

The **Reinvention** Centre

For Undergraduate Research

Evaluation Report

For submission to HEFCE

30 April 2010

Knowledge emerges only through invention and reinvention, through the restless, impatient, continuing, hopeful inquiry (wo)men pursue in the world, with the world, and with each other.

[Paulo Freire]



Methodology

This report is the culmination of a collaborative writing process undertaken by the members of the Reinvention Centre team, which sought to draw on the varied expertise of the different team members to offer a thorough assessment of the Reinvention Centre's activities over the past five years.

The final document is the product of a number of joint team meetings between the staff at the University of Warwick and staff at Oxford Brookes University where each team member contributed both ideas and data to the final document.

The evidence contained in the report is drawn from a variety of sources including project reports, reports from Academic and Student Fellows of the Reinvention Centre and from both publications and web statistics.

Prior to finalisation the report was reviewed by the Reinvention Centre's Management Committees both at the University of Warwick and Oxford Brookes University, and by the Reinvention Centre's overall Steering Committee. The feedback from the members of these committees was invaluable to the evaluation process and was included in subsequent drafts of the report.

The final draft of the report was read and approved by the members of the Steering Committee of the University of Warwick.

Part one – statistical information

a. The Reinvention Centre for Undergraduate Research

b. The University of Warwick and Oxford Brookes University

c. Contact: Dr Catherine Hanley, Academic Manager, The Reinvention Centre, Dept of Sociology, University of Warwick, Coventry, CV4 7AL. Tel 024 765 75124, email c.b.hanley@warwick.ac.uk

d. Self-evaluation submitted by the Reinvention Centre team: Sumila Bhandari, Adam Cartwright, Caroline Gibson, Catherine Hanley, Jamal Karliyeva, Becky Kiddle, Cath Lambert, Chris Rust, Elisabeth Simbuerger, Pete Smith, Paul Taylor and Danny Wilding.

e. Start date 1 September 2005

f. Anticipated end date 31 August 2010

g. Lead Director(s)

- Professor Mike Neary, Director, September 2005 – August 2007 (based at Warwick)
- Dr Paul Taylor, Director, September 2007 – August 2010 (based at Warwick)
- Marion Temple, Deputy Director, September 2005 – June 2006 (based at Brookes)
- Professor Chris Rust, Deputy Director, July 2006 – July 2010 (based at Brookes)

h. Total amount of award

- £800,000 capital
- £2,500,000 (£500,000 p.a. recurrent for 5 years)
- £140,000 supplementary capital

i. Capital was used for:

- Creation of 'The Reinvention Centre at Brookes', an open student learning and study space with associated media and offices at Brookes (393m²)
- Creation of 'The Reinvention Centre at Westwood', an innovative classroom and teaching space at Warwick (130m²)

j. In 2010-11 these spaces will continue to be used for their original purpose, i.e. student individual and group study at Brookes; research-based teaching at Warwick.

k. Average number of persons employed at any one time: 9 (plus 2 PhD students). Average total FTE 6.3, of which 2.0 academic, 1.5 academic-related, 1.0 technical, 1.8 clerical/support.

l. Of current staff:

2 academic, 2 academic-related, 1 technical, 1 support are hoping to be employed in the Centre in its continued form; 2 academic to return to former posts; the situation is not yet clear for two postholders in supporting roles.

m. Projects funded

(i) **37 Academic Fellowships** for the re/development of teaching modules in order to enhance the research content:

