

THE NEWSLETTER FOR OUR RESEARCH COMMUNITY

# RESEARCH FORUM

Volume 8 Issue 2, September 2012

The background of the lower half of the cover features several brown paper cutouts of human figures holding hands in a circle, symbolizing community and support. The cutouts are layered, with some in the foreground and others receding into the background, creating a sense of depth.

## Strengthening families

Improving the lives and  
prospects of young people

**PLUS** GENERATING IMPACT: TEN TOP TIPS | POSTGRADUATE  
PINPOINT | ENHANCING CHILDREN'S WRITING SKILLS

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about/publications/  
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**Contributions are welcome from all sections of the University and should be sent to: [researchforum@brookes.ac.uk](mailto:researchforum@brookes.ac.uk)**

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We reserve the right to edit contributions before publication and to refuse editorial items.

Co-ordinated by Louise Wood, Research and Business Development Office.

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# Hello and welcome...

to September 2012's edition of *Research Forum*, the University's magazine that showcases our research.



With Brookes' ongoing preparations for the REF2014 submission, we catch up with work that's been happening behind the scenes, and we offer some advice on how to generate impact through your research (p9).

We also celebrate Oxford's accolade of electric vehicle capital of Europe. The network has been developed by the Brookes-led Oxford Electric Vehicle Partnership (p4).

In a new feature focussing in on our postgraduate activities, we hear from MPhil student Thomas Lafon and his research into finding viable alternatives for collecting atmospheric data in the Amazon basin (p8).

Finally we turn our attention to the cover story which is how our research is helping families to become stronger (p12). This leads into more about Brookes' involvement with

educational research from across the faculties, with four projects addressing varying themes, from examining handwriting in both children and young adults (p14 and 16) through to how our research suggests that when students learn with an artist, they can learn more effectively (p19).

I hope you find this issue an informative and interesting read, and do please email us with your feedback or ideas for content.

**Alistair Fitt, Pro Vice-Chancellor,  
Research and Knowledge Transfer**



The MINI E

# Electric vehicle capital of Europe

A new Oxfordshire network of electric car charging points, developed by Brookes and partners, was launched by Transport Minister, Norman Baker, in May.

Once installed, the charge points - 100 within a 40 minute drive of the city - will provide access at a ratio of one point for every 2,500 Oxford residents. This is one of the highest densities anywhere in Europe. The ratio beats Amsterdam, at one point per 4,000 people, and Paris, giving Oxford the accolade of electric vehicle capital of Europe.

The network is the brainchild of the Brookes-led Oxford Electric Vehicle Partnership (OEVP) that brings together local public and private sectors to make the sustainable electric car industry a reality. Members include both Oxford city and the county council.

OEVP was established as a result of earlier work by Brookes' Sustainable Vehicle Engineering Centre which is leading on electric vehicle research and the establishment of a European market for ultra-low carbon vehicles. The partnership's vision is to build a self-sustaining market for electric and low carbon vehicles and to develop a low carbon economy in Oxfordshire.

The running costs of electric vehicles are estimated at 85 per cent less than the cost of running a petrol car, with a 'full tank' often priced at less than £2.

For more information on SVEC visit <http://mems.brookes.ac.uk/industry/svec>

# Museum visitors do the walk for medical research

Residency at the Science Museum by our Movement Science Group from April to July gave the public the chance to take part in ground-breaking research into how humans walk. Forming part of the museum's Live Science programme, researchers gathered data from people of all ages using an innovative new gait monitoring device.

Impaired gait can be one of the earliest manifestations of neurological and physical conditions, such as muscular dystrophy and motor-neurone disease. It is intended that the device will help to spot early signs of such diseases.

The small device, worn on an individual's back, measures different elements of a walk, such as step length, walking speed and energy use. It monitors walking style to a level of precision previously only available in specialist laboratories – and at a fraction of the cost.

Dr Patrick Esser, Research Fellow for the group said, "Gait analysis is an extremely useful but underused tool due to the expense, up until now, of specialist gait laboratories, of which there are only a handful in the country." For more information on movement science visit [www.shs.brookes.ac.uk/research/movement-science](http://www.shs.brookes.ac.uk/research/movement-science)



# Protecting wildlife in impoverished areas

The difficulties caused by wild animals living alongside human populations are being examined by two Brookes' researchers, Dr Matthew McLennan and Dr Catherine Hill.

Research with Ugandan villagers is increasing our understanding of the issues involved in sharing a habitat with chimpanzees – an endangered great ape. The study examines the implications for protected mammal management and conflict mitigation in human-dominated landscapes. It also examines whether it is appropriate to expect impoverished rural farmers to accommodate large-bodied mammals that pose a potential threat to their safety and livelihoods, particularly as contact between chimps, farmers and local residents has been increasing due to conflicts

over deforestation for farming and timber.

"Most chimps outside protected areas will disappear in the next decade or so. They won't survive unless urgent steps are taken to address the degradation and conversion of their habitats. But the legislation to protect these forests just isn't there," said Mathew, continuing, "if this was happening in England, there's no way we'd tolerate these animals walking into our houses. Why should we expect impoverished, rural farmers to put up with such troublesome neighbours?"

More information is available in *'Troublesome neighbours: Changing attitudes towards chimpanzees in a human-dominated landscape in Uganda'* published in *The Journal for Nature Conservation*.

