

Innovate

APPLIED RESEARCH AT COVENTRY UNIVERSITY

ISSUE 5 SPRING 2009

Do you need to find an innovative solution to a difficult problem?

At Coventry University, our applied research teams work closely with your organisation, applying their knowledge and expertise to devise inventive and original solutions for real-world problems.

We currently work with clients in the public, private and voluntary sectors at a regional and international level. Our staff have world leading and internationally excellent research expertise in a wide range of disciplines including: art and design, allied health, sports, urban regeneration, management, education, applied mathematics, engineering, computing, information management, politics and materials. If your organisation is looking for an innovative solution, our Business Development Support Team is ready to help you.

Applied Research at Coventry University

www.coventry.ac.uk/researchnet

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HELP THE AGED

How Coventry's health interventions are meeting the challenges of an ageing population

SUSTAINABLE STYLING

Making the environment a must-have fashion accessory

POWER PLAY

Lighting up lives in Africa with playground innovation



Welcome to the spring 2009 issue of Innovate, the applied research magazine from Coventry University.

In this issue we are focusing on Coventry University's contribution to the health agenda and the impact our applied research in this area is having on people's lives.

Coventry is proud of the groundbreaking developments we are making to the future of healthcare in the UK – and indeed globally –

through our research centres, institutes and students.

This year we will officially open the doors to the Health Design and Technology Institute's new building. This Institute will play a pivotal role in exploring the ways in which an ageing population can be supported and will draw on expertise from across the University to deliver first class research.

The building is just one example of the investment we are devoting to solving today's healthcare issues. The facilities will enable the University to offer businesses the collaborative space and expertise to develop new healthcare products to meet society's complex health needs.

It is remarkable that medical advances are increasing our life expectancy, but with that progress comes new problems. Millions of us live with long-term health conditions and for the first time ever there are more people over the state pension age than there are aged under 16. This shift in the population's demographic poses huge challenges for the future of health and social care provision.

As you will read from the projects we are involved in, Coventry is at the forefront of finding solutions for these issues by working with leading organisations and using the expertise we have in the University.

Our Faculty of Health and Life Sciences is not only producing the healthcare providers of today but it is also working with many other faculties to solve the healthcare issues of tomorrow.

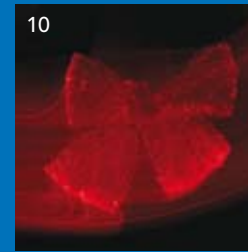
I hope Innovate gives you the opportunity to see some of the pioneering work we are currently involved with and that you enjoy reading about the developments that will have a positive impact on all our lives.

If you have any comments, please do not hesitate to get in touch. I look forward to hearing from you.

Professor Ian M Marshall

Pro-Vice-Chancellor (Research)

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Contact us

If you would like to find out more about any of the articles within this issue, if you have a general enquiry about applied research, or to subscribe to future issues of Innovate, contact us:

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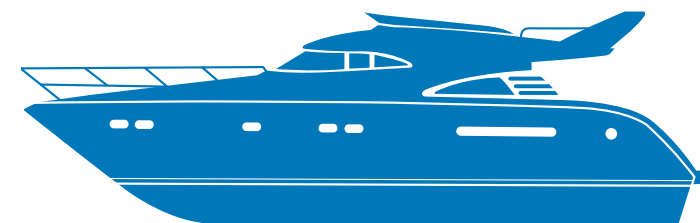
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Enterprise initiative to boost economy

The University has been chosen to lead one of the Government's new University Enterprise Networks to develop skills among entrepreneurs and tomorrow's business leaders.

Coventry is leading the development of the Innovation Network with regional development agency Advantage West Midlands.

The network, which also involves HP's Micro Enterprise Acceleration Institute, BT, Prowess and CISCO, will focus on helping small businesses collaborate with large companies in the development and launch of new products.

It will also help students understand how web-based technologies can be exploited in the creation of new business ideas.

Dr Clive Winters, Assistant Director of Coventry University Enterprises Ltd, said that innovation was essential to the UK's future economic prosperity and international competitiveness. He said: "The Government is looking to push entrepreneurial graduates and we have a proven track record in this area. This takes our work to another level,

supporting individuals within organisations on creativity and ideas development, and opening doors between entrepreneurs and corporates."

The work is considered to be particularly important post-recession, when the University will have supported students in setting up their own business and also given them the tools to link up with other entrepreneurs and larger businesses.

There are four national University Enterprise Networks managed by the National Council for Graduate Entrepreneurship (NCGE). David Lammy, Minister of State for Higher Education explained: "We need stronger links between business and higher education so that we can make full use of the expertise and talents within our universities and colleges. University Enterprise Networks are a new kind of partnership that will nurture the enterprise skills and entrepreneurial spirit of tomorrow's business leaders, while also helping universities engage more closely with the needs of employers today."



David Lammy,
Minister of State for Higher Education

Creative industries kept informed

The Institute for Creative Enterprise (ICE) has launched an online newsletter to keep people informed of its projects.

The new newsletter, Emerge, is targeted at the creative industries in Coventry and Warwickshire and is a joint initiative between ICE and Coventry City Council.

ICE is funded by Advantage West Midlands to support new creative businesses and the new online Emerge newsletter will replace the hard copy version of Emerge which was previously published by Coventry City Council.

Emerge will be published bi-monthly and anyone can sign up for free to receive the newsletter and hear about the Institute's latest activities.

One recent event ICE hosted was a creative lab to support the artists who had taken part in *Fracture: Dance and Moving Image*, a programme funded by the Arts Council England in 2007.

Artist production teams, which had previously created seven commissions for the programme, were invited to take part in the *Fracture Connect Creative Lab*. Participants were given an introduction to developing cross-platform projects, a chance to explore the marketing opportunities available through new media and guidance on further funding and commissioning opportunities available.

The event, which took place last November, was facilitated by leading experts Unexpected Media – the company that designed and delivered creative labs for almost 10 years through the BBC's Centre of Excellence for Creativity.

Representatives from the region's key new media agencies including Screen West Midlands and Channel 4 made presentations together with some of the UK's most cutting edge artists projects.

To sign up to Emerge send an email to info@emergemag.co.uk with 'subscribe' in the subject line.



University has 'world leading' research

The quality of the University's research has been recognised as 'world leading' in the Research Assessment Exercise.

Coventry University has seven subject areas which have received the highest rating of 4* in the overall quality profile this year.

Although the scoring system has changed since the last exercise in 2001, 81% of subjects assessed have improved their scores.

RAE2008, which is based on expert review, includes the views of international experts in all the main subject areas. The results demonstrate that 54% of the research conducted by 52,400 staff submitted by 159 universities and colleges is either 'world-leading' (17 per cent in the highest grade) -

or 'internationally excellent' (37 per cent in the second highest grade).

The University's average grade is now 1.85* compared to 1.2* in 2001. In the same period, the proportion of researchers working at national/international level has significantly increased and numbers submitted in these units almost doubled.

It is seven years since the last RAE which is conducted by the UK universities' higher education funding bodies.

Higher Education institutions were invited to submit evidence of research activity within certain specified 'units of assessment'. Areas were graded by specialist panels on a rising scale of U (unclassified) 1*, 2*, 3* and 4* with 4* being the highest.



New portal for community cohesion

The Institute of Community Cohesion (iCoCo) has launched a new website to meet a central government objective.

Following recommendations in the Commission on Integration and Cohesion's 2007 report *Our Shared Future*, the Rt Hon Hazel Blears MP, Secretary of State for Communities and Local Government (CLG), announced plans to develop a 'single portal for cohesion guidance'. CLG are backing iCoCo to develop the 'one-stop shop' for their audience of community cohesion practitioners, policy makers and researchers.

Phase one of the project was launched in October 2008 and built upon iCoCo's existing resources to introduce searchable databases of community cohesion publications and good practice case studies.

Visitors to the site now have ready access to a full range of resources and can find all the information they need to keep up to date with developments in the field.

Phase two of the site will introduce a dedicated area for iCoCo's growing Practitioner's Network.

This secure area will provide exclusive features and benefits for Network members, including a sophisticated online networking space with discussion forums and member profile pages.

iCoCo is also working with the Equality and Human Rights Commission (EHRC) to extend and improve the good practice database. This resource will grow to include the wealth of good relations case studies from across the UK; it will also support 'ownership' of case studies so those involved in the schemes and projects can keep the resource up to date and relevant.

For more information visit www.cohesioninstitute.org.uk



Enter the ABCs

Successful local schemes that have helped to build bridges between communities are being encouraged to enter the Awards for Bridging Cultures (ABCs) 2009.

The ABCs is now in its second year and is funded by the Baring Foundation and run by the Institute of Community Cohesion (iCoCo).

Entries must demonstrate the impact that projects / schemes and volunteers / founders have had in promoting intercultural dialogue between different communities.

There are four categories to enter and the deadline is 14 September 2009.

For more information visit www.bridgingcultures.org.uk

Support for businesses through recession

Coventry has produced an informative guide to show local businesses how it can support them during the recession in response to a recent Government document.

In November last year, David Lammy MP launched *Standing Together: Universities Helping Business through the Downturn*. Produced by Universities UK, GuildHE and the Higher Education Funding Council for England (HEFCE), *Standing Together* showcased the ways in which Higher Education Institutions could provide assistance to businesses during the current challenging economic climate.

The document highlighted that it had never been more important, or timely, for businesses to look at what's on offer on their doorstep or for universities to identify what they can do to help.

In response Coventry University has produced its own information booklet about the specific support it could offer the local business community.

The Head of the Corporate Partnership Unit, Lorna Overall, said: "The University has always believed in working closely with industrial partners, be they local businesses, national companies or multi-national

corporations, and we are proud to be seen as a 'business-facing' university. The global recession makes the work we undertake with business more important than ever."

The booklet explains how the University can work with a business to help solve some of the problems caused by the current economic downturn in a variety of ways.

Advice includes identifying new ways of working, providing access to staff expertise and student skills, subsidised training, providing access to funding, assistance with starting and growing businesses, supplying flexible business accommodation and exploring new markets – at home and abroad.

