Impact case study (REF3b)

Institution: **University of Surrey**
Unit of Assessment: **UOA 35 Music, Drama, Dance and Performing Arts**
Title of case study: **Digital Dance Research: Movement Studies, Interactive Analysis** **and Digital Visualisation of the Dance Heritage**

1. Summary of the impact (indicative maximum 100 words)

Since 2008, three coordinated projects have interlinked expertise and resources in Surrey's dance division (including Surrey's National Resource Centre for Dance, NRCD, est. 1982) with the institution's technological expertise.

The aim was to enhance access, visibility and experimentation with the dance heritage by digital means. The project has generated an online repository for dance resources, available for the education sector. It also led to economic benefit for the non-academic project partner, digital design company Bullet Creative, who were able to build both their technical skillset and their knowledge base, in order to then continue to expand their own dance-related business portfolio. The digital archiving expertise is also disseminated to future online archive projects.

2. Underpinning research (indicative maximum 500 words)

The **Digital Dance Archives (DDA)** project explored innovative engagement and dissemination mechanisms for historiographical archive material on dance and choreography via the construction of a public internet portal (www.dance-archives.ac.uk). Following the extensive digitisation of NRCD resources as part of the project, the DDA platform currently provides access to eight online dance collections covering a range of genres and time periods extending over a century. The site was designed to produce a platform based on visual content, searchable by both traditional text and innovative visual search technologies (pattern recognition), produced by the Surrey team, who created unique algorithms that would identify poses and colour in diverse images and mixed media. The DDA was formally launched in May 2011 at The Place/London, attended by 70 professionals from across the world of dance, choreographers, academics, educationalists, performers, photographers, promoters and archivists.

The DDA's bespoke "Virtual Scrapbook" function, envisaged by the Surrey team, was developed by **web designers Bullet Creative**, a key non-academic partner across the individual project streams, who then also interfaced the search technology to the site. The scrapbook became a unique feature, allowing for sorting and organising archive content into personalised selections, thereby reflecting a variety of research or teaching aims. Thereby, an interactive tool was prototyped which supports new dynamic research and learning experiences.

A Surrey project **"Contexts, Culture and Creativity: Enriching E-Learning in Dance (CCC-EED)"** further expanded the DDA content as well as developing Open Educational Resources for use in HE and FE colleges and guidance for teachers in schools to aid and encourage the archive's use in different educational settings, fostering engagement with these aspects of cultural legacy.

The project "**Visualising Motion in 3+ Dimensions**" (VM3+D) (www.moveresearch.net) further expanded the engagement with historic sources. Research combined chronophotographic and dynamophotographic movement analysis (from Muybridge and Marey to iWEAVE and Kinect software) with dance analysis (Laban), exploring the common problem of representation of kinetic dimensionality in a digital context. The project included practice-based research, leading to

choreographic performance work that rendered geometries and spatial logics in physical form based on archival drawings from the Rudolf Laban Archive, a key NRCD collection with content available via DDA. Another project digitised dances and costume designs from the Natural Movement Archive, a pioneering British barefoot dance form from the early 20th Century. This strand of the project created an interface of dancers' sophisticated dimensional thinking in the kinesphere with research problems and developments in gaming, aeronautical engineering, security technology, and other aspects of visual computing, thereby fostering intersections of creative-artistic and scientific research.

The interdisciplinary research collaboration was steered by Professor Rachel Fensham (Surrey Dance Studies until June 2012) and Dr John Collomosse in the University's Centre for Vision, Speech and Signal Processing. Other key dance researchers contributing to the project are Dr Nicholas Salazar-Sutil (initially project research assistant, now Lecturer in Dance and Media, and leading research in this area following Fensham's departure), Dr Melissa Blanco-Borelli and as external co-investigator Prof. Sarah Whatley (C-DARE Lab, School of Art and Design, Coventry University).

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

Published Outputs include:
1. Fensham, Rachel, case study chapter in *Transmission in Motion,* ed. Maaike Bleeker, MIT Press 2013.
2. Salazar-Sutil, Nicolas, 'Rudolf Laban and Topological Movement: a videographic analysis', in *Space and Culture* 16:2 (May 2013), pp. 1–20 (REF submission).
3. Salazar-Sutil, Nicolas, 'Laban's Choreosophical Model: Movement Visualisation Analysis and the Graphic Media Approach to Dance Studies', in *Dance Research*. Volume 30, Nov 2012, pp. 147-168 DOI 10.3366/drs.2012.0044, ISSN 0264-2875 (REF submission).
4. Fensham, Rachel; 'Choreographic Archives: the ontology of moving images,' in Rune Gade and Gunhild Borggren, eds, *Performing Archives/Archives of Performance* (Copenhagen: Museum Tusculanum Press, in print).