## AWARDS AND ACHIEVEMENTS

### HR Excellence in Research

Brookes has been awarded the European Commission's 'HR Excellence in Research' award which acknowledges our alignment with the principles of the European Charter for Researchers and code of conduct for their recruitment.

In receiving this distinction, Brookes is demonstrating clear progress in attracting, managing and developing research staff.

### Government visit

The Department of Business, Innovation and Skills along with the Technology Strategy Board recently visited a Knowledge Transfer Partnership (KTP) between Brookes' Joint Technology Research Centre and YASA, a local electric motor company.

A regional exemplar of how KTPs can apply research to the business world, the project is looking at new ways of building electric motors using glues. It was a finalist in the Engineer 2011 Technology and Innovation Awards. The visitors were impressed with Brookes' input into the company's decision-making, particularly in the early stages of benchmarking the bonding process and performance.

### World Association for Political Economy executive appointment

Dr Pritam Singh, Reader in the Department of Accounting, Finance and Economics, has been elected to the executive council of the World Association for Political Economy and to the editorial board of the Association's journal.

### BFI film festival curation

Alexander Jacoby, lecturer in Japanese Studies, curated a retrospective of Japanese films this summer. Held at the British Film Institute, it was devoted to directors Kozaburo Yoshimura and Kaneto Shindo. Twelve key works selected from the work of each director were shown, spanning the 1930s to the 21st century.

# ▶ RESEARCH FAST FORWARD

Brookes research to look out for in the future



Dr Rhona Sharpe

## Teaching Fellowship for pioneer of online learning

Dr Rhona Sharpe has been awarded a National Teaching Fellowship – the most prestigious award for excellence in higher education teaching – for her pioneering work in online education. Rhona is Head of the Oxford Centre for Staff and Learning Development (OCSLD) at Oxford Brookes. Rhona began her academic career as a psychology lecturer. Her interest in online learning was triggered by her own experiences on The Open University's Teaching and Learning Online course in 1995.

Her team at Oxford Brookes has shown that activity-based and highly structured courses can quickly engage students in collaborative tasks. Rhona's aim is to create a transformative learning environment by giving

staff a brief taste of online collaboration in order to pass it on to their own students. Her approach uses innovative and 'e' and blended learning techniques while being sensitive to the learning needs of students. This engages learners to help them develop and feel challenged.

Rhona said she was delighted to receive this award, adding: "Understanding the learner perspective has turned out to be critical in this fast-moving and complex field.

"This award also recognises the work of the fabulous team in OCSLD who have developed our distinctive approach to online learning."

In total, 11 Oxford Brookes staff members have received the Fellowships since 2000.

**"This award also recognises the work of the fabulous team in OCSLD..."**

## Examining teaching in architecture

Harriet Harriss, Senior Lecturer in the School of Architecture, has been awarded a scholarship by the Higher Education Academy to develop a new curriculum for architecture and design students. A 'community as classroom' approach will be designed to enable students to learn through live projects that engage with real community needs.

The award includes five months in New York observing live projects including those at Parsons School of Architecture, the New York Institute of Technology and the Rhodes School of Interior Design.

## Award for pioneering plant cell research

Biologist Katja Graumann has been awarded a Leverhulme Trust early career fellowship to continue her pioneering work investigating the make-up of plant cells. Katja has already identified two NE proteins and studied their interactions and functions. The role of NE components in both plant growth and responses to diseases could contribute to the development of sustainable food crops and biofuels.

Katja collaborates with Birmingham University, groups in Clermont-Ferrand in France and Ohio State University, amongst others.





# Brookes leads research on the EU and European Convention on Human Rights

Dr Sonia Morano-Foadi and Dr Stelios Andreadakis are conducting socio-legal research into the impact of the Treaty of Lisbon on fundamental rights within the EU.

Entitled 'Reflections on the Architecture of the European Union after the Treaty of Lisbon: The European Approach to Fundamental Rights', the study has been funded by the British Academy under the Small Research Grants Scheme.

Central to the project is the relationship between the Court of Justice of the EU (ECJ) and the European Court of Human Rights (ECtHR), following the ratification of the Lisbon Treaty and the future incorporation of the European Convention on Human Rights (ECHR) in the EU legal order.

The study is a follow up to previous research in 2009/2010 which involved interviews with the ECJ's judges and Advocate Generals. New interviews, with judges of the European Court of Human Rights and EU policy makers who are directly involved in the negotiation of the EU accession Treaty, will provide an extremely valuable external perspective on the EU dimension after Lisbon. A cross-analysis of the views of the ECJ and ECtHR judges and EU officials will provide a clear picture of the accession process and its legal implications.



## RECENT TITLES BY BROOKES STAFF

### **Excellence in Compassionate Nursing Care: Leading the Change** by Claire Chambers and Elaine Ryder of the Department of Social Work and Public Health

Focuses on how all health professionals must take a lead in ensuring compassionate nursing care is central to patient/client experiences.

### **The Complete Guide to Indoor Rowing** by Dr Charlie Simpson, Senior Lecturer in Exercise and Sports Science, and co-author Jim Flood

The first comprehensive book to focus on this unique form of strength-endurance training, aimed at serious athletes, outdoor rowers and normal gym users.