For more information: www.coventry.ac.uk/Business/Pages/downturn.aspx



New Pro-Vice-Chancellor for International Development



David Pilsbury, the former Chief Executive of the Worldwide Universities Network (WUN), has been appointed Pro-Vice-Chancellor for International Development.

At WUN, Dr Pilsbury successfully developed an international consortium of 16 universities across four continents, and brings considerable experience of staff and student mobility schemes, collaborative research programmes and joint courses to his new role at Coventry. Dr Pilsbury has previously held the post of Head of Research Policy at HEFCE, and spent part of his earlier career in the City of London.

At Coventry, Dr Pilsbury will continue to build on the University's success under the UK-India

Education and Research Initiative (UKIERI) and the Prime Minister's Initiative for International Education (PMI2).

Dr Pilsbury is currently developing an international strategy to move the University forward from being a University with many international students to being an international University. He will also be involved in encouraging more international applied research projects and said: "The University has been successful under the European Union Framework 7 programme which provides funding for primarily applied research activities and this will be an area of focus in the future along with targeted schemes to build links with key countries of interest for the University."

Business champions praised at IAE awards

Coventry graduates were among the entrepreneurs that were hailed as the best business newcomers last November at the Institute of Applied Entrepreneurship's (IAE) New Business Awards 2008.

The annual awards ceremony is now in its second year and this recent event also marked the launch of the new institute. The event was held at the Brandon Hall Hotel in Coventry and included speeches from Vice-Chancellor Madeleine Atkins and Co-directors of the IAE Gideon Maas and Clive Winters.

Three graduates won the top prizes and many more were shortlisted in the five categories that honoured creative and innovative ideas.

The top prize of the evening went to Consumer Product Design 2008 graduate Daniel Sheridan who was named Entrepreneur of the Year for his business idea to create playground equipment that generates power for schools in Africa (see page 14 for a full

interview with Daniel about his award-winning and life changing project).

Graduate Simon Hill won the Most Creative Use of Marketing award for his idea that uses digital photo frames to display advertising in companies where there is a captive audience, such as hairdressers. Illustration graduate Ann Scott was also shortlisted in this category for her children's interiors business along with Technology Park residents Jon Foster-Smith and Ros Adams for their Filmcircle business.

Student Entrepreneur of the Year, which was sponsored by the SPEED programme went to Adam Hussein for his glass design business Infini Glass and to Samantha Mitchell for her innovative 'growing' jewellery collection.

Other prizes went to Philip Wrenn for the Most Inspirational Story in the launch of his business idea to create low cost road markers in rural areas, and Joseph Stockley won the Most Innovative Idea for his business Hydrogen Design Futures.



Congratulations:
Daniel Sheridan Entrepreneur of the Year 2008

Coventry is first UK city to host Play the Game

Coventry will be the first ever city in the UK to host Play the Game, the world communication conference on sport and society, and the University will also co-organise the event.

The conference, now in its eleventh year, is usually held in a Nordic country, but this year the University's Centre for the International Business of Sport (CIBS) will co-organise the event in Coventry.

Around 400 media professionals, academic

researchers and sports practitioners are expected to gather in Coventry from 8-12 June, to debate some major issues facing world sport, such as good governance, anti-doping and encouraging more participation in sport.

The conference will also address the legacy issues associated with London and Beijing's hosting of the 2008 and 2012 Olympic Games.

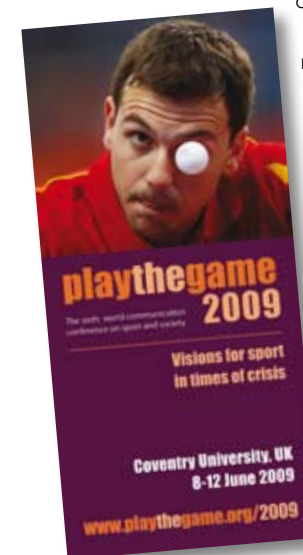
Coventry's bid to host the Play the Game conference was chosen ahead of submissions from the Spanish city of Maspalomas in Gran Canaria, whose bid was led by the Blume gymnastics organisation, and the German capital Berlin, as put forward by German sports debate association Sportnetzwerk. Strong interest was also shown from the Netherlands and Norway early on in the bidding process.

However Play the Game opted for Coventry as a host city due to the

commitment and enthusiasm of Professor Simon Chadwick and CIBS.

Coventry University's successful bid was aided by the support of the regional development agency Advantage West Midlands and hosting the conference will give Coventry the chance to showcase itself to an international audience.

"Being the first UK city to host such a prestigious international conference is indicative of the University's international expertise in relation to sport management and business," said Professor Simon Chadwick, Director of the Centre for the International Business of Sport at Coventry University. "It also demonstrates that Coventry is an increasingly appealing location, with important sporting connections."



playthegame

Jamaican Pride



The livelihood of Caribbean banana producers came under threat when changes to trading rules made it difficult for them to compete with international fruit producers. But Jamaican farmers are getting a welcome boost from a new project that Coventry University is helping to implement, as Professor Phil Harris explains

While nature used the force of Hurricane Hugo to wreak havoc on Caribbean banana fields, it was humankind who dealt a blow that is crushing the livelihoods of Jamaican farmers.

When the new Economic Partnership Agreement (EPA) was introduced, it replaced former trading rules that gave Caribbean banana producers protected access to the European Union for traditional agricultural products. The removal of this protection threatens the income of local farmers who struggle to compete internationally on price and quality.

A new project is proving that while there is no control over nature, there are alternatives to surviving a man-made disaster.

Jamaica PRIDE: Promoting Rural Integrated Development and Enterprise: A Participatory Business Model for Organic Agro-Tourism addresses the problem of declining income from banana production in rural communities of Jamaica. The project aims to develop novel ways of integrating organic production, sales of local products

and agro-tourism, based on the specificities of local socio-cultural, economic and environmental conditions. Specifically, the project aims to engage rural women in the design and implementation of strategies appropriate to local needs.

Funded by a grant of 268,000 euros from the EU Banana Support Programme, Jamaica PRIDE is part of the international programme of Coventry University's Applied Research Group in Sustainable Agriculture and Food. The team is collaborating with the Jamaica Organic Agriculture Movement and the Jamaican Network of Rural Women Producers.

The work is focused on the activities of a registered friendly society – Mango Valley Visionaries Friendly Society (MVVFS) – in the community of Mango Valley in St Mary Parish, one of the poorest parishes in Jamaica. The MVVFS is the main beneficiary of the grant funding during this one-year project and this enterprising group has already responded to the decline in traditional banana farming, by diversifying crop production into tomato,

cucumber, cabbage, corn, lettuce, sweet pepper and a variety of fruits, some of which are organically grown.

MVVFS has also started to generate income from agro-processing activities and produced a line of Mango Valley Pride products including jams and local delicacies such as guava cheese, otaheiti apple balls and jerk seasoning. There is a steady local demand for their products from local supermarkets and a small number of restaurants and hotels on the north coast.

Despite the advances made by MVVFS, there are several barriers holding them back from developing further. Lack of information has led to inconsistencies in organic farming practices, resulting in a need for extensive technical assistance and training. The certification of organic products is underdeveloped and many rural farmers are unable to access certification courses. MVVFS has also identified a lack of expertise in packaging, labelling and marketing.

Farmers need to increase their knowledge of regional and international requirements,

target customer preferences and improve their marketing skills. Addressing these issues will help them to become more competitive, create brand distinctiveness, expand market share and the demand for community-based agro-products.

Agro-tourism (a concept where tourists visit rural communities and experience agricultural life and local products and culture at first hand) as a key component of integrated rural development has the potential to support and promote agricultural diversification in rural communities. The main focus of tourism development in Jamaica has been centred on the large holiday resorts on the island's coasts. The potential of agro-tourism therefore remains relatively untapped in small farming communities such as the Mango Valley.

The Jamaica PRIDE project aims to address each of these constraints. On the agricultural side, the project will identify an appropriate organic certification scheme, provide technical advice and training in organic production, and explore the possibilities for further diversification into crops such as organic herbs and spices.

For the processed products, the project will help develop new market relationships as well as developing and promoting the Mango Valley Pride brand identity. This will involve an audit of its unique features such as its heritage as well as the environmental, ecological and cultural aspects of the locale. These can be used to build up the Mango Valley Pride brand and establish unique links between provenance and the quality of the food produced in the area. Plans are

already well advanced for the project to invest in technical developments, such as the purchase of packaging machinery so that MVVFS can supply hotels with individual portion sachets of jams and jellies – a service which hotels have requested, but which MVVFS are currently unable to provide due to lack of financial resources.

The third area of the integrated programme aims to develop a model of organic agro-tourism based upon the local organic production systems, combined with local cultural resources such as culinary heritage, stories, music and crafts. This also includes strengthening business relationships between the producer groups marketing organic products and tourist centres to offer reciprocal promotion of agro-tourism to the target areas.

Although Jamaica PRIDE focuses on one specific community for its intensive one-year programme, the lessons learned, the resources produced and the model developed are all intended to benefit other communities in Jamaica and the wider Caribbean.

Within the Mango Valley community itself the project aims to leave a sustainable legacy of increased expertise in organic agriculture production and certification, improved brand image and product marketing, insights into the potential of agro-tourism and an enhanced agricultural and agro-processing infrastructure.

The impact the project will have on the Caribbean proves that, sometimes, human intervention can be a positive force to be reckoned with too.

Coventry University's project team

This project, within the Faculty of Business, Environment and Society, is being delivered by a team which comprises Prof. Phil Harris, Prof. Hazel Barrett, Dr Moya Kneafsey and Dr Liz Trenchard from the Department of Geography, Environment and Disaster Management, and Dr Marcella Daye, a tourism expert from the Department of Strategy and Applied Management.



Project Leader
Professor Phil Harris is Professor of Plant Science in the Department of Geography, Environment and Disaster Management and Head of

International Development for the Faculty of Business, Environment and Society. After taking a BSc at Bath University and a PhD at Glasgow University, Phil joined Coventry University in 1975. Phil's research has focussed on tropical crop development, sustainable agriculture and agroforestry, with projects in the Caribbean, Africa, The Middle East, India and China.

