REF2021

Institution: University of Plymouth
Unit of Assessment: UoA32
Title of case study: Conservation of advertising material and improvements in clinical training through the examination of creativity within technology
Period when the underpinning research was undertaken: 2010-2020

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Michael Punt	Professor of Art and Technology	2005-present
Martha Blassnigg	Reader in Media Anthropology	2008-2015

Period when the claimed impact occurred: 2013 - present
Is this case study continued from a case study submitted in 2014? N

1. Summary of the impact (indicative maximum 100 words)
University of Plymouth (UoP) EU-funded research into the influence of avant-garde film making practice on 1970s television advertising highlighted their historical importance, resulting in the preservation and conservation of advertising material at the Netherlands Institute for Sound and Vision. Further research on film flicker changed how archival footage was presented in public engagement scenarios and influenced decision-making at the EYE Film Institute. Follow on research into play and realism in audio visual products advanced simulation-based training of patient care by making staff more aware of the human factors in clinical practice in care, enhancing soft skills, resulting in increased patient and staff wellbeing. This led to a program of training at the Torbay and South Devon NHS Trust and, more recently, has been nationally recognised as informing the innovative uses of video technology to facilitate simulation-based education in response to the critical need for safe, rapid, and effective COVID-19 training for NHS staff.

2. Underpinning research (indicative maximum 500 words)

The underpinning research emerges from the thirty-year enquiry by Punt into the interaction of technology and media, as industrial and artisanal uses interact to develop new forms [3.1].

Punt led a three-year EU project (2010-13) enquiring into technological exchange and media form (HERA/TEF) which examined the relationship between artistic media practices and industrial/commercial exploitation of audio-visual media at key moments of technological innovation, such as contemporary gaming and early television. The HERA/TEF project extended and applied an existing body of research by Punt and Blassnigg [3.1, 3.5] into technology and early cinema. It used historical evidence from film and television archives and used cultural and visual analysis to examine the correlation between experimental film practices in the 1970s and the emerging form of television advertising as it responded to the advent of domestic VHS recording and time-shifted viewing. This research revealed the role of the viewer as a 'playful' co-producer in shaping 1970s advertising form and exposed a previously understated continuity between the producer and consumer that extends to the present day (especially in computer games) who they called the 'prosumer'.

In addition, Punt demonstrated how techniques recognised within significant mainstream and avant-garde films and programmes carried through into techniques used in advertising. HERA established how media producers moved between fields and carried aesthetic and experimental techniques with them. The research highlighted how experimental media practices crossing into mainstream adverts produced proactive viewing. Subsequently, Punt interconnected the findings from a three-year Marie Curie Initial Training Network concerning creativity and cognition

(CogNovo) [3.2]. The research revealed how some emergent technologically innovative media forms inspired 'playful' approaches that invite user participation. These are often incorporated into innovative and effective commercial media products [3.3, 3.4].

This alerted the University of Plymouth (UoP) team to the significance of 'flicker' as an inherent cognitive dimension to the film and television experience. It drew their attention to a historic shift in the viewing experience as both commercial cinema and archival practices were eliminating flicker in digital projection in response to the new norms of simulation forms such as Augmented Reality (AR) and Virtual Reality (VR). They explored the possibility that there is a cognitive difference between analogue and digital projection which has some significant effects on the experience of the viewer. Punt and Blassnigg's research confirmed this and it reinforced that the effects on behaviour of a media experience are not necessarily or directly related to the degree of 'realism' in the representation [3.4]. On the contrary, they were able to show that where demands are made on the creative participation of the user/audience (prosumer), there is a more profound emotional investment in the representation. In an innovative exhibition of their research findings, *Play and Prosume*, and two equally novel funded impact events sharing the HERA/TEF findings (*Advertising the Sublime* and *Technology and Exchange and Flow: INDIA),* they were able to deploy the idea of the co-production of knowledge in the design of 'playful interactions' as a way of sharing insight [3.4]. This has had practical consequences for extending empathy in certain sorts of animatronic simulation scenarios that could be developed for clinical training [3.6].

3. **References to the research** (indicative maximum of six references)

3.1 **Punt**, M., 2016. The Technological Imaginary and the Cognitive Trace. In: *Avanca Cinema*, Avanca: Editions Cine-Cube Avanca. pp.1122-1131. (This article was double blind peer reviewed).