Title	Institution	Amount awarded (£)
Reinventing Organic Teaching Laboratories	Warwick	8613
Architectural Psychology In Action – Experiencing Architecture and Design	Brookes	9879
Knowledge for Change: Social Work Students as Creators of Knowledge	Ruskin College Oxford	9980
The Effective Adaptation of USA Undergraduate Research Schemes to the UK Context	Brookes	10,000
Experiencing Human Rights: Learning through Research	Warwick	9770
Art and Spectacle	Warwick	5000
Embedding Undergraduates in the Research-Teaching Nexus: The Case of Money Sex Power in Global Context	Warwick	9625
Social and Behavioural Medicine: Conducting Systematic Reviews of Research	Warwick	10,000
Reinventing Galleons: Researching Global Connections	Warwick	5409
Does research-based learning meet its aims and provide “added value” for those undergraduates who undertake the Undergraduate Research Scholarship Scheme (URSS)?	Warwick	8567
Evaluating and Reinventing Sociology's Professional Skills Programme	Warwick	9910
Undergraduate groupwork clinical science research projects in U14640 Neuromuscular Physiology and the Control of Human Movement	Brookes	8925
Britain and the Sea since 1558: A collaborative WIKI Project	Brookes	7600
Hip Hop Theatre and Performance	Warwick	10,000
Working with Industry to Create Collaborative Research Opportunities	Brookes	9990
Rewriting Text, Researching Community	Brookes	9700
Researching the Design of Higher Education Spaces	Brookes	10,000
Reinventing the taught curriculum: embedding research opportunities for Year 2 undergraduates in the geography curriculum at a consortium of 4 UK universities	Brookes	10,000
Performance, Geography, History: Intersections and Traces	Warwick	10,000
"Race", Difference and the Inclusive Society: Fusing Research and Teaching	Warwick	10,000
Developing a Community-Based Research Scheme for Oxford Brookes University	Brookes	10,000
Reinventing Careers: Student Perspectives on Careers and Employability	Warwick	9500
New Undergraduate Module in Creative Collaboration	Warwick	10,000
Audit and Enhancement of research-based activities for	Brookes	9983

undergraduate students across the School of the Built Environment		
Leading a working group to develop modules, resources and strategies to support progress in research	Brookes	9520
Towards the identification of explicit research pathways in the Life Sciences undergraduate curriculum	Brookes	9608
Developing research pathways within undergraduate programmes in the School of Technology	Brookes	10,000
From Students to Scholars: Creating a Framework for Undergraduate Research Excellence in Arts and Humanities	Brookes	10,000
Review of Pre-qualifying Research Methods Modules in the School of Health and Social Care	Brookes	10,000
Performing entrepreneurial ethics: learning business ethics through research activities	Warwick	8000
Teaching Legal Skills	Warwick	9317
Redesigning Courses in the Business School	Brookes	9800
Issues of Criminal Justice: an Exploration through Film	Warwick	4772
More Problems and Fewer Solutions: A Reinvention of Accounting Education in an Age of Employability	Warwick	10,000
Performing Venice: Questions of a Sinking City	Warwick	7262
English Perceptions of Venice	Warwick	7500
Enhancing Research Capacity, Skills and Experiences for Students in Social Sciences and Law	Brookes	6000
TOTAL		334,231

(ii) **68 undergraduate research projects at Brookes** under our Undergraduate Research Scholarship Scheme

Title	Amount awarded (£)
Relating primate distribution between habitats to fruit production in the Peruvian Amazon	2000
Comparative analysis of the behaviour and conservation of purple-faced leaf monkeys in southern Sri Lanka	2000
Mapping the invisible: parallel practices	1970
Of sex, silence and misrepresentation: cut figures in ethnographic museums	2000
Human-environment interactions on Exmoor: perspectives on stakeholder conflict in the use of the national park	2000
History of infanticide legislation in Britain and US, 1600 to the present	2000
Indexing European historical literature in the field of forensic medicine	1800
Comparative study of e-democracy initiatives in UK local government	2000
Transition to first-time fatherhood: teenage fathering	2000
Integration of Eastern European migrant workers into the British labour market	2000
Taking due account of religion in sentencing	2000
Investigate the relationship between autonomic cardiac regulation, aerobic fitness & control of blood glucose	1820
Effects of treadmill exercise on gait parameters in unilateral amputees	2000

