

Chapter 3

Creativity and Artist Technologist



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Abstract The study of creativity in the arts provides an opportunity to present the ways in which new technology has placed new demands on artists. It can also open up new possibilities for the expression of creativity by artists. It expands on the ways in which technology is used by artists as a tool to reflect on the human aspiration for a better future. The artists' collective localStyle is presented as a case study to demonstrate how collaborations between artists, scientists and technologists has led to multidisciplinary and transdisciplinary projects.

Keywords Artists · Scientists · Research · Artists technologist · Collaboration · Digital artwork

3.1 Introduction

The development of new technologies in the 1960s prompted a new generation of artists to experiment with the new media, thus transforming understandings of art. New media art is the term given to all forms of contemporary art made, altered, or transmitted using technologies developed since the 1980s. It is ever-expanding and defies categorization. It includes artists using a range of 'off the shelf' software or learning coding to make artworks that are contained only in digital files. Unlike painting, which has an historic established lineage, new media art has attracted artists from different disciplines and with divergent viewpoints. For example, some artists in the field of music, dance and sculpture have used video as medium to forge new strategies for art making [1].

3.2 Origins of Art and Technology

A characteristic of twentieth century art has been its questioning of painting as a privileged medium for making art. As early as the late nineteenth century the artist Eadweard Muybridge (1830–1904) was a pioneer in manipulating photographic

images. His motion picture projections were arguably the first time that art and technology coexisted.

In 1966 the artists Robert Rauschenberg (1925–2008) and Robert Whitman (b.1935) founded the non-profit making organization E.A.T. (Experiments in Art and Technology) with engineers from Bell Telephone Laboratories (the research component of the AT&T telephone conglomerate). Traditional art forms such as painting were seen by some as obsolete, and Rauschenberg declared:

If you don't accept technology you better go to another place, because no place is safe here.....Nobody wants to paint rotten oranges anymore [2].

The subjectivity of art has challenged research communities that are entrenched in the scientific method. However, increasingly science communities are working with artists in recognition that their methodological approaches involve problem finding, as opposed to problem solving, and this can lead to productive collaborations.

The European laboratory for Particle Physics CERN recognizes the importance of fostering dialogs between artists and scientists and offers artists residencies, commissions and an events program to build bridges between the two cultures [3]. Dutch artist Rosa Menkman was resident at CERN Collide between 2019–2021, and artworks (Fig. 3.1) resulting from her continuous dialog with physicists and engineers were exhibited at SJSU art galleries in the USA in March 2020 [4].



Fig. 3.1 “Rosa Menkman, Xilitla at Born Digital, Moti, Breda.” by Rosa Menkman is licensed under CC BY 2.0

3.3 Digital Artworks

Digital photography has assisted the process of digital transformation of society. For example, 95 million photos and videos were shared on Instagram per day in 2021 [5]. Russell Kirsch (1929–2020), the scientist who invented the digital image scanner that created the first digital photograph (Fig. 3.2), has enabled images to be produced, reproduced, repositioned, refined and combined in unique new ways.

Early experiments in computer art involved computer scientists and mathematicians. In the 1960s it was only research laboratories and large corporations that could afford computers. It wasn't until the 'plotter'; a device to hold a pen was developed, that artist such as Frieder Nake became a pioneer in using the computer creatively to produce computer art. Curator Barbara London, on seeing her first computer art show in 1970, thought

the programming was outstanding but the art was uninspiring" [7]. She noted that, the engineers were blessed with expansive technical skills but tended to have limited visual imagination [7].

This is no longer the case as cultural computing is now a field in itself with organizations such as The Computer Arts Society that is a specialist interest group of the British Computer Society, (The Chartered Institute for IT) [8]. Since 1990 *Electronic Visualisation and the Arts* (EVA) has organized annual conferences to bring together the application of new technologies to the arts and cultural domains [9].



Fig. 3.2 The first digital image, created in 1957 with a rotating-drum scanner, first invented by NIST. *Credit* R. Kirsch/NIST. Image public domain by NIST. Chosen by Life magazine as one of 100 photographs that changed the world [6]

3.4 Art and Science Collaborative Research

The effectiveness of the contemporary arts in assessing non-art concerns has given it credibility in its role in multi-disciplinary and cross-disciplinary research. This has resulted in artists' interventions becoming more influential in citizen science.

The collaborative artistic platform, localStyle, creates artworks that are displayed in galleries and open public spaces, which helps to highlight problems associated with the climate emergency and resource extraction. The founders, the visual artist Marlena Novak and the composer, Jay Alan Yim, critically re-assess these 'Grand Challenges' and have engaged the expertise of a number of scientists for their projects. They often present works and events together with the collective known as 'Deep Time Chicago', which is part of a global movement working around the theme of the Anthropocene and includes artists, cultural theorists and a biologist [10].

3.5 Case Study—LocalStyle: Choral and Timeslips

The climate change themed projection "Choral", is a project created in collaboration with researchers to raise awareness of the necessity to protect coral habitats. These play an important role in ocean conservation. The habitats that the coral create are fundamental to the sustainability of a quarter of all marine species and the livelihoods of 500 million people around the planet. Novak has said

these eco systems are in crisis and we hope that the public will be engaged by the beauty and charisma of these creatures and then it will lead to greater appreciation for ocean conservation efforts [11]

Choral is a 12 min audio visual installation commissioned by 150 Media Stream for a sculpturally unique LED panel display (Fig. 3.3).

