

Institution: Trinity Laban Conservatoire of Music and Dance		
Unit of Assessment: 33		
Title of case study: Selected Impacts of the Work of Wayne McGregor		
Period when the underpinning research was undertaken: 2013-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): Professor Wayne McGregor	Role(s) (e.g. job title): Professor of Choreography	Period(s) employed by submitting HEI: 2013-present
Period when the claimed impact occurred: 1 August 2013 - 31 July 2020		
Is this case study continued from a case study submitted in 2014? No		
1. Summary of the impact		
<p>Wayne McGregor CBE is Artistic Director of Studio Wayne McGregor and Resident Choreographer at The Royal Ballet. McGregor's exceptional artistic collaborative practice pushes choreographic boundaries and innovates and transforms existing industry practices. World class collaborations have led to the development of digital tools that have informed the development of both specific choreographic research outputs, and equally, led to public engagement initiatives that have generated new discussions about the intersection between human and digital bodies. McGregor's research processes are manifold, but often involve: in-depth longitudinal collaborative processes with other artists, dance practitioners and academics; the creation of new movement repertoires that stretch kinetic possibilities; the development of tools to enhance dance creativity and pedagogy. These processes are embodied into a variety of research outputs that have subsequently informed the programming of ballet and opera houses across the world, contributing to audience development by introducing contemporary dance and ballet to completely new audiences. This case study highlights the impact of McGregor's research, seen as a complete body of work on industry practice, creativity and culture.</p>		
2. Underpinning research		
<p>McGregor's life-long choreographic enquiry into the nature of dance-making and intelligence of the body is supported by radical inter-disciplinary collaborations that explore the intersection of art and technology. These digital innovations are embodied into the research processes that generate dance works, installations, and the further development of digital tools.</p> <p>Research into artificial intelligence (AI) and cognitive psychology led to the development of <i>Becoming</i> [R1], an artificially intelligent interactive digital object that bridges the digital-physical divide between computation and human dancers. By building autonomous choreographic agents, a broader understanding can be found of the unique blend of physical and mental processes that constitute dance and dance-making. <i>Becoming</i> was used to develop movement content for the choreographic research output <i>Atomos</i> (2013, 2017) [R2].</p> <p><i>Self and Other</i> (2016), a digital interactive installation questioning aspects of identity and autonomy in the post-digital age, was the fifth research collaboration between Studio Wayne McGregor and Random International. The sculpture reacts to human presence, translating and reflecting the onlooker's full length, three-dimensional form and movements into points of light, captured within the layers of glass. Exploring the representation and perception of the self-image, the responsive nature of the work encourages participation, inviting us to move and engage with both the work and one another in unexpected physical interactions. Machine learning algorithms drive +/- <i>Human</i> (2017), submitted as an output to REF2, a work that explores the relationship between human bodies and autonomous technological entities. +/- <i>Human</i> fuses an immersive installation by Random International with live dance and music [R3].</p>		

In 2019, Studio Wayne McGregor launched a world-first research collaboration with the Google Arts and Culture Lab that saw the creation of *Living Archive*, a tool for choreography powered by machine learning that generates original movement inspired by McGregor's 25-year archive [R4]. McGregor turned his attention to this idea of the body as archive with the research output *Autobiography* (2017), also submitted to REF2, a work inspired by the sequencing of his own genetic code. To reflect the 23 pairs of chromosomes of the human genome, 23 sections of movement material were created and then fed into an algorithm based on McGregor's genetic make up. For every performance the algorithm selects a different section of code from McGregor's genome to determine which material will be performed and in which order.

The award-winning *Mind and Movement* (2013) is an important example of an educational resource developed for dance [R5]. The research draws from interdisciplinary research conducted over a ten-year period between McGregor and cognitive scientists examining McGregor's creative process and the nature of his collaboration with dancers. The *Choreographic Thinking Tools* project was an outcome of this research, and supported the creation of movement material through tasks that use embodied mental imagery. These pedagogic tools feed into public engagement and knowledge exchange initiatives of Studio McGregor.

