

Institution: Brunel University
Unit of Assessment: 26 Sport and Exercise Sciences, Leisure and Tourism
<p>a. Context</p> <p>The main group beneficiaries and audiences for Sport Sciences research beyond academia include sports governing bodies (e.g. the Medical Commission of the IOC), the sports industry; government agencies at local and transnational level; children in sport; able-bodied and disabled athletes; coaches and practitioners; older adults; charitable organisations; professional associations; the Olympic movement; international sporting bodies the NHS; the international media; and the general public. By way of illustration of the aforementioned beneficiaries/audiences, Brackenridge and McConnell have attended the Houses of Lords and Commons to contribute to meetings regarding the future of women's sport and the link between sport and exercise science, and the nation's health, respectively. The BC·SHaW director (Kay) and members have fulfilled advisory roles in national and international settings (e.g. Commonwealth Secretariat, political parties, sportscotland) and child welfare organisations (e.g. NSPCC, Children's Football Alliance).</p> <p>The subject area has developed extensive ties with the sports industry that have enabled the research and development of new technologies. Examples include: 1) the POWERbreathe™ inspiratory muscle resistance trainer designed and validated by McConnell, which has had extensive impact on sports training and clinical practice; 2) González-Alonso's research funded by the Gatorade Sport Sciences Institute under the auspices of PepsiCo examined the impact of hydration on human physiological function and fatigue mechanisms. This collaboration has contributed to the research base of a \$6 billion market for Gatorade sports drinks; 3) Karageorghis' work on the effects of music in physical activity has been heavily leveraged by multinational companies to support the marketing of music albums (e.g. with Ministry of Sound), mobile phones (e.g. with Sony Ericsson) and MP3 players (e.g. with Nike). This research has also served as the springboard for an international series of mass-participation running events (Run to the Beat™).</p> <p>Sport Sciences research has had beneficial impacts for a wide range of vulnerable or minority groups. Examples include: 1) Brackenridge's work established child and athlete protection in sport as a mainstream social and political issue internationally, contributing to an OBE in 2012, awarded for services to gender equality and child protection. Her seminal contribution has been to bring together the world's leading sport organisation—the IOC—and the world's largest child protection agency— UNICEF— to use her research findings in the development of abuse prevention interventions. For example, in 2010 the IOC introduced an online training programme called <i>Safe Sport</i> about prevention of sexual harassment and abuse (www.sha.olympic.org), and UNICEF published a review of violence against children in sport (www.unicef-irc.org/publications/pdf/violence_in_sport.pdf) that has led to new international standards for safeguarding children in sport (www.sportsfeatures.com/presspoint/pressrelease/53002). The key outcome of Brackenridge's collaboration with sport's governing bodies has been to develop a charter that protects children from sexual abuse in sports settings; and 2) Sociological and latterly interdisciplinary work by Hills, Horne and Baltzopoulos for the Football Association (FA) addressed the issue of gender segregation/inclusion in youth football. On the basis of the research, the FA changed national policy regarding the age limit for mixed-gender football in 2010, 2012 and 2013.</p> <p>Subject area researchers have authored books for practitioners and a lay readership. Examples include: 1) Capel's co-edited text <i>Learning to Teach in the Secondary School: A Companion to School Experience</i> now in its 6th edition (2013, Routledge's best-selling book with >110,000 copies sold to date); 2) Karageorghis' <i>Inside Sport Psychology</i> (Human Kinetics, USA, 2011) has sold >8,000 copies to date; 3) McConnell's <i>Breathe Strong, Perform Better</i> (Human Kinetics, USA, 2011) has sold >6,000 copies to date; and 4) Testa and Armstrong's <i>Football, Fascism and Fandom: The UltraS of Italian Football</i> (Bloomsbury, 2010) sold 1000 copies in its first year.</p>
<p>b. Approach to impact</p> <p>Since its inception, Brunel has espoused the importance of economic and social impact of research as part of its core mission, and this ethos has infused the work of Sport Sciences. The subject area's strategy for impact entails engagement with diverse stakeholders from senior international policy makers to practitioners active at the grass-roots level. The strategy is realised</p>

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through the formation of research-user reference groups, advisory panels that include stakeholders, industrial partners and members of NGBs. At the university level, there is an annual public lecture programme that attracts the extended Brunel community in addition to relevant stakeholders. Moreover, senior staff assist junior colleagues in identifying suitable opportunities to create impact as well as engage with research users and other beneficiaries (e.g. via practitioner-based national events).