Sustainable Styling

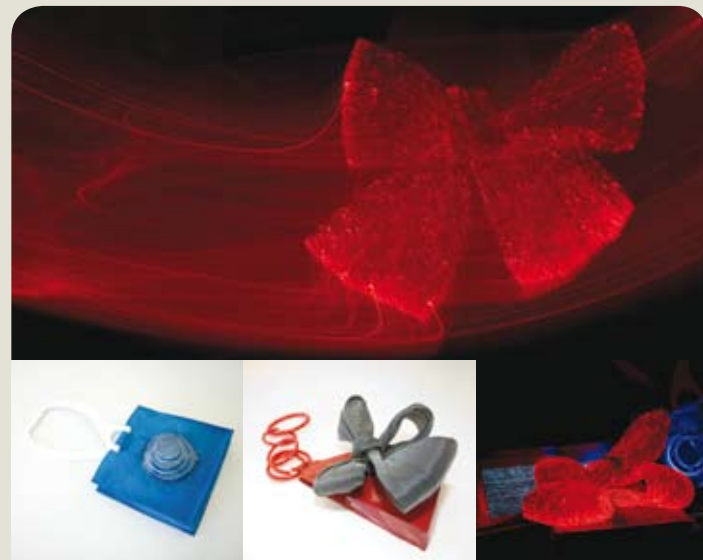
The environment has never been a must-have fashion accessory but, as more consumers opt for greener products, designers are becoming more socially responsible. Coventry University responds to the eco-clothing challenge

It's possible to trace the meat on your plate back to the farm it was once grazing in, but there's no way of knowing the origin of the shirt on your back.

Since 2002 the EU has legally required food businesses to be able to trace their products, but there are currently no regulations for clothing manufacturers or designers to do the same. However, as environmentally friendly products move their way up consumers' shopping lists, eco-rated garments, detailing the material's source, are set to be the next hottest trend.

Until recently, ethical clothing has been regarded as 'worthy' and not really the garb of the glamorous. More organic cotton t-shirt than low carbon clutch bag.

But it's an image that experts in fashion research and energy management at the University are keen to change, as they believe sustainability could add the finishing touch to any outfit. It's a belief that has led to a new feasibility study, aimed at developing a pilot eco-labelling system for the UK fashion industry.



Digital printing was used to produce a range of handbags using fibre optic material and a laser cutter for the linings and handles. Operated by a low voltage battery the innovative bags that light up were designed by Scarlett Holland who received a distinction for her Masters in Fashion and Technology.

Eco-labelling could assist people to make an informed decision about their clothing purchases, enabling them to choose in favour of products that are environmentally and socially responsible.

Lecturer and fashion designer Ella Sharp is leading the project, which she has part-funded along with the Technology Strategy Board, and is working with British fashion companies to develop an eco-calculator, to work out the environmental qualities of a garment, and a prototype label.

"Even though designers want to be green it can be very difficult and time consuming to calculate exactly how environmentally friendly the clothes you make really are. That's why it's important to develop the software to do all the calculations for designers to enable quick and accurate labelling," explained Ella who is the inspiration behind the project.

The computer software will enable designers to fill in a simple form that calculates the eco-rating of a garment. The form will be designed so it is quick and easy to use, with drop down menus that prompt for details such as the type of fabric the garment is made from, the dyes that have been used and whether it's organic.

This information enables the software to produce a detailed report of the garment's environmental qualities. These details would then be included on the label but as symbols indicating the garments environmental and social qualities. The plan is for the symbols to become industry standard so they will be instantly recognised by consumers – similar to the way the traffic light symbols work on food packaging to indicate fat and sugar content.

While there are other certification schemes available – such as Fairtrade – the fees can be expensive for small companies and certification is needed for individual garments. This can be difficult for a designer who is unlikely to keep many outfits in production for longer than one season.

The eco labelling system, that will be piloted as part of the Coventry study, is aimed at supporting the UK fashion industry who predominantly manufacture their garments in the UK, particularly in London or Leicester.

Larger fashion houses tend to export the manufacturing of their garments to China and India, which greatly reduces the eco credibility of the garment due to the transportation involved.

"If the British fashion industry could promote their eco credentials via an eco-label it would enhance their credibility and open up new market opportunities," explained Ella. Coventry's research team will seek validation for the labelling system from organisations such as the British Fashion Council, The Department for Environment Food and Rural Affairs, the Global Eco-labelling Network and the European

Eco-label – a voluntary scheme designed to encourage businesses to market products and services that are kinder to the environment.

The team is working with partner companies to develop the prototype, including a textile company that supplies to British designers and manufacturers, so that the production route can be tracked. So, for example, they would see how a company's cotton is grown in Egypt, spun in Italy and then finally woven in Lancashire.

They will also work with a clothing manufacturer to record the energy levels of certain processes such as the energy consumption of machinery. Ella is collaborating with Principal Lecturer in the Faculty of Business Environment and Society and registered Environmental Auditor Leslie Duckers who has 20-years experience and has already conducted research into this area.

"This system would give small designers, like myself, another USP. We have very small supply chains, so we're already being more socially responsible to some degree," said Ella who runs her own boutique in Greenwich. "If the labelling got adopted by the high street, it would be so obvious why you pay £800 for a tailored jacket from me and only £45 for a high street suit jacket."

The project will also study Corporate Social Responsibility (CSR), water consumption, dyes and other chemicals used in the growth, manufacture and printing of designs and Ella is working with Kim Duckers to investigate this area.

While Ella's project is focused on natural materials, the University's fashion team is widening its environmental net to look at new methods of manufacturing man-made materials too. Advanced digital printing equipment has made the use of sonic welding and laser cutting redundant and work is being done to see if this has reduced energy consumption.

"Natural materials have always been considered the best for low energy consumption but when you look at the tremendous amount of non-renewable water that is used for organic cotton, this may not always be the case," said Principal Lecturer Ann Muirhead. "Man-made materials dye very easily and are low maintenance."

It's important to the Fashion team at Coventry to improve the production process of the industry for the benefit of both the environment and the people who work in it. Based in Art & Design, Fashion has only been in the Faculty for two and a half years but it is already making a huge impact. Three of its students have won national awards and it is the only University in the country with design technology that is available to all fashion students (and not just postgraduates).

While the economy continues to deliver more bad news, fashion has an important role to play in the recession according to Ann. "People need better clothes to look respectable at work or at interviews. Fashion's enjoyable; it inspires us. You need clothes to go out in and to give you confidence. They make you feel good about yourself."

And, in the future, a successful eco-labelling system could help more consumers – and designers – to feel even better about themselves.



Power Play

After voluntary work in Africa helped spark an idea for generating renewable electricity through play, graduate Daniel Sheridan used University resources to create a business with a conscience

If Daniel Sheridan's dream comes true, playground equipment will soon help to keep the lights on in African schools. It's a dream that would reduce the number of kerosene lamps that are currently damaging the eyes of those who are eager to learn. In eastern Africa it's dark by six in the evening, so people have to rely on lamps and candles to light the way. In Uganda alone, approximately 89% of the country has no access to grid electricity, which affects children doing homework, teachers preparing for lessons and adults taking evening classes.

It was while doing voluntary work in 2007 at an African school on the coast of Kenya that Daniel saw how rural and remote communities could benefit from electricity. Witnessing these difficulties first hand inspired him to research a design for the final year project of his MDes Consumer Product Design degree. Through his Master's level research, Daniel hit upon the idea that the children could generate power for their classroom while they were playing. He just needed to design a device to enable the process to happen.

"Despite the hardships in Africa, one of the positive aspects is the vibrancy of the children," explained Daniel. "I realised that something designed to be played on by the children could create energy at the same time. A see-saw was the concept I started to evolve."

It's a student project that has now turned into a business venture for the 24-year old graduate, and funding from the Manufacturing Advisory Service (MAS) as well as product testing support at the University is helping Daniel to make his dream a reality.

His company PlayMade Energy is registered at the Technology Park and his



newly manufactured Energee-Saw installation kit is about to go through a final round of testing at the University.

The business side of things almost happened by accident though, and was a mere means to an end while Daniel was getting the design ready for his Degree Show.

"I wanted to take a prototype of my design out to Africa and film it in use for the Degree Show," explained Daniel about his plans. "No one had done that before.

"I wanted to be innovative and possibly use the film to apply for jobs in International Development, but I knew I needed about £1,000 for the flight and to get the kit made up for the see-saw to work."

As Daniel started making contact with lots of companies, charities and organisations asking for sponsorship for his project, he found out about the University's Student Placements for Entrepreneurs in Education (SPEED) programme and an opportunity to enter a BizCom competition to win a £1,000 cash prize.

"I entered the competition just so I could try and win the prize money for my trip to Africa. I wasn't even thinking of my design in the context of a business at the time but as I went through the form, which asked lots of business questions, it helped me to see that I had a business model – and I'd never thought about it like that," explained Daniel who went on to win £500 and a package of business mentoring support for the Most Innovative Idea and another £500 as the Overall Winner of the Bizcom competition. While the competition had given him the money he needed for his degree assignment, it had also opened up the opportunity for Daniel to launch his own business.

Mentoring support from the Student Centre helped him prepare a business plan and by the time the Degree Show had arrived he had not only tested and filmed his see saw in Africa, he had registered PlayMade Energy, designed its logo and launched a website (www.playmadeenergy.com) for his new business.

The University's guidance has continued long after graduation and as part of the newly launched Institute of Applied Entrepreneurship, Daniel secured more graduate mentoring support and funding.

In September 2008, PlayMade Energy gained a place on the MAS Product Innovation Consortium (PIC) scheme, which is helping fund the project. He is required to present to a panel made up of academics, experts and directors from the West Midlands manufacturing industry at each stage of the project to request more funds and to prove he is on track. MAS will then supply 50% of the money in a match fund. "It's a good scheme as they check you're on track, approving funds at each stage of development, rather than just sending you away with the money. The advice you get from these people is invaluable," said Daniel who completed his second presentation to the panel in January, to secure funds for his revised final prototype.

