Research highlights_

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Anglia Ruskin University

Research highlights_

Anglia Ruskin University
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_A new way to interpret engine friction.

_Why we should re-evaluate small business regulation.

_The pressing need to review e-waste practices.

_The transformative benefits of music therapy.

2013_Volume 01

Researching across:

- The Arts
- Business
- Education
- Health and Social Care
- Law
- Social Sciences
- Sustainability
- Science and Technology

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The government rated eight areas of our research activity as world-leading in its latest assessment.[1]

We aim to increase the number of areas of excellence to 12 by 2014.[2]

[1]Research Assessment Exercise for Higher Education Institutions, 2008.

[2]Research Excellence Framework, 2014.

Research Highlights our vibrant culture of questioning the world around us

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Welcome to Volume 01 of Research Highlights

We are fortunate to have a kaleidoscope of expertise at Anglia Ruskin University. This publication reflects our wide-ranging and in-depth research pursuits, conducted regionally, nationally and globally. It also showcases our distinctive intellectual identity which, we are proud to say, is ever evolving.

As you will see, our research strengths encompass the arts, business, computing, education, engineering, health, law, science, social sciences, sustainability and technology. Where relevant, we look beyond traditional disciplines. Through our four Faculties and five Research Institutes and networks, we bring a cross-disciplinary approach to research and scholarship, bridging scientific, technical and creative fields. We also look to build continually on our specialist research areas, in particular by harnessing our professional expertise and through unique insight and sheer rigour and excellence of work. I hope you enjoy exploring Research Highlights and that it gives you a sense of our stimulating academic environment.

Professor Alan Sibbald
Deputy Vice Chancellor
Research Scholarship and Development
Anglia Ruskin University

From tribology to e-waste. Our contributors.

Professor Hassan Shirvani_

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Hassan is Professor of Engineering Design and Simulation; Director of Research, Department of Engineering and the Built Environment; and Director of the Engineering Analysis Simulation and the Tribology (EAST) Group, within our Science and Technology Faculty. Hassan is also a member of the Institute of Mechanical Engineers (IMechE).

Professor Carol Munn-Giddings_

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Carol is Professor of Participative Inquiry and Collaborative Practice in our Faculty of Health, Social Care and Education. Before joining Anglia Ruskin University in 1995, Carol worked for many years as a social researcher in a number of different health and social services settings, including the voluntary sector.

Dr Rob Toulson_

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Rob is Director of our Cultures of the Digital Economy Research Institute, where he is responsible for developing cross-disciplinary research and innovation projects which bridge science and culture and link academia with industry. Previously, Rob was Director of The Sound and Audio Engineering Research Group and a Pathway Leader.

Dr Alison Stowell_

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Alison is a Senior Lecturer at our Lord Ashcroft International Business School. Before beginning her career in academia, Alison worked at American multinational IBM and the Crown Prosecution Service. Her principal research interests lie in the impact of discarded technologies (e-waste) and how organisational actors respond to these challenges.

How do we make driving less costly?

By introducing a better way to determin engine fric

Hassan lif the bonne the mode car and p the case f engineerin rethink. The automobile industry should discard the current approach for determining engine friction, he says.

What is the current problem?

The statistics are telling. Only 12 to 15% of the available energy in car fuel finds its way to the driving wheels on city roads. Consider also that 15% of power in the engine is wasted through mechanical losses, such as friction.

Is there an obvious solution?

Yes, we need to focus our attention on optimising the lubrication in car engines. By reaching that milestone, we will reduce friction and, consequentl fuel usage pollution. research explored

major sour of derstanding of the subject. The end goal was to optimise the effects of surface texturing in engines.

This task involved investigating e interface action and cyl liner.

How is your research helping?

During the course of the investigation, we found that the established theoretical model widely used to predict lubrication issues was being interpreted incorrectly.

To remedy the situation, we developed an exact and precise derivation of the Reynold equation f slider be that be match expe dat de new in gy (the urfaces in relative motion). We have called this concept the 'load capacity

lubricant- tion appro into acco the bearing performance producing the load capacity, as well as considering the lubricant umption. also p comp packa steady-state and transient conditions and helps to solve optimisation issues. This package is a useful industry tool and a solid foundation for future research.

What is next for the industry?

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How do we help self-help groups?

We must get beneath each group's make-up to develop the right policy and practices.

Beyond common notions of health and social care, Carol's collaborative research efforts are supporting a vital but often invisible collection of self-help providers. These are people who, by coming together, are committed to helping themselves and others.

What are self-help roups?

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voluntarily by, and for, members with a shared health condition or social issue. They are not a new phenomenon. Evidence suggests that there are more than 23,000 self-help groups in the UK and that this figure is rising.

How do they help?

Belonging to such a group is incredibly important and, for some, it is a life-changing experience. Members report an increased sense of well-being, greater self-confidence and self-esteem, reduced feelings of isolation, improved physical and mental health, a better ability to cope and improved relationships. This has a positive knock-on effect, helping to support families, carers and practitioners.

How are you involved?

Over the last couple of decades, I have been working with colleagues to

explores the importance of these types of groups and organisations. My current research, the ESTEEM project, is funded by the Big Lottery and is a collaboration between Anglia Ruskin University, Nottingham University and Self Help Nottingham. The project aims to develop resources for practitioners to best enable them to support self-help groups in the community. Besides myself as Principle Investigator, our core team comprises Melanie Boyce, Lead Researcher in Essex (and a Research Fellow), and Patience Seebohm, a PhD student and independent researcher who is providing project support.

What are your key findings?

A critical feature of the way in which groups work is that participants are 'learning' together and building a collective wledge base remains

How do we make driving less costly?

By introducing a better way to determine engine friction.