Assessment and improvement of physical activity levels in patients with neuromuscular conditions	1980
Optimal Safe exercise for people with MS	1980
Data Logging System for Hybrid Racing Car	1980
Software Modelling Tools for Effective Uses of Design Patterns	2000
Assessment of trade in gibbons and orang-utans in Sumatra, Indonesia	2000
Modelling the evolution of primate sociality: a case study of Bornean orang-utans	2000
Investigating the effects of an auxiliary protein, Wrp. of the baculovirus <i>Autographa californica nucleopolyhedrovirus</i> during virus replication of cells in culture	2000
Geoarchaeological approaches to soil and sediment from Jebel Faya, United Arab Emirates	2000
Temperature regulation and fluid balance in Multiple Sclerosis patients during exercise	2000
Environmental survey into the levels and effects of carcinogenic Mercury within and outside a crematorium	1800
Cultures of/Globalisation	1150
Representational techniques for interior architecture	2000
Canine Aesthetics	2000
Borneo Orang-utan field work	2000
Sustainable Commercial Office Buildings: Exploring Stakeholders' Perceptions of Utility and Productivity	2000
Economy and Social Relations in Kasasa Ebisu, a Fishing Village in Kagoshima, Japan	1775
Classifying poor families in St. Martin in the fields parish, London 1750-1775	2000
Developing teaching materials on the social impact of the railway in 19 th century England	1121
Hermaphroditism beyond the genitals: the medicalisation of gender nonconformity 1796-1905	920
Life on the Wing	930
Publication of discourses on space and space research group event (DOOSSier) proceedings	708
The role of the peptide transporter Pept1 in the growth of cancer cell.	2000
Localisation of a baculovirus protein during infection of cells in culture, using peptide tagging and confocal microscopy	2000
Amelioration of cognitive motor interference in stroke patients	2000
GAIT alterations in stroke patients subjected to cognitive interference	1851
Evaluation of a novel insect virus gene delivery system for the prevention of ischaemic reperfusion injury in kidney cells	1901
BDNF in young men and women in response to incremental exercise	2000
The influence of Borromini and Bernini's classical architecture on contemporary practice	2000
Beyond CCTV: Architecture and Film	1007
Validity of the use of a writing tablet to assess writing ability in children and adults	1434
Obstacle avoidance strategies during walking in adults and children	1808
Investigating popular attitudes on independence among the Sahari Arabs of western Sahara	1828

Evolution of wine discourse	1404
A preliminary investigation into Sino-South African relations	2000
Group theoretic methods for fast matrix multiplication	2000
Provision and availability of services in rural Oxfordshire and its impact on families with preschool children	1700
The distribution of g9a protein in the nucleus of mammalian cells	1700
Examining the evolutionary relationships of primates to closely related mammals: a slow loris case study	2000
In the eye of the beholder: friend or foe?	1831
On-line analysis of writing in adults	1434
Assessment of motor coordination in adults	1571
Performance effects of green tea extract	1571
Methods to improve the fuel economy and reduce greenhouse gas emission of internal combustion engines	2000
Flavour release from viscous liquids	2000
Designing optimum walking spaces	1721
Gait analysis in normal and pathological populations	1618
Construction and experiments of a wireless sensor network for safety enhancement in public buildings	2000
The role of protein flexibility in the function of the peptide transporter pept1	2000
Musical instruments acoustics	1888
Expression of neurotransmitter receptors in two novel animal models of depression	2000
Experiences of fatherhood: men, caring and work	1321
Gene expression analysis as a tool for the detection of overtraining	1434
An investigation in architectural publishing	2000
The history of medicine in Oxford: a source guide for researchers	2000
The horse as military technology in 19th century Europe: a comparative study of Britain, France, and Germany	732
TOTAL	121,9594

(iii) **25 undergraduate research projects at Warwick** under our Small Grants Fund

Title	Amount awarded (£)
Why does the EU sign Bilateral Trade Agreements with some states and not others?	466
Gender and U.S. sports	1500
The merits and limitations of introducing a participatory impact assessment and planning system to the Kayoma Women's Microcredit Association	1245
The Legacy of the Polish Solidarity Movement	1000
The Bo-Ao forum: a critical case study of actors in Asian regionalisation	1500
The effect of the macroeconomic environment on the salaries of university graduates	300
High risk services offered by independent escorts advertising on the internet	240
Matchbox Magazine	1000
Do initiatives such as the "Consejos Comunales" in Venezuela have the potential to create a culture of true participatory democracy in the decision-	685