### **Clinical Pocket Reference: Neurosciences** by Juliet Bostwick and Deborah Slade from the Department of Clinical Health Care

A portable handbook aimed at practitioners who are caring for patients with neurological disorders.

### **A Guide to Practical Health Promotion** by Mary Gottwald and Jane Goodman-Brown from the Department of Social Work and Public Health

Focuses on the practical activity of health promotion and presents a number of practical approaches and aimed at allied health professionals, nurses and students.

### **Planning Major Infrastructure: A Critical Analysis** by Tim Marshall from the Department of Planning

An analysis of the planning and policy world of major infrastructure in Europe and the UK and what can be learnt from the different ways countries manage these challenges.

### **Furthering Environmental Impact Assessment: Towards a Seamless Connection Between EIA and EMS** co-edited by Bridget Durning from the Department of Planning

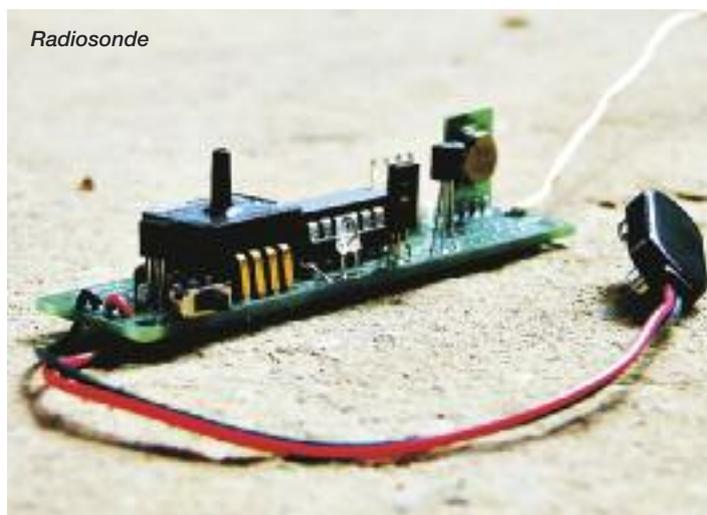
Presents examples of how the environmental impact of development projects is measured, along with an exploration of ways to improve the disconnect between individual measurement instruments.

### **English Regional Planning 2000-2010: Lessons for the Future** co-edited by Tim Marshall

A chronicle of recent UK planning activity, during the period of the Blair and Brown Labour governments, with a view to learning from the many areas of policy development, method and skills which evolved during the decade up to 2010.

# POSTGRADUATE PINPOINT

The first in a series of features on inspiring work by our postgraduates



## The changing atmosphere of rainforest research

**Thomas Lafon**, MPhil student in the Faculty of Technology, Design and Environment outlines his work with Jennifer Fowler, from the University of Montana, to find a viable alternative to collecting atmospheric readings

Recording atmospheric data is of great importance to many scientific fields. Research suggests that deforestation of the Amazon Rainforest will affect both local precipitation patterns and water distribution over parts of North America, Europe and South Africa.

### Lack of basic data

Although the importance of the Amazon has been emphasised in numerous studies, the impact of its vegetation on precipitation is still poorly understood. Scientists agree that this largely results from the lack of basic observational data systematically collected over time and space. In order to study the Amazon basin with a certain degree of confidence, it is imperative to have both ground data and the more costly atmospheric observations.

Atmospheric soundings are vertical measurements of the state of the atmosphere; typically including data on temperature, humidity, pressure and winds. These variables are collected during a 'sounding' flight that uses a set of sensors called a 'radiosonde' or 'sonde' – 'radio' because it transmits the data using electromagnetic waves and 'sonde' from the French word for probe.

The radiosonde is sent up into the atmosphere tied to a balloon filled with a lifting gas, usually helium or hydrogen. During its

ascent, the radiosonde transmits its readings to a receiving station on the ground. Upon reaching the upper parts of the atmosphere, the balloon pops and the radiosonde then descends back to earth using a parachute.

### Prohibitive costs

The primary reason for the lack of sounding data is, quite simply, cost. The price, based on completing two flights a day, is on average £100 per sonde for a large agency, such as a national weather institute. A station will spend approximately £73,000 per year on sondes alone, excluding other expenses such as balloons, gas, lines and parachutes.

It is important to recognise that cost is a recurrent issue in the developing countries of Africa and South America, where the budgets allocated to soundings are often limited. This inhibits the vast majority of developing countries from complying with the standards set by the World Meteorological Organisation.

### Developing a cheaper alternative

A cheaper alternative for daily soundings would be to have the radiosonde return so that it could be reused. Once a balloon has been launched it is often impossible to get the equipment back: the sonde can drift tens of

kilometres away. In parts of the globe where topography or land-cover render the landing site difficult to access - for example, in the dense vegetation of the Amazon Rainforest - the issue is even more apparent.

The development of a new technology to recycle radiosondes was initiated in 1997. This system sees the lifting of a miniature plane using the same balloon and lifting gas method as that of a regular sounding flight. However, once the balloon reaches its upmost altitude and pops, the plane free-falls and then glides back to a designated point using an onboard GPS and flight navigation computer.

Two issues currently hamper the development of glidersonde technology:

- how to introduce reusable radiosondes while maintaining the market for sondes
- the difficulty in obtaining flying permits, as glidersondes fall in the same category as drones.