Q&A_ Professor Hassan Shirvani

Hassan lifts the bonnet of the modern car and presses the case for an engineering rethink. The automobile industry should discard the current approach for determining engine friction, he says.

What is the current problem?

The statistics are telling. Only 12 to 15% of the available energy in car fuel finds its way to the driving wheels on city roads. Consider also that 15% of power in the engine is wasted through mechanical losses, such as friction.

Is there an obvious solution?

Yes, we need to focus our attention on optimising the lubrication in car engines. By reaching that milestone, we will reduce friction and, consequently, fuel usage and pollution. Our research explored the major sources of friction in car engines to gain a better understanding of the subject. The end goal was to optimise the effects of surface texturing in engines. This task involved investigating the interface interaction between the piston ring and cylinder liner.

How is your research helping?

During the course of the investigation, we found that the established theoretical model widely used to predict lubrication issues was being interpreted incorrectly.

To remedy the situation, we developed an exact and precise derivation of the Reynolds equation for slider bearings that better matched experimental data and defined a new concept in tribology (the science and engineering of interacting surfaces in relative motion). We have called this concept the 'load capacity to lubricant-consumption ratio'. Our approach takes into account the bearing performance in producing the load capacity, as well as considering the lubricant consumption.

We have also produced a computational package that analyses the slider bearings in both steady-state and transient conditions and helps to solve optimisation issues. This package is a useful industry tool and a solid foundation for future research.

What is next for the industry?

If we can make car engines more efficient, they can become smaller while still producing the same amount of power. Such a development would bring wide-scale benefits, notably on saving fuel costs and helping to protect the environment.

More efficient engines would also assist the automobile industry. Car manufacturers face ever-challenging targets around reducing friction losses in engines. The theoretical tribology that we have developed is the only published research in this important area. It has enabled us to produce a substantial amount of valuable data and will ensure that we are leading the field in helping the industry to meet future legislation.

Research matters

Your inspiration?

I have always been good with my hands and interested in designing things from an early age. I enjoy challenges and proving what is possible in a scientific way.

Any surprises?

When I started this research, I didn't know for sure if there would be a solution. I was overjoyed when we found one.

Why does it matter?

Industry must always look to see how its products can operate in a more environmentally friendly way. By reducing engine friction losses, we could drive smaller cars, spend less on fuel and be more considerate of the environment.

How do we support self-help groups?

Q&A_ Professor Carol Munn-Giddings

Beyond common notions of health and social care, Carol's collaborative research efforts are supporting a vital but often invisible collection of self-help providers. These are people who, by coming together, are committed to helping themselves and others.

What are self-help groups?

Self-help and mutual aid groups are run voluntarily by, and for, members with a shared health condition or social issue. They are not a new phenomenon. Evidence suggests that there are more than 23,000 self-help groups in the UK and that this figure is rising.

How do they help?

Belonging to such a group is incredibly important and, for some, it is a life-changing experience. Members report an increased sense of well-being, greater self-confidence and self-esteem, reduced feelings of isolation, improved physical and mental health, a better ability to cope and improved relationships. This has a positive knock-on effect, helping to support families, carers and practitioners.

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How are you involved?

Over the last couple of decades, I have been working with colleagues to build a body of work which explores the importance of these types of groups and organisations. My current research, the ESTEEM project, is funded by the Big Lottery and is a collaboration between Anglia Ruskin University, Nottingham University and Self Help Nottingham. The project aims to develop resources for practitioners to best enable them to support self-help groups in the community. Besides myself as Principle Investigator, our core team comprises Melanie Boyce, Lead Researcher in Essex (and a Research Fellow), and Patience Seebohm, a PhD student and independent researcher who is providing project support.

What are your key findings?

A critical feature of the way in which groups work is that participants are 'learning' together and building a collective knowledge base that remains in the group even after individuals leave. The difference between an individual's experience of a health or social condition and the type of collective knowledge accumulated over time in a group tends still to be much underestimated by professionals and policymakers. This needs to change. An understanding of how groups have come to redefine their situation or condition (creating what has been termed 'liberating meaning perspectives') may well complement or challenge mainstream and professional understandings of conditions.

Research matters

Your inspiration?

When working in social services, I saw how important peer-help groups were first-hand. I became aware that policy was key and that we needed tangible UK-based evidence to understand the nature and ethos of these groups.

Any surprises?

It took a long time to be able to access the groups and build up trust and a relationship. The picture that emerged was that each group displayed its own unique character and set of attributes; support should be tailored to each groups' particular circumstances.

Why does it matter?

We need to raise awareness of the unique features of these groups. They are not a substitute for traditional care services, but provide a specific type of support. Appropriate policy and practices will help enormously.

Q

Is there an easier way to tune drums?

A

Use science and just tap the app.

Q&A_ Dr Rob Toulson

We should no longer think of technology and creativity as separate disciplines. Bring them together and the world gains from all sorts of useful new products, argues Rob.

Why has multidisciplinary research become a buzz phrase?

Multidisciplinary research has become increasingly important in recent years and is at the heart of my initiatives. Working at the fulcrum between science and culture enables us to develop an understanding of the implications of the digital economy on art and society. Technology is driven by cultural demand: consumer needs and artistic intrigue provide the justification for technology providers to develop innovative solutions. By evaluating technology in an artistic and creative context, it is more likely that organisations can predict future trends and opportunities, and develop novel and user-focused products.

What have you been exploring recently?

I am an electro-mechanical engineer by background and my passion for music has found a technical outlet, in the form of my research into percussion acoustics and the development of a drum-tuning iPhone application.

This research started off as a musical project; I was learning to play the drums and wanted to explore whether it was possible to tune drums in a more scientific way. Tuning drums is technically very complicated. Many good drummers don't realise that what they do intuitively actually involves complicated vibration analysis and acoustics.

What lies behind this application?