making process of the “Bolivarian revolution”?	
A Bourdieuean analysis of the field of British journalism, looking at the newspaper’s role in the current media climate	500
The effect of textbook distribution by the Tanzania Book Project in the region of Mtwara	1000
Dissident Warwick	700
Prospects of Microfinance	928
Albania in a post-communist era: what are the responses to poverty from State and NGO actors?	1000
The prospect of serious games as a teaching tool in medical education	200
Swaziland: A protective environment for children? Utilising and evaluating the UNICEF framework in a developing society	1000
Resistance against the occupation of Palestine within Israel	250
A cultural study of death-penalty discourse in Texas	250
A Sociological Study of Employment Experiences of Transsexuals in Andalucia	700
Evaluating Velondriake as a model for Malagasy coastal community development	1000
Dissident Warwick II	700
The Effect of Black Holes on Binary Star Systems	1000
The East African Community: A Feasibility Study on a Political Federation by 2013	300
Democratisation, Rights and Cultural Norms: the Case of Women in the Maldives	400
The Nature of Political Participation and Identity in Hong Kong's Trade Unions	500
TOTAL	18,364

(iv) **5 Collaborative staff-student projects at Warwick** under our Collaboration Fund

Title	Amount awarded (£)
Computer Graphics Virtual Textbook	1300
A Warwick-based Renaissance Festivals web-site: resource enhancement for undergraduate teaching and research	500
Three women after the soul of William James	1000
Publication of an edited textbook by collaborative staff-student author teams at Warwick Medical School	3000
The Society for Trauma, Emergency Medicine / Nursing and Pre-Hospital Care (STEPUK.org)	2000
TOTAL	7800

(v) **One project at Brookes** under our Community Research Fund

Title	Amount awarded (£)
Contemporary Music, the graduate and the local community	500

(vi) **£45,320 contributed to Warwick's pre-existing Undergraduate Research Scholarship Scheme**, helping it to grow from 12 to over 100 awards per annum.

(vii) Additional projects funded:

- *Universities plc? Enterprise in Higher Education* (film) £4582.85

A documentary film collaboratively researched and produced by staff and students, on the themes of social enterprise in HE. The film has been shown at many conferences.

- *Gender Transformations* £571.53

A collaborative staff and student research project examining academic activism in the areas of gender and sexuality. Output: a peer-reviewed co-authored paper published in *Sociological Research Online* (2007).

- *Representations: Student Research in Visual Sociology and the Sociology of Story* (book) £4928.64

A book edited by undergraduate students, providing a compilation of student sociological writing and student-produced photography on the theme of death, disease and difference. The writing and images were originally produced for assessment for a Sociology module.

- *Get Over It* (book) £1972.28

Follow-on book in the series above, written and edited by the following year's cohort of students undertaking this module.

- *Students at work: Learning to Labour in Higher Education* (film) £1485.67

A documentary film collaboratively researched, filmed and produced by staff and students, providing a critical take on the relationship between HE and the labour market. The film has been shown at many conferences.

- *Spaces and Stories of Higher Education* £12,245 [funding received from HEA History Subject Centre]

A collaborative staff and student research project examining the historical development of the relationships between space, pedagogy and curricula in HE. Outputs are several conference papers and a public exhibition.

n. Peer-reviewed outputs

(i) External peer-reviewed publications

Cooke, M., T. Williamson and S. Spencer (2007), 'Serious Gaming in Patient Education', *Electronic BMJ*, <http://www.bmj.com/cgi/eletters/335/7630/1122>

Lambert, C. (forthcoming 2010), 'Psycho Classrooms: Teaching as a Work of Art', *Social and Cultural Geography*

Lambert, C. (2010) 'A Location of Possibility': critical pedagogies in the university classroom', in Amsler, S., J. E. Canaan, S. Cowden, S. Motta and G. Singh (eds), *Why Critical Pedagogy and Popular Education Matter Today*, Birmingham, C-SAP. Available at <http://www.lulu.com/content/paperback-book/why-critical-pedagogy-and-popular-education-matter-today/8291569>

Lambert, C. (2009), 'Pedagogies of Participation in Higher Education: a case for research-based learning', *Pedagogy, Culture and Society*, 17(3), 295-309

Lambert, C. (2007), 'Exploring new learning and teaching spaces', *Warwick Interactions Journal* 30 (2), available online at: <http://www2.warwick.ac.uk/services/cap/resources/pub/interactions/current/ablambert/lambert>

