

Institution: University of Leeds
Unit of Assessment: D35 b Performance and Cultural Industries
Title of case study: Case Study 1: Influencing Digital Projection Practices in Dance Performance
1. Summary of the impact The research led by Professor Sita Popat with Scott Palmer enabled digital arts small-medium enterprise (SME) KMA Ltd to develop ground-breaking visual/kinetic ideas and permanently shift their creative product (and hence their income stream) from web design and popular music show projection to theatre and the cultural industries. Subsequent collaborative research and development workshops catalysed the design of a progressive digital projection for an international theatre company's production, influencing how audiences around the world received the work's political message.
2. Underpinning research Projected digital images are widely employed in theatrical productions, but their use is frequently governed either by pre-recorded footage with the performer as strictly-timed soloist, or through computer-controlled interactions where the performer must trigger the technology. Work that directly integrates performance and technologist in both process and performance is still rare. Collaborative methods that facilitate such integration deserve further exploration for the combined benefit of both academic and professional communities. Popat (Professor of Performance & Technology 2011-14, Senior Lecturer in Dance 2007-11), University of Leeds) and Scott Palmer (Lecturer in Scenography, University of Leeds throughout the REF period) formed a research collaboration between 2004 and 2008 with industry partners (Kit Monkman and Tom Wexler, co-directors of KMA Ltd), focussing on the choreographic and scenographic exchange between dancers and projected digital images. They addressed these issues through the following research question: What defines relationships between performer-dancer, projected image and performer-operator? Through the use of experimental workshops conducted both in theatres and in site-specific environments, the research investigated a new set of interrelationships between performer, projection and technical operator, where the operator became a 'performer' controlling and being spontaneously present in a digital representation. In the theatre-based research, the stage-performer dances with the off-stage operator, who simultaneously sees, controls and performs via a projected digital representation (a star, a line, or another shape, programmed using principles of Newtonian physics to create organic-looking motion). The expressive nature of the digital image concentrates the qualities of the operator's movement through innovative use of a simple technical interface (graphics tablet and pen). The operator performs through his/her abstract digital form, dancing as an equal partner with the stage performer. The research investigated how the operator's role as performer unlocks significant potential for the creative process. It also addressed the role of kinesic engagement in digital extensions of the human body. In the site-specific research, members of the public visiting the kinetic light installations became both operator and performer in a mixed reality environment. They engaged with the technology as part of an embodied experience of the site. The research examined the role of light in experiences of site, and the effects of using performance techniques based on play as the key creative process in creating a piece of public installation art. In both the theatre-based and site-specific research, Popat and Palmer were concerned with the nature of the 'physical' and perceptions of the 'real' in relation to embodied experience and interaction.

The findings were focused around three areas:

1. The 'embodied interface': theories and practices of relationships between performer-operators and digital technology that support extended embodiment and remote expressive performance through digital projection. [1, 3, 5]
2. Performance techniques as design processes – processes for employing improvisation and game-play as tools for designing effective interactive mixed reality environments where the body is prioritised rather than the technology. [4, 5]
3. Methodologies for collaborative working between performance and digital technologists – interrogating assumptions about performance/technology collaborative processes and proposing working methods. [2, 5]

Reference [4] was re-printed in Collins & Nisbet (eds) *Theatre & Design: A Reader in Scenography* (Routledge, 2010). References [3] and [4] were entered into RAE 2008, along with a practice-based research output arising from the AHRC-funded project [5].