The varied research processes highlighted above have become embodied into McGregor's research outputs over the current REF period, resulting in works for Company Wayne McGregor [R6], The Royal Ballet and Sadler's Wells [R7], and for companies throughout the world, including the American Ballet Theatre, Bayerisches Staatsballett, Paris Opera, Ballet Zurich and San Francisco Ballet [R8]. The resulting hybrids of ballet and contemporary dance have transformed industry practice by extending the lexicon of ballet itself. A complete list of McGregor's research outputs during the REF period can be found at:

<https://waynemcgregor.com/work/>

3. References to the research

[R1] *Becoming* <https://waynemcgregor.com/research/choreographic-language-agent;>
<http://www.sdela.dds.nl/cla/>

[R2] <https://waynemcgregor.com/productions/atomos>
<https://waynemcgregor.com/productions/atomos-film/> Work (2013) and Film (2017)

[R3] McGregor (2017) +/- *Human*, Company Wayne McGregor with dancers from the Royal Ballet
<https://waynemcgregor.com/productions/plusminushuman>

[R4] Google (2018) <https://www.youtube.com/watch?v=qshkvUOc35A>
<https://experiments.withgoogle.com/living-archive-wayne-mcgregor>
<https://waynemcgregor.com/research/living-archive/>

[R5] McGregor (Nov 2013): *Mind and Movement*.
<https://waynemcgregor.com/learning/resources>

[R6] Company Wayne McGregor: *Autobiography* (2017), *Atomos* [film] (2017), *Scavenger* (2013), *Azimuth* (Company Wayne McGregor 2013)

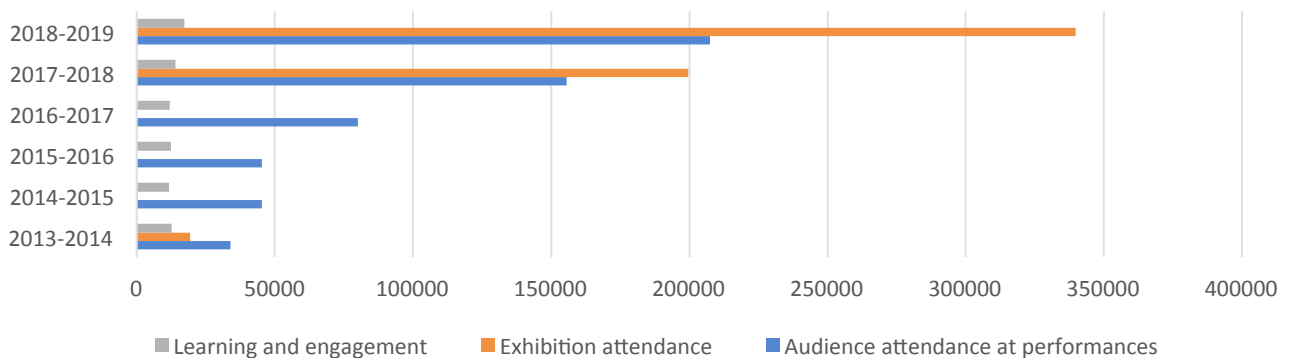
[R7] In residence at the Royal Ballet, McGregor has choreographed: *Yugen* (2018), *Multiverse* (2016), *Obsidian Tear* (Royal Ballet co-produced by Boston Ballet 2016), *Wolf Works* (first full length ballet for Royal Ballet, 2015), *Tetractys* (2014), *Raven Girl* (2013). Sadler's Wells hosted *Tree of Codes* (2017).

[R8] Co-commissions/works from other companies: *AfteRite* (Wayne McGregor's first ballet for American Ballet Theatre, 2018), *Sunyata* (Bayerisches Staatsballett, 2018), *Witness* (New York City Center for the Fall for Dance Festival 2016), *Alea Sands* (Paris Opera, 2015), *Kairos* (Ballet Zurich 2014), *Borderlands* (San Francisco Ballet 2013)

4. Details of the impact

The dance critic Lyndsey Winship writes succinctly of the effect of McGregor's body of work on the world of dance: "McGregor has had a remarkable impact on British and international ballet, warping classical dance into something very 21st-century" [1].

McGregor's award-winning choreographies [2] have reached global audiences through live performance, exhibitions and digital content. Between 2013 and 2019, McGregor's reach was more than **330M**, including approximately **567,327** audience members at live performances, **359,221** exhibition visitors, a reach of more than **329M** online and through broadcast and screenings; learning and engagement activities reached **80,063** people including participants with no prior access to dance, young people in formal education, community groups, dancers in training, and professionals [3]. These audience figures, which reached a peak during the REF period (2018-19) have significantly contributed to public understanding of the discipline of contemporary dance.