Lambert, C., and A. Parker (2006), 'Imagination, hope and the positive face of feminism: pro/feminist pedagogy in 'post' feminist times?', *Studies in Higher Education*, 31(4), 469-482

Lambert, C., A. Parker and M. Neary (2007), 'Entrepreneurialism and critical pedagogy: reinventing the higher education curriculum', *Teaching in Higher Education*, 12(4), 525-537

Metcalfe, D., D. Border and B. Salman (eds) (2010), *A Systems Approach to Cancer*, Coventry: The Reinvention Centre for Undergraduate Research

Metcalfe, D., C. Gibson and C. Lambert (forthcoming), 'A Collaborative Foray into Undergraduate Publishing', in Little, S. (ed.), *Staff-Student Partnerships in Higher Education*, London: Continuum.

Mikellides, B. (2007), 'Investing the Future: Achievements of Teaching', *IAPS Bulletin of People-Environment Studies*, 30 (Feb 2007), 29-35

Neary, M. (2006), 'Crime and the University: The Story of Sort'd - A Community (Higher) Education Project', *Probation Journal: The Journal of Community and Criminal Justice*

Neary, M. and A. Thody (2009), 'Learning Landscapes: designing a classroom of the future', in Neary, M., H. Stevenson and L. Bell (eds), *The Future of Higher Education: Pedagogy, Policy and the Student Experience*, London: Continuum, pp. 30-41

Neary, M. and J. Winn (2009), 'The Student as Producer: reinventing the student experience in higher education', in Neary, M., H. Stevenson and L. Bell (eds), *The Future of Higher Education: Pedagogy, Policy and the Student Experience*, London: Continuum, pp. 126-138

Parker, A., M. Neary and C. Lambert (2005), 'Reino Unido: La Educacion En La Edad Moderna', *Educacion Superior y Mundo Escolar, Calidad En La Educacion*, Consejo Superior De Educacion, Santiago, Chile, pp. 319-335

Smith, P. and C. Rust (forthcoming 2010), 'The potential of research-based learning for the creation of truly inclusive academic communities of practice', *Innovations in Education and Teaching International*

Taylor, P. and D. Wilding (2009), *Rethinking the values of higher education – the student as collaborator and producer? Undergraduate research as a case study*, Gloucester: The Quality Assurance Agency for Higher Education

Walkington, H. (2008) 'Geoverse: piloting a National e-journal of undergraduate research in Geography', *PLANET*, 20, 41-46

The WASS Collective (2006), 'Gender Transformations in Higher Education', *Sociological Research Online*, 12:1, <http://www.socresonline.org.uk/12/1/lambert.html>

(ii) Peer-reviewed articles by undergraduate students published in *Reinvention: a Journal of Undergraduate Research*

Launch issue (September 2007)

All available at <http://www.warwick.ac.uk/go/reinventionjournal/issues/launchissue/>

'Editorial: The launch of an undergraduate research journal'
David Metcalfe, University of Warwick

'The "Criminal Face Effect": physical attractiveness and character integrity as determinants of perceived criminality '
Alex Hodgkiss and Claire Handy, University of Warwick

'No limits? Sustainability, development, technology and the chimera of endless growth'
David Cullen, Oxford Brookes University

'The absence of mercy: the treatment of the mentally ill in death penalty cases by the state of Texas following *Ford v Wainwright*'
Hayley Knight, University of Warwick

'Crime and capital: rethinking a Marxist theory of crime and punishment'
Craig Worrall, University of Warwick

'A gendered "managed heart"? An exploration of the gendering of emotional labour, aesthetic labour, and body work in service sector employment'
Katy Pilcher, University of Warwick

Volume 1, Issue 1 (April 2008)

All available at <http://www.warwick.ac.uk/go/reinventionjournal/issues/volume1issue1>

'Editorial: Reinventing the Journal?'

David Metcalfe, University of Warwick

'Prostitution and the Nineteenth Century: In Search of the "Great Social Evil"'

Fraser Joyce, Oxford Brookes University

'The Educational Experiences of Gypsy Travellers: The Impact of Cultural Dissonance'

Danny Wilding, University of Warwick

'Rape and Sexual Assault in Japan: Potential Gender Bias in Pre-Trial Procedures'

Harriet Gray, University of Sheffield

'The Elusive Search for "Truth": Oliver Stone, Postmodernism and History'

Nicholas Witham, University of Warwick

'Overspill Policy and the Glasgow Slum Clearance Project in the Twentieth Century: From One Nightmare to Another?'