3. References to the research

- [1] **Popat, S.** & Preece, K. (2012) 'Pluralistic Presence: Practising Embodiment with my Avatar', in Broadhurst S. & Machon J. (eds.) *Identity, Performance and Technology: Practices of Empowerment, Embodiment and Technicity*, Basingstoke: Palgrave Macmillan, pp.160-174 [chapter in edited book, submitted in REF2014]
- [2] **Popat, S.** & Palmer, S. (2009) 'Dancing with Sprites and Robots: New Approaches to Collaboration between Dance and Digital Technologies', in Butterworth, J. & Wildschut, L. (eds.) *Contemporary Choreography: A Critical Reader*, London: Routledge, pp.416-430 [chapter in edited book]
- [3] **Popat, S.** & Palmer, S. (2008) 'Embodied Interfaces: Dancing with Digital Sprites', *Digital Creativity* 19(2), pp.125-137. DOI 10.1080/14626260802037478 [peer reviewed journal article]
- [4] Palmer, **S.** & **Popat, S.** (2007) 'Dancing in the Streets: The Sensuous Manifold as a Concept for Designing Experience' *International Journal of Performance Arts & Digital Media* 2(3), pp.297-314 . DOI 10.1386/padm.2.3.297_1 [peer reviewed journal article]
- [5] **Popat** & Palmer were awarded an Arts & Humanities Research Council Large Grant for their project titled *Projecting Performance* (Sept 2006-Jan 2008, £66,000). KMA Ltd was the named partner on the project.

4. Details of the impact

IMPACT 1: On a digital arts SME

Historical context of impact:

Prior to 2004, KMA Ltd's primary income stream was web-based design and digital projections for large-scale popular music shows. In 2004, KMA approached **Popat** and Palmer for advice on a new commission to create digital scenography for Phoenix Dance Theatre's production, *Eng-er-land* (2005), against the company's broader strategic plan to diversify their work-base into theatre and the creative industries. **Popat**, Palmer and KMA engaged in experimental research workshops to develop new visual/kinetic ideas for the Phoenix production. **Popat** and Palmer were credited for their contribution in Phoenix's international programme.

In 2005, KMA was commissioned by York City Council to create an interactive public art installation. KMA returned to **Popat** and Palmer and employed them as research consultants on the project to develop the experimental workshop approaches further. The resulting installation, *Dancing in the Streets*, was KMA's first interactive kinetic light installation. The work came to life through the actions and reactions of its audience. Abstract, organic patterns appeared on the pavement after dark, inviting passers-by to come closer. As they did, their own movements began to influence what they saw as the projected light linked them to others and pulled them into a

relationship with the artwork that invited playfulness, creativity and improvisation. The installation was due to run for three weeks but the City Council extended its run to four months.

Following this, **Popat** and Palmer wrote a peer-reviewed research article about their experimental work with KMA [4] and successfully applied for an Arts & Humanities Research Council (AHRC) Large Grant for *Projecting Performance* (2006-8) to pursue the work further in partnership with KMA [5]. The research question outlined earlier (in the second paragraph of section two) was central to this project.

Impact in REF2014 Period:

KMA have continued to employ the processes developed with **Popat** and Palmer in the experimental workshops (and in the subsequent AHRC-funded project) within their commissioned work. Examples include *Congregation* (2010: Shanghai Expo, China; Tate Britain, London), an ambitious kinetic light art installation that aims to push the possibilities of large scale interactive work into new emotional and narrative territory, and most recently their design for the feature film *The Knife that Killed Me* (Autumn 2013, Universal Pictures). KMA Director, Kit Monkman, testifies that the film “owes its ground-breaking visual style” to their work with **Popat** and Palmer. [A]

Lloyd Newson, Artistic Director of internationally acclaimed DV8 Physical Theatre, heard about *Projecting Performance* at the Theatre and Performance Research Association conference in 2006 and asked **Popat** if he could observe the experimental workshops. As a result, Newson ran his own research and development workshops with the *Projecting Performance* research team (led by **Popat** and Palmer). Following the workshops, Newson commissioned KMA to design the digital projections for DV8’s internationally touring production *To Be Straight With You* (2007, toured 2008-9). KMA’s design for DV8 significantly raised their international profile in the arts world in 2008-9; an opportunity that only arose because of the research they conducted with **Popat** and Palmer.

KMA have now developed and diversified their work-base to be almost exclusively within digital light projection and film in theatre and the cultural industries. Monkman’s testimonial states, “I cannot overstate our gratitude to Sita (Popat), Scott (Palmer) and the University of Leeds for encouraging and aiding our creative (and therefore economic) development.” [A]

The experimental processes developed in the research partnership with KMA were selected for dissemination as good practice in interactive digital design in two international industry publications. [B]

IMPACT 2: On an international theatre company and its audiences

As explained above, Lloyd Newson asked **Popat**, Palmer and KMA to host two days of workshops for him and a DV8 performer in order to experiment with ideas for his upcoming production, *To Be Straight With You*. Newson’s testimonial explains that the ideas for many of the final projection designs were developed in these workshops [C]. **Popat** and Palmer are credited in the production’s tour programme and website. *To Be Straight With You* toured internationally in 2008-9, including Australia, Germany, USA, UK and Canada.