McGregor is the first Resident Choreographer for The Royal Ballet from a contemporary background, a post previously only held by classical ballet choreographers. McGregor's unique approach in works such as [R6-8] have revolutionized and reconfigured the classical ballet lexicon with direct secondary impacts and influences on industry practices in the arts as a whole. As a way of capturing these impacts, Trinity Laban have adopted a strategy to request testimonials from the leading arts managers in the field of dance on how McGregor's research work has affected their organisation. As an example, Director of The Royal Ballet Kevin O'Hare states, as a reporter on these impacts:

Wayne McGregor's contribution to the development of dance, and in particular The Royal Ballet's forward trajectory, has been immense. The development of his choreographic style within the classical technique pushes boundaries, both technically and emotionally. He also brings artistic collaborators from the broadest spectrum of backgrounds and art forms to the Company. The diversity of these artists and the stories and themes they tell have cemented the place of The Royal Ballet at the forefront of 21st Century dance. The exhilaration of having Wayne as a key part of The Royal Ballet, not only informs what is seen on stage, but impacts everything we do. We are forever grateful for his presence [4]

In a similar vein, Alistair Spalding, Artistic Director and Chief Executive of Sadler's Wells, reports on the impact of McGregor's work [R6-8] on shifting expectations of contemporary dance and increased diversity of its audiences:

The essential element of Wayne's work that has shifted the parameters of dance in recent years is his constant search for collaborators from outside the normal parameters of the art form. He has worked with visual artists like Olafur Eliasson, architects such as John Paulson, Cognitive Scientists, Heart Specialist and a range of musical collaborations from Mark Ronson to Kaija Saariaho. This has had an enormous influence on the artistry of the work itself – but also in the reach it has driven in audiences. The people who came to Sadler's Wells for the Tree of Codes were a wonderful mix of the visual arts followers of Eliasson, the music fans of Jamie XX and the regular contemporary dance audience [5]

Commenting on the impact of McGregor's working methods and research methodologies on commercial products, software development, and the development of creative digital tools in art making, and arising from research embodied in [R1-4], Damien Henry, The Technical Program

Manager at Google Arts and Culture states of the Living Archive project, in which he was a participant in the impact, and which featured in the popular press [6]:

Exposure to Wayne's working methods, and the way his company of dancers responded to creative resources being developed by Google Arts and Culture, has resulted in important new perspectives that we have incorporated into the dance generation tool we are developing with him. This has the potential to benefit other choreographers, and artists in general [7]

McGregor has worked for many years on creating choreographic software, combining artificial intelligence and choreographic thinking [R1-4]. This collaborative research has impacted thinking in the fields of cognition studies, AI and machine learning, psychology, social anthropology and education. +/- *Human* was described as “a remarkable step into a new frontier”; “the most convincing embodiment of artificial intelligence”, and McGregor himself described as “a pioneer in exploiting the links between his art, and the scientific developments that have revolutionised 21st century life” [8]. McGregor's collaborative research methodologies have also resulted in considerable secondary impacts on project collaborators. Dame Darcy Bussell has identified the impact of McGregor's research methodologies on professional practice, noting that Edward Watson, one of the UK's leading principal male dancers and long-time McGregor collaborator “has become one of the most radically different dancers the Royal Ballet has ever seen”. The dancer himself states, referring to McGregor's research methods, embodied in works like [R6-8], and that aim to extend the kinetic possibilities of practitioners, that he has learned that “there's no comfort zone [...] There's always something else to be discovered within myself” [9].

Exposure to McGregor's research and working methods has also had an impact on how artists outside of the dance field think about, and develop their own research practice. Finnish composer Esa-Pekka Salonen describes seeing McGregor's choreography *Obsidian Tear* [R7], which was set to his compositions *Foreign Bodies* and *Lachen Verlernt* as a “very powerful experience” and “when I see [...] how Wayne understands the dynamic of my piece, I learn a lot about what it communicates, and sometimes I discovered that it has been communicating something I honestly didn't know was there”. Salonen describes this as “almost the best gift a creator can receive, a whole new narrative, interpretation, world based on something that you made, thanks to somebody else's talent, skill, intellect, intuition that builds this other structure on top of it” [10]

