

Impact template (REF3a)

Institution: Bangor University

Unit of assessment: UoA 04 Psychology, Psychiatry and Neurosciences

a. Context

The School of Psychology at Bangor University seeks to promote research with impact on the world beyond academia across four broad areas: Perception, Action & Memory; Language, Bilingualism & Cognitive Development; Clinical, Health & Behavioural Psychology; and Social Neuroscience. Our work across these areas is linked by over-arching methodological expertise in cognitive and clinical neuroscience; clinical, health and behavioural intervention; and behaviour change. The **primary beneficiaries** of our work are those in the **health, educational and commercial** sectors. They range from **individual users** (patients, carers, teachers, pupils, employees and employers), through to **organizations and leaders** in public, private and charitable healthcare settings, schools and educational authorities, governments, SME's, and large multinational companies.

The wide range and depth of impact from our research is illustrated by some examples. Our **vision scientists** collaborate with computer scientists, in partnership with the film & television industry and with medical engineers, to study stereo (3D) displays and their effective use in human-computer interaction. This work has implications for consumer devices and for tele-surgery. Our **consumer psychology** researchers collaborate with business to benefit practice through enhanced understanding of choice architecture, decision-making and consumer behavior (e.g. with Unilever, Kraft Foods, Boots PLC and the Bank of England). In collaboration and consultation with schools, educational psychologists, and speech & language therapists, our research has had significant impact on **children's education**, with a major boost from the Bangor ESRC-funded Centre for Research on Bilingualism (funded in 2007, £5m). For example, our Welsh language receptive vocabulary tests are the first in the world to provide norms for development in bilingual children according to their home language exposure, with significant potential implications for education in other bilingual regions worldwide. **Educational assessment and support** for those with learning difficulties is delivered by the internationally recognised and long-standing Miles Dyslexia Centre. Working with Local Education Authorities, the Centre provides teacher training to improve support for adults and children with dyslexic disorders, based on the Bangor Dyslexia Teaching System. Our applied behavioural analysis researchers work with school teachers to develop and apply interventions that increase pupils' **literacy and numeracy**. Finally, in the clinical and health domain, our researchers develop and apply **evidence-based interventions**, such as: cognitive neuro-rehabilitation and cognitive stimulation to promote healthy ageing and to ameliorate the effects of Alzheimer's and other **dementias**; Dialectical Behavioural Therapy for people affected by mental health difficulties; applied behaviour analysis for children with autism and other developmental disabilities; and a highly-recognized programme of education and behavioural interventions for children with conduct disorders and their families, led by the Centre for Evidence-Based Early Interventions.

b. Approach to impact

We support the development of both basic and applied research within a lively, creative research culture. A key element of our support for impact is the close relationship between the School and a number of **Associated Units**. These are: the Centre for Mindfulness-based Research and Practice; the Centre for Evidence-based Early Intervention; the Wales Centre for Behaviour Change; the Miles Dyslexia Centre (MDC); and the Tir N'a Nog Day Care Nursery and Centre for Child Development Research. These units, operating with over £1M in annual turnover, are partially-independent operational structures within the overall School. Many of their key members are honorary or full members of the School academic faculty, and their Directors sit on the School Advisory Committee in order to ensure integration with core decision making.

At the start of 2008, the School enhanced its Third Mission endeavour with the strategic allocation of a ringfenced annual budget and the creation of several posts. A senior academic was appointed as Deputy Head of School, with a specific Third Mission and Knowledge Transfer remit. An additional four support staff contribute time to supporting public dissemination events as needed. Working via two KT committees (one strategic, one operational) comprising key academics and support staff, this team developed the School's **Knowledge Transfer Strategy**. Below we describe the key elements of this strategy and its major achievements to date.