International reviews of *To Be Straight With You* indicate the critical nature of the digital projection design in communicating to audiences the political content of the piece which examined religion, sexuality and tolerance. Most frequently highlighted for the effectiveness of its visual emphasis was the projection of a large globe, which a dancer appears to spin around himself (e.g. reviews in The Guardian, UK; The Independent, UK; The Stage, UK; Irish Theatre Magazine, Ireland; The Village Voice, New York; Dance View Times, San Francisco) [D]. Countries turn different colours at his touch as he describes their rules on homosexual relationships. This ‘globe’ design element was one of those conceived in the R&D workshops with the *Projecting Performance* research team, as were the other elements mentioned in the review excerpts below. (These elements can also be seen in video examples on YouTube via the links listed in source [E] in Section 5.)

“In a devastating bit of theatrical magic, Hannes Langolf, one of nine powerful performers, appears to rotate a transparent projected globe of the world. As he speaks of the 85 countries that criminalize homosexuality and the seven in which Sharia law may impose the

death penalty, those sections of the virtual world turn red, and some an even darker red.” Deborah Jowitt, *The Village Voice* (New York), October 2008.

“The use of visible text and graphics thrown across the set for emphasis is nothing new, but here, working in harmony with Uri Omi’s set, it is taken to a new level, lending the piece an immediacy and a filmic quality which heightens both the production’s visual impact and its accessibility.” *British Theatre Guide*, October 2008.

“Americans will be forced to sit-up, catch up, and may have to rely on the impressively artsy video-graphic-projections by Kit Monkman and Tom Wexler [*KMA*] that sometimes create the set around dimly lit performers, overlaying on them like clothing, or sprayed across them like graffiti.” *Culture Vulture* (San Francisco), November 2009.

Over 70,000 people saw the show in Europe, Australia and USA between March and November 2008, and then in Europe, USA and Canada between September and December 2009 [F]. The production won the Grand Prix de Danse, Syndicat Professionnel de la Critique de Theatre, Musique et Danse (Paris 2009).

Newson invited **Popat** to join DV8’s Board of Trustees in 2010. Introducing her to the Board, Newson explained: “Sita and Scott’s openness and willingness to share their research and resources was pivotal in the making of *To Be Straight With You*.” [C]. As a board member, **Popat’s** role includes bringing future academic research to the attention of Newson and DV8.

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

[A] Testimonial from Director of KMA Ltd, indicating the impact of this research on their working practices and income stream.

[B] Publication 1: Nathan Shedroff’s book *Experience Design 1.1* (2009, ISBN: 9780982233900) for the interactive digital and related design professional communities refers to *Dancing in the Streets* as an example of innovative practice.

Publication 2: Popat and Palmer were invited to write an article on the processes behind *Dancing in the Streets* for the industry professionals’ magazine *Interactions*, published by the Association for Computing Machinery, USA. (Palmer, S. & Popat, S. (2008) ‘Dancing in the Streets – a design case study’. *Interactions* New York, XV(3), pp.55-59.)

[C] Testimonial from Artistic Director of DV8 Physical Theatre, to indicate importance of this research to the digital design of DV8’s production, *To Be Straight With You*.

[D] Set of reviews of *To Be Straight With You* from the 2008-9 tour, indicating the importance of the digital design in the portrayal of the production’s aesthetic and its political message.

[E] Video examples from *To Be Straight With You* showing elements of the digital projection design: <http://www.youtube.com/watch?v=br9tafybBXM> (globe image at 1’00”); http://www.youtube.com/watch?v=0_MiU6uci60 (cartoon at 2’20”). Both projection concepts developed in DV8/Projecting Performance R&D workshops at University of Leeds. (Web pages accessed on 16th October 2013.)

[F] Audience figures and data for *To Be Straight With You* (2008-9) in DV8’s annual report to Arts Council England.