The subject area has hosted carefully-targeted events to promote the impact agenda among specific audiences. These created fora for the exchange of learning among researchers, research commissioners, policy-makers and practitioners. Examples include: 1) Brackenridge chairing of the Local Organising Committee with Girginov's assistance for the 2012 ICSEMIS pre-Olympic congress in Glasgow (2000 delegates); 2) hosting of the 2008 BASES Conference; 3) running the biannual Youth Sport conferences convened by Kay; co-organising the annual on-campus National Sport Roadshow; 4) BC-SHaW hosting a series of three master seminars in 2011-12 that brought together sport funders, users of research and academics from Brunel and other leading institutions; and 5) CSMHP hosting the 'Frontiers' seminar series in 2012-13 that united leading figures in the domains of physiology, biomechanics and cognition and neuroscience. Ample support is provided by the University to enable staff in such impact-related activities that includes: training in the use of the 'Impact Toolkit' produced by the University; 'pathways to impact' workshops delivered by the University's Research Support and Development Office (RSDO); expert advice on liaising with funding bodies, charitable organisations and industry through the RSDO.

The subject area has cultivated strong alliances with professional associations in sport and exercise that include ACSM, BASES, BPS and ECSS. For example, Ian Campbell (former Pro-Vice-Chancellor) was the Chair of BASES during the last 2 years of his tenure at Brunel (2011-13). Several Sport Sciences staff have led (Baltzopoulos, Karageorghis) or contributed (Bishop) to Expert Statements for BASES, which are intended to share best practice with a wide audience of professionals and practitioners. In 2012, Karageorghis was appointed Chair of the ACSM's new *MusicMoves* Global Health Initiative; an international movement that has been designed to influence policy and impact upon public health and exercise behaviour.

Sport Sciences staff have worked closely with elite performers and teams across a broad spectrum of competitive sports. For example, in a role that spans a number of Olympic sports, Williams leads a bioscience research team that aims to address the challenge of increasing Team GB's medal haul in forthcoming Olympiads. Experts from the subject area have played a prominent role in the Olympic movement. For example, in 2012 Girginov was appointed Olympic Chair at the Henri de Baillet Latour – Jacques Rogge Olympic Study Centre. Armstrong has been a co-investigator on ESRC-funded work into policing of the Olympic Games, which has explored the role of large-scale events in moulding the relationship between police and community. This includes making regular contributions from 2010-12 to weekly Senior Leadership Team meetings of the Metropolitan Police Service (MPS) in the London Borough of Newham. From 2011-present Armstrong has been a member of the Newham's Serious Youth Violence/Gangs Tactical Command Forum.

The University's Press Office and an external PR company (Communications Management) promote staff research activities in the media. Subject area research has attracted high-profile media interest internationally. Examples include TV documentaries on Karageorghis' music-related research that have been produced in Scandinavia, South America, continental Europe, and the UK. Also, a BBC documentary on body image that was based in the CSMHP physiology laboratory. Research staff are regularly interviewed by the media. For example: 1) Testa on CNN regarding football-related fascism; 2) Baltzopoulos' on BBC World and BBC News 24 regarding Usain Bolt's running technique immediately prior to the 2012 Olympics 100-metre final; and 3) Bishop and Jackson on neuroimaging in sport (world-wide). A 2012 Saudi Sports conference that was hosted by Sport Sciences attracted major media interest in Saudi Arabia. Sport Sciences research has been featured in the world's best-known broadsheets (e.g. *Wall Street Journal*, *New York Times* [America's second and third best-selling newspapers], *The Times*, *The Guardian*).

