

Institution: Middlesex University
Unit of Assessment: UoA36
Title of case study: Robots and Avatars: Technology, education and collaboration
<p>1. Summary of the impact</p> <p>This project, Robots and Avatars (http://www.robotsandavatars.net) informs how young people will work, learn and play with new representational forms of themselves and others in virtual and physical dimensions in coming decades making an impact on participants, educators, employers and other artists. Funded by NESTA, the programme influences the way educators and employers engage with young people in workplaces that are likely to include increasing telepresence, collaborative work, flattened hierarchies and international mobility. Exhibitions around Europe showcase work by artists, scientists, designers and architects who explore the relationship between the body, technology and virtual spaces, while forums examine impact and ethics. The research is transmitted to students and young professionals through workshops and mentoring, while social networking provides platforms for international groups. The project is also concerned with special topics like women and technology, and alternative identities for cultural groups. Key beneficiaries include young students and professionals, scholars and members of the general public.</p> <p>2. Underpinning research</p> <p>Outline</p> <p>This case study is one example of the School's international impact through interdisciplinary research using the creative potential of digital technologies. ResCen provides the context for Boddington to develop her work as Creative Director of <i>body>data>space</i>. The Robots and Avatars website includes an overview and 11 reports on key themes (http://www.robotsandavatars.net/documentation/writing). In 1989, Boddington co-founded <i>shinkansen</i>, a platform to investigate corporeality, technology and audience participation in digital arts. In 1999 she joined ResCen, where she finds a platform for collaboration, contributions to symposia, publications, web pages and research projects. In the last two decades, Boddington has collaborated with Professor Christopher Bannerman and Professor Susan Melrose in <i>Cellbytes: Realtime Documentation</i> (2000), the cultural programme <i>Future Physical</i> (2001-2003) and the ResCen anthology <i>Navigating the Unknown</i> (eds. C. Bannerman, J. Sofaer & J. Watt, London: Middlesex University Press, 2006) and has published 'Woven Bodies, Woven Cultures' in <i>Identity, Performance and Technology: Practices of Empowerment, Embodiment and Technicity</i> (Broadhurst, S. and Machon, J., eds.), 2012. These publications and programmes summarise her research and performance practices.</p> <p>Nature of research insights, associated outputs and researchers/collaborators</p> <p>Boddington's research bridges HEIs and cultural industries and is shared in forums that link these worlds. Recent examples include 'The Shapeshifters', presented at a conference on mixed reality performance on February 18, 2011 at the School of the Art Institute of Chicago; DRHA11 Connected Communities conference, University of Nottingham, Ningbo, China; ResCen, Middlesex University panel with Professor Chris Bannerman, Richard Layzell and Kate March; and ISEA Istanbul, Turkey, on the panel "SENSORIUM, Interdisciplinary Practices of Embodiment and Technology" in September 2011. Fifteen years of work by <i>shinkansen</i> and <i>Future Physical</i> (375 events, with a media library of over 750 items) have been acquired by the British Library and are archived at the Connectivity portal. Boddington's recent ResCen symposium 'Connected Collaborations' took place at NESTA, London on 20 March 2013 and traced the developmental working relations in her career and field (see: http://www.rescen.net/events/GB_Symposium_13.html#UleZiiQapiU). In 2008, Boddington developed a performance 'Dare We Do It Realtime?' premiered at Kinetica Art Fair, London, involving 15 professional dancers and technologists. This was attended by 3000 people.</p>

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Research suggests that telematics can ‘enhance intercultural understanding, knowledge exchange and trust building...[act as] “distance bridger” with a cleaner eco-footprint...[lead to] a positive shift towards active (rather than passive) interaction...[and] instant real-time connectivity in our fullest form allowing us the right, as humans, to receive and transmit data representing one’s full body (and that of others with agreed permission)’ (Boddington, ‘Virtual Physical Bodies – Serious Play’ in *Die Welt als virtuelles Environment: Das Buch zur CYNETart_07encounter* (Birringer, Dumke, Nicolai eds., Dresden: Trans-Media-Akademie, 2007).