3.2 Denham S., and **Punt**, M. (2017). Creativity and Cognitive Innovation: A View from the Bridge. *Leonardo* 50:2 pp.184-185. Full article (pp.1-13) at: https://www.mitpressjournals.org/doi/suppl/10.1162/LEON_a_01386

3.3 **Punt**, M. 2013. Start Playing. In:, Jahrman, M., Felderer, B. (eds). (2013). *Play/Prosume* – Schleichende Werbung und schnelle Avantgarde. Nuernberg: Verlag fuer Moderne Kunst. pp. 43-48.

3.4 **Blassnigg**, M. 'Free Play' Between Science Art and Conjuring: Advertising and the Knowing Prosumer. In:, Jahrman, M., Felderer, B. (eds). (2013). *Play/Prosume* – Schleichende Werbung und schnelle Avantgarde. Nuernberg: Verlag fuer Moderne Kunst. pp. 49-57.

3.5 **Blassnigg**, M. (2009) *Time Memory, Consciousness and the Cinema Experience*. Amsterdam: Rodopi Press.
This book was submitted for REF 2014.

3.6 **Blassnigg**, M. 2010. Revisiting Marey's Application of Scientific Moving Image Technologies in the Context of Bergson's Philosophy: Audio Visiual Mediation and the Experience of Time. *Medicine Studies,* Volume 2 (3) Issue 'Medical Imaging: Philosophy and History'. Springer, pp.175-184.
This was submitted for REF 2014

€1M (additional impact funding €43K). 2013 – 2017. Punt, M., CI. (PI Prof Sue Denham) EU FP7 Marie Curie Initial Training Network, **'CogNovo: Cognitive Innovation'**. €4.1m.

4. Details of the impact (indicative maximum 750 words)

Punt and Blassnigg's research on film archiving and digitization has raised awareness of the significance of adverts resulting in the conservation of advertising material and the presentation of archival material. Within the health sector, his research has been used to improve VR and AR training programmes and visual documentation for teaching purposes. This has enhanced the human factor elements which develops soft skills, resulting in patient and staff wellbeing.

Conservation of advertising material within film archives
Advertising material is seen as of marginal importance within media and audio-visual archives, leading to risk of neglect. UoP research has increased awareness of the value of this material resulting in the cataloguing and preservation of this valuable resource. UoP's collaboration with The Netherlands Institute of Sound and Vision (NISV) increased their understanding of the material within their archive. This raised its profile and directly led to the cataloguing and preservation of the material. The research provided new ways of involving producers and audiences in creating collections and in articulating the social, economic and cultural value of the material through events and exhibitions. The research also changed Institute policy and led them to collect other comparable material such as games. *'It is a problem for archives that adverts are not seen as high priority, and this is one reason why HERA research was so valuable to the Institute…. [this has] kept this material on the agenda for the institute… The concepts of the research project and event will be a part of the new permanent exhibition at the institute in 2021.'* Bas Agterberg, curator Sound and Vision, NISV [5.1].

UoP research on film flicker influenced the technical decision-making concerning digitisation of analogue film. The EYE Film Institute regularly consult UoP on the presentation of archival footage in public engagement scenarios and the decision-making in the complex debates concerning the digitization of film holdings. *'Over the past years we have corresponded frequently about your research…. EYE staff have an enthusiasm for investigation and experimentation. We love to have seminars and research alongside our regular preservation activities'* Anne Gant EYE Film Institute [5.2].

Enhancing health sector training programmes
Training in healthcare using simulated and immersive experiences has increased over the last two decades. However, this increase in the introduction of digital training tools and animatronic simulation led to a focus on the technological achievement of the devices and the misconception of technological realism. Throughout this pursuit there were losses in both the degree of empathy and of important 'non-technical skills'. UoP research contributed to pioneering work in the NHS which advanced simulation-based training of patient care. This innovative training made staff more aware of the human elements required in care and enhanced their soft skills resulting in increased patient and staff wellbeing.

For example, Punt collaborated with the Torbay and South Devon NHS Trust who have a strong focus on delivering patient centred care. This collaboration influenced the Trust's use of digital media and immersive experiences which enriched the visual aspects of the patient perspective and led to the acquisition of soft skills in clinical training. UoP used VR to help represent the patient voice in medical education and training. In April 2015 they made a pilot film about a make-believe patient who is experiencing chest pains. It documents the patient's journey from ambulance to Emergency Department and on to theatre. Using advanced technologies, they brought the scene to life and created an emotional experience based on the feeling of distress experienced. Medical professionals then watched this footage using a VR headset, replicating the patient's own field of vision. Afterwards staff discussed the environment, the patient's state of mind, staff actions and interactions, and how all of these could affect the patient experience. Dr Kyle Stewart, Trust Medical Senior House Officer, said*: "As a clinician on the front line, I can forget how my actions and words could be interpreted by patients. I immediately felt the emotions and concerns of being a patient in a pressured situation and began to appreciate how*

