

The Nuffield Foundation Newsletter

Issue

Summer 2009

Applied Science – the invisible revolution

In Summer 2008 Professor Jim Donnelly of Leeds University published a report, funded by the Nuffield Foundation, on students studying Applied Science at Level 3 (A level or its equivalent). He found that GCSE Applied Science was providing a progression route for a growing group of students not catered for in the past.

In 2008 nearly 110,000 students, some 15% of the age cohort, gained a GCSE or equivalent qualification in Applied Science, up from only 20,000 students five years earlier. However, his study raised questions about the lack of systematic support in terms of resources, training and guidance. He also found worrying evidence that the proposed Science Diploma was causing planning blight, with uncertainty about the future of A level Applied Science leading some schools to withdraw from offering the qualification.



Nine months later the policy position is no clearer. What is clear, however, is that the numbers taking Applied Science at Level 2 have continued to rise. And what is highly likely is that many of these students, having enjoyed the experience, will wish to continue with the study of

science at Level 3. The question of what provision is available for them, given that they will not be prepared for traditional A levels in science, does not have a satisfactory long term answer.

The Foundation recently asked Professor Donnelly to produce an overview of the current position, to draw attention to this 'invisible revolution' and to inform wider debate. His report has just been published and is a clear analysis which, while positive about the potential of this new subject does not shirk from confronting the questions that need to be addressed. The Foundation hopes it will be of value not only to policy makers but also to teachers and managers in schools and colleges who are considering how to respond to this encouraging but complex new development. The debates continue. [www](http://www.nuffieldfoundation.org)

Welcome to the Nuffield Foundation Newsletter which highlights our current areas of grant making and focuses on the outcomes of the projects we fund.

Further details on all the stories marked with this icon [www](http://www.nuffieldfoundation.org) can be found on our website.

The Newsletter is published three times a year and you can obtain further copies or ask to be put on the mailing list by contacting the Foundation. If you have any comments on the Newsletter we would be delighted to hear from you.

Inside

2
Mathematics for all
Supporting African
mathematicians

How children learn
mathematics

3
Opening up the family courts
What counts as an educated
19 year old these days?

The treatment of young
witnesses in criminal
proceedings

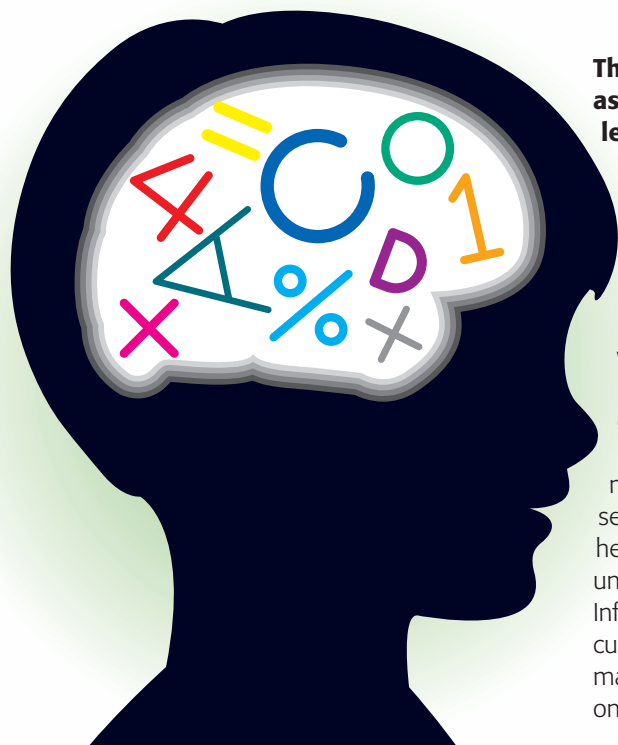
4
Nuffield Foundation Africa
Programme launched
The ethics of 'personalised'
health care in a consumer age
Combating the epidemic of
statistical abuse

in brief

New Trustee

Lorry-driving across Europe

Mathematics for all



The Nuffield name has long been associated with mathematics learning, starting with the *Nuffield Primary Maths project* in the 1960s. This introduced into schools what became known as 'new maths', with topics like sets and probability and the emphasis on practical work and problem solving.

Described here are two examples of work that Nuffield has funded forty years on – a review of research on mathematics learning at primary and secondary level and a scheme to help mathematicians in African universities continue their research. Information about more of Nuffield's current and planned support for mathematics education can be found on our website. [www](#)



How children learn mathematics

A Nuffield-funded review by a team from Oxford University's Department of Education synthesises research on mathematics learning at primary and secondary level.