In addition to NESTA, funders included the EU Culture Programme and Arts Council England. With over 20 gallery and educational projects, the project is conceived and produced by body>data>space with partners NESTA, King’s College Visualisation Lab, Hi8us, Rescen, Soda, Kinura, Kinetica Art Fair, RAN (Digital Art Network), and Ambient Performance. It is part of RACIF EU, supported by the EU Culture Programme (2007-2013), co-ordinated by lead organiser body>data>space (London, UK) with co-organisers KIBLA (Maribor/Slovenia) and AltArt (Cluj Napoca/Romania), with UK partners FACT Liverpool (Foundation for Arts and Creative Technology) and National Theatre (London). For the full list of funders and partners, see: <http://www.robotsandavatars.net/partners/>

3. References to the research

1. Boddington, G. 2012. Woven Bodies, Woven Cultures. In Broadhurst, S. and J. Machon (eds.) *Identity, Performance and Technology: Practices of empowerment, embodiment and technicity*. Palgrave Macmillan, Basingstoke: 77-90.
2. Boddington, G. 2010. Collective collaborations through telematics. In Staines, J. and G. Boddington (eds.) *Excited atoms: an exploration of virtual mobility in the contemporary performing arts*. *Culture360.org*, Singapore: 27-38. Available online at: <http://on-the-move.org/news/article/13882/otm-excited-atoms-exploration-of-virtual-mobility/>
3. Boddington, G. 2009. The deeper network. In Stular, M. (ed.) *Post Me_New ID: The post human condition of modern Europeans*, volume 14, number 30. Edition TOX, Kibla: 66-71. Also see project website. <http://www.postme-newid.net/>
4. Boddington, G. 2009. Robots and Avatars (website). <http://www.robotsandavatars.net>
5. Boddington, G. 2008. Virtual/Physical Bodies. In Dominique, R., Boddington G. and E. Cuisinier (eds.) *Virtual/Physical Bodies*. Centre des Arts, Enghien-les-Bains: 10-13. See: <http://www.bodydataspace.net/projects/virtual-physical-bodies-catalogue>
6. Boddington, G. 2006. The Weave. In Bannerman, C., Sofaer, J. and J. Watt (eds.) *Navigating the Unknown: The creative process in contemporary performing arts*. Middlesex University Press, London: 70-87, 2006.

The outputs include peer-reviewed chapters and articles, and invited keynote addresses given in international conferences. The items have been reviewed through peer/editor/publisher processes and/or placed in the public domain through Boddington’s website.

4. Details of the impact**Relationship to the research**

In articles, papers and performance, Boddington researches the relationship between people and virtual environments. She organises events around Europe where virtual reality professionals showcase work, and the public experiences technologies like telepresence and motion capture.

The Robots and Avatars programme produces events around Europe, bringing together attendees from education, creative industries, public services, work and behavioural

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psychologists, designers, artists, future workplace researchers, and experts from telepresence, artificial intelligence, health, virtual worlds, and robotics.

Robots and Avatars aims to address the needs of each partner and the country of delivery. For example, in Slovenia, the project has organised robotics workshops for 4-6 year-olds, attended by 400 participants, while at FACT Liverpool, the target audience has been teenagers. In Slovenia, a local need is to engage women in technological endeavours and to address roadblocks. These events have led to approximately 500 groups of women around the world joining the project twitter link.

The extensive website that documents this work and shares resources has attracted over 60,000 unique visitors over the period. The site houses reports, video edits, vodcasts and web pages linking to learning experiences in schools, with 20,000 visitors recorded in the first year (2009-10) for research resources created from live documentation.

Projects and impacts include

(a) *iDiscover* (2010-11) used pupil choice and enquiry-based group learning to engage young people and prepare them for future workplaces. The programme worked with 2,000 young people in 16 schools in three regions (London, Manchester and the Highlands, Scotland).

body>data>space delivered 14 creative learning experiences for key stage 3 & 4 students in south London schools reaching 437 students in 2010-2011. Learning experiences included areas like avatars and virtual worlds, telepresence, online communication and social media, and taught web-streaming, programming, problem-solving and creative group work. This work benefited young people, preparing them for a world of work, and allowed them to experience virtual representations of themselves. For example, students developed an avatar through which they explored cultural, gender and other facets of identity.

(http://www.nesta.org.uk/areas_of_work/public_services_lab/past_projects_public_services_lab/idiscover; <http://www.robotsandavatars.net/education/idiscover-nesta-programme/>).