1. Commercialisation: Over the REF period we have succeeded in launching **two spin out social enterprises** on the basis of original research conducted in the School. First, Food Dudes Health Ltd (led by Lowe and Horne and launched in 2012) has arisen from working closely with Local Education Authorities, Commissioners, and retailers to achieve significant health behaviour change in terms of **increased fruit and vegetable consumption** (see Case Study). Second, based on work within the NHS as well as with the voluntary sector, Attention Retraining Technology Ltd (Cox, Intriligator) was set up in 2013 with financial backing from the NHS. Its mission is to develop, on the basis of research by Cox and others, motivational interventions conveyed by mobile “apps” for **reducing alcohol misuse and dependence**. In addition, research-informed delivery of training and cognitive behavioural intervention includes Mindfulness (see Case study), which has reached over 3000 individuals since 2008; and the Dialectical Behaviour Therapy and Applied Behaviour Analysis teams, who train approximately 150 practitioners per year. The recent capture of £1.8m funding for the Wales Centre for Behaviour Change within the School reflects our commitment to these avenues of work, and an additional ~£1m has been received in non-research grant capture (e.g. consultancy work) over the REF period.

2. Partnerships: We have formed innovative partnerships with a variety of stakeholders in relation to: **behavioural interventions** such as the Food Dudes healthy-eating programme in schools, which was initially funded by Unilever (see Case Study); **behaviour change** in the nuclear fuel industry (with Magnox Ltd); visual engagement with geo-located context along with Countryside Council for Wales; and implementing Welsh vocabulary tests in schools, in collaboration with Local Education Authorities. Furthermore we have numerous examples of academic **clinical practice collaborations**, including 6 joint appointments with the NHS at a senior level in REF period. One exemplar is the internationally recognized work of two Bangor senior academic researchers (Clare, and Woods, who held a shared post with the Wales Dementia Services Development Centre) conducting research on cognitive stimulation, dementia rehabilitation and care. Their findings provide evidence-based targets for intervention and improved services for this growing population. At the other end of the age spectrum, the School hosts the work of Hutchings, who was awarded an OBE in 2011 for services to children and families. Hutchings directs the Centre for Evidence-Based Early Interventions (formerly Incredible Years Wales). Adapting Webster-Stratton’s Incredible Years parenting programme, the Centre has delivered evidence-based interventions in the Wales Sure Start areas, as well as training to over 1500 children with conduct disorders their families or teachers, nationally and internationally. The Incredible Years Charity was formed out of this activity, as was a limited company, Incredible Years Training Ltd, which returns ~£40k p.a. to the charity. Finally, a further engine for collaboration is the all-Wales Knowledge Economy Skills Scholarships programme. The School has competitively secured 16 MRes and PhD studentships via this scheme, which have fostered partnerships spanning business (e.g. Boots Innovation, ESP Advance Ltd, Magnox Ltd, Pixel Inspiration Ltd, REMPLOY), healthcare (e.g. Hathaway Technologies), charities (e.g. Mental Health Care UK, NACRO, Countryside Council for Wales), and Local Government (Gwynedd Council, Anglesey Council) in cutting edge and socially relevant collaborations.

3. Informing policy: The work of our Mindfulness team (see Case Study) has led to **NICE recommendations** for the use of Mindfulness Based Cognitive Therapy in the treatment of depression, work that has been recognised by Parliament. Similarly, cognitive stimulation therapy is recommended by NICE-SCIE for those with Alzheimer’ and other dementias (see Case Study). And the assessment and educational interventions of the Miles Dyslexia Centre, and the work of the Centre for Evidence Based Early Interventions, have both influenced Welsh Government policies. Finally, our work using behaviour change to address healthy eating and childhood obesity (see Case Study) has been influential in **shaping government policy within the UK and Europe**, with project leader Lowe involved in policy making at a national and international level (e.g. in EU deliberations on healthy eating and behaviour change).