The drum-tuning application is an educational tool that is underpinned by rigorous scientific research. It is now being used by musicians and the music-playing public worldwide, so we can see it as a working example of how technology and creativity can come together and drive each other.

Is that the end of this project?

No, the research has moved on from thinking about the technical aspects to the consumer psychology and user-experience associated with cross-disciplinary innovations. The creative-technology cycle further continues.

Research matters

Your inspiration?

Music and engineering. I have always been drawn towards research and development that fuses these two creative and industrial fields.

Any surprises?

Although I have received a lot of positive feedback, some musicians and artists are sceptical of the emergence of technology within their creative field. So opinion on the drum-tuner application is split.

Why does it matter?

Technology and creativity go hand-in-hand. Often a creative need will justify a new technical innovation, which in turn will allow new artistic or cultural opportunities. Equally, we can optimise existing technology further by evaluating the requirements for enhancing the user experience, educating users and understanding their cultural psychologies.

Q

What happens when computers are thrown away?

A

We place the natural environment, human well-being and commercial success at risk.

Q&A_ Dr Alison Stowell

When the next model comes out, yesterday's computer is tomorrow's waste management challenge. Alison's recent research explores the growing challenge of electronic waste disposal.

Why is this topic important?

One of the barriers to a sustainable society is waste generation. My research looks specifically at electronic waste (e-waste) which includes computers, mobile phones, handheld devices and TVs. In particular, I focus on the disposal practices for computers.

Is this a growing issue?

E-waste is the fastest growing waste stream globally.

Each year, we generate between 30 and 50 million tonnes of technological waste worldwide. By 2015, experts forecast that there will be 2 billion computers in the world, with an average life cycle of 3 to 8 years.

To add to the escalating problem, e-waste is a unique waste type for a couple of reasons: how the technology is used prior to becoming waste and its design complexity. Computers can store a lot of confidential and sensitive information and you could find between 700 and 1,000 chemicals in every model.

These features highlight the importance of trying to manage technological waste in terms of security and safety.

What were your research objectives?

In 2003, the EU responded to concerns about this type of waste by creating the Waste of Electronic and Electrical Equipment (WEEE) Directive, which the UK transposed into law in 2006. My research involved six organisations that provide services and advice to corporations, governments, consumers and charitable enterprises on effective methods of computer disposal. It explored how these organisations had adopted the legislation and organised their working practices around it. I also wanted to investigate how social theory can help us to understand these practices.

By 2015, experts forecast that there will be

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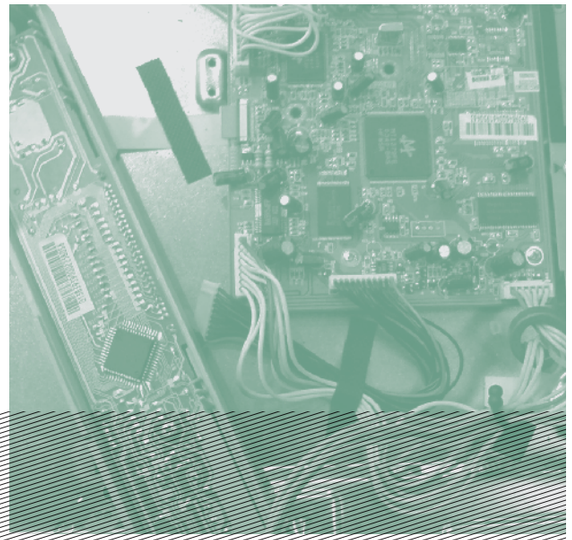

What did you discover?

The project highlighted the tensions between environmental and economic considerations.

None of the organisations in the field research were able to offer a full recycling and data removal solution on their site; computers and components were transported to other treatment partners, creating further carbon footprints. Today's legislation is incomplete, failing to take into account the complex design and chemicals stored within a computer.

How will greater understanding help?

Gaining an insight into e-waste and how it is handled will help raise awareness about this type of waste, the built-in hazards and disposal practices. This will contribute to our understanding of how we can protect the natural environment. It will improve well-being for those working in e-waste disposal.

This is also important for successful business. Insight will help companies to understand how they can get money back on their assets, best address their e-waste responsibilities, alleviate concerns about data security and sustainable practices and improve their profile with customers.

''Gaining an insight into e-waste and how it is handled will help raise awareness about this type of waste, the built-in hazards and disposal practices.''

Research matters

Your inspiration?

I previously worked for a blue-chip organisation, IBM, and that made me curious about what happened to computers when they were thrown away, especially in light of IBM's decision to sell off their ThinkPad manufacturing to Lenovo. The catalyst for my research was an MSc project I undertook while on sabbatical from IBM.

Any surprises?

The uniqueness of computers as waste and the fact that not one organisation offered a full end-of-life service on their site.

Why does it matter?

Understanding what is 'waste' is complex as it is culturally, politically and socially defined; waste for some is not waste for another. In an organisation, this makes it challenging to identify accountability for, and ownership of, items. Indeed, when is something truly waste? The law deals with waste, yet encourages reuse and recycling, taking the object out of the waste classification for the next owner.

FEATURES

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BOOKS AND LITERATURE ARE POWERFUL_
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TALKING POINTS.

CONTRIBUTORS

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Simon is Professor of Management, Director of our Institute for International Management Practice and a member of our Centre for Enterprise Development and Research (CEDAR). Simon began his working life as an entrepreneur in the independent music sector and is a published author of two textbooks and numerous articles in his field.

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PROFESSOR FARAH MENDLESOHN

Farah is one of our Heads of Department (English, Communications, Film and Media) and a Hugo Award-winning science fiction critic, well known for her work in children's literature as well as several edited collections, including 'The Cambridge Companion to Science Fiction', 'The Cambridge Companion to Fantasy Literature', and her own work, 'Rhetorics of Fantasy'. Farah is also an experienced convention and conference runner.

