production - through the music/VJ scene, games and film industries. The technical and conceptual resolution of *DAL* projects like *Acute Self* (Interrupt Collective, 2012) and *Rollercoaster* (Unguarded Intersection, 2012*)* confirm the value of such long-term collaborative practice.

Dynamic Textiles

Collaborative registers of inter-institutional partnerships and creative teamwork were also evident in the *Dynamic Textiles* project. However in this project the notion of collaboration as material engagement was of particular interest. Initiated in March 2012, the *Dynamic Textiles* project set out to develop interactive costumes for dance. The area of e-textile design is recognised as a multidisciplinary domain [9], and this project exemplified this interdisciplinarity. The project was initiated through the *Textile and Design Lab* (*TDL*) a research and development center that is one of a group of specialist laboratories managed by *Colab*. The project also involved postgraduate students and staff from the School of Art and Design's *Department of Fashion and Textiles* and from *Colab's* Creative Technologies programme. This inter-institutional collaboration brought together textile, technology, garment construction and performance design experts to form a trans-disciplinary team, where specialisations were extended into a new medium.

The *TDL* has been involved in a number of innovative costume design projects using technologies of digital textile printing and seamless (3D) knit, undertaken in conjunction with New Zealand film, television and theatre production companies [10]. Previous e-textile research at the *TDL* had focused on the development of knitted e-textiles for health and sportswear with commercial partners [11]. These projects were concerned with developing textiles for bio monitoring through the precise measurement of breathing rate, heartbeat and other biological information, and were technical and functionally oriented design projects. The *Dynamic Textiles* project provided an opportunity to explore

more expressive applications within an artistic rather than scientific and commercial R&D environment. This allowed a more experimental approach that, free from commercial IP restrictions, supported reflection and theorization of the practice.

The materiality and wearability of e-textiles brings distinctive perspectives to the discourse of interactivity and to the consideration of collaboration. Interactive, expressive e-textiles engage and open up new, tangible dimensions and possibilities for making meaning. As Kuchler states "What is really at stake is a new kind of surface ontology which replaces the opposition of inside and outside, invisible and visible, immaterial and material, with a complementary relation that thrives on transformation rather than distinction" [12]. In their consideration of aesthetics, materials and interaction design, Wiberg and Robles introduced the notion of "texture" to address such compositions [13]. They propose this as a way of re-thinking the division between the material (atoms) and the computational (bits) that underpinned earlier conceptualizations and technologies of interactivity.

In a collaborative project, prototyping can be an important form of communication that helps articulate and integrate different perspectives within a multidisciplinary team. In the *Dynamic Textiles* project, prototyping was an important collaborative making process, involving the exploration of material, constructive and expressive possibilities across different stages of the project, the testing of specific features as well as supporting communication within the team and with different project stakeholders. The collaborative process was manifest through making. It was open and highly productive, resulting in a number of experimental works and a more resolved prototype sleeve, with opportunities for future development.

Audience Participation

Interactive art is a broad genre of artistic practice, distinguished by a form of audience engagement that goes beyond traditional aesthetic appreciation, which was defined by distanciation between the audience and the work of art. Non-digital forms such as installation and performance art led the initial challenge to these aesthetic boundaries, engaging the audience in an aesthetic encounter perceived through the body and affective experience. Interactive art has introduced a new aesthetic, experienced and understood through embodied action. In the media arts domain the term "interactive art" serves as a genre specific designation for computer-supported works, in which an interaction takes place between a computer system and audience. Despite the technical advances and commercialization of interactive media, the theorization and aesthetics of interaction remains an emergent and contested field.

Across the *DAL* project a number of different interactive strategies have been developed. For a number of less experienced artists the main concern has been with making the work interactive, rather than on the ways interactivity can draw people into more self-reflexive understanding through participation. The need for a deeper level of critical and theoretical engagement has been recognized as an important area of focus in the next phase of the DAL project. This is being supported through the formation of a monthly meet-up for interactive artists at Colab; the establishment of a residency programme for visiting international theorist and practitioners to present seminars, workshops and creative works (initiated with the residency by Florent Aziosmanoff from Le Cube, Paris, in May 2013) and by engaging postgraduate students in research in this field.

The *Dynamic Textiles* project was concerned with interaction between performer and artifact, a distinctive partnership that relates both to material collaboration and to the embodied activation, resolution and reception of the work of art as a form of aesthesis. The research into sound responsive textiles undertaken in this project is now being extended through a number of postgraduate research projects involving interactive textile artifacts and environments rather than garments. These sonic textiles are engaging the audience as participant and co-creator, rather than spectator. The tactile and tangible nature of textile interfaces brings new affective dimensions and theoretical perspectives to the discourse of interactive art.

Conclusion

Collaboration recognizes mutual benefit through engagement. It extends from relationships between humans to those between humans and computer systems and to relationships between entities in human systems, such as institutions. The articulation of these different registers of collaboration in the DAL and Dynamic Textiles projects has assisted our understanding the ways these projects have developed and evolved. More importantly the study has highlighted the need for deeper levels of critical engagement with forms of participation or co-creation, where the work of art requires human engagement and activation, both for its resolution or completion as a work of art and for its reception and affective understanding by the audience. Exploration across these two different forms of interactive art – screen and textile based – opens up two distinct and productive arenas for creation and ongoing research. Collaborative creation and reception through participation are recognized as being common to both areas, bridging what may otherwise be seen as independent fields of inquiry and helping to build a broader community of interactive art practice.

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