Lauren Paice, Oxford Brookes University

'The Reception of Literature in France during the Revolution: An Analysis of Reviews of Women Writers in the *Mercure de France*, 1791-1795'

Jonathan Durham, University of Warwick

'Governmental Reform in Developing Countries: External Conditionality versus Peer Pressure. The Case of Kenya'

Carole Biau and Julie Biau, University of Warwick

'Representations of Reality in a Court of Law'

Rebecca Funnell, University of Warwick

Volume 1, Issue 2 (October 2008)

All available at <http://www.warwick.ac.uk/go/reinventionjournal/issues/volume1issue2>

'Editorial: *Reinvention* one year on'

Catherine Hanley, Caroline Gibson, David Metcalfe and Cath Lambert, University of Warwick

'Rejection by Referendum: a New Expression of Discontent in the EU'

Maarten Hillebrandt, University of Warwick

'Allowing the Other to Speak: the Relevance of Postmodernism to Political Analysis'

Fran Amery, University of Birmingham

'Assessment of Diet, Activity Budget and Daily Path-length of Sri Lanka's Endemic Western Purple-faced Leaf Monkey (*Trachypithecus vetulus nestor*) in a Human-Modified Environment'

Richard Moore, Oxford Brookes University

'Analysing the Implications of Gracia's Familial-Historical View of Ethnicity for Ethnic Inclusion'

Michael Barkasi, Kutztown University of Pennsylvania

'"Vices Once Adopted": Theorising Male Homoeroticism in German-Language Legal and Forensic Discourses, 1752-1869'

Ross Brooks, Oxford Brookes University

'Justified Discrimination? A Critical Analysis of the Decision in *Wilkinson v Kitzinger* [2007] 1 FLR 296'

Erin Culley, University of Greenwich

Volume 2, Issue 1 (April 2009)

All available at <http://www.warwick.ac.uk/go/reinventionjournal/issues/volume2issue1>

'Editorial: The Importance of Great Expectations'

Cath Lambert and David Metcalfe, University of Warwick

'Breaking Barriers in Clinical Communication: Are Securely Attached Doctors More Empathetic Doctors?'

Kirsten Atherton, Anna Chisholm, Lucie Rutter and Sarah Peters, University of Manchester and Ian Fletcher, University of Liverpool [collaborative student-staff paper]

'Photonic Dipole Contours of Ferrofluid Hele-Shaw Cell'

Michael Snyder and Jonathan Frederick, Murray State University

'Gender Roles and Sexual Politics in Hollywood Action Movie Cycles of the 1980s and 1990s'

Joseph Oldham, University of Warwick

' μ Cell - Interdisciplinary Research in Modelling and Simulation of Cell Spatial Behaviour'

Dominic Orchard, Jonathan Gover, Lee Lewis Herrington, James Lohr, Duncan Stead, Cathy Young and Sara Kalvala, University of Warwick [collaborative student-staff paper]

'Struggling to Take Root: The Work of the Electro-Culture Committee of the Ministry of Agriculture and Fisheries Between 1918 and 1936 and its Fight for Acceptance'

David Kinahan, University College, London

'Dissolution Kinetics of Scolecite in Alkaline Environment'

Lingchen Mao, University of Nottingham

Volume 2, Issue 2 (October 2009)

All available at <http://www.warwick.ac.uk/go/reinventionjournal/issues/volume2issue2>

'Editorial: Change and Continuity'

David Metcalfe, University of Warwick

'Efficacy and Tolerability of Oral Montelukast in Seasonal Allergic Rhinitis in Children Aged 2 to 5 Years: An Open Study'

Princy Mittal, Rajiv Mahajan and Kapil Gupta, Adesh Institute of Medical Sciences & Research, Bathinda, India [collaborative student-staff paper]

'Validation of the ActivPAL Activity Monitor as a Measure of Walking at Pre-determined Slow Walking Speeds in a Healthy Population in a Controlled Setting'