RUTH JACKSON

Ruth is Director of Anglia Ruskin University's Postgraduate Medical Institute (PMI), where she is responsible for developing research, innovation and postgraduate medical education in collaboration with over 20 PMI partners. Previously, Ruth was a nurse and a midwife and Deputy Dean for Partnerships in our Faculty of Health, Social Care & Education.

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PROFESSOR TIM WALLER

Tim is Professor of Child and Family Studies in our Faculty of Health, Social Care & Education. He has worked in higher education for over 20 years, previously teaching across nursery, infant and primary schools in London and the USA. Tim's research interests include well-being, outdoor learning, pedagogy and social justice in early childhood.

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DR FIONA RICHARDSON

Fiona is a Senior Lecturer in Psychology. Her multidisciplinary research uses a range of techniques, such as behavioural testing measures, functional and structural magnetic resonance imaging and modelling. Her interests include development and maintenance of language and cognitive skills across lifespan, developmental and acquired language disorders, bilingualism and the nature of intelligence.

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Small firms; big responsibilities

Professor Simon Down

Small businesses are the backbone of our economy and their prosperity is crucial for UK economic growth and social well-being. It makes sense then to help these types of companies to thrive. Where does that bugbear – regulation – fit in?

"The issue of small firms and regulations is a political football. Some research suggests that it is just an onerous and expensive hurdle. However, other evidence shows a more nuanced story."

Regulation is often perceived as a burden, especially on small businesses. It drains staff time and can result in administrative duplication, which any boss will tell you means money. Guidelines and enforcement can be unclear and inconsistent. And from the boss' perspective, employment law appears to be unfairly stacked in favour of employees.

Or is that the true picture? "There is a gap in our understanding of how small firms respond to regulation and, although we know a lot about what entrepreneurs say or think, we know less about what they do," says Professor Simon Down. "Researching businesses over time is needed to see how they adapt to change." Simon's work, in collaboration with Paul Richter and Professor Jane Pollard, uses a longitudinal qualitative approach to analyse small firm regulatory behaviour. The three-year project studied 14 high-growth firms. These companies were all located in the North East and Midlands, in the environmental, bio-pharma, media or security sectors. The research investigated how these firms dealt with regulation on a day-to-day basis.

"The issue of small firms and regulations is a political football. Some research suggests that it is just an onerous and expensive hurdle. However, other evidence shows a more nuanced story." Simon points out that regulation can, in fact, be a business opportunity. "Regulation can create market opportunities, signal legitimacy and leadership in the marketplace and sustain the regulatory services industry. In short, it creates jobs."

Simon's research shows that, although generally the majority of regulations are beneficial and there to protect citizens, consumers and employees, new regulation is invariably viewed with suspicion. "There is a perception that it will have a negative impact on business, but once new regulation is understood, it tends not to be a problem and initial panic abates." The impact of employment law remains perennially contentious, however. The evidence shows that employers find it onerous, burdensome and too legalistic. "Feedback from the businesses involved in the research was that the law always seems to assume the worst of employers."

The project findings continue to attract interest, particularly from policymakers such as the Better Regulation Delivery Office (BRDO), part of the Department for Business, Innovation and Skills; Health and Safety Executive; and the Environment Agency. In particular, the BRDO is seeking to respond to the government's 'Red Tape Challenge' by creating better regulation.

Research matters

Your inspiration?

I have always been interested in small firms and how they fit into society and our changing economy. It still amazes me that I was able to spend a few pounds and create a company at the age of 18. My passion for small business has never left me and my research has always followed this path.

Any surprises?

The degree of emotion wrapped up with employment law. If the legislation creates unnecessary stress, it needs to be reconfigured.

Why does it matter?

Regulation should be clear, simple, easy to adhere to and not unduly burdensome. Although most regulation serves a valuable purpose, compliance can be costly. Our research will help firms deal with legislation on a daily basis and inform policy debate at government level.

BOOKS AND LITERATURE ARE POWERFUL

Professor Farah Mendlesohn

We are entering the second golden age of children's fantasy. Since 1995, a big market has opened up due to the unprecedented success of Philip Pullman and JK Rowling, who have shown that it is possible to make a living out of writing children's fantasy. The genre has gained greater respect, become more mainstream and is even taught in schools, colleges and universities as part of the curriculum.

"FANTASY AND SCIENCE FICTION ALLOW CHILDREN TO EXPLORE CHOICES THAT MIGHT NOT BE CONSIDERED 'SAFE' IN THE MODERN WORLD..."

"Books and literature are powerful; our relationship with books can be more intense than our relationship with people," asserts Professor Farah Mendlesohn. Fantasy and science fiction stretch children's imaginations. They open young minds to the unique and wonderful things in the universe; some based in fiction, others in reality.

"Generally, modern western society has low expectations of its children. We mollycoddle young people until they leave university and it is only then that they are considered to be independent adults, and sometimes not even then. Compare this to earlier centuries, when children were fortunate to stay in school until the age of 14 and were then expected to work and contribute to the household income." In today's environment, books play an important role. "Fantasy and science fiction allow children to explore choices that might not be considered 'safe' in the modern world. These types of books broaden horizons and teach young minds to think about consequence, explore the chaotic nature of the universe and understand that we cannot always predict the outcome of actions."

Farah's work reveals that there are essentially four categories within the fantastic: the portal-quest, the immersive, the intrusive and the liminal. These categories are determined according to the means by which the fantastic enters the narrated world.

"In the portal-quest, we are invited through into the fantastic; in the intrusive, the fantastic enters the fictional world; in the liminal, magic hovers in the corner of our eye; while the immersive fantasy allows us no escape."