Testing space at the University is being made available so Daniel can test the prototype to confirm the amount of energy that can be produced from average use, and ensure it meets necessary product compliance

and British Standards. Subject to testing it is currently estimated that children playing on the see saw for one to two hours will charge the two supplied 12v 7ah batteries. Once fully charged, each of those batteries will power a 10 watt appliance, for example an LED lantern, for approximately six-eight hours of use. This means a school could power four lanterns for three to four hours, which would provide essential evening light. The power could also be used to power other low drain appliances such as radios and mp3 players, and communication devices. In the future it is hoped that further development of the battery specification will enable the use of recycled computers in developing world schools.

PlayMade Energy's plan is to supply assembly kits to charities or organisations who will then deal with the logistics of transporting them to schools and communities as they have the connections and support infrastructure. Pictorial instructions will be supplied with the kit and communities will support charities in the sourcing of local timber and reused materials to complete the product. Daniel believes the self-assembly process is important as it helps foster a sense of ownership and pride. It is the simplicity of Daniel's idea that makes it so

ingenious. The children not only take pride in constructing their new 'toy,' they can enjoy playing on it in the knowledge it is also helping to power electricity

in their school. "When the electricity is generated by the movement of the see-saw you can hear it," said Daniel. "There's audible feedback, which is really encouraging for the kids while they have fun with their friends. I was so enthused seeing that. The teachers could see the potential for the classroom."

It's Daniel's enthusiasm and passion that has recently earned him The Lord Stafford Award 2008 for Entrepreneurial Spirit as well as being named the Entrepreneur of the Year 2008 at the Institute of Applied Entrepreneurship annual awards.

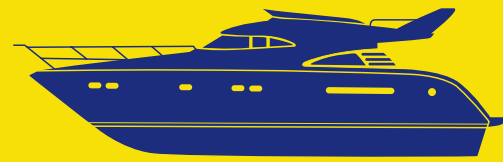
Daniel is hoping that by winning high profile awards he will attract attention from sponsors or businesses that will help with the funds for the final testing so he can get Energee-Saws working in many African schools.

"If we can make a difference to just 10 schools in Africa it will personally be a success. However I am aiming beyond the 100 or 1,000 mark and this in part will be down to the funding I can secure," said Daniel about the future. "I won't be able to make a business out of only producing 10 but I believe in the product and the changes it can make to school life in underprivileged areas, so there is real determination behind PlayMade Energy."

To sponsor the installation of an African school see-saw this year please contact info@playmadeenergy.com



Sailing into business



Coventry was recently the first university to exhibit at the London International Boat Show and the promotion paid off with attention from the media and business

Over 100,000 people attended the London International Boat Show in January and Coventry University was there to build contacts and showcase its work in boat design.

The University used the opportunity to promote the expertise in the School of Art and Design in both automotive and boat design. Student work was on display including latest concepts and more traditional designs, which attracted interest from businesses.

Existing partners Ricardo, Amico and MIRA also attended the event.

The outcome of the show was very successful with four potential Knowledge Transfer Partnerships (KTPs) currently in discussion with leading organisations in the boat industry – all worth £100,000 each.

One leading consultant has even expressed an interest in partnering with Coventry on an FP7 project in boat design and many possibilities for student projects and placements were invited from various companies too.

The media were also interested in the work Coventry is doing and Head of Boat Design Sean McCartan has since been asked to be a judge for *WhatBoat?* magazine's Best Boat 2009 competition and was also interviewed for *European Boatbuilder* magazine.

Coventry has had several graduates who have gone on to work in boat design. Peter Wells graduated last year with a 1st class honours degree in the subject. He was shortlisted for young designer of the year in the World Super Yacht Awards.

John Owen, Head of Industrial Design at the School of Art and Design, said: "We showcased our expertise in Industrial Design and showed how we can diversify from cars and our strong skills in automotive design to boats."

For more information visit www.coventry.ac.uk/researchnet/d/701

Pushing the boat out

Industrial Product Design graduate Steven Eltringham designed a sailing Trapeze Harness during his course and was at the Boat Show to promote his concept.

Steven's harness has been designed to provide comfort and support for people when they are sailing. The harness supports the spine and reduces the risk of injury and fatigue for the wearer and has a quick release buckle for increased safety.

Steven said: "As a sailor, I found

most trapeze harnesses uncomfortable and restrictive – and I found that other club and competition sailors did so too. My research has resulted in my design of a stylish and ergonomic prototype for a new generation of sailing harnesses, using new ideas and new technologies. The result is a safer, lighter device; designed for the user, by a user."

Steven and Coventry University Enterprises are now seeking licensees for an exclusive global licence for the manufacture and sale of the R-Pro Trapeze Harness.

For more information: contact Brian More on b.r.more@coventry.ac.uk



Better Together

The NHS has been accused of being a 'sleeping giant' in its efforts towards community cohesion. Andrew Lawrence, Principal Associate of the Institute of Community Cohesion (iCoCo), explains how a new guide is acting as a wake up call for the health service

Community cohesion is good for our health. In fact, research has shown that more interaction in our communities improves our life expectancy, reduces health inequalities and morbidity.

It is little wonder, then, that the NHS has been prescribed a new guide to encourage more involvement in community activities.

The report, called: *Better Together – a guide for people working in the health service on how you can help to build more cohesive communities*, provides help and advice to people in the NHS on how to contribute to community cohesion. Copies of the guide, which was commissioned by the Department of Health and prepared by iCoCo, are being

sent to chief executives of all the health trusts and local authorities in England.

Communities throughout the UK are changing rapidly and their diversity creates both opportunities and challenges for the public agencies that serve them. Community cohesion is possible when people from different backgrounds interact positively, but sometimes it needs support from public agencies, such as local authorities and health trusts, that have a responsibility to work in partnership to build robust, local communities. The *Better Together* report argues that the NHS is the 'sleeping giant' of community cohesion because it could make a greater contribution based on the huge impact it has on people's lives. Community cohesion is regarded as part of an area's social capital and the report suggests by strengthening that, it can have a positive impact on health.

Concentrating on ten challenging questions, the report focuses on key areas of activity where health trusts can have the greatest impact on community cohesion.

Questions were generated by working with health and local government practitioners, particularly in the North West of England where many examples of good practice have been developed following the community conflicts that occurred in Bradford, Burnley and Oldham in 2001. The topics include

leadership and partnership, promoting positive relationships between people from different backgrounds, achieving positive interactions for all, engaging with communities, locating services and creating public spaces, involving suppliers and service providers, promoting cohesion, equality and diversity and countering myths, using information to understand change, investing in people and promoting NHS jobs to all communities.

More specific self-assessment questions are also included to test personal approaches to community cohesion and develop ways to improve.

Advice is also given on how the questions might be applied to seven key business processes – developing vision, values and strategy; developing partnerships; engaging with communities and understanding their needs; planning and commissioning services; managing resources; delivering services and evaluating and learning from performance.

If the NHS adopts the report's recommendations, it could go some way to helping cure fragmented communities and, in turn, greatly improve our health.

For more information: *Better Together* is online at www.cohesioninstitute.org.uk/resources/toolkits/health and as a download.

General observations

As well as advice for local practitioners, the report identifies seven key issues of more general significance.

1. The Health Service is very good at addressing issues of equality and diversity but the term 'community cohesion' is not widely used or understood.
2. There is a perception that community cohesion is concerned only with race and faith, when it should include all differences that divide communities (such as age, social class, disability, sexual orientation and ill health).
3. Many people feel community cohesion is in competition with other pressing commitments but the report explains how it can help other areas of work too.
4. Our understanding of how communities are changing requires much better use and sharing of data.
5. There are many examples of very good community engagement but not much attention to how different groups of people relate to each other.
6. The impact of funding for vulnerable community groups needs to be analysed as it can foster segregation and resentment.
7. Trusts need to monitor the impact patient choice has on communities.



Andrew Lawrence is an iCoCo Associate specialising in public policy and service improvement. He led the project to produce the *Better Together* guide in iCoCo. He holds

a degree in Politics and qualifications in Town Planning, Management and Public Relations. He worked as a planner for two London Boroughs and was Assistant Director of Planning and Transport for Warwickshire County Council. He was head of Community Support at Warwickshire until April 2006.

State of Independence

The increasing older population is creating major challenges for the future of health and social care. Commercial Development Director Guy Smallman explains how the new building for the Health Design and Technology Institute (HDTI) will play an important role developing products and services to help reduce dependency on the national healthcare system

Advances in medicine and improved living conditions have added years to our life expectancy – and in turn created a much older population in the UK.

In fact statistics show that in 1971 only 7% of the nation were aged over 85 but 33 years later and 12% are recorded to be making it past that milestone. In fact according to the latest statistics from Nursing and Midwifery Council Guidance for the Care of Older People 2009, there were 10,000 people in the UK aged over 100 in 2008 and this figure is set to rise to 250,000 by 2050.

This rise in the number of older people is causing pressure on the health and social care sectors. The longer we live, the greater the demand for medical treatment and social support as long-term health conditions (LTCs) impact on the way we live our lives. There are now 17.5 million people living with LTCs, which take up 80% of all GP consultations.

HDTI has been created to take a national lead in responding to the future challenges of community healthcare provision – helping individuals and businesses launch new and improved products and services.

It's a unique Institution as it brings together specialist product design, usability testing, academic research and expert professional healthcare. There are other organisations that

provide excellent design services – as there are those that offer clinical trials – but these are not integrated offerings focused on assistive technologies and community healthcare products.

Thanks to funding from Advantage West Midlands, HDTI is able to provide West Midlands SMEs with funded consultancy time to help advance their product. This could involve product design, prototyping or usability testing, with the client retaining the Intellectual Property in their innovation.

User testing means HDTI validates a client's claims for a product. Alternatively, it could be that end users offer opinion and advice on ways to adapt it. The report produced at the end of the study is a rigorous, professional-led study that can be cited by a company in its marketing materials. It is a stamp of approval that's imperative for those wanting to sell their product to the NHS which increasingly operates a policy of 'evidence based purchasing.'