Researchers in Sport Sciences have also participated in knowledge transfer (KT) schemes. Since 2008, McConnell has worked on two KT partnership projects to develop an inspiratory muscle trainer, then to computerise this technology. This led to a market education programme to acquaint the public with its virtues and the science underlying its development. This comprised several

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channels including two practitioner guides, attendance at a parliamentary science and technology panel, and a comprehensive social media campaign that included dedicated educational websites (e.g. www.breathestrong.com; currently ~1,500 hits per month). McConnell's work provides an exemplar of the interdependence and integration of research and impact.

c. Strategy and plans

Our vision is to be a world-leading department in terms of our public engagement and contribution to society. To enable this vision, the SSRMG has agreed an impact strategy comprised of five key elements: 1) Intellectual themes are mapped to social and economic priorities, in order that the pathway to impact is evaluated in light of developing social and economic priorities (e.g. the health agenda); 2) input from stakeholders is elicited throughout the research cycle to ensure that beneficiaries' interests directly inform our research agenda; 3) staff actively initiate and participate in collaborations with external researchers in and beyond the UK who are engaged in work of significant impact in cognate subject areas; 4) special priority and support is given to developing international links to further maximise the contribution of our research to a growing institutional imperative towards global citizenship; 5) all research impacts are promoted through internal and external activities and media coverage that maximise opportunities to broadcast and disseminate research findings to diverse audiences, thus facilitating and extending other forms of impact.

Looking ahead to the next phase of development, a key imperative will be to embed impact into all aspects of the research process, from inception to exploitation. Examples of specific bodies of work that will form the mainstay of the impact agenda going forward include: 1) The role of bioscience in generating Olympic and Paralympic medals for Team GB (Williams); 2) the use of sport to support international development (Kay); 3) the contribution of sport and physical activity to health and the reduction of health inequalities (Hills, Mansfield); 4) child and athlete welfare in sport (Brackenridge, Rhind); 5) StreetGames UsGirls which seeks to engage inactive youth from socially-deprived neighbourhoods (Hills); 6) addressing equity and inclusion in sport (Hills, Horne, Baltzopoulos); 7) security at global sporting events (Armstrong); and 8) further development of the POWERbreathe™ range of products (McConnell) and the ACSM's *MusicMoves* Global Health Initiative (Karageorghis). Williams' appointment as a Special Advisor to the English Institute of Sport will place him at the heart of elite sport in the UK. Baltzopoulos' appointment to the EPSRC College will provide the subject area with greater opportunity to shape the research impact agenda.

d. Relationship to case studies

The institutional and subject-level impact strategy has maximised the success of the impact case studies in terms of reach and significance. For example, in respiratory physiology McConnell was able to take advantage of the expertise in the commercialisation office and Brunel's Knowledge Transfer Partnership (KTP) support officer to develop the impact associated with POWERbreathe™ range of products. The further characterisation and validation of a new training product developed through a KTP was launched in June 2010.

Both social science case studies demonstrate the effectiveness of our strategy to maximise impact through mapping research to policy priorities and directly engaging with stakeholders in shaping research. Brackenridge's development of relationships with the IOC and UNICEF in the area of child and athlete welfare has secured the strongest possible endorsement for global improvement in sport governance and practice (e.g. IOC recommendations to mitigate abuse/harassment of athletes; UNICEF statement on protecting children against violence in sport). In international development, Kay collaborates with the Commonwealth Secretariat and Commonwealth Advisory Board On Sport (CABOS); in 2013 her recommendations were adopted as the underpinning principles for the use of sport to advance development throughout the Commonwealth.

The *Run to the Beat* concept evolved over a 5-year period and was underpinned by a long-standing programme of research. The University's impact support structures, notably the Research Support and Development Office, have facilitated recent spinoffs such as a series of CDs and online playlists that harness the motivational qualities of music for different types of workout. The University's Press Office and external PR company supported Karageorghis in leading 12 national and international media events aimed at enhancing public understanding of the use of music during exercise, and to deliver 10 public lectures during the census period.