Farah is currently co-writing 'The Cambridge Introduction to Children's Fantasy Literature' with Professor Michael M Levy, University of Wisconsin-Stout. "There is a great deal of text-specific work on children's fantasy literature and several single-country overviews, but there is no history that encompasses all fantasy literature written in English and tackles the thorny problem of a market divided historically into two areas, the USA and the British Empire and Commonwealth." By considering the scope of the field, the book aims to shift perceptions about what fantasy for children is and has been, where it comes from, the influences and origins, and to explore what it tells us about changing ideas of children's capacities and interests.

Research matters

Your inspiration?

I didn't realise I was a specialist in children's fantasy until 10 years ago, when I was asked to be on a discussion panel and, subsequently, write a book on my favourite author. I spent most of my childhood sick in bed, where I devoured fantasy and science fiction books, so I feel so lucky; a childhood hobby has turned into my career.

Any surprises?

The influence of 'The Lion, the Witch and the Wardrobe' and how we think of children's fantasy before and after it was written.

Why does it matter?

Fantasy can deal with big moral questions. The answer may not always be what people expect.

CALL THE MIDWIFE

Ruth Jackson

Obstetric emergencies are a leading cause of maternal mortality, yet we know little about the experiences of midwives who give care at this critical time. New research can help fill this knowledge gap.

“WE EXAMINED THE EXPERIENCE OF 11 NHS MIDWIVES GIVING CARE IN OBSTETRIC EMERGENCIES IN LABOUR.”

Care in labour and birth has undergone significant change in the last 30 years and is, thankfully, far removed from the scenes of the popular BBC period drama, ‘Call the Midwife’, set in east London in the 1950s. Technical advances mean it is now possible to effectively manage many of the life-threatening complications of labour and delivery. This is progress indeed, but today’s healthcare providers face fresh challenges in this area. For example, the UK has a rising birth rate and an increasing number of pregnant women over the age of 40 years, who may have complex obstetric needs. While obstetric emergencies remain one of the leading causes of maternal mortality worldwide, we are largely in the dark about the experiences of midwives who provide care at this time.

To start to illuminate understanding here, a recent research project led by Ruth Jackson adopted a phenomenological approach.

“We examined the experience of 11 NHS midwives giving care in obstetric emergencies in labour,” explains Ruth. The research revealed four main themes worth further exploration: how prospective midwives learned to care; their levels of involvement with those in their charge; coping with the job; and valuing and respecting pregnant women and their families.

Of particular note was the importance the participating midwives placed on developing effective emotional bonds with those in their care, especially in light of the recent publicity around the Francis report. This report, which looked at the meaning of caring, found that staff had competent technical and rational skills, but struggled with the emotional relationship with patients.

“Our study of midwives suggests that caring in obstetric emergencies is at times a demanding and exhausting reciprocal partnership between the midwife and woman. There needs to be a dialogue with trainee and existing midwives and other medical staff to ensure that we think carefully about how we best prepare our future midwives.”

Research matters

Your inspiration?

Having formerly been a midwife, I appreciate how pivotal it is that we understand the nature of care from the perspective of both midwives and pregnant women.

Any surprises?

The midwives in this study were more concerned with the relationship they developed with those in their care than the more technical and rational aspects of care delivery.

Why does it matter?

This study helps us to understand the education, development and support required by midwives to be effective in their roles at this crucial time.

SOCIAL TOOLS FOR SOCIAL GOOD

Professor Tim Waller

Suicide is one of the leading causes of death worldwide, and the third leading cause of death for those aged below 25 years. A simple chat room can play a vital role in decreasing such rates amongst young people with mental health problems.

"TARGETING VULNERABLE ADOLESCENTS AND PROMOTING MENTAL HEALTH IS VITAL IN PREVENTING FUTURE MORTALITY AND MORBIDITY ASSOCIATED WITH MENTAL HEALTH PROBLEMS."

There are nearly a million deaths from suicide every year globally, with young people being particularly vulnerable. In the 27 EU member states, approximately 63,000 Europeans commit suicide annually, among which 13,500 are aged between 15 and 24 years. To this, add the fact that a further 500,000 European young people attempt suicide each year. The figures should not be so startling.

"Studies have found that youth suicide almost always occurs in the context of an active, often treatable, mental health illness such as depression, which often goes unrecognised and untreated," points out Professor Tim Waller. "Mental health problems that persist without treatment establish a foundation for adolescents' pattern of behaviour and life choices. Targeting vulnerable adolescents and promoting mental health is vital in preventing future mortality and morbidity associated with mental health problems."

Tim's research work is part of the wider Suicide Prevention through Internet and Media Based Mental Health Promotion (SUPREME) Project, established by the world-renowned Karolinska Institute based in Stockholm. As well as in the UK, where Tim leads the research, the study is being conducted across six other countries: Estonia, Hungary, Italy, Lithuania, Spain and Sweden. The project aims to decrease the stigma associated with mental health illnesses and increase awareness and knowledge about mental health in general through online and other media channels, such as smartphones and tablets.

"The internet and social media can be effective tools for disseminating information and education to adolescents, most of whom feel comfortable finding information and communicating through the internet using chat rooms and similar fora," explains Tim.

"The project serves all young people who want to know more about mental health issues, whether or not they have a mental health illness themselves. By giving practical, accessible and accurate information on mental health, we can inform and educate our young people, which will hopefully lead to decreased negative attitudes, decreased suicide rates and enable us to nurture a supportive environment."

Research matters

Your inspiration?

The students and teachers involved in the project.

Any surprises?

Not all young people are digitally literate or engaged with social networking technologies!

Why does it matter?

The more that can be done to reduce the stigma around mental health, the better – particularly in relation to young people.

talking points

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Dr Fiona Richardson

Language is central to our daily lives. While we may take it for granted, we are all users of this unique and sophisticated system of communication. How language develops and is processed in the brain are central to understanding ourselves and better supporting those with language disorders.