Climate models are key and powerful tools, with which most future predictions are archived today. However, for as long as our observed data remains uncertain, so will our models' predictions. Therefore, it's imperative to broaden interagency and private industry cooperation in order to solve these issues. It should be clearly understood that the required data are equally beneficial for all involved parties.

# REF 2014

What it means to you

Brookes' preparation for REF2014 continues apace, with staff proactively exploring how the new requirement - research impact - can be generated. Here and overleaf we examine how the challenge is being tackled with a JISC-funded pilot study that is seeking out methodologies to help researchers identify and gather evidence of impact and our own Centre for Diversity Policy Research and Practice offering a tried-and-tested model for garnering impact.

# How can impact in research be identified?

The need to develop appropriate methodologies to identify and analyse the impact of research is pressing, particularly with respect to the forthcoming Research Excellence Framework (REF2014).

Oxford Brookes has been awarded funding from JISC (Joint Information Systems Committee) that seeks to explore what type of evidence or data needs to be gathered for impact purposes, as well as by whom, from where and by when. It will also aim to develop some models of good practice.

## The project

The study will involve collaboration between academic researchers from the School of Law along with colleagues from Learning Resources, the Research and Business Development Office and Faculty Research Management. Working alongside them will be a leading HE impact adviser who is expert in analysing the economic impact of higher and further education.

This collaboration should help ensure that the study takes account of current expertise and develops sustainable models of good practice that can be embedded at Brookes through institutional learning and capacity building.

The project will utilise a tightly focussed pilot study from the School of Law to systematise the identification and tracking of research impact that can be embedded within their research practice.

## Why the School of Law?

The School of Law is particularly suitable due to the diversity of its research. It includes a wide variety of academic work on UK, EU and international law, involving different methodologies, from doctrinal, philosophical and socio-legal, and its academics range from theorists to social scientists. This diversity provides the potential to develop a suite of case studies with varying applications from a single source. In addition, the connections between the School of Law and the legal professions increase the likelihood of finding demonstrable external impact that can be easily substantiated.

## The objective

The evidence generated through this project will support the development of high quality case studies applicable to JISC and REF2014 and will also inform strategy for future research assessment exercises. By developing institutional expertise in impact analysis, the further benefits of the pilot will be to inform the procedures, systems, work and practices of researchers across Brookes and beyond.

Any resulting transferable models should provide a methodology for data analysis and tracking that will enable the sector to operationalise impact requirements, whilst also ensuring compatibility with other higher education impact tracking models, such as the research councils' research outcomes system.

“By developing institutional expertise in impact analysis, the further benefits of the pilot will be to inform the procedures, systems, work and practices of researchers across Brookes and beyond.”

Dr Emily Brown is Project Impact Analyst in the Research and Business Development Office

# The virtuous circle

## Creating a 'virtuous circle' between research, knowledge exchange and impact

A model of working which meets the research councils' objectives for academics to 'think creatively about knowledge exchange' and 'maximise impact' of research, has been developed by the Centre for Diversity Policy Research and Practice for their area of research into equality, diversity and management in the workplace.

The research links both the legal and the human resource (HR) management perspectives of equality and diversity, in order to advance equality in the workplace. It brings together academic and practitioner expertise across Brookes, as well as with that of employers, trade unions and policy makers.

### Creating a 'virtuous circle'

The centre's *modus operandi* creates a virtuous circle between research, knowledge exchange and impact activities, where research findings are used to design and deliver knowledge exchange activities such as workshops and consultancy. Targeted at the right audience, this can then also become a vehicle for influencing policy and practice and thereby generating research impact. HR practitioners are able to take an evidence-based approach to developing their policies and practices, while in turn researchers can shape their agenda according to the needs of the workplace.

### The research

Two consecutive projects undertaken by the centre between 2008 and 2012, under HEFCE's Leadership, Governance and Management scheme, illustrate this model.

The projects investigated the implications of the 2006 Employment Equality (Age) Regulations for the management of human resources in the higher education (HE) sector. Each was undertaken in collaboration with key stakeholders such as the Equality Challenge Unit (ECU), the Universities and Colleges Employers Association (UCEA) and the trade unions, UNISON and UCU.

Part of the work examined staff preferences

and expectations about retirement and perceptions of age discrimination in the HE sector, following the introduction of the legal right for employees to request to continue to work past their normal retirement age, as well as the subsequent abolition of mandatory retirement in 2011.

Research was conducted at 12 institutions through a questionnaire and a series of focus

“HR practitioners are able to take an evidence-based approach to developing their policies and practices, while researchers can shape their agenda according to the needs of the workplace.”

groups with senior academics and managers of both professional, support and manual staff. Results suggested that many staff, especially academics, wish to retire after the age of 65 - but that institutions had concerns both about the implications of staff working beyond that age, and as the effect that this could have on younger people's access to jobs and career opportunities.

### Using the results

A series of workshops and practical guidance for senior HR managers across the sector helped shape their institutional policies and practices and influence management responses.

The project findings have influenced legal thinking on age discrimination with articles being published in *Industrial Law Journal*, and *Legal Studies*. They have also been included in the 2010 HEFCE review of the workforce profile in HE.

### Studying impact

Another example of the virtuous circle model is an ECU-funded piece of work that reviewed the equality impact of the 2008 RAE. The aim was to assess the effectiveness of procedures for promoting equality in RAE 2008 and to produce recommendations for improving future practice.