Key understandings in mathematics learning concentrates on three main questions:

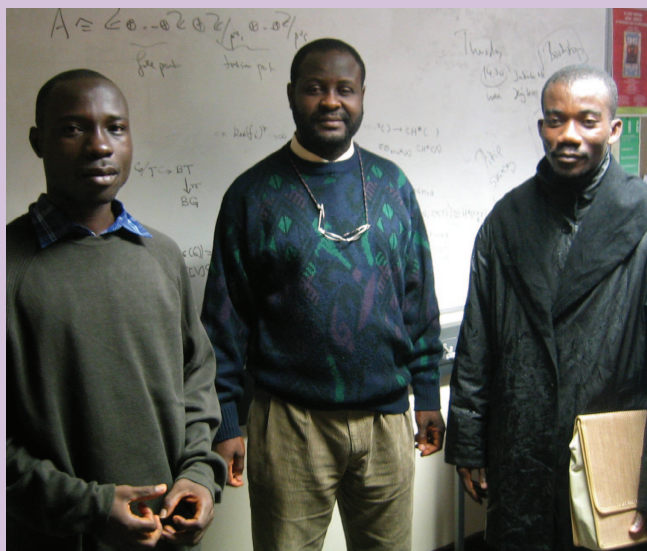
- What insights must young learners have in order to understand basic mathematical concepts?
- What are the sources of these insights and how does informal mathematics knowledge relate to school learning of mathematics?
- What understandings must young learners have in order to build new mathematical ideas using basic concepts?

The review makes recommendations about teaching and learning and flags up weaknesses in research and gaps in current knowledge, some of which can be easily solved by building on the significant contributions of past research. Other gaps may not be so easily solved, and the review describes some pragmatic theories that can be used by teachers when they plan their teaching. Classroom research stemming from the exploration of these theories can then provide new insights for further research in the future, alongside longitudinal studies which focus on learning mathematics from a psychological perspective. [www](#)

Supporting African mathematicians

Through the Mentoring African Research in Mathematics scheme, Nuffield is supporting a sharply focused and resource efficient way of helping Africa's mathematicians to flourish, countering the brain drain and providing the crucial foundations for broader scientific and technological development.

The scheme, funded together with the Leverhulme Trust, is a joint enterprise between the London Mathematical Society, the International Centre for Mathematical Sciences, the International Mathematical Union and the African Mathematics Millennium Science Initiative. It aims to make it possible for African mathematicians to contribute their expertise to



teaching within sub-Saharan Africa whilst pursuing research in situ, offering professional mentoring from UK mathematicians and the opportunity for periodic research travel.

So far, seven links are operating between UK universities and African

universities in Cameroon, Ethiopia, Ghana, Nigeria, Ivory Coast, Uganda and Rwanda. Activities include co-supervising Masters and Doctoral students and seminars on what research involves, along with lectures and courses on specific topics. [www](#)

Opening up the family courts

There has been a long history of debate about who should attend family court hearings in England and Wales, and how such hearings should be reported to a wider audience. Since April 2009 family courts now have discretion to admit the press on a case by case basis.



A paper by Julia Brophy and Ceridwen Roberts at the University of Oxford examines the history and reasoning behind the moves to increase public and press access to family hearings and reviews the legislative experiences of Australia, New Zealand, Canada and Scotland. *Openness and transparency in family courts: Messages from other jurisdictions* shows that there is less press and public access in those countries than is sometimes claimed. It also makes an important distinction between who can come in to the family courts, and what information can come out; if family privacy and children's welfare is to be protected, focussing resources on anonymised judgments may be more fruitful than focussing on press access. [www](#)

What counts as an educated 19 year old these days?

The Foundation has funded the largest independent review of 14 – 19 education and training in England and Wales for fifty years. Begun in 2003 with a directorate headed by Professor Richard Pring from the University of Oxford, the report was published in June and is followed by a series of launch events over the summer.

The review covered all aspects of 14 –19 education and training including aims, quality of learning, curriculum, assessment, qualifications, progression to employment, training and higher education, institutional provision, governance and policy.

Findings set out in the report encompass praise for aspects of the government's current education policy, such as the aim to broaden the appeal of education and training for under-18s. It also commends investment in schools, and the development of collaborative partnerships between schools.

However the review found much scope for improvement. Professor Pring said, "much more needs to be done if all young people are to live fulfilling lives and if the social and economic problems of the community are to be met. Too many young people are failed by the system and, in the current recession, feel even more frustrated and let down."



The report recommends encouraging a rounded approach to learning and recognising totality of achievement rather than a narrow definition of academic or vocational qualifications. It urges that education professionals have more say in deciding education policy. It also argues that the use of the language of performance management by policymakers and advisers is inappropriate in deliberations about the aims of education and the development of young people. [www](#)

The treatment of young witnesses in criminal proceedings

A recent study by Joyce Plotnikoff and Richard Woolfson builds on previous work they undertook in 2004 on the experiences of 50 young witnesses who gave evidence in criminal justice areas.