"While we have a strong foundation of knowledge about the adult language system, we know less about how this system develops."

sprechen

When we talk about language development, we tend to think about babies and young children, but the reality is that we never stop learning to use language during our lifetime. "While we have a strong foundation of knowledge about the adult language system, we know less about how this system develops," says Dr Fiona Richardson. "This subject becomes particularly important in the context of developmental disorders of language, such as Dyslexia and Specific Language Impairment, as well as acquired disorders that occur as a result of brain injury."

Fiona's research combines behavioural testing methods (collecting measures of verbal and non-verbal skills) with structural and functional Magnetic Resonance Imaging (MRI) techniques. "A recent study took a developmental trajectory approach, explains Fiona. "During the testing phase, we collected a large amount of data from a cross-section of typical individuals from as young as seven to 85 years of age. This enabled us to explore the differences and similarities in language abilities and brain activity. The data-set has been of considerable value and is in the process of being analysed using recently developed techniques."

Elsewhere, Fiona is investigating the use of computer models and simulations to explore how the brain functions after brain injury. "The prognosis for recovery is better for damage sustained during early life, as opposed to later development or adulthood," says Fiona. "However, some recent studies suggest that vulnerability in early life can have a lasting negative impact upon cognitive development. In these circumstances, neurocomputational models are an important investigative tool for exploring how the mechanisms that support typical cognitive development interact with the recovery process." Fiona's research combines findings from these simulations with neuroimaging case studies, with the aim of developing strategies of learning to support the recovery process.

Fiona is also part of a collaborative project exploring language and cognitive skills in bilingual children and older adults. Current research suggests that being able to speak an additional language possesses certain cognitive advantages beyond this ability itself. "We are investigating when and how these advantages emerge, and whether they can help to protect us against some of the adverse effects of ageing in later life." This project is in the behavioural testing stage, with a proposal to extend it with a further imaging exercise.

Research matters

Your inspiration?

Children are capable of more and understand more than we realise. Despite physical changes in brain size and hormonal changes, cognitive development is a continuous and fascinating process.

Any surprises?

The analysis of reading systems in adults showed that there are multiple processing routes for reading; we don't all use the same functional pathways when we read. There is a lot of individual variability, and being 'typical' doesn't necessarily mean being all the same.

Why does it matter?

By understanding the relationship between the brain and language we understand ourselves better. This has so many advantages, which range from education and supporting language skills in schools to helping to develop targeted interventions for those with language disorders.

Opinion

FOUR OF OUR ACADEMICS SPEAK OUT ABOUT RESOURCE CONSTRAINTS, BIG DATA, SOCIAL INEQUALITY AND THE VALUE OF MUSIC THERAPY.

Contributors_

DR ALED JONES

WE CAN NO LONGER IGNORE RESOURCE CONSTRAINTS

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Aled is the inaugural Director of our Global Sustainability Institute, established in 2011 as part of our commitment to sustainability. The Institute's research focuses around personal motivations and systems change in this important area. Aled is particularly interested in the finance sector and government and how they will respond to the impacts of global resource changes.

DR RUTH MCNALLY

BIG DATA IS BIG NEWS

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Ruth is Principal Lecturer in Innovation, Technology and Management at our Lord Ashcroft International Business School. Her research interests are on the intersection of modern genetics, business, policy and law. Ruth has specialist knowledge on topics as wide-ranging as biotechnology patenting, DNA profiling and the phenomenon of Big Data.

PROFESSOR DAVE HILL

MARXIST TEACHERS HAVE A ROLE TO PLAY

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Dave, our Research Professor in Education, lectures worldwide to academics, trade union and activist groups and conference attendees on the politics of education, neoliberalism and neoconservatism, Marxism and education and issues of inequality. Dave is a published author and Series Editor and has fought 10 elections at local, national and European level.

PROFESSOR HELEN ODELL-MILLER

MUSIC THERAPY MAKES LIFE-CHANGING CONNECTIONS

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Helen is Deputy Head of our Department of Music and Performing Arts, Professor of Music Therapy, a co-founder of our MA Music Therapy course and Director of our Music for Health Research Centre. A trained music therapist in the field of mental health, Helen is also a keynote speaker, writer and co-author and talented singer and pianist.

DR ALED JONES

WE CAN NO LONGER IGNORE RESOURCE CONSTRAINTS

How resource constraints impact the economy is complex and depends on a number of factors. Political and market responses to the challenges associated with resource constraints will have far-reaching consequences and these need to be better understood and better modelled. Water, food, energy, land and minerals have direct implications for development, wealth creation, living conditions and food security and are increasingly important to international political stability.

Will the increasing cost of resources result in investments into new methods of doing things or merely increase our investments into business as usual? Will any individual, organisation or sector take responsibility for managing a transition to a new economic paradigm or a new technological revolution? Will society or physical events force this responsibility in time, or will it be too late? Modelling such a high impact set of issues is critical for society as a whole. Current evidence suggests that resource constraints will, at best, steadily increase energy and commodity prices over the next century and, at worst, trigger a long-term decline in the global economy. These factors are currently ignored in standard economic modelling and therefore their impacts are not taken into account.

Resources are inter-connected systems and our response to one resource constraint impacts others. For example, if oil prices continue to increase, this may drive further innovation and technology development in non-conventional sources (such as deep offshore wells, shale or liquefaction of coal) or a shift to other sources of energy for transport (such as electricity). However, many of these processes require more energy in themselves and often require a large degree of water, which has other consequences.

One project our Global Sustainability Institute runs is pulling together information on all key resources into a global systems dynamic model and an agent-based model. These models allow us to better understand the inter-connected nature of the resources and our possible country-level response to these challenges. This initial phase of the project has been generously supported by the Dawe Charitable Trust.