The research was funded by three external project awards:
- AHRC Digital Equipment and Database Enhancement for Impact (DEDEFI) Fund, £326,000, "Cross-collection interactivity and enhanced user engagement with dance resources", 4/2010- 11/2011.
- JISC, £125,000, "Contexts, Culture and Creativity: Enriching E-Learning in Dance (CCC-EED)", 11/2011-1/2013.
- EPSRC (Bridging the Gap), £65,000, "Visualising Motion in 3+ Dimensions", 11/2011-6/2012.

Additional (internal) funding came from the Surrey-based MILES (Models and Mathematics in Life and Social Sciences) project.

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

The digital dance projects have started the development of technological innovation that allows for dynamic exploration of archives in digital format. The DDA project has begun to make a contribution to methods of digital presentation of archives within the performing arts sector, where expert advice is being sought from artists, companies, other archives, and other user groups.

Evidence at this stage indicates that the system is fostering wider public engagement with archive resources, as well as providing easily available online resources for use in education (see access

analysis below which shows that DDA resources are beginning to be used in dance education).

Furthermore, the innovative dynamic technology that has emerged from the project will be further exploited in a Heritage Lottery-funded project "Black Dance Archives" (http://blackdancearchives.co.uk), in conjunction with Somerset-based State of Emergency production company. The archive aims to record and share the contribution of British black dancers to the wider dance ecology and to Britain's cultural life and will continue to exploit the technology and digital infrastructure created by the Digital Dance projects so far.

The DDA not only ensures that cultural heritage is preserved, but also offers the unique opportunity to explore and search across a variety of archive collections, with the resultant website acting as a portal to explore the integrated collections.

Visitors to the website are able to explore the digital archive materials; select and compile items into personally created virtual scrapbooks; tag and share content; play and annotate video. An example of the participation is shown below; November 2013:

Unique visitors	5,204
Total visits	8,218
Demographics	There are 220 registered users in 21 countries; visitors have come from 97 countries around the world, including countries in Europe, South America, the Middle East, Africa, the Indian continent, the Far East, and Australasia. The users typically exploring the archive are from a range of sources. For example, by November 2013 the make-up of the registered users was academia (49%), school teachers (7%), Companies/Organisations (12%), and unknown (32%).

User testimony includes:

The former artistic director of Extemporary Dance Theatre stated:

"This is a fabulous resource for researchers, students and for the artists themselves, allowing us to explore dance archives in many imaginative ways."

Dance UK's Information and Communications Officer commented that the project is

"… really inspiring and holds incredible implications for dance research and widening access to the art form."

A dance lecturer from University Campus Suffolk, commented:

"It has been particularly useful to see early footage of Laban when introducing his movement analysis. Incredible to be able to watch the experiments."

http://www.surrey.ac.uk/library/nrcd/projects/dda/

The projects created significant impact for the non-academic project partners in the digital industries, in particular the web design agency Bullet Creative, based in South London. Bullet worked on several of the stated digital dance projects and continues to work on ongoing projects with the School. They were contracted for the DDA development and have continued to work on the CCC-EED project and are also involved in future developments around the DDA website.

The agency, established in 2000, benefited through the specific engagement with dance and subject-related artistic and academic perspectives which they gained and extended from the

project. The involvement in the projects allowed its staff to increase their knowledge capacity in producing enhanced web design through the engagement with Surrey. They were able to increase their subject knowledge in order to intensify and expand their commercial portfolio of clients in the dance sector. Bullet Creative Ltd.'s Creative Director offered the following feedback;

"Working on Digital Dance Archives has helped Bullet Creative expand in 4 key ways: Technical Knowledge, Academia, Dance, and Creativity. Technically we have learnt new skills and, being able to work alongside staff from University of Surrey, it has been really interesting to see bleeding edge technologies being put to practical use. From an academic point of view, we have found it rewarding to see how research staff work in the National Resource Centre for Dance and the Department of Dance. In terms of dance itself, working on DDA has crossed over with our work with Siobhan Davies Dance and Shobana Jeyasingh Dance. We have found crossovers from our commercial work and the DDA project. As artists ourselves, Bullet are interested in creativity in all forms of art, we have found DDA itself to be a great inspiration ranging from Laban sketches through to more dance modern works."

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

   a) Dance Archive : http://www.dance-archives.ac.uk/

   b) Creative Director, Bullet Creative Ltd. Contact details provided.

   c) Former artistic director of Extemporary Dance Theatre. Contact details provided.

   d) Former Information and Communications Officer at Dance UK. Contact details provided.

   e) Content Management, The Alston Studio.com, The Place, London. Contact details provided.