Document reviews and interviews with senior staff from higher education institutes, as well as with main and sub-panel chairs of the RAE, were carried out. They investigated issues such as how the codes of practice relating to equality were developed and used, what equality training was provided and how impact assessments were carried out.

The resulting evidence-based account produced a series of recommendations that had a direct impact on the content of equality guidance for REF 2014, as well as guidance and training issued by ECU.

*The Centre for Diversity Policy Research and Practice is based in the Directorate of Human Resources.*

# Generating impact: ten top tips

Emily has devised a list to help you create impact from your research



# Families matter

A unique programme successfully reducing adolescent alcohol and behaviour problems has been given the means to expand, announce project leads Dr **Debby Allen** and **Lindsey Coombes** of the Department of Social Work and Public Health

The Strengthening Families Programme 10-14 UK (SFP 10-14) seeks to prevent young people in the UK becoming involved in criminal activity and anti-social behaviour. The project, designed to improve the lives and prospects of young people aged 10 to 14, has received £1.5 million worth of funding from the Big Lottery Fund to expand its work.

## Benefiting young people, parents and society

The family remains the single greatest influence in most young people's lives. Since the early 90s, alcohol misuse and other behavioural problems have been increasing among young people in the UK. The project tackles these trends through a unique programme that engages both parents/carers and young people simultaneously, with a view to strengthening family bonds and providing support that is often lacking at a time when families need it most. It seeks to improve nurturing and child management skills in parents and greater personal and inter-personal competencies in their offspring.

The initiative has already trained hundreds of practitioners in local authorities across the UK to conduct the programme. The additional funding will be used to expand the work in

three distinct groups:

- Muslim families
- families living in rural Dorset
- families containing a substance-misusing parent(s) or carer(s).

The new settings and communities will help the project to identify those barriers to attainment that coincide with pathways to offending and which may be related to differences in communities. Developed with the Lifeline Project and the Dorset Youth Association, it will now roll out to areas including Manchester, Tower Hamlets, Luton and Slough. Brookes' work will have a particular focus on Muslim families.

## How it works

The seven-week, evidence-based programme consists of weekly, two-hour sessions that use discussion and activities to help families solve problems together. They learn about rules and consequences and explore ways to strengthen family bonds and communication. Separate sessions for parents/carers and young people are run for the first hour followed by a second, 'family' hour which uses games and activities to promote positive family attributes.

**The parents' sessions examine:**

- using love, limits and consequences
- encouraging good behaviour
- building parent-youth relationships
- protecting against substance misuse.

**The young people's sessions cover:**

- having dreams and goals
- appreciating parents
- dealing with peer pressure
- the characteristics of good friends.

Optional 'booster' sessions are run six months to a year after the main programme to reinforce the skills attained.

## International recognition

The benefits of SFP 10-14 have been recognised by NICE (National Institute for Health and Clinical Excellence) and the Home Office as well as in an International Cochrane Collaboration run evidence review funded by the WHO.

For more information go to [www.mystrongfamily.co.uk](http://www.mystrongfamily.co.uk) or email [dallen@brookes.ac.uk](mailto:dallen@brookes.ac.uk)



“There’s a very high price to the individual and to society when a young person is sucked into a life of anti-social behaviour and criminal activity... Our support will help thousands of young people across the UK.”

Peter Wanless, Chief Executive,  
the Big Lottery Fund

## PROOF POSITIVE

The SFP 10–14 programme is based on 25 years of research into how to intervene successfully in the lives of young people at risk of becoming involved in criminal and anti-social behaviour. It is adapted from a programme developed at the University of Iowa in the United States.

Evaluation results show that the young people who participated in SFP 10–14 are **significantly less likely to have problems** with alcohol and substance use, truancy and conduct problems up to four years after completing the programme. It also resulted in **improved parenting competencies, academic performance** and attainment and engagement with school.

Over

**1,800**

practitioners have been trained in England, Scotland, Wales and Northern Ireland to date

Approximately **1,361** families and **2,057** young people participated in SFP 10-14 in 2011

# Enhancing children's writing skills

Recent concern in education circles about standards of writing and composition is being addressed in varied research at Brookes, explains **Professor Vince Connelly**

Learning to write is a complex skill. Children often struggle and for children with learning difficulties writing can be particularly challenging. To develop as fluent, accurate and creative writers, children need the opportunity to practice different components of the writing process.

## Brookes' studies

A longitudinal project from 2009 to 2011 investigated the difficulties some children face and aimed to identify which aspects of the writing process are critical for which children, at which developmental phases. Conducted in partnership with Professor Julie Dockrell at the Institute of Education at the University of London, the work was funded by the Leverhulme Trust.

The study was particularly interested in the role that oral language plays in developing writing skills and it examined the writing profiles of children with specific language impairments. The project used digital writing tablets to collect data on writing development and helped enable a new understanding of how language and spelling problems inhibit the fluent production of written text.

A second, parallel PhD studentship project, sponsored by the Waterloo Trust, is looking at the writing development of children with dyslexia and has also been successful in identifying the problems such children face when composing text.

