

Institution: University of Bedfordshire

Unit of Assessment: 26 - Sport and Exercise Sciences, Leisure and Tourism

a. Context

For the **Physical Education and Sport Pedagogy (PESP)** group, the main non-academic users of its research are teachers and coaches, and teacher and coach educators. The main forms of research relating to these types of impact are work-place/school-based interventions including the continuing professional development of teachers, collaborative practitioner research between PESP researchers and a range of practitioners, and practice and policy referenced research. In relation to impact, we note that the role of online media is increasingly recognised as central to engaging teachers and coaches with reforming and developing their practice.

Most **Sport and Exercise Science (S&ES)** research is conducted in collaboration with schools (teachers), nutrition or pharmaceutical industries, the film industry, the National Health Service (e.g. paediatricians, diabetologists, endocrinologists, surgeons, general practitioners, dieticians), and public services (e.g. the Armed Forces, police/fire services, and coaching bodies). Such investigations have direct impact upon participants e.g. those involved in projects promoting physical activity, nutrition and health in schoolchildren, elite athletes in performance-enhancing trials or the development of performance tests, clients who participate in personalised health management trials involving 3D imaging technology, or patients involved in studies aiming to compare strategies to improve a clinical condition using physical activity and/or nutrition. At a wider level, such projects involve school networks, public health bodies (e.g. Public Health Luton), coaching bodies (e.g. Strength and Conditioning Association), regional networks (e.g. Norfolk Obesity Network Group, East Region Physical Activity Alliance), or are funded by bodies interested in determining the impact of research on the lives of local people (e.g. Harpur Trust, a Bedford-based charity).

The **Institute for Tourism Research (INTOUR)** conducts its research in collaboration with actors in the private, public and third sectors. These include Luton Culture; a consortium of Bedford Borough Council, Luton Borough Council, and Central Bedfordshire Council; the Esmée Fairbairn Foundation; the University of the Highlands and Islands; the European Union; and United Nations Development Programme. The aim of the research undertaken with these partners has been to inform strategy and policy for sustainable development and economic regeneration at regional and local levels.

b. Approach to impact

For **PESP**, a centrepiece of the infrastructure to support impact-related research is the Physical Education Practitioner Research Network (PEPRN – www.perprn.com) website led by Dr Ashley Casey. The website provides opportunities for dialogue among collaborators in the same or related projects, a source of information, opinion and advice, news of current and future pedagogical developments in sport and physical education, and access to a range of resources for teachers. Since its launch in July 2010 the site has been visited more than 31,000 times from 126 different countries (over 73,000 individual page views). In January 2013 Dr Casey launched a weekly “Major Themes in Physical Education” blog. Since then PEPRN was visited more than 15,000 times by practitioners and researchers from 115 different countries. Evidence collected through Twitter indicates that the main demographic of visitors is that of practitioners. A further commitment to the dissemination of scholarly inquiry through technological media has been led by Dr Stephen Harvey through www.tgfu.info which has been accessed over 25,000 times since its inception in 2008. Social networking sites such as Twitter and Facebook have also provided PESP staff with opportunities to communicate with users. Staff actively moderate discussions between coaches, teachers and academics on Twitter with Casey and Harvey being both co-creators and moderators of #TGfU and #PEchat respectively.

Through the maintenance of a network of participating schools and sports clubs as well as governing bodies of sport, PESP researchers are enabled to gain access to research and

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development sites, both locally (e.g. Hastingsbury, Jack Hunt Peterborough, Beaumont, and Buckingham schools), nationally (England Hockey) and internationally (advising the Irish National Council for Curriculum and Assessment on the development of the Multi-Model Curriculum for Senior Cycle Physical Education). Relationships between PESP researchers and practitioner-colleagues centre on partnerships. Research projects typically require long-term immersion in the field of up to 12 months continuously or even more. In one longitudinal study PESP researchers have maintained a 12-year collaboration with a primary school.

Engaging practitioners through the Association for Physical Education is also prioritised and PESP members work on the editorial team for the AfPE journals, *Physical Education and Sport Pedagogy* and *PE Matters*, as well as publishing professional articles regularly in *PE Matters* and presenting at the AfPE conference. The PESP group support the British Educational Research Association PESP SIG with representation on the organising committee and in hosting one-day conferences. The January 2010 conference explored programmatic approaches to research while the January 2013 conference introduced teacher educators to a new approach to PETE. The group also supported International Conferences on Physical Literacy in 2011 and 2013, each of which attracted teachers and teacher educators, as well as practitioners in related fields such as early years education and motor development.

The **S&ES** group is developing a line of trans and interdisciplinary collaboration within UoB, with National Funding Agencies, and Industry. As a result of a strategic hiring plan that includes early career researchers and senior investigators in epigenetics (Brown, Tsaprouni, Jirtle), muscle (Taylor, Christmas), cardiovascular (Richards, Welsch), and endocrine (Hough) physiology, functional biomechanics (Charamboulos, Mitchell), psychology (Kozub) and nutrition (Bailey, Zakrzewski), we are pursuing exciting hypothetical models of physical inactivity/activity and physical training in a variety of populations. The hypothetical Disablement Model originally proposed by Verbrugge and Jette in 1994 focuses on the path to decreased functional capacity/ability and eventually decreased performance and disability, and encapsulates the research activities of the S&ES group. The application of this Model forms the basis of S&ES's approach to impact, with a keen interest on translational research, from bench to clinical practice.