Opening in May, the new building will be a focal point of innovation where different stakeholders will collaborate. It will bring the University's research expertise in community-based therapy into direct contact with businesses.

Continued overleaf



New building: An artist's impression of the new HDTI building that opens later in 2009



Companies are already benefiting from HDTI backing and developing innovative healthcare products. Innovate focuses on two recent success stories.

#1 The LARA

What is it? A new muscle stretching device which will bring relief to people with multiple sclerosis (MS).

What does it do? The LARA (Leg Adductor Relaxation Assistor) is a portable lightweight product which will help patients stretch and re-educate the leg adductor muscles – the tightening of which is a typical symptom of MS. It develops muscle improvement by sustained stretching and can be operated by the patient in their home, meaning massive cost savings for health services.

Who developed it? Coventry company, Stretching By Design. Inventor Dave Collins said the company recognised the frustrations experienced by MS patients and was determined to do something about it. "The tightening of the leg adductor muscles causes discomfort, reduces mobility and leads to difficulties with walking, hygiene and independence," he explained. "These symptoms are

alleviated by physiotherapy but such treatment is usually limited to a weekly visit from a physiotherapist and the benefits have usually disappeared after only one day. Because LARA can be used at any time, anywhere, it effectively encourages self-treatment."

After meeting the company, HDTI designers assessed the original design and enlisted the support of the West Midlands Technology Network (WMTN) to undertake stress analysis work. HDTI developed the product further before manufacturing a prototype.

How did HDTI help? "With the help of HDTI we have come a very long way from our first prototype," co-inventor Ron Stephenson said. "Our initial design received tremendous support from the physiotherapy community and our relationship with the HDTI has enabled us to refine the design concept and produce a product that can be tested."

What's next? The next stage is for LARA to be assessed in a HDTI-managed field trial with a group of users in their own home.



The building will also be a place where consumer and patient needs are brought together to develop new products and systems of care provision. Inclusive design should be user-led rather than company-led. Patients, service users and their carers are living with healthcare problems every day and are therefore expertly qualified to conceive the innovative solutions that can make their lives easier.

The Institute is focused on developing products and services that will help more people live independent and fulfilled lives in their own homes and communities – rather than in a hospital. Applied research is key to developing our expertise in this area and Coventry and Warwickshire’s Locality Stakeholder Board has just awarded the Institute £92k to research what happens to a person (predominantly an older person) on a typical patient journey in the NHS when they have suffered a fall. The research, *Using Assistive Technology to Support Falls Care Pathways: Workforce Development*, will look at what assistive technology is available to help improve service delivery.

HDTI is also involved in the i-DEAL (Intelligent Design Engine for Assisted Living Technology) project, partnering Medlink West Midlands, Hereward College, Ergonova, Health Exchange, i-Care Ltd, Giga Systems Ltd, Technik2 and Safe Patient Systems Ltd on a three year project worth £1.5m to advance assisted living technology (HDTI receives £212k of that over three years).

The project is being funded by the Technology Strategy Board Assisted Living Innovation Platform and will enable industry, academia and healthcare professionals to collaborate on the design-focused project.

More space: An artist’s impression of the inside of the new HDTI building

The i-DEAL project embeds users, carers and health professionals throughout the design development cycle. HDTI will be leading on the user-centred elements of the project and drawing on the expertise within the University, including Professors Julie Barlow and Andree Woodcock.

Each company involved in the project has a product in the assisted living market. This project will develop a user performance specification for the second generation of products by evaluating user experiences and views of the current products on the market. As the second generation products are developed, user views and experiences will be sought at key stages of the process, through usability and field trial studies. The aim is to develop a sustainable interactive model that embeds stakeholder involvement in the research and design cycle of assistive technology manufacturers.

HDTI will also be able to continue to use the applications and ideas to benefit stakeholders and the assistive technology industry after the project has finished.

HDTI is looking to use projects like these to expand its applied research activity with corporate clients.

The work HDTI is involved in will benefit the health, happiness and independence of a lot of people in the future. It is a really important industrial and commercial area that makes a tangible difference to people’s lives. And as life expectancy continues to increase, it is a growing market Coventry is delighted to be leading the way in.

For more information:
www.coventry.ac.uk/hdti



#2 CoreBra

What is it? A new front-fastening bra for older and disabled women which replaces traditional fastenings with magnets and velcro – the latest product in the company’s range of adaptive clothing for men and women.

What does it do? CoreBra enables disabled and older women to wear an attractive bra that is much easier to put on and remove. It also allows carers to dress and undress the women they are caring for in a more simple, comfortable and dignified manner.

Who developed it? Birmingham-based Adaptawear. CoreBra is the brainchild of Kavita Chauhan, Managing Director of Adaptawear. “I am an optician by profession and used to work as a locum in nursing homes, hospitals and other healthcare environments,” she explained. “I noticed that the clothes being worn by older people and people with disabilities

were often baggy, and individuals did not always have the independence and dignity they deserved. Bra fitting, for those recovering from strokes for example, was a particular difficulty I noticed.”

How did HDTI help? Adaptawear turned to HDTI when it needed to test the bra on a sample group of potential users and carers. “The research Coventry University did was the most valuable study we have done to date,” Kavita said. “They trialled the bra on half a dozen people, and got some fantastic feedback. As a result we have modified the design and are developing ranges that are more colourful – and, importantly for women, also desirable.”

What’s next? CoreBra is available in eight sizes “to account for the fact that women who have been ill lose and gain weight very quickly” and can be bought directly from www.adaptawear.co.uk, via the Red Cross

and other nationwide stockists. “We are delighted with the support we’ve received from HDTI so far and are planning other projects with them around helping to understand the needs of our customers,” Kavita said.



Building Basics

Based on the Technology Park, the new HDTI building will showcase all of the Institute’s activities. Here are some of the highlights:

- As well as a design studio and workshop, there will also be a large mock-up area that can be used to create environments to test new products. For example a bathroom or even a railway carriage can be constructed, so real-life usability tests can be conducted in realistic environments.
- A usability suite has been created to record people testing and interacting with products. This facility includes discreet monitoring cameras and recording equipment, as well as an observation lab.
- Technology can pick up on key words used in a usability study and reveal how many times a user touched a product. This enables quantitative as well as qualitative results to be recorded.
- Ten people work in the Institute (not including the academic links across the University in the Schools and Faculties) and include product designers who have experience of the healthcare sector.
- There is office space to rent inside the building for business start-ups and University applied research activity.
- The building and fit-out has been funded by Advantage West Midlands and HEFCE.



Partners in Care



Government plans to improve support for millions of people living with long-term health conditions are being supported by the Applied Research Centre in Health and Lifestyle Interventions (ARC HLI). Dr Andy Turner explains how the University is using its expertise to evaluate a £5 million initiative

Over 17 million people in the UK are living with a long-term health condition and this number is set to double by 2030.

Prime Minister Gordon Brown has expressed the importance of providing self-management support and has called for more training. The 2006 Community Health White Paper *Our health, our care, our say: a new direction for community services*, promised an increase in self-management training for people living with a long-term health condition, from 12,000 to more than 100,000 course places per year by 2012.

Only this February, the Government published its eagerly anticipated National Dementia Strategy: *Living Well with Dementia, 2009*, which sets out a comprehensive agenda to support people living with Alzheimers and their carers.

These calls for greater self-management support for patients and carers complement the work of the Applied Research Centre in Health and Lifestyle Interventions (ARC HLI). The centre has recently been awarded £750,000 – one of the largest research grants the Faculty of Health and Life Sciences has ever received.

The grant was awarded to the University from the Health Foundation as part of its £5 million project to test how far self-management can produce measurable and sustainable improvements in health and healthcare. This includes an integrated package of self-management support for a period of three years, delivered in

collaboration with eight competitively selected sites. Each local Co-creating Health project spans primary and secondary care and the local teams include patients, clinicians and managers.

The initiative focuses on four clinical areas: chronic obstructive pulmonary disease (COPD), depression, diabetes and musculoskeletal pain.

While thousands of patients have attended self-management programmes in the UK since their introduction in the early 1990s, few patients have attended who have depression or COPD. Figures show that nearly a third of GP consultations are related to mental health problems and medication costs over £600 million a year, including £401 million for antidepressants.

The National Institute for Health and Clinical Excellence (NICE) guidelines (2004) recommend that patients with mild depression should not be prescribed



medication because the risk-benefit ratio is poor. Rather psychological therapies (e.g. self-help/self-management, cognitive behavioural therapy (CBT)) with an established evidence base should be the first treatment option.

The self-management initiative aims to improve training for people with long-term health conditions (LTHCs) as well as provide more support for clinicians. It is both novel and exciting because it integrates the following innovative programmes:

- A Self-Management Programme (SMP) for patients with (LTHCs). This SMP is designed to develop the knowledge and skills patients require in order to manage their long-term condition and work in effective partnership with their clinicians.
- An Advanced Development Programme (ADP) for clinicians. The ADP aims to help clinicians to develop the skills required to support and motivate their patients to achieve behaviour change and to take an active role in their own health and healthcare.
- Service Improvement Programme (SIP). This is an organisational development programme including quality improvement methods. The SIP aims to support patients and healthcare professionals, working together to identify and implement new approaches to health service delivery that enable patients to take a more active role in their own health and healthcare.

Coventry's role in the project is to independently evaluate the Co-creating Health project to assess the outcomes of the initiative – the benefits to patients, healthcare professionals, organisations and the healthcare system.

It will also describe how the initiative is delivered and experienced, in order to generate the information needed to make it replicable and how the outcomes were achieved – the critical factors that determined the scheme's outcomes.

The project called *Co-Creating Health Initiative: Bringing patients, healthcare professionals, health services and researchers together* was launched in 2007 and employs a team of six researchers and one PhD student. The evaluation, which will finish in July 2010, exploits the ARC HLI's expertise in the self management of long-term conditions, evaluation of training healthcare staff, and in the impact of service redesign and organisational change.