The resulting artwork from this project is now part of the world's largest permanent digital art projection onto a public building Art on theMART. Initial iterations of the work were on display at 150 N Riverside Plaza Chicago (Fig. 3.4) [12].

Another localStyle art/science project is "Timeslips" (Fig. 3.5); a video installation commissioned by the Haus der Kulturen der Welt, Berlin (HKW) [13] and the Max-Planck-Institut für Wissenschaftsgeschichte in 2019. Exhibited in venues in the USA, Berlin, and London, the artwork places the viewer in the mind of an agronomist working on Mars, who ponders the injustices created by humans attempt to control water on Earth. The title refers to a pause in time caused by Mars having a rotational period slightly longer than that of Earth; with the solution to that difference being a programmed pause between 00:00:00 midnight and 00:01:00. This "Timeslip", when the clock is suspended, is described by the narrator as a time when the past and present collide, and a time used for introspection, reflection, and mindfulness. Inspired by Kim Stanley Robinson's Mars Trilogy novels (1992), the narrator remembers the



Fig. 3.3 Choral (version for Art on the MART), projection April 9–June 29, 2022. Merchandise Mart, Riverwalk looking across the Chicago River. *Photo* Margo Hawk, image copyright M. Novak 2022 and reproduced by permissions



Fig. 3.4 150 Riverside *Choral* installation. *Photo* Michael A. Salisbury, image copyright M. Novak 2019 and reproduced by permissions

absurdity of water management on planet earth, 34 million miles away, where either too much or too little water is problematic.

HKW commissioned localStyle to develop an iteration of Timeslips which resulted in a sculptural assisted readymade “Fourteen Slices of Time” (2020) (Fig. 3.6). Fourteen custom-printed postcards with film stills from “Timeslips” were



Fig. 3.5 “Timeslips” localStyle (Marlena Novak And Jay Alan Yim) with Joslyn Willauer (2019) still [Section Two] from single channel HD video installation with stereo sound. 00:39:35. *Photo* Marlena Novak, image copyright M. Novak 2019 and reproduced by permission

displayed on a simple stand that fits inside an American mailbox to act as souvenirs that trigger memories of Earth.

The Mississippi as an Anthropocene river is the theme of several of localStyle’s work. “Re-percussions” (2021) (Fig. 3.7) was an artwork made to support the resistance against the Line 3 oil pipeline in Chicago. This pipeline in Minnesota has been routed through agricultural and sacred land in violation of an existing treaty with the indigenous Anishinaabe native Americans.

3.6 Discussion

Often science and technology may be perceived as the primary driver in a material world, resulting in the arts and humanities being forced into a more reactive position. However, when questions are asked about the values of the science, or the meaning that technological developments have uncovered, these disciplines are often at a loss. It may be regarded as ‘beyond science’. At the same time, art practice has been forced by these developments to think of knowledge acquisition outside that of art alone. Therefore, all parties can be beneficiaries of collaboration as has been seen from the case studies in this chapter.

Art is a catalyst for knowledge acquisition with art theory and practice leading to questions outside that of art alone. Curatorial and institutional notions of ‘research’, as seen in museums and art galleries, complements research in the humanities, the natural sciences, and the social sciences. Curator Tom Holert predicts a sea change in



Fig. 3.6 “Fourteen Slices of Time” (2020) localStyle (Marlena Novak and Jay Alan Yim) with Joslyn Willauer. *Photo* Jay Alan Yim, image copyright M. Novak 2020 and reproduced by permissions

the understanding of the power and reach of artistic research [14]. A new paradigm for artistic research was also debated in ‘The Postresearch Condition’ EARN/Smart Culture Conference in Utrecht in the spring of 2021. Art is often embedded within transdisciplinary research environments. Artist Amanda Beech describes how when we think of research we are drawn to “ends”, but for the arts and humanities knowing requires a conceptualization of something that is beyond the usual measures imposed on knowledge production [15].

3.7 Conclusions

The impact of research all too often is drawn to the use of scientific reasoning and metrics to quantify the social or economic impact of research, but sometimes it takes artists to make sure this knowledge is really understood. localStyle’s work is deeply embedded in the dynamics of social and political life. Their critique and reflection on climate action offers more than an esthetic solution; but an ethical, political, and psychological sense of responsibility that raises awareness and makes a relevant contribution to society.

Scientific and artistic thinking give us two complementary tools to understand the complexity of the world with science reducing experience to essential principles and art intensifying and expanding our experiences. The novelist A. S. Byatt said



Fig. 3.7 “Re-percussions” (2021) localStyle (Marlena Novak and Jay Alan Yim) with Mak Hepler-Gonzalez looping HD (1080p) video with stereo sound 00:00:29. *Photo* Marlena Novak, image copyright M. Novak 2021 and reproduced by permissions

art explores connections like those in ways very different from science's ordering – even though scientists are aided by flashes of inspiration [16].

Together art and science give us harmonizing views and explore in different ways the complexity of knowing and understanding the world.

Chapter 4 explores how artistic research exploits the technological age to create new artworks often created in collaboration that reflect upon knowledge production and notions of reality.

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