InTOUR's approach to impact is underpinned by a prioritisation of tourism research on sustainable development, climate change; and economic impact and regeneration (www.beds.ac.uk/research/intour/themes). These key themes are reflective of global policy developed by the major international agencies, including the United Nations, World Bank, and the IMF towards a green economy and enhanced social well-being at all spatial scales. They also reflect our understanding of tourism as a significant force for economic, environmental, social and cultural impact and the aim of knowledge creation to establish how tourism can be planned, managed and shaped to have a positive impact on society.

c. Strategy and plans

Our strategy in **PESP** is to engage in practice-referenced research that results in sustainable reform in physical education, sports coaching, teacher and coach education, and sport pedagogy more broadly. We plan to continue to develop a programme of research centred on models-based practice, utilising already developed models such as Sport Education, TGfU and Cooperative Learning and developing new models such as Health-Based Physical Education, Outdoor and Adventure Activities, Physical Literacy (Early Years) and Sport for Socially Vulnerable Youth through school-based interventions and work-place focused continuing professional development of practitioners. We plan to continue to develop and use the PEPRN website as a focus for the continued dissemination and subsequent mobilization of research around physical education, coaching and pedagogy. Furthermore, through use of discussion boards, blogs, resources and research sections, the creation and development of mobile applications, and online professional development opportunities, it is our further aim to facilitate communication and collaboration between PESP researchers and practitioners, supplemented with other forms of social networking communication, professional development and support.

The **S&ES** group are focused on the manner in which ageing, pathology, genetic traits, and environmental situations (e.g. physical activity and nutritional status; temperature; socio-economic

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status) can contribute to modification (mal- or adaptations) of physiologic/biomechanical function, which contribute to changes in functional capacity/ability, and eventually performance or even disability and loss of independence. A unique feature of this group is the investigation into how ageing, pathology, genotypes, and environment potentially modifies genetic expression (epigenetics), an emerging area of significance in exercise biology and disease management. This hypothetical Disablement Model has been used in a variety of populations (including athletes and clinical populations) and has been tested in response to a number of environmental modifications, such as physical activity or inactivity, nutritional interventions, pharmacological changes, or even temperature or altitude.

InTOUR conducts high quality applied and practical research to meet the needs of global society, to enhance well-being and create a sustainable future with tourism as an integral part of a green economy. This means engagement with a range of stakeholders including international agencies, national government, private sector including SME's and micro-enterprises, non-governmental organisations and local communities ranging from the international to local levels. During the assessment period INTOUR has been accepted as a member organisation of key international networks that reflect the priorities of INTOUR. These include membership of: United Nations Environment Programme's (UNEP) *Global Partnership for Sustainable Tourism*; the first British University of have become a member of UNESCO's NECSTouR (*Network of European Regions for a Sustainable and Competitive Tourism*); and the *European Institute of Cultural Routes* (EICR). Internal resource allocation to support and develop our research is evidenced by the appointment of Professor Peter Burns from September 2013 who will be integral to the development of commissioned policy research from international agencies.

d. Relationship to case studies

The **PESP** case study is one that particularly demonstrates our strategic aims of innovation, partnership and scholarship. Dr Harvey has worked alongside a number of agencies and agents to build and develop CAIS. In addition to his collaboration with England Hockey, Dr Harvey's research and consultancy work is being used by organisations such as Sports Coach UK and the English Cricket Board as part of their ASPIRE and coach education programs. The focus of this work now includes a longitudinal case study evaluation of CAIS and its impact on changes to coaches' practices. CAIS is also used by our doctoral students, which have a focus on attracting professionals such as sports coaches and practising teachers. The longer-term development opportunities for CAIS are significant and, on-going research and evaluation work will continue.

The **S&ES** case study highlights the group's continued interest in examining how the environment can alter the epigenome. We are just beginning to appreciate the potential modulating effect of physical activity and inactivity on gene expression, and the subsequent effects on physical performance and risk for modern chronic diseases. The research has already resulted in important industrial and health management collaborations. The case study sets the stage for an even greater focus on the manner in which aging, pathology, genotypes, and environment potentially modifies genetic expression (epigenetics), contributing to (mal) adaptations to physiological and biomechanical function, functional capacity and ability, and contributing to modifications in performance (athletes) and independence (elderly and clinical populations). Dr. Brown's initial work has positioned the S&ES group to continue to develop multi-disciplinary research which will lead to recruitment of outstanding students, competitive proposals for external funding agencies, and an even greater societal impact in the near future.

The **InTOUR** case study supports the priority strategy themes stated in section (b). The relationship of the food tourism case study to impact and strategy relates to the use of food tourism to promote regional development in peripheral areas that face economic and social challenges. The impact case study exemplifies our approach to research methods that emphasises a participatory approach between ourselves and the stakeholders.