The overall aim of the initiative is to support patients and healthcare professionals, working together to identify and implement new approaches to health service delivery that enable patients to take a more active role in their own health and healthcare. Patients and healthcare professionals are being trained to develop shared agendas for clinical consultations, and to set collaborative goals, which are regularly and routinely monitored.

Most long-term health conditions can be self-managed with the support and encouragement from the patient's healthcare team, and most patients welcome the opportunity to become more involved in their healthcare. Behaviour change can be a difficult and time-consuming process though, and healthcare staff can resort to just giving advice and information. Given these two factors, the projects aims are ambitious and important. Initial feedback has shown that the SMP and ADP are successfully addressing these issues.

Our evaluation of Co-Creating Health involves a range of methods including online surveys, interviews and observations of GP consultations. The work maintains and enhances Coventry University's reputation as a leading self-management and health services research centre. The evaluation will be able to state whether this exciting new initiative is a useful model for providing self-management support and training for patients and health care professionals.

For more information about the Health Foundation's Co-creating Health Initiative: www.health.org.uk/cch or contact **Dr Andy Turner** on + 44(0) 2476 887459 or email a.turner@coventry.ac.uk



Dr Andy Turner has been evaluating health coaching and self-management programmes for patients and their carers' programmes for over 10 years. He is

trained in motivational interviewing and psychological coaching and is a personal trainer. He has recently developed the Help to Overcome Problems Effectively (HOPE) health coaching and support programme for people living with a long-term health condition and their carers.

Case Studies

The project is recording experiences of service users and consultants to evaluate its success. This was one patient's experience of attending the Self-Management Programme.

"When I started on the Self-Management Programme I was really sceptical about it, but by the end of the seven weeks I'd changed, and I think both clinicians and other patients feel the same. I think for the clinicians, they see the change with their patients who've been through the programme because it does change your life dramatically from what you had before. In the group, the first week, it's kind of strained. The second week, it gets a bit better. By the third week, everybody's pals and how can we help each other – someone may say 'I had trouble with such and such', and someone else will say 'oh, have you tried such and such' – so we're all helping each other in that way. They've sown the seed here and I think it will grow to a great maturity."

This was a Consultant's experience of attending the Advanced Development Programme:

"The Advanced Development Programme (ADP) was a real eye-opener to me and it showed me a completely new way of dealing with patients and how to interact with the patient in a much more meaningful, effective and satisfying way. Because the old way, there was always that feeling in the back of your mind that you weren't quite satisfied with this consultation, as a clinician, and you got a feeling that the patient wasn't quite satisfied as well. We hadn't achieved what could have been achieved in that consultation. I think the ADP has really showed me how this could be done. It's sort of stepping back, letting the patient take the lead, listen to what the patient really wants to talk about, what the patient is ready to talk about. Tune into the patient's journey really; where are they and what are they ready to talk about and embrace. That's fantastic, it really is. It makes you feel almost happy after a consultation."

Feel in control

Empowerment and flexibility are recurring themes in the Government's social care agenda as well as in the Faculty of Health and Life Sciences. Senior Lecturer in Occupational Therapy Annette Roebuck explains how the University is using creative methodologies and student placements to monitor feedback from an individual budget pilot, which aims to give people more control over the way they receive their care

In the last decade, Government policy promoted unprecedented levels of service user choice in the provision of health and social care.

In 1995 direct payments were introduced as a way of giving more independence and choice to people receiving care or support. These cash payments were given to service users, after an assessment, to spend on the community services they needed for their care.

Direct payments, however, required service users to manage their own finances and in 2006 it was proposed that the scheme be extended to include people who needed help to build and manage their support packages.

The new scheme, called Individual Budgets, was introduced and piloted in 13 areas last year and aimed to bring together existing funding schemes to allow service users to look at all aspects of their lives such as work and leisure, as well as personal care. The scheme hoped to empower service users to take control and make decisions about the care that they receive.

Coventry University was selected to research the experiences of service users involved in a pilot scheme with Coventry City Council as they received their Individual Budgets. The research was driven by The Faculty of Health and Life Sciences' commitment to service user empowerment and involvement, and the willingness to consider creative solutions to problems.

The majority of the research participants had a learning disability, and all of them had communication difficulties. After interviews by a service user panel failed to find research assistants with the requisite communication skills, it was proposed that Occupational Therapy students on the BSc (hons) programme could undertake the research as part of their final year placement.

While it was charting new territory to use a research project as a contemporary placement, the students had knowledge of individual and group work with people who had learning disabilities and difficulties with communication. It also provided an excellent opportunity for the students to build up their experience of working directly with service users and matched the objectives needed from a placement.

Using students on the research team also meant that additional time could be devoted one-to-one work with participants, and each service user was empowered to tell their story in a way that was meaningful to them.

The students collected data using one-to-one support sessions with researchers to discuss experiences and explore potential themes as well as encouraging service users to create 'blogs' and give PowerPoint presentations so they could present their individual accounts.

They also used posters and artwork; launched a group artwork project; used film to record experiences and observed service users undertaking activities.

Gathering the data through individual techniques and in groups enabled the researchers to generate both individual and shared meaning. The participants also decided they wanted to present their own data to stakeholders in the project, so the students worked with participants to facilitate a service user-led conference at the University.

The findings revealed that service users were able to 'set the agenda' on the individual budgets, giving them greater choice and autonomy over the way they received their care. They felt they were able to play a more active role in their families and communities as well as growing and developing holistically, physically, emotionally and spiritually.

The research also highlighted challenges people faced using the scheme, especially in terms of communication difficulties between service users, families and professionals.

A need was highlighted for improving the availability of care staff and the associated recruitment process – as well as the pay levels for personal assistants and other care staff. Users also struggled with the complexities of obtaining and managing the budget.

Feedback from the service users about the research methods the students had used was positive. They enjoyed engaging with the artwork projects and felt that their voices had been heard through the different methods used by the students.



Student feedback

Occupational Therapy graduates Jennifer Dean and Fiona Goff (pictured above left) both spent their final year placements on the Individual Budgets pilot scheme.

"Everything about this placement was innovative. Our job titles did not say Occupational Therapist – we worked as research assistants. Our focus was on enabling service users, participating in Coventry's pilot of the Individual Budget, to evaluate their experiences.

The occupational therapy curriculum had equipped us with the skills and knowledge to understand conditions that underpin disability. Evidence-based practice was at the top of our shared agenda as we accessed literature and expert opinions to further develop our knowledge about people with complex needs and the research setting. Occupational therapy theory provided the lens through which the research was undertaken. Our interactions with each client were framed by an individual intervention plan where the overall aim was to enable each person to tell his/her story in ways that were meaningful. We were able to do this through a variety of different creative media.

As most of the service users had communication difficulties and some did not communicate verbally at all, we found that our interpersonal and communication skills were tested to the limits. We learned how a collaborative approach could be maintained by using observation and activity analysis skills. Client-centred practice also hinged on us developing a deeper appreciation of ourselves as therapeutic instruments. As our understanding developed, so too did our confidence to be spontaneous and engage in unplanned activities like dancing to music from the pop group Steps as part of an initial interview and baking cakes with a service user.

Success also relied on our capacity to create a supportive and safe environment. We developed a good relationship and were also supported by the University's supervisors who instilled confidence in us as we reflexively explored how to maintain an occupational therapy focus within a role that was both generic and pioneering."

Jennifer now works in a social services department supporting people who have a personal budget and Fiona works on the mixed rotation at Hillingdon Hospital.

Fighting Cancer

A €10 million project investigating radiotherapy treatment has involved 23 European partners from nine countries over the last five years. As the project draws to a close, Dr Olivier Haas reveals Coventry's role in the project ahead of the September conference where the findings and prototypes developed will be presented

Five years ago, Coventry was invited to take part in a major project that would develop and validate the advanced software and equipment needed for modern cancer treatments.

The Framework Six European Priority Area 1 Life Sciences, Genomics and Biotechnology for Health integrated project on Methods and Advanced Equipment for Simulation and Treatment in Radiation Oncology (MAESTRO) has involved 23 European partners including eight clinics, 12 research centres and three international companies. The project has been coordinated by the CEA, the French Atomic Energy Commission, one of the most successful French government-funded technological research organisations.

Coventry was awarded €392,312 to work on MAESTRO and secured an additional €60,000 for the participation of the University Hospitals Coventry and Warwickshire NHS Trust (UHCW), which was a nominal amount in relation to the immense contribution provided by Dr John Mills, the Radiotherapy Physics Manager, and all his staff and colleagues at the Arden Cancer Centre at the UHCW in Coventry.

Coventry's role in the project, through the Control Theory and Applications Centre (CTAC), has been to develop new software to control the highly sophisticated devices used to deliver radiotherapy together with new measurement methods and devices to assess the medical equipment performance and new vision software that could be used to track patient respiratory motion whilst receiving treatment.

My role as coordinator of the Work Package 1 (WP1) called Adaptive Radiation Delivery, Tracking and Control for Radiotherapy, was to lead the integration with the Coventry system of the medical imaging software developed by the University of East Anglia (UEA) in Norwich and the University of Castilla la Mancha (UCLM) in Spain.

Radiotherapy irradiates cancerous tissues and is used alone, or in combination with chemotherapy or surgery, in more than half of all cancer treatments.

The issue addressed by Coventry was to develop methods to measure patient and organ motion, using surrogates (a marker implanted near or within cancerous tissues to mark the position of

the actual tumour, which cannot always be seen), and decide what to do when there is a difference between the location of the surrogate identified during the treatment planning stage and its location when the treatment is actually delivered.

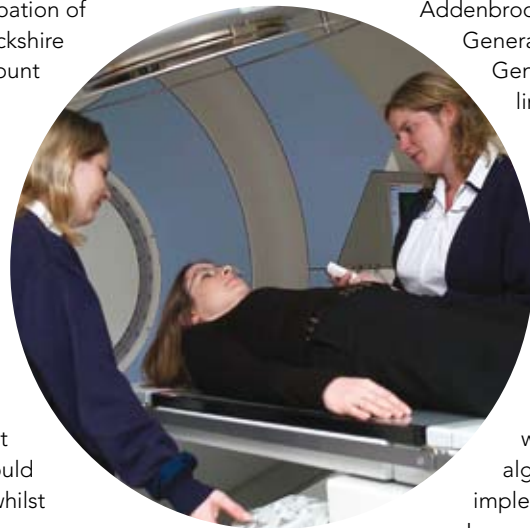
We have also developed a method to reposition automatically the patient with a patient support system (PSS) and then continuously track the surrogates' motion while the X-rays are delivered. We used a control engineering approach to gain a better understanding of the PSS before designing, simulating and implementing the control algorithm using a 'hardware in the loop' approach (a method to simulate a real device prior to controlling it from a PC).