a clinician's actions can affect the patient's state of mind. [this] provides a unique opportunity for healthcare professionals to empathise with their patients and improve the patient experience." Dr Tod Guest, Consultant in Anaesthetics and Intensive Care Medicine, Clinical Service Lead for Intensive Care, Torbay Hospital added *"'I am really excited at the possibilities of using this tool and the immense potential it has for healthcare providers in all roles to reflect on the experience their patients are having"* [5.3]. '[this has been] *professionally transformative… bringing a significant benefit to the delivery of training and direct patient care… in Torbay Hospital'* [5.4]. This led directly to a strong programme of training supporting the clinical team working for acutely sick patients and for the training and development of non-technical team skills. In July 2018, the team's work was also featured on BBC News, as part of the NHS 70th anniversary celebrations, and the educational role and research around the technology and its potential for shaping a future NHS was explained. In addition, a partnership with Health Education England was set up to development a VR Lab in Torbay producing training materials [5.5].

Art and creative activity to increase health and wellbeing and improve staff training
In February 2019, UoP research led to the creation of a gallery program HeArTs (Health and the Arts in Torbay and South Devon) which aimed to develop opportunities for both users and providers of healthcare to engage more fully with a wide range of arts and creative activity that can benefit health and wellbeing. This had the dual purpose of contributing to general well-being in staff and patients and to provide a focus for discussions of visual awareness which contributed to the increasing use of staff/clinician produced teaching materials [5.6]. The HeArTs Gallery project was supported by the Technology, Affect and Clinical Training (TAaCT) project which was a collaboration between Torbay and South Devon NHS Foundation Trust and UoP. The gallery had a unique distinction of being in a main clinical thoroughfare leading to increased public engagement. Dr Matt Halkes, Clinical Director of Innovation and Digital Transformation, Torbay and South Devon NHS Foundation Trust said, '*[the collaboration with UoP] enhanced our knowledge of the digital healthcare and humanities landscape including the availability of grant funds. Using… media as an interface for teaching and helping represent key themes related to 'humanistic skills' is… important and a rather unique approach. Staff health and wellbeing is a key organisational priority and these initiatives have received high level Executive (up to CEO level) support'* [5.7].

More recently, UoP research has helped inform the innovative uses of video technology to facilitate simulation-based education in the context of the COVID-19 pandemic restrictions across the UK. The necessary rapid response to increase the capacity for staff training in respect of the COVID-19 emergency has found a valuable resource in UoP research for devising effective training approaches using VR and AR technologies to engage with large numbers safely. This has led to a deeper understanding and appreciation of practical approaches to essential training and helped NHS teams understand that simulation can be effective without the barriers of cost or high-tech interfaces. *'Our… work on this was complimented to the extent that we were able to pioneer new ways of delivering training with VR and AR technologies which have been recognised across the NHS and elsewhere (e.g., Health Education England) and my team has become a key consultant nationally in this space.'* Nick Peres, Head of Digital Technologies, Torbay Hospital [5.8].

5. Sources to corroborate the impact (indicative maximum of 10 references)

5.1 Testimonial Bas Agterberg, curator Sound and Vision, The Netherlands Institute for Sound and Vision

5.2 Anne Gant, EYE Film Institute and Head of the Technical Commission of the International Federation of Film Archives (FIAF)

5.3 Torbay Hospital first to use virtual reality technology to improve patient experience
https://www.torbayandsouthdevon.nhs.uk/about-us/news-and-publications/news/2015/04/torbay-hospital-first-to-use-virtual-reality-technology-to-improve-patient-experience/

5.4 Testimonial from Dr Tod Guest, Consultant in Anaesthetics and Intensive Care Medicine, Clinical Service Lead for Intensive Care, Torbay and South Devon NHS Trust

5.5 Health Education England's Technology Enhanced Learning (TEL) in healthcare newsletter (TEL News)

5.6 Health and the Arts in Torbay and South Devon (HeArTs) Gallery launched
https://www.torbayandsouthdevon.nhs.uk/about-us/news-and-publications/news/2019/02/hearts-gallery-launched-15362/

5.7 Testimonial Dr Matt Halkes, Clinical Director of Innovation and Digital Transformation, Consultant Anaesthetist, Torbay and South Devon NHS Foundation Trust

5.8 Testimonial from Nick Peres, Head of Digital Technology, Torbay Hospital