Nadia Kanoun, Queen Margaret University, Edinburgh

'The Relationship Between Unemployment and Communist-era Legacies in Leipzig, Germany: a Survey of Local Inhabitants'

David Hunn, University of Birmingham

'Investigation of Wisconsin's Family Care Policy: Research and Recommendations Concerning Employment Outcomes for People with Disabilities'

Matthew J. Pesko, University of Wisconsin-Madison

'The Development of Religious Tolerance: Co-operative Board Games with Children and Adolescents'

Minna Lehtonen, University of Bedfordshire

'Swaziland: A Protective Environment for Children? Utilising and Evaluating the UNICEF Framework in a Developing Society'

Lydia Marshall, University of Warwick

'Utilisation of Fluctuations in the Intensity of Reflected Light to Discriminate Amongst Different Road Surfaces'

Craig M. Gladman, Troy S. J. Boellaard, Kerry J. McManus and Aaron S. Blicblau, Swinburne University of Technology, Australia [collaborative student-staff paper]

'Conducting Research within the NHS: A Guide for Medical Students and a Closer Look into the Ethical Approval Process'

Srimathy Vijayan, Mark Wilkinson and Paul Worth, University of East Anglia [collaborative student-staff paper]

Volume 3, Issue 1 (April 2010)

All available at <http://www.warwick.ac.uk/go/reinventionjournal/issues/volume3issue1>

'Editorial: The growth of *Reinvention*'

Alexander Freer, University of Warwick

'Expanding the Taquara/Itararé model: feasting and social complexity in the southern Brazilian highlands'

Philip Riris, University of Exeter

'Library Fines, Trust Games, and Reciprocity'

Michael Yeung, University of Warwick

'An evaluation of routine screening, assessment, and treatment of depression for patients on the diabetes and / or coronary heart disease registers at Brundall Primary Care Practice in Norfolk'

Anna Croxford, University of East Anglia

'Exploring Teenage Pregnancy and Media Representations of 'Chavs''

Hetty Frampton, Bath Spa University

'Uneasy Bedfellows: Alfred Russel Wallace and nineteenth century Socialist Darwinism'

Ahren Lester, University of Southampton

(iii) five other outputs which have not been peer-reviewed

Allan, L., E. Allen and M. Ezechukwu (eds) (2007), *Get Over it*, Coventry: The Reinvention Centre for Undergraduate Research

Alsop, N., S. Birks, M. Bush, L. Pinfold and E. Vryenhoef (2006) (eds.) *Representations: Student Research in Visual Sociology and the Sociology of Story*, Coventry: The Reinvention Centre for Undergraduate Research

Gibson, C. (2009), 'Student as Producer: The Publication and Dissemination of Undergraduate Research', *ESCalate News*, 13 (Spring 2009), 26-27

Healey, M., and A. Jenkins (2009), *Developing undergraduate research and inquiry*, York: Higher Education Academy

Metcalfe, D. (2009), 'Reinvention: a Journal of Undergraduate Research', in Smith, K., J. Waldman and M. Todd (eds), *Doing your social science dissertation – a practical guide for undergraduates*, London: Routledge

o. Events

(i) Number of development/dissemination events held in the last three years

External: 12

Internal: 15

(further details of these and other events available at

http://www.warwick.ac.uk/go/reinvention/resources/profile_and_dissemination.pdf)

(ii) 5 events which have been especially important or noteworthy.

(1) 'Student as Producer: Reinventing the Undergraduate Curriculum'

International conference and launch of *Reinvention: a Journal of Undergraduate Research* held at the University of Warwick, 20-21 September 2007, 93 attendees

This conference established the 'Student as Producer' concept as a brand which is now widely used in the HE sector. It also showcased the work of a significant number of undergraduate students, demonstrating that undergraduate research provides not only an opportunity for the students concerned, but also a valuable contribution to knowledge. This conference also hosted the launch of *Reinvention: a Journal of Undergraduate Research*, a journal which has had a wide impact in the academic publishing sector, and which has published research papers by undergraduate students both nationally and internationally.