As part of a measurement trial, the team visited Addenbrookes Hospital in Cambridge, the Western General Hospital in Edinburgh and Newcastle General Hospital to assess the capabilities and limitations of the equipment from the three major manufacturers.

The next stage was to model one of the PSS used by UHCW to move the patient into the appropriate treatment position. A model-based control system was then developed theoretically and initially tested on simulation before being evaluated at the UHCW. Rapid prototyping tools, traditionally employed in the automotive and aerospace industries, were used to facilitate the transition between algorithm development and real-time system implementation.

In parallel, a machine vision system was developed to track a 'thorax phantom' motion. Our thorax phantom is a robotic system used as a substitute for a human thorax. The robotic chest is able to move to simulate respiration whilst, at the same time, a robotic lung tumour is moved. The chest and tumour motion can be programmed to replicate a wide range of movements including that of anonymous patient data obtained from the Virginia Commonwealth University in the USA and the Hokkaido University School of Medicine, Sapporo in Japan.

The approach combining the phantom, the video tracking and the control strategy was trialled at UHCW. A PSS was controlled from a PC to move forward/backward, right/left and up/down to ensure that the beam is always aimed at the cancer.



Hospital support: Coventry has been working on the project closely with the Arden Cancer Centre at the University Hospitals Coventry and Warwickshire NHS Trust

The control system was shown to be able to reposition the motorised system accurately, while taking into account the PSS sag or deflection. The PC based controller was also able to make the PSS follow the realistic motion generated by the phantom. After the work was demonstrated to Elekta they invited the team to test its algorithm in their manufacturing facility in Crawley, West Sussex.

The project has funded three PhD researchers and one research assistant. It currently employs Daniel Paluszczyszyn, who developed the implementation of the initial controller during his MSc project, and who is now working on the latest real-time version of the control system. Other Coventry University students have been given an opportunity to undertake their projects with the MAESTRO team who in addition hosted eight placement internship students from leading universities in France.

There are currently two MSc students working on MAESTRO sponsored projects as well as three placement students. The research has also benefited teaching, with part of the MSc courses in Control being modified to include elements from the control engineering, machine vision and software simulation that were found to be of practical use within MAESTRO. Some of the assignments were also based on elements of the MAESTRO research, making them not only an academic necessity but a highly relevant exercise.

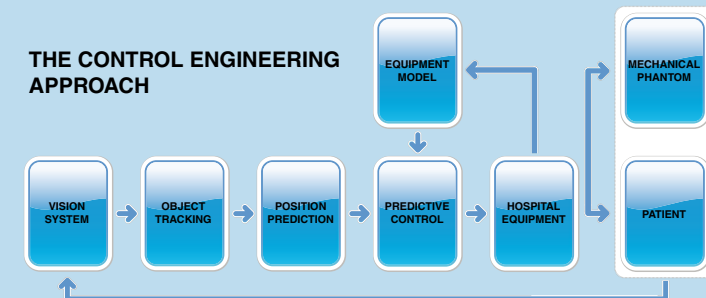
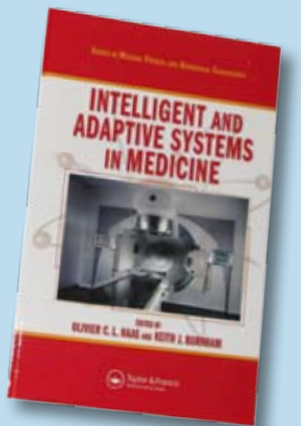
Large projects require good communication to succeed and the MAESTRO Executive Committee meets on a three-monthly basis. Every six months a Scientific Meeting is organised where researchers from the different organisations have the opportunity to present and discuss their findings. Once a year an annual meeting, coinciding with

the Executive Committee and the Scientific Meeting, is organised and a reviewer selected by the European Commission is invited.

The CTAC MedTech has already hosted two of these MAESTRO meetings in Coventry and will host the WP1 MAESTRO conference on the 15 September 2009. It will promote, with the help of highly recognised scientists, adaptive and image guided radiotherapy and present the project findings and the prototypes. The conference will be followed by a one-day MAESTRO training session to give medical and allied professionals an opportunity to learn how to use rapid prototyping software such as Matlab, dSPACE and LabVIEW.

The work of the MAESTRO team has been internationally recognised. We have been awarded two prizes and shortlisted for a third at prestigious conferences in the UK and Canada. The scientific work has been reported in more than 30 publications including three of the chapters in a new book on Intelligent and Adaptive Systems in Medicine (Medical Physics and Biomedical Engineering Series) edited by myself and Professor Keith Burnham.

For the latest results go to www.coventry.ac.uk/researchnet/d/585 and for more information visit www.maestroresearch.org



In detail: This diagram shows the proposed method to administer treatment



Dr Haas obtained his PhD in systems modelling optimization and control applied to radiotherapy from Coventry University (1997). He is a Reader in Applied Control Systems and coordinates the Control Theory and Applications Centre (CTAC) MedTech. He has created, together with colleagues in CTAC and at the University Hospitals Coventry and Warwickshire NHS Trust (UHCW), a winning Coventry team, internationally recognised for its work on the use of control engineering and imaging techniques in radiotherapy physics.

CRITICAL THINKING

The use of problem-based learning in higher education is proving popular and its benefits are now being realised in sport related subjects too. Researchers Mike Smith and Kathryn Cook explain how the new approach is encouraging sports undergraduates to become critical thinkers

Edward de Bono's creative thinking techniques are more likely to be tackled round the boardroom table than on the sports' field. But the introduction of different styles of problem-based learning (PBL) into sports related courses is scoring highly with undergraduates – especially where it has been introduced in the first year.

Until recently, only a small number of researchers had investigated the use of problem-based learning in courses featuring sport, and in general previous studies had only been carried out on a small number of either second or third year students, based on the assumption that students must acquire some knowledge, possibly from level one before they are capable of successfully engaging in PBL. However, because some experts believe students gain a broader perspective of the subject if they use critical thinking from year one onwards, the University has implemented the PBL approach into all three years of sport and exercise psychology modules to test the benefits.

When student and staff contact time is only once a week, time management is acknowledged as an important component of academic performance. Researchers have previously found that mature students have better time management skills than traditional entry-level students, which in turn led to better academic performance. As the majority of students enter higher education via the traditional route, additional time management skills could aid their academic performance. To address this issue, Edward de Bono's Six Thinking Hats technique has also been introduced to encourage students to assess a problem from different perspectives.

Edward de Bono is regarded by many to be the world's leading authority in the field of creative thinking and the direct teaching of thinking as a skill. Incorporating de Bono's technique into the PBL tutorial encouraged students to engage with problems very quickly and communicate with group members more effectively. The Six Thinking Hats technique challenges traditional ways of thinking by encouraging the problem solver to address a problem from a number of different perspectives, which in turn enhances decision making.

Decision making

Each hat represents a different part of the decision making process and in an attempt to answer a problem you must recognise points that are reflective of all six hats.

For example, the White Hat represents the facts of the problem, where as the Red Hat represents the way a person 'feels' about the problem. By working through each hat, it helps people understand the full complexity of a problem by spotting issues and opportunities that might otherwise go unnoticed.

Using this technique in a tutorial allowed students to assess very quickly the strengths and weaknesses (Black and White Hat) of their group's knowledge regarding their problem. From this, the group could then decide (Blue Hat) on the best approach to acquiring more subject knowledge in an attempt to answer the question (Yellow, Green and Red Hats).

After the problem has been presented to the students a group goal is identified and following this each member of the group sets an individual goal. Group goals would

generally involve acquiring more knowledge and individual goals required each member to bring to the following tutorial information from different sources (for example, journals, books, magazines, and interviews). For the following tutorial/s each student would verbally defend the relevance of the material they have brought in relation to answering the problem. Once this process has taken place, students hand in an individual written answer to the problem based on the information that the group presented.

The Six Thinking Hats

- **The White Hat represents the facts**
The group talk through the information that is available about the problem and what details are missing.
- **The Black Hat represents the cautions and difficulties**
The group must highlight areas where things could go wrong.
- **The Red Hat represents intuition and feelings**
The group should talk through their gut feelings about the issue.
- **The Yellow Hat represents the values and benefits**
The group should talk about why something might work.
- **The Green Hat represents the alternatives to an idea**
The group should have creative ideas for doing things differently.
- **The Blue Hat manages the thinking process**
The group should draw conclusions to the issue and manage the discussion.

With any innovative learning and teaching strategy the main objective must be to encourage effective student learning and one way of measuring this is by comparing past and present academic achievement.

Coursework marks have been analysed from a recent trial into using the PBL techniques and results indicate that there are increases across all three levels. This was also supported by an increase in attendance, which has previously been correlated with academic achievement.

Monitoring progress

Throughout the process it was extremely important to monitor progress by adopting a reflective approach, which was achieved in several ways. For example, throughout the year students provided anonymous feedback and were involved in moderating some of the tutorial marking sheets. Also, student feedback was provided at the Course Consultative Committee Meetings (CCCM), where students are encouraged to air their views on how the academic year is progressing. In one CCCM second year representatives said how they were enjoying the PBL and would like it in other modules.

The feedback also indicated that some students wanted a better understanding of the Six Hats to be able to use it as a viable tool to answer problems. Improvements have been made to the original course materials in response to these comments – such as making it clearer to see how the process of the Six Thinking Hats works in attempting to answer a problem.

The overall feedback on the techniques used has been positive, with students describing it as a "hands on approach" to learning as they were "not just being talked at" and "useful because of the independence and responsibility to research by ourselves and in groups".