## Applying the findings

Education professionals and researchers from the projects have held workshops and a plenary conference for teachers, senior management and education advisors in local education in Oxfordshire, Hertfordshire and the South East. Funded by an Economic and Social Research Council follow-on fund grant, their aim is to develop ways in which teachers can monitor children's writing to enhance learning and attainment.

Topics presented by Brookes researchers, local advisory teachers and other educationalists, included 'Inspiration for writing', 'Supporting the development of planning and organisation in writing' and 'Vocabulary for writing'.

Teachers attending the workshops commented on how the content has made an impact on their practice, with one teacher saying that the research evidence discussed had "made me consider more closely which teaching approaches would have the biggest impact on [a student's] progress. As a result I have used peer assessment and peer editing within lessons."

For more information visit the project website: <http://psych.brookes.ac.uk/ewsc/home.asp>

*Professor Vince Connelly is in the Department of Psychology in the Faculty of Health and Life Sciences*

"As a classroom teacher it is hard to get hold of [all this research] - unless you have the time and access to read educational journals regularly. It was excellent to have your research presented in all these ways."



# DASH to assist handwriting

**Literacy skills are a key interest within Brookes' Developmental Psychology Research group; one major project has been development of the DASH to assess handwriting speed.**

Handwriting is a critical component of literacy and is a complex skill that takes time for children to master. With structured teaching, most learn to write legibly and fast enough to keep up with classroom demands and cope with written examinations. However, some children struggle to develop efficient handwriting and this can lead to low self-esteem and academic under-achievement.

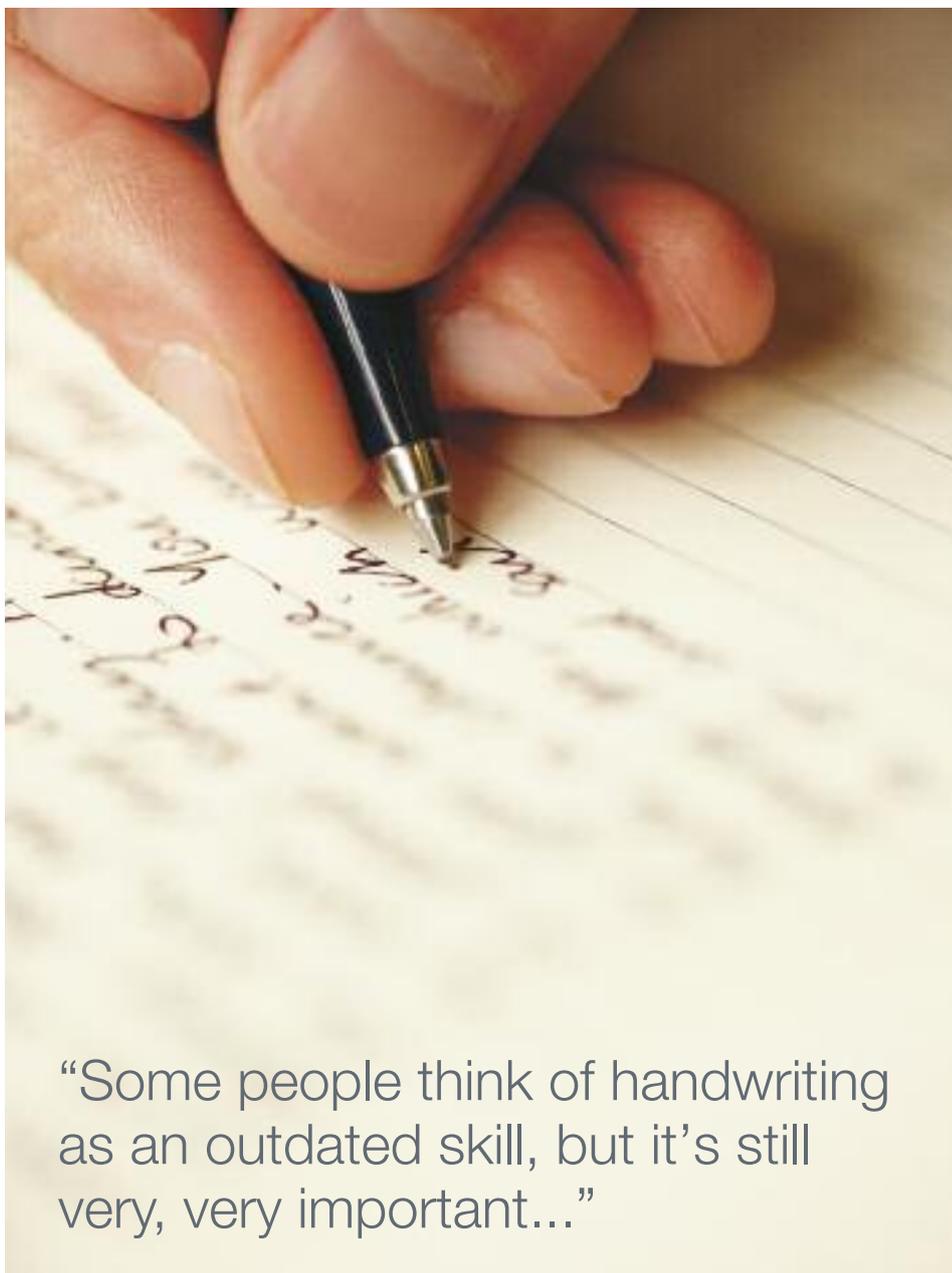
Dr Anna Barnett has conducted research culminating in publication of the DASH (Detailed Assessment of Speed of Handwriting), which is used widely in schools, and DASH 17+, used in further and higher education, to measure handwriting speed.