RESOURCES ARE INTER-CONNECTED SYSTEMS AND OUR RESPONSE TO ONE RESOURCE CONSTRAINT IMPACTS OTHERS.

Research matters

Your inspiration?

The world is a precious place to live in; we need to make big changes and better understand how food, energy and water work together. Mathematical modelling can help us to understand the science and translate this into useful information.

Any surprises?

The inability of people to cope with the level of information and respond to it. Decision-makers do understand that we need to address the issues around resource constraints, but don't necessarily understand the urgency and won't take immediate action. We need to do something radically different at global and economic levels. Positive change is possible; the barrier is in our imaginations.

Why does it matter?

Resource constraints could lead to international tensions, with potentially reduced trade and economic activity or a possible breakdown in security. It will affect whether people can afford to retire; whether we have to go to war to access food. The implications are huge and far-reaching.

DR RUTH MCNALLY

BIG DATA IS BIG NEWS

The word data comes from the Latin meaning ‘something given’. Despite the name, data are never simply there, waiting to be collected; they have to be cultivated, performed and coaxed into being. And this is not just a matter of technology.

The challenge of ‘Big Data’ (large data volume sets that are challenging to manage) is not that it is big, but that it creates new vulnerabilities, in part because of our tendency to overlook the social lives of data-objects, which are neither natural nor technical phenomena, but enacted and sustained through multiple and selective social practices. Our research objective is to ‘socialise’ Big Data by highlighting the social practices that bring these data into being and sustain them, and demonstrate how these practices are selective, and how they – and the digital data objects they enact – could have been otherwise.

Government, business and science have turned to Big Data to exploit promise and opportunities. From the world of finance to border control, from care of the elderly in the community to flood control, the harnessing of the potential of Big Data is the key to new ways to identify risk and minimise harm. However, alongside these seductive positives, there are also risks, such as invasions of privacy and threats to autonomy. New uses of Big Data also create and intensify inequalities. So who are the winners and who are the losers? Whose interests are being served by the transition to Big Data? What is being disadvantaged and displaced? These are some of the important questions that need to be addressed.

The problem with the story so far is that it takes the image of the data deluge at face value. We imagine a data tsunami; that data are already there – waiting to be released – to come gushing out at the push of a button. On closer inspection, a curious paradox is apparent. On the one hand, we are apparently inundated with data. On the other, we can’t get enough of it. The data we have are never detailed enough or complete enough; there is a constant clamouring for more. The plethora of watery metaphors about too much data coexists with an almost unquenchable thirst for more of it.

PUSH

WE IMAGINE A DATA TSUNAMI; THAT DATA ARE ALREADY THERE – WAITING TO BE RELEASED – TO COME GUSHING OUT AT THE PUSH OF A BUTTON.

The key to this paradox is that data are never just given. In contrast to the data deluge rhetoric and imagery, data never flow all by themselves. Every movement of data costs time, energy and human attention. Clearly, there is more to the story of Big Data than step-changing instruments and information infrastructures. We must think about other factors and actors that need to be added to the landscape.

Research matters

Your inspiration?

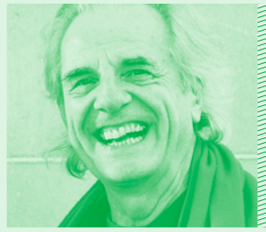
I have always been fascinated by genetics and more recently genomics. Next Generation Sequencing for genomics is what is happening in genomics at the moment, hence my interest in it.

Any surprises?

The phrase ‘Big Data’ covers a multitude of different kinds of data and a multitude of applications in a multitude of fields with a variety of institutional logics and norms and epistemologies. This is something I am exploring with Dr Adrian Mackenzie from Lancaster University, thanks to ESRC funding.

Why does it matter?

Big Data promises new business opportunities, more open and democratic government, a new paradigm of data-driven knowledge production in the sciences, social sciences and humanities, and a new regime of risk management based on discovering risky data objects.



PROFESSOR DAVE HILL

MARXIST TEACHERS HAVE A ROLE TO PLAY

In human history, education, research in general, utopias and alternative visions of the past, present and future are important. Without the contestation of existing 'common sense', then a society can get stuck with its inadequacies, injustices and inequalities. My life's work is dedicated to promoting critique and critical thinking and, after deconstruction, to promote social justice, which for me is best achieved through democratic Marxist replacement of capitalism. My role is to contest and illuminate the injustice in education, social and economic policy. But it is not enough to deconstruct, we also have to reconstruct and propose policy and agitate for it.

A key interest of mine is how a country's socio-economic and political system impacts on its school system. Education is being neoliberalised globally. Privatisation; deregulation; decentralisation; reduction in public social welfare and educational spending; the shift in the tax burden from rich to poor, from the middle and upper classes to the working classes; these factors all disproportionately affect the working class. Where neoliberalism has triumphed in education, common results have been increased casualisation of academic labour, increased proletarianisation, increased pay-and-conditions differentials within education sectors and cuts in salaries and 'the social wage' of state benefits and rights. We have also seen increased intensification of labour, with larger classes and decreased autonomy for school and college teachers over curriculum and pedagogy, among other issues.

Neoliberalism, then, has heightened gendered, raced and linguistically differentiated social class inequalities in educational provision, attainment and subsequent position in the labour market. This manifests itself in the hierarchisation of schools and the end of the comprehensive ideal. Poor parents have fewer resources to support the education of their children. And they have less economic capital and less valued cultural and social capital to transmit.

POOR PARENTS HAVE FEWER RESOURCES TO SUPPORT THE EDUCATION OF THEIR CHILDREN.

Is it time for a socialist transformation and replacement of capitalism? Through well-organised and focused non-sectarian campaigns, organised around class and anti-capitalist issues, those committed to economic, social and educational equality and justice can work in and with local, national and international campaigns. Only a massive, combined force can tackle the current global neoliberal form of capitalism and replace it with a fairer system. Here, critical radical and Marxist teachers have a key role to play.