The positive feedback has led to more faculties wanting to implement the technique into their modules. The range of 'problems' is also being diversified and The Centre for Inter-Professional e-Learning (CIPeL) will help with setting some of the future problems for the tutorials.

Level one and two students have now just started using YouTube to view new problems that use real life examples from sport. Feedback to this form of delivery has so far been very positive with students pleased to see how a sports psychologist would tackle

a current issue in sport, something that some of the students will do for real when they gain employment.

Abstracts were accepted for the 2008 Higher Education Academy Annual Conference and the 2008 i-PED Conference, which was hosted at the University.

While the Six Thinking Hats continue to solve major business problems around the globe, they are now also helping to create independent inquirers out of undergraduates studying sport.

For more information about Edward de Bono's Six Thinking Hats:

www.youtube.com/watch?v=o3ew6h5nHcc

Associate Senior Lecturer **Mike Smith** and Senior Lecturer **Kathryn Cook** both started their first academic role in higher education six years ago at Coventry University. They are responsible for the development and delivery of the undergraduate Sport and Exercise Psychology programme. Both Kathryn and Mike are British Association of Sport and Exercise Sciences (BASES) Accredited Sport Psychologists and are currently responsible for providing sport psychology support to students on the Coventry University Scholarship Scheme.

Local enterprise

Engaging people in employment and enterprise initiatives is a major challenge in some communities. Research Fellow Kevin Broughton explains how SURGE is helping local agencies to shape support initiatives to local circumstances

It can be easy to cast aspersions on local neighbourhoods for their high unemployment figures and lack of participation in local enterprise initiatives. However, on the surface, poor community engagement with 'work' agendas could be masking deeper root causes.

A recent review of Nuneaton and Bedworth's provision of employment and enterprise support revealed some interesting results that could have implications on other local communities suffering from low engagement levels.

The review was prompted after a 2007 report by the Coventry and Nuneaton Regeneration Zone initiative identified that the most disadvantaged neighbourhoods in Nuneaton and Bedworth were performing poorly in local engagement with enterprise and employment schemes.

The Coventry and Warwickshire Chamber of Commerce commissioned SURGE (the Applied Research Centre in Sustainable Regeneration) to lead the review and the University collaborated with Pride in Camp Hill in Nuneaton and Warwickshire County Council to steer the research to identify how engagement with target groups could be improved. A number of recommendations

were made taking into consideration best practice support models already in operation in the UK, data on the economy in Nuneaton and Bedworth and qualitative data gathered from local delivery agents and decision-makers in the borough.

Engaging in enterprise

The final report, called *An Assessment of Community Engagement and Enterprise Support in Nuneaton and Bedworth*, proposed a model for reconfiguring enterprise and employment support in Nuneaton and Bedworth via new or existing community-based delivery agents.

The research found a number of barriers affected the target group from engaging in the support initiatives on offer. For example, the financial benefits of lower income employment were simply an insufficient incentive to become engaged. Despite the introduction of tax credit systems for people on low incomes, some stakeholders claimed that getting off benefits to become employed resulted in reductions in childcare, housing and council tax benefits. There were also reports of a stigma associated with statutory agencies – a number of existing employability

initiatives were perceived to have 'strings attached' for those who participated, while others reported poor experiences in the past. Such perceptions resulted in a lack of trust of support initiatives, also preventing engagement. These are also national issues – but the impact of these issues fell heavily in particular communities in the borough.

National policies

A major barrier identified by delivery agents and strategic stakeholders was that of broader national policies which were less suited to the nature of the more deprived communities in Nuneaton and Bedworth's economy, which has a different composition to city economies such as Coventry, and has different labour market dynamics to, for example, south Warwickshire.

National enterprise support policies tend to favour particular sectors, which are viewed as leading the way in innovation and growth. However, it was suggested that less attention and fewer resources are directed towards 'bread and butter' enterprise support for those small and medium-sized businesses that simply want to survive. So, although in some local economies, growth market

enterprise and employment policies are well suited, in other areas there is a gap where local communities and businesses are less able to tap into more appropriate support.

SURGE's findings suggested that employment and enterprise support for the more disadvantaged neighbourhoods in the Nuneaton and Bedworth area required far more tailoring to the local context if it was to generate greater engagement. In addition, commissioners and delivery agent structures have now consolidated and moved towards regional and sub-regional delivery structures, which means sustaining local presence is more of a challenge. There were also reports of poor co-ordination at a local level as a result of the complexities of funding streams for support initiatives.

Making recommendations

By analysing the barriers SURGE developed a set of principles or recommendations for future strategy around employment and enterprise support. Based on its review of existing support in the area, SURGE proposed the use of local community-based delivery agents. Many community-based organisations in Nuneaton and Bedworth already had a history of engaging groups and individuals in a broad range of issues, including employment and enterprise activities – they were already doing the groundwork that is necessary for longer-term engagement. Such organisations also had autonomy and an image or 'brand' that was distinct from statutory agencies, minimising the stigma or any negative perceptions.

Community-based organisations commonly have a broader remit and employment or enterprise is one agenda among many. Engagement around employment and enterprise can be implicitly woven in with other community issues that are relevant to local people. Most importantly, community-based organisations strive for a long-term presence in particular local communities, where relationships of trust and local knowledge are developed – whether this is for business support or for those considering employment.

SURGE identified that the very localised nature of particular communities or business communities should not be underestimated with regard to their specific support needs. The report suggested that, at the point of delivery, community-based organisations are

best-placed to deal with such needs around employment and enterprise support, as part of a wider community-based agenda. Local mentors or champions with a strong connection to the Borough were suggested as a possible delivery mechanism.

Support for local initiatives

The research is now helping to support more local initiatives and the Director of Pride in Camp Hill, Colin Ball, said it has helped them to go after more funding for projects. "The SURGE team provided us with very strong evidence of the need for more and better coordinated employment and enterprise support in the more disadvantaged areas of Nuneaton and Bedworth," said Colin. "The SURGE research not only identified existing programmes and initiatives and where the gaps were, but also gave us strong examples of best practice that we have been able to use in applying for funds to support this work in the area. We have used the SURGE report as evidence to Advantage West Midlands for funding under the new ERDF programme – and also as a basis for a new family-centred employment and enterprise support initiative that we are developing with Warwickshire County Council and Nuneaton and Bedworth Borough Council."

Communities which have experienced a history of disadvantage and low levels of engagement in employment and enterprise support require a locally-aware approach to develop trust in support organisations. Trust takes time, and this is likely to require flexibility and some autonomy from top-down, target-driven approaches to support. Meeting the very particular local needs of such communities and businesses requires a change in thinking – supporting people into employment and enterprise is a journey, to be taken step by step.

Project team

Coventry University: Nigel Berkeley, Kevin Broughton and Hannah Lambie and Project Director Colin Ball from Pride in Camp Hill in Nuneaton and Economic Strategy Advisor Dave Hill from Warwickshire County Council.



Building Pride: Camp Hill in Nuneaton is being regenerated and is one example of the areas needing a new approach to encourage people to be more involved in enterprise and employment initiatives.



Kevin Broughton is a Research Fellow at SURGE (the Applied Research Centre in Sustainable Regeneration). He delivers research, consultancy and professional

development for organisations and individuals aiming to improve public services for communities. Kevin delivers the 'Working with Communities' module for Coventry University and the Economic Development Distance Learning Consortium. He also facilitates the 'Managing Complex Regeneration' programme with RegenWM.



Less is more



A new shorter version of the Knowledge Transfer Partnerships (KTPs) scheme is being piloted in the West Midlands to help businesses get help with smaller projects

Full term KTPs can last from one to three years, which can be a big commitment for a small business to make. The new shorter version, which is being piloted in the West Midlands region, is an attractive option for some companies as Project Officer Khezir Akhtar explains.

Q. CAN YOU EXPLAIN WHAT A SHORTER KNOWLEDGE TRANSFER PARTNERSHIP IS?

The Shorter Knowledge Transfer Partnership is a collaborative scheme that aims to meet a specific business need or solve an individual problem of tactical or strategic importance for a business. The scheme utilises the skills of a qualified Associate, recruited jointly by the University and the business, to stimulate the capacity of businesses for new knowledge, technologies and skills. The Shorter KTP project is aimed at exploring, testing and learning from the delivery of a shorter KTP project, which runs from between 10 to 40 weeks. Any business in the West Midlands can participate in the scheme.

Q. WHAT ARE THE KEY BENEFITS OF PARTICIPATING IN A SHORTER KTP AS OPPOSED TO A FULL ONE?

Shorter KTPs enable companies to explore projects on a shorter term basis, which means their financial commitment is far less than for a full KTP. We hope the Shorter KTP will act as a stepping stone for companies to move onto the longer form of KTPs after they have experienced the benefits of the scheme.

Q. HOW ARE SHORTER KTPS FUNDED?

Shorter KTPs are funded by the Regional Development Agency Advantage West Midlands, with support from the European Regional Development Fund as well.

Q. WHAT COMMITMENT IS GENERALLY REQUIRED FROM A COMPANY INVOLVED IN A SHORTER KTP?

Each Shorter KTP has a weekly value of £950, which includes the cost of the associate, academic mentoring, administration support and training of the associate. Regional SMEs will need to provide 40% of the £950 and the grant element covers the other 60%. For larger companies – those with more than 250 employees – the company will need to contribute 60% and the grant element covers 40%.

Q. HOW DOES A SHORTER KTP BENEFIT THE UNIVERSITY?

A key feature of KTPs is to link universities with companies in the West Midlands. The knowledge transfer enables companies to gain the very best knowledge from graduates and gives graduates the very best exposure to West Midlands companies.

For more information: Contact Khezir Akhtar on +44 (0) 24 7623 6245 or email kakhtar@cad.coventry.ac.uk. For more information on the KTP Programme go to www.ktponline.org.uk.

KTPs aim to help businesses to improve their competitiveness and productivity through the better use of knowledge, technology and skills that reside within the UK Knowledge Base. The KTP programme is funded and run by the Technology Strategy Board, with additional funding from other government organisations.



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