The DASH includes a range of tasks that are used to identify students with handwriting difficulties, to monitor performance over time, and to provide evidence of the need for extra support.

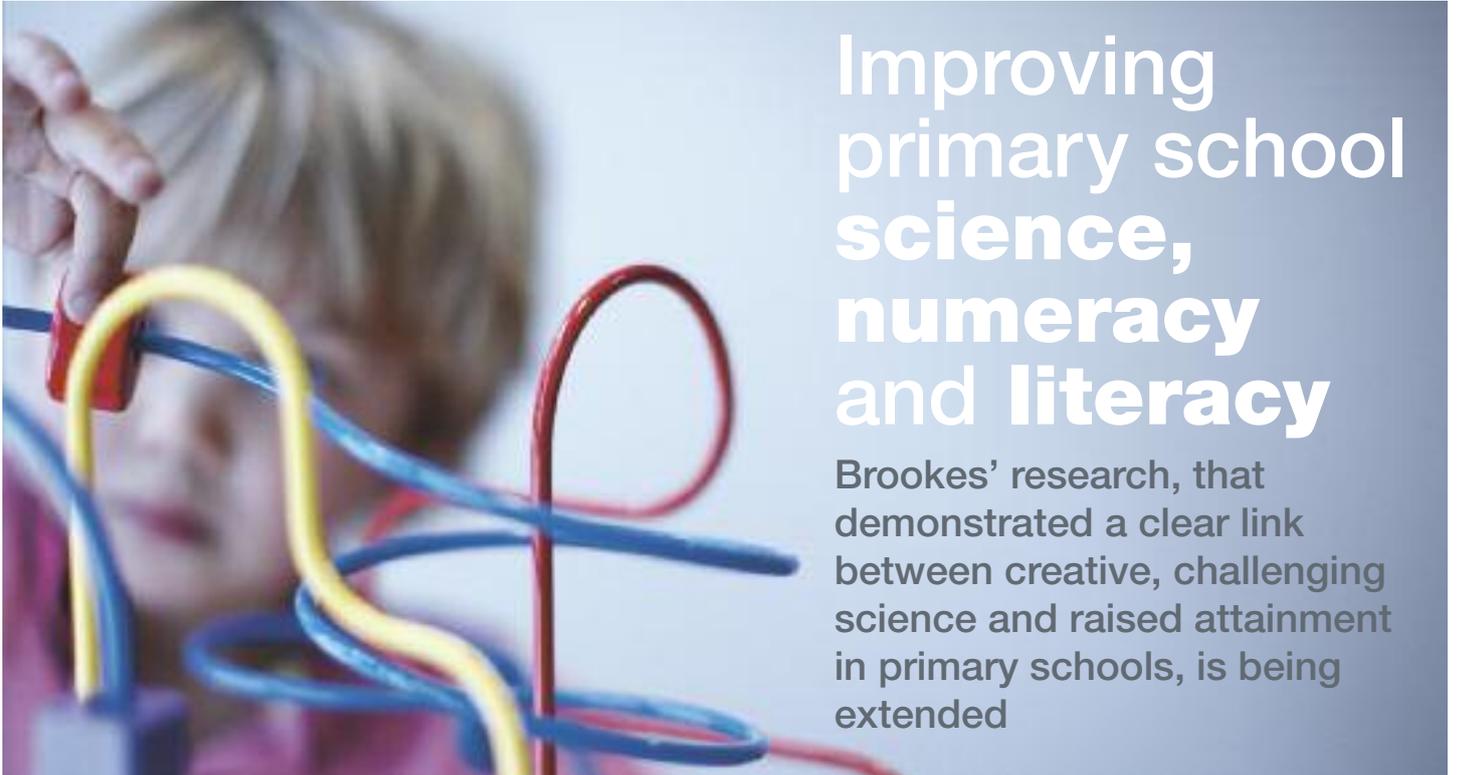
"Some people think of handwriting as an outdated skill, but it's still very important in terms of note-taking, writing exams, and how children and students are assessed" explains Anna. "if you have handwriting difficulties, it affects not only the quantity of work produced but also the quality of what you write."

The DASH and DASH 17+ are the first handwriting speed tests in the UK based on normative data, collected from schools and colleges around the country. The tests are now being used in many other countries around the world.

*For further details, please email Anna at: [abarnett@brookes.ac.uk](mailto:abarnett@brookes.ac.uk)*



"Some people think of handwriting as an outdated skill, but it's still very, very important..."



# Improving primary school science, numeracy and literacy

Brookes' research, that demonstrated a clear link between creative, challenging science and raised attainment in primary schools, is being extended

The School of Education, in partnership with Science Oxford, has secured a £270,000 grant from the Educational Endowment Foundation (EEF) to work closely with 40 Oxfordshire primary schools to improve pupils' attainment in science, numeracy and literacy (SML) by building on their previous work.

There is international concern about a decline in pupils' enthusiasm for science, and in the UK Pell and Jarvis (2001) noted that this decline appears to begin towards the end of the primary school years.