Measuring Up? Evaluating implementation of government commitments to young witnesses in criminal proceedings reports on interviews with 182 children and examines the changes that were being made at the time of the 2004 study and the further reforms and initiatives introduced since then.



The study was jointly funded by Nuffield and the NSPCC. It found that, whilst a good legislative framework has now been put in place, supplemented by clear policy objectives, a cultural change is needed to ensure that it operates in practice. The authors put forward specific recommendations to government departments, organisations and practitioners for action that can result in improvements in practice in important areas. These include offering support tailored to young witnesses' needs, ensuring appropriate questioning at court, avoiding delays in young witness cases and helping young witnesses feel safe. [www](#)

Information on all these stories can be found at www.nuffieldfoundation.org

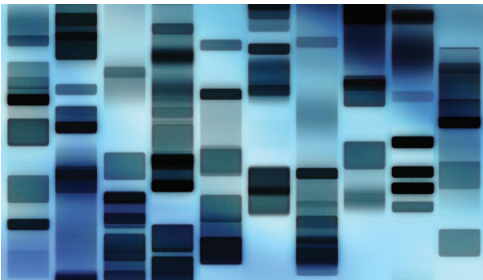
Nuffield Foundation Africa Programme launched

The development of African economies, infrastructure and institutions needs well trained scientists, technologists and other professionals, including those who provide public services. Nuffield believes that UK institutions can play an important role in supporting African organisations to develop this expertise. The newly launched Nuffield Foundation Africa Programme will fund projects that:

- build African expertise in these key areas
- are implemented by UK and African universities and/or NGOs working in partnership, often together with African government departments. [www](#)



©iStockphoto.com



The ethics of 'personalised' health care in a consumer age

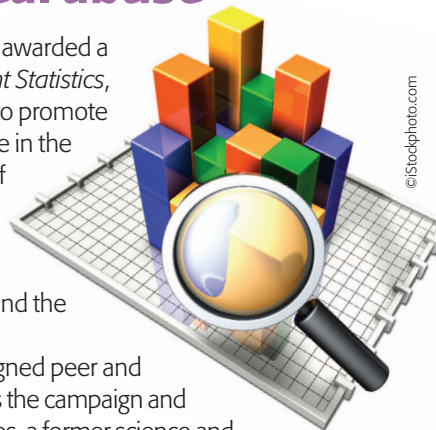
Recent technological developments, new political and economic priorities, and the widespread drive towards patient-centred care have led to increasingly personalised health care services, with a strong focus on prediction and prevention. The Nuffield Council on Bioethics is holding a public consultation on the ethical issues raised by online healthcare, telemedicine and commercial medical profiling technologies such as DNA testing and body imaging – all increasingly focused on the individual, and often carried out without a GP's referral. [www](#)

Combating the epidemic of statistical abuse

The Foundation recently awarded a grant to help start *Straight Statistics*, a campaign which aims to promote honesty and best practice in the use and dissemination of statistics, and to expose statistical abuse by government, politicians, companies, advertisers and the mass media.

Lord Lipsey, a non-aligned peer and a former journalist, chairs the campaign and its Director is Nigel Hawkes, a former science and health editor of *The Times*.

The *Straight Statistics* website will promote accurate understanding and reporting of statistics, including official statistics, opinion polling and other uses. The campaign will also commission and promote longer analyses of the uses and misuses of statistics and plans to publish an annual report on the state of the nation's statistics. [www](#)



©iStockphoto.com

New Trustee

Nuffield is delighted to announce that Mr Andrew Dilnot CBE is to become one of its Trustees. Mr Dilnot is Principal of St Hugh's College, Oxford University and a former Director of the Institute for Fiscal Studies. [www](#)



Lorry-driving across Europe

A recent report analyses how key concepts related to vocational education and training are understood and applied within different European national contexts, through case studies from software engineering, bricklaying, nursing and lorry driving. [www](#)



William Morris, Lord Nuffield
1877-1963

The Nuffield Foundation is an endowed charitable trust established in 1943 by William Morris (Lord Nuffield) the founder of Morris Motors with the aim of advancing social well being. We fund research and practical experiment and the development of capacity to undertake them, working across education, science, social science and social policy. While most of the Foundation's expenditure is on responsive grant programmes we also undertake our own initiatives.

Full information on all our current activities and on how to apply for grants can be found at www.nuffieldfoundation.org

The Nuffield Foundation
28 Bedford Square, London WC1B 3JS Tel 020 7631 0566 Fax 020 7323 4877