(b) *Visions of Our Communal Dreams* was an exhibition blending virtual, physical and networked environments to explore embodiment and collective creativity. The virtual component was an imaginary forest landscape constructed with the 3D application server Open Simulator (an open source equivalent of Second Life). At FACT Liverpool (16 March-27 May 2012), participants (54% male and 46% female, age 18 to 54 years, of which 6% were disabled) collaborated with the creative team to develop resources for the artworks. 8 workshops were run together with 9 female students from Weatherhead Media Arts College. Around 30 people attended a 'Meet the artist' event. In total, 20,360 visitors attended the events. At Europe House, London, 825 people visited the exhibition on 9 days in September 2012. On the invitation of 12 Star Gallery, body>data>space showcased 'Robots and Avatars – UK selection' and 'Collectively Engaged' in 2 days of Forums attended by 150 people. At KIBLA in Maribor (Slovenia) in October 2012, more than 1000 people saw the exhibition, including 600 children, scholars and students. Two sets of workshops were set up with the help of 10 participants, attended by 137 children and scholars.

(c) *Me and My Shadow* is a travelling installation, part of the EU project *Mobility of Digital Arts in Europe*. Developed with artists Joseph Hyde and Phill Tew, and including a performance by dancers, it involved four locations - London, Paris, Istanbul and Brussels - and allowed the public to experience motion capture and telepresence. Presented at the National Theatre, London, for two weeks in June 2012, simultaneous with the other locations, it attracted 5000 visitors.

(d) *E-Motional*, an EU-funded strand, aims to increase artist opportunities for international mobility, with the belief that if artists have opportunities to present at international events, take up employment and collaborate with artists in diverse locations, their employability, chances to attract international funding and artistic creativity are enhanced. This has led to an international E-Motional festival. The website has attracted 840 unique visitors and 419 Facebook followers. In London, 9 artists, 13 participants and 80 audience members benefitted from the project.

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Collectively these projects have a wide international reach and significance, challenging the participants to reconsider their relationship to technology and the ways in which virtual worlds and telepresence might operate in terms of ethics, learning, work and social interaction. They enabled young professionals and others to acquire self-confidence, develop their creative thinking and explore issues of identity, communication and teamwork for the 21st century. At the same time the project has changed perceptions of women in technology creating space for a 'feminine presence' in a male dominated field. As Michael Takeo Magruder, artist-in-residence, King's College London, notes: 'The workshops show young people what is possible, what workplaces of the near future will look like, what will be the advantages and challenges. They demystify this technology for young people. Even for the students who may not end up working in this field, the workshops offer an opportunity for creative team work.'

Robots and Avatars has reached large numbers of participants both in the UK and internationally and made a significant impact upon understandings, providing connections between new technologies, creativity and education.

5. Sources to corroborate the impact**Quantitative data:**

1. Audience reach figures for Robots and Avatars website (<http://www.robotsandavatars.net>) showing monthly unique visitors, total visits and page hits from October 2009 to July 2013.

Individuals who can corroborate the claims:

2. Artist in residence, Department of Theology and Religious Studies
3. Director, Hai Media Group
4. Professor of Music, School of Music and Performing Arts

Reports and reviews:

4. Robots and Avatars @ FACT: a review by Steve Boxer (2012).

<http://www.robotsandavatars.net/documentation/writing/robots-and-avatars-fact-a-review-by-steve-boxer>

5. Robots and Avatars e-publication (2013)

Publication conceived by the Robots and Avatars EU Culture co-organisers, body>data>space, KIBLA, AltArt.

Full project report available at: <http://www.robotsandavatars.net/documentation/e-publication/>

6. EU-partners through MADE (Mobility for Digital Arts in Europe). Contact person: observateur permanent <http://www.we-made.eu/eng/?p=126>

7. Reports of events <http://www.robotsandavatars.net/documentation/writing/>

Press coverage:

8. Full list of press coverage: Robots and Avatars touring 2012. FACT/Liverpool, Europe House/London, KIBLA/Maribor, Slovenia, Altart/Cluj, Romania. Can be downloaded at: <http://www.robotsandavatars.net/exhibition/>

9. 'Me and My Shadow (documentary - Joseph Hyde): Press coverage & marketing'

http://www.robotsandavatars.net/exhibition/robotsandavatars_ukselection/artists/me-and-my-shadow/