Collaborators have won awards for their work, thereby enhancing their profile and cultural capital: Ben Cullen Williams won the Yellow Pencil Spatial Design/Set & Set Design for *Autobiography*; the designs of Olafur Eliasson, Nick Sagar and Rob Halliday for *Tree of Codes* won the Manchester Theatre Awards for Best Design; *Woolf Works* won the Olivier Awards for Outstanding Achievement in Dance (Alessandra Ferri), the Knight of Illumination Award (Lucy Carter), the Critics' Circle National Dance Award for Best classical Choreography, and the Positano Premio la Danza Leonide Massine Award. The Chemical Brothers music video for *Wide Open* (2015) featuring Beck and choreographed by Wayne McGregor won Best Dance Video at the 2016 UK Music Video Awards and has been viewed more than 46 million times on *YouTube*. McGregor's collaborative research has life beyond performances, exhibitions, and film screenings and secondary impacts can also be evidenced commercially. The soundtrack for *Atomos* (2014) composed by A Winged Victory for the Sullen sold over **10,000 copies** and has over **1.5million** online streams [11]. *Autobiography* won the prestigious Gross Family Prize, with £11,000 prize money for both Studio Wayne McGregor and music collaborator Jlin [12]. Jlin's music was released, with CD, vinyl and streaming distribution of over **370,000**, extending the life of the stage show, diversifying audiences. Critics described the album as “perhaps one of the smartest unions between those disciplines [dance and music] that we could hope for” [13]. In 2019, *Collaboration* was realized by label Mercury KX, an album curated by McGregor and featuring some of his favorite music commissions for his work over the last 25 years. Of the album, Managing Director of Mercury KX Dr. Alexander Buhr said:

Wayne McGregor has inspired some of today's most exciting new music and we are thrilled to be working with him on this very special album. He is a unique cultural curator who has

been pushing the boundaries between genres throughout his entire career in his search for artistic expression. He is a remarkable collaborator whose values feel truly aligned with ours as a label [14].

The award-winning *Mind and Movement* resource [R5], built from McGregor's long standing research collaborations with cognitive scientists, has had educational impacts, evidenced by a Times Educational Supplement article on teaching creativity in the classroom [15] and was featured in the 2013 exhibition *Thinking with the Body*, delivered in partnership with the Wellcome Collection. The exhibition introduced more than a decade of McGregor's collaborative research to a non-dance audience and attracted **19,229 visitors** during the five-week run, averaging **549 visitors per day** [16].

5. Sources to corroborate the impact

- [1] Evening Standard, 11 November 2017: <https://www.standard.co.uk/culture/royal-ballet-chroma-multiverse-carbon-life-dance-review-a-beautiful-and-rewarding-watch-a3393411.html>
- [2] A list of awards for the period 2014-2020 is listed in Trinity Laban's Institutional Environment Statement (REF5b).
- [3] TL aggregate of publicly available figures in Arts Council England, Report [2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018], NPO Annual Review (2018-2019).
- [4] Email communication to Trinity Laban Head of Research, 2020 [available on request].
- [5] Email communication to Trinity Laban Head of Research, 2020 [available on request].
- [6] Wired (2018) *Google's Latest Experiment Teaches AI to dance like a human* <https://www.wired.co.uk/article/google-ai-wayne-mcgregor-dance-choreography> Dance Magazine (2019) *Could Google BE the World's Next Great Choreographer?* <https://www.dancemagazine.com/is-google-the-worlds-next-great-choreographer-2625652667.html?rebellitem=2#rebellitem2>
- [7] Email communication to Trinity Laban Head of Research, 2020 [available on request].
- [8] The Telegraph (2017) +/- *Human*, review: *Wayne McGregor's Mew Work is Mesmerisingly Perfect*. Retrieved from <https://www.telegraph.co.uk/dance/what-to-see/human-review-wayne-mcgregors-new-work-mesmerisingly-perfect/>; The Guardian (2017) +/- *Human Review: Is this the future of artificial intelligence? Bring it on*. Retrieved from <https://www.theguardian.com/artanddesign/2017/aug/09/wayne-mcgregor-random-international-zoological-human-review-artificial-intelligence>; Retrieved from <https://www.ft.com/content/a1503d6c-d792-11e4-94b1-00144feab7de>
- [9] Dame Darcy Bussell cited: https://www.leeds.ac.uk/info/130509/honorary_graduates/356/wayne_mcgregor Evening Standard (2017) *The Royal Ballet's Edward Watson: I Still Come in Every Day and Want to Be Better* <https://www.standard.co.uk/go/london/arts/the-royal-ballets-edward-watson-i-still-come-in-every-day-and-want-to-be-better-a3431186.html>
- [10] Salonen 'very powerful experience': <https://www.youtube.com/watch?v=iTz94o5-CR4>
- [11] Arts Council Report, 2015-2016
- [12] Arts Council NPO Annual Review, 2018-2019
- [13] Boomkat on Jlin's *Autobiography* release: <https://boomkat.com/products/autobiography-music-from-wayne-mcgregor-s-autobiography>.
- [14] <https://www.udiscovermusic.com/classical-news/wayne-mcgregor-collaboration/>
- [15] TES (2014) *Classroom practice: Why instruction is the mother of invention*. Retrieved from <https://www.tes.com/news/classroom-practice-why-instruction-mother-invention>
- [16] Arts Council Report, [2013-2014].