4. Public engagement is seen both in terms of the public’s participation in research, and in our dissemination of research findings. Firstly, members of our Community Participant Panel, our Neuropsychology Patient Panel, and attendees at the School’s Nursery participate in and learn about the significant research being undertaken in the School. Secondly, a powerful means of public engagement has been through the **public lecture series** of the Wales Institute for Cognitive Neuroscience, and the open outreach events of the Centre for Research on Bilingualism. We also disseminate research information via an accessible School website with a prominent “Research

with Impact” section, and via a **Knowledge Transfer newsletter** distributed to over 1000 stakeholders. Annual **KT Days** (audiences between 70 and 120 p.a.) provided access to excellence in the form of lectures, research materials, showcases and displays. The relationships developed at **KT events**, attended by audiences drawn from many sectors, led to several collaborations, including funding for postgraduate scholarships with Hathaway Technology and Leonard Cheshire Disability; with Gwynedd and Anglesey Councils; and with Magnox Ltd. Cross was selected to contribute to a UNESCO-L’Oreal supported Soapbox Science event (London, July 2013), in an exploration with a public audience of how our brains are shaped by experience when learning complex new actions or skills such as dancing. Thierry produced a unique, immersive theatre experience ‘Cerebellium’ – based on the ‘mind-body’ question – which attracted 250 members of the public in 2012-13. Cerebellium was produced in association with **Pontio** – a new £46m arts and innovation centre funded jointly by Bangor University, the Welsh Government and the European Regional Development Fund. Finally, internal competitive funding for stakeholder engagement activities has since 2008 part-funded a public lecture series, a Learning Disability practice-focussed conference in partnership with NHS Trust; a forum on Applied Behaviour Analysis for schools; several Bilingualism Centre open outreach events; information dissemination at an international 3D stereo film and technology festival; and a Mindfulness for Teachers event. This is in addition to strategic distribution of School funds through faculty “overhead” accounts, which is used by staff, in part, to support dissemination to both academic and stakeholder audiences.

c. Strategy and plans

Our strategy for impact going into the next REF period is closely allied with our research strategy. For this, we have identified several **key thematic areas** that complement existing research strengths, that overlap with current funding priority areas, and that promote research with impact (see REF 5 Environment). Specifically these are: Cognitive Health and Ageing; Cognitive Neuro-Rehabilitation; Bilingualism and Cognitive Development; Computational Modeling; and Behaviour Change.

We have made a number of investments of internal funds to support our commitment to impact. The appointment of Dorjee as an early career researcher in the Centre for Mindfulness-based Research and Practice will help drive new research-led applications of mindfulness-based therapies. We have allocated £100k over two years to the establishment (led by Rogers) of a **psycho-pharmacology research laboratory**, enabling new work in both basic cognitive neuroscience and clinical intervention. We have also secured capital funding of £850k to **relocate and rebuild the Tir N’ a Nog Day Care Nursery and Centre for Child Development Research**, with space for 50 children between the ages of 0-5. Due to open in early 2014, the new Centre will play a key role in on-going impact-related work on child health in eating and physical activity.

Two recent large grants will further catalyse impact activity. In 2013 we established the Wales Centre for Behaviour Change with a £1.8m grant from the Wales European Funding Office to address key Governmental priorities related to sustainable lifestyles, health, wellbeing and the promotion of economic prosperity. Also in 2013, an ESRC/NIHR award to Clare and colleagues, focused on “living well with dementia”, will build capacity in our Cognitive Health and Ageing group. The School and wider University continue to acknowledge the value of academic involvement in impact. Such activity (KT, commercial, consultancies, etc.) is monitored and mentored via the annual professional development review process, which also helps to feed a database of Impact evidence developed and maintained by the School’s Impact team. That such activity is highly valued is partly reflected in a recent promotion to Chair (Intriligator) on the basis of excellence in KT and commercialisation.

d. Relationship to case studies

For each Case, there has been a history of school support: 1) protected academic **time** to facilitate impactful training, development and implementation activity. For example, staff in Associated Units do not generally have undergraduate teaching/personal tutoring as a core contractual requirement. 2) **financial** and in-kind support for the Associated Units from which two of the Cases arise (Mindfulness, and healthy eating), at approximately £250k per annum since 2008. 3) **Human resource** and **infrastructure** support from core School staff such as Finance, IT and buildings. The KT committees formed by the School in 2008 brought these applied staff into the core operational and strategic context of the School, providing opportunity for synergistic working and enhanced research, evaluation and impact attainment.