Research matters

Your inspiration?

I was one of the few working-class children encouraged to raise their sights and progress onto university. As a teacher in Brixton, and subsequently a socialist activist and politician, I became aware of life-chance inequalities nationally and globally, which motivated me to become politically active.

Any surprises?

It is a never-ending process to fight for a more just system.

Why does it matter?

We still have an inegalitarian capitalist social class system. My vision is to have a free, open, democratic and socialist society that provides opportunities to all.

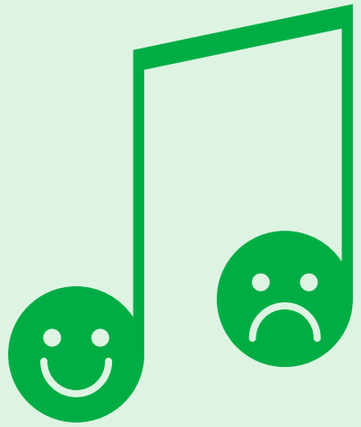
PROFESSOR HELEN ODELL-MILLER

MUSIC THERAPY MAKES LIFE-CHANGING CONNECTIONS

Music therapy is one of four arts therapies. In the UK, it focuses on the use of live music, mainly improvised, but sometimes also using receptive listening techniques. It works because the four basic elements of music are all part of pre-verbal human interaction – pitch, timbre, duration and rhythm – as can be seen in early babble in babies, the pre-cursor to speech.

Music therapy can play a unique role in enabling people to reflect on, and deal with, complex emotional states. The non-verbal aspect of music can help people with acquired brain damage (acquired through, for example, a road traffic accident or dementia) to remain mobile and communicate for longer periods. My current research is based around music therapy for people with personality disorders. We have found that this type of therapy can help people to connect thoughts and feelings and find new meanings in their lives – aiding recovery from mental health illness. It is particularly beneficial with regard to socialisation and interacting in groups, increasing motivation to engage in activities and life events and helping form relationships to decrease isolation. I am also working in collaborative partnerships with a number of organisations, including Cambridge University and Methodist Homes for the Elderly, on other research projects. These include developing links between music technology and music therapy and improving care for older people.

In other areas too, music therapy has been proven to work. A recent Finnish study in the British Journal of Psychiatry shows symptoms of depression are reduced in patients that are undergoing music therapy. I am hoping that we can replicate the study in the UK and build up our knowledge of the links between depression and music therapy.



MUSIC THERAPY CAN PLAY A UNIQUE ROLE IN ENABLING PEOPLE TO REFLECT ON, AND DEAL WITH, COMPLEX EMOTIONAL STATES.

Our new Music Therapy Centre at Anglia Ruskin University will play a key role in all of these areas. It will enable us to extend our reach into the community, explore further collaborations with NHS Trusts and other health and community service providers and contribute to shaping national music therapy research policy.

Research matters

Your inspiration?

I am a trained musician and was born singing, and find music a natural way to express myself. While studying music at university, under the guidance of musicologist, John Morehen, I visited Rampton secure hospital to sing in concerts. This made a deep impression on me; the connections made with the audience through facial expression, gesture and rapport – of a shared response – were incredibly strong. These experiences led me to train as a music therapist.

Any surprises?

The truly rich and deep connection you can make with people through music in a short space of time.

Why does it matter?

Harmony and melody provide a structure that is helpful for people who can't express themselves through language. For example, when memory and cognitive processes decline, more sensory forms of interaction need to be found. Our link to music is primeval. Across all cultures, we relate to music before spoken language is developed.

Our Research Institutes

Childhood and Youth Research Institute
www.anglia.ac.uk/cyri

_ Puts the social, cultural, emotional, intellectual and physical well-being of children and young people at the heart of its work.

_ Research and scholarship activities sponsored by the Office Children Commission, MOD Directorate Children and Young People, ESRC, British Academy and EU DG for Health and Consumers.

_ Research addresses the broad topic of 'social justice', 'digital culture' and 'voice and influence' in childhood and youth social policy.

Cultures of the Digital Economy Research Institute
www.anglia.ac.uk/code

_ Invigorates cross-disciplinary research across the cultural, creative and technical industries.

_ Participates in cutting-edge, multinational projects funded through, for example, the European Commission Framework 7 programme, European Regional Development Fund, NESTA, Arts Council England and the Technology Strategy Board.

_ Interdisciplinary research themes include Digital Performance, Production and Play; Serious Gaming; Mobile Applications; Creative and User Centred Design; and Digital Humanities and Social Media.

Global Sustainability Institute
www.anglia.ac.uk/gsi

_ Tackles the pressing challenges of sustainability.

_ Recognised for its work internationally, including winning the International Sustainable Campus Network Award, 2013.

_ Research focuses on the impacts of global resource scarcity and behaviour change at the individual level.

Institute for International Management Practice
www.anglia.ac.uk/iimp

_ Develops knowledge that bridges the gap between professional practitioners and academia.

_ Is acting as a catalyst in enhancing research quality and capacity across the Lord Ashcroft International Business School.

_ Research focuses on enterprise, innovation and internationalisation – key to the future prosperity, sustainability and well-being of the UK and wider global economy.

Postgraduate Medical Institute
www.anglia.ac.uk/pmi

_ At the heart of a network of 21 healthcare-facing partners delivering near-market medical research along the entire care pathway.

_ Home to seven speciality joint research units with NHS Partners, including a new Health & Wellbeing Academy.

_ Together with nine NHS partners, runs a research cooperative – the Anglia Ruskin Clinical Trials Unit (ARCTU) – supporting local investigators and bringing research wealth into the region.

Our four Faculties

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Health, Social Care & Education

Science & Technology

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