Bridget Holligan, Head of Learning at Science Oxford, said: "Pupils have a natural enthusiasm for science as they love to find things out and do things for themselves. We know from our own experience that creative work in science helps to develop a wide range of skills including thinking, problem solving, speaking and listening and handling data. This is our chance to prove it!"

## The original research

The original project in 2002-4 was undertaken when all Year 6 pupils were required to take the Key Stage 2 science SATs and a body of evidence showed that primary science was perceived by teachers as being content laden and assessment driven.

The participating teachers were asked to focus on more cognitively challenging, practical, and interactive science lessons, rather than revision by rote. They encouraged the pupils to talk about scientific concepts using dedicated discussion times, and developed methods to make time for practical science.

The resulting findings showed an increase in pupils' enthusiasm for science, the scientific process and their performance in the science SATs.

## The new project

The partnership will train two teachers from each participating school, providing ideas and techniques for improving attainment. Teachers will undertake continuing professional development, enhancing their skills in:

- improving the level of conceptual challenge in primary science, by encouraging higher order thinking
- making links between pupils' learning in SML, and recognising the value of discussion that encourages deeper thinking across other core subjects to enhance pupils' learning and increase the cognitive challenge throughout the curriculum
- developing their questioning skills.

This objective chimes with the outcomes of the Cognitive Acceleration through Science Education programme (Adey, 1999) where science was taught in secondary schools through a thinking skills approach. Following an intervention the pupils' levels of attainment rose, not only in their science GCSE results, but also in other subjects including maths and English literature.

## The programme

The project begins this September and will be launched in each school with an activity day to:

- engage and motivate the pupils
- showcase to teachers the approaches that the project will encourage.

Ambassadors from the national STEM (Science, Technology, Engineering and Mathematics) programme will link with partner schools to extend pupils' aspirations and

illustrate the importance of literacy and numeracy skills for a scientific career. Science Oxford is the local co-ordinator of the STEM programme.

## Disseminating the findings

There will be a celebration day at the end of each year to enable all participating schools to share what they have achieved. An analysis with EEF of the project's effectiveness will be conducted and a wider dissemination conference held at the end, in September 2015, open to all Oxfordshire schools.

**“Creative work in science helps to develop a wide range of skills including thinking, problem solving, speaking and listening and handling data.”**



# Artist or teacher?

Is learning with an artist in a cultural environment more successful than with a teacher? Research conducted by **Rachel Payne**, Senior Lecturer in Education, explores this theory

Rachel's research - part of her Educational Doctorate - seeks to explore how artist-pupil dialogue during informal learning activities can support a pupil's ability to understand and demonstrate learning within a cultural environment.

How dialogue in the classroom influences the understanding pupils arrive at has been explored in relation to curriculum areas such as science and English, but little research exists in relation to art or the arts.

## The project

Rachel's project was funded as part of the Faculty of Humanities and Social Sciences Mentoring Scheme. It involved local Year 7 pupils participating in artist-led workshops in May this year at Modern Art Oxford to explore Shezad Dawood's exhibition, *Piercing Brightness*. Each group analysed the contemporary art practices of Dawood, identifying key visual and conceptual themes in his work, and then translating these into their own, personalised visual representation.

For the majority of pupils this was their first experience of visiting an art gallery and viewing artworks first-hand. Whilst each group responded differently, a common response included excitement and motivation to learn. The research explored how a cultural partnership affects pupil development as a result of art practice with an expert. In particular it looked at language development, the quality of learning and understanding demonstrated in the art workshop, and artist's perceptions of pupils as learners.

## Earlier pilot findings

The work builds on a pilot conducted in 2011 which examined pupils' perceptions of the value of working with an artist during their primary schooling. This included an artist working with one primary group over five years, brokered by Modern Art Oxford.

Findings showed that the benefits can include pupils, who are at risk of being disaffected with learning, becoming more empowered in formal learning contexts. Pupils demonstrated an increase in confidence as learners as a result of the workshops. Also, an increase in understanding about how to learn effectively, and an increase in literacy, particularly verbal and written reasoning was found.

Rachel says, "I want to identify key practices which can be translated into the classroom and which support an argument for partnership cultural entitlement for pupils. A growing body of research is now advocating the necessity for a more considered relationship between formal and informal approaches to learning within primary and secondary education."

The research methods Rachel is using include baseline questionnaires, focus group interviews, audio recordings of the artist and pupils discussing making art, and photocopies of the pupils' artwork.

An interview will also be conducted with the artist to ascertain her perception of learning processes during the workshops.

*For further details, please email Rachel at: [rpayne@brookes.ac.uk](mailto:rpayne@brookes.ac.uk)*

"I want to identify key practices which can be translated into the classroom."

# Your research career: the support you need

## 2012

### **27 September: Research Induction and Networking**

An introduction to conducting research at Brookes - including policies, procedures, key contacts and support available.

### **31 October: Applying for research funding – why is it important?**

An overview of the importance of making funding applications and the role of the faculty grant panels.

**Both events are from 1-4pm in Room BG11, Buckley Building, Gipsy Lane**

## 2013

### **13 March: I've won my award! What do I do next?**

Advice and tips on managing your research project – including the role of Principal Investigator, finances and managing contract staff.

**1-4pm - room to be confirmed**

For details and bookings contact [louise.wood@brookes.ac.uk](mailto:louise.wood@brookes.ac.uk)

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