Further details available at <http://www.warwick.ac.uk/go/reinvention/archive/studentproducer/>

(2) A series of annual symposia on Social Learning Spaces

- 'Redesigning Universities: Social Learning Spaces', 26 Jan 2006 (Brookes), 82 delegates;
- 'Design for Learning: Learning from Experience', 20 March 2007 (Warwick), 90 delegates;
- Building Student Engagement with Learning through Space', 17 March 2008 (Brookes), 95 delegates;
- 'Learning Outside the Square', 6 April 2009 (Brookes), 110 delegates;
- 'Knowledge Spaces', 29 March 2010 (Warwick), 60 delegates.

These symposia (see Evaluation Report Part 2, Q10) have provided both a lead and a valuable forum for those across the sector working in this area of growing interest, and established the Reinvention Centre (along with ASKe, the other CETL based at Brookes) as a centre of expertise in the field of social learning space. This has been internationally recognised and has resulted in the Reinvention Centre at Warwick working on a related project with Swinburne University in Australia. The symposia were also distinguished by the fact that they brought together not only academic staff working in related fields, but also colleagues from Estates and Space Management departments; the cross-fertilisation of ideas was noted by a number of participants as being extremely useful. More information on the symposia can be found at: <http://www.warwick.ac.uk/go/reinvention/spaces/symposia/>

(3) A series of Academic Fellows' conferences

26 June 2006 (Warwick); 23 October 2006 (joint); 13 February 2007 (Brookes); 23 October 2008 (Warwick); 30 January 2009 (joint); 22 April 2010 (Brookes).

The Reinvention Centre has promoted and subsequently approved Academic Fellowship applications at both universities. At the University of Warwick a series of Fellowships has been funded to champion and further develop particular learning and teaching initiatives that were concerned with advancing undergraduate research in the curriculum. The first 'round' of

Fellowships at Brookes likewise contained work where the focus was on developing learning usually on individual modules within a course programme. A second 'round' of Fellowships at Brookes paralleled the revision of all undergraduate courses at the university and took the opportunity to fund Fellows who were charged with the task of helping to embed undergraduate research in the revised curricula, to be largely implemented in September 2010. Once a sufficiently large critical mass of Fellowships had been established in the two institutions it was decided to convene a small conference of Fellows to exchange ideas on good practice and to share common difficulties. The first of these conferences was found to be very worthwhile and they have continued at regular intervals throughout the CETL with, latterly, the conferences at Brookes proving especially valuable in comparing the opportunities and constraints presented by different disciplines. Some further work at Brookes comprised a review of the delivery of research methods modules and this was itself followed by a conference attended by some of the module leaders involved as well as representatives of the university library concerned with information literacy.

(4) Research-Teaching Links

A meeting was held on 10th September 2008 at Oxford Brookes University between members of the Scottish QAA, the HEA, RCUK and two CETLS - the Reinvention Centre and CILASS. The meeting was convened by Paul Taylor of the Reinvention Centre, to discuss undergraduate research and the research-teaching link with the representatives of these key stakeholder groups and to identify common themes. Attendees, at what was a stimulating and worthwhile event, shared different perspectives and experiences of undergraduate research and the difficulties of and barriers to research, both at undergraduate level and beyond. The outcome of the meeting was to make such issues more explicit in order to shape future discussion and to provide an opportunity to think about how and when research skills could be developed at these different levels, taking into account a wide range of disciplines and attempting to link postgraduate and early years undergraduate research.

(5) Teaching and Learning In and For a Complex World

University of Warwick Teaching Grid, 28-30 March 2008 and 22 April 2008.

This interactive exhibition was shown at the British Sociological annual conference 2008 (attended by 20 delegates) and then at a dedicated public event two weeks later (attended by 60 visitors). It included: *Sociologists Talking*, a multi-media research exhibition based on research around the relationship between teaching and research; it showcased *Reinvention: a Journal of Undergraduate Research*, providing a public forum for visitors to access it online and talk with members of the editorial team and authors, and it provided an initial showing of the *Students at Work* film, hosted by student researchers. Linking the three events in one exhibition enabled visitors to make links between wider themes about research-based learning. The BSA event involved a discussion. The exhibition was visited by Professor Les Back from Goldsmiths University who later wrote and published an academic article (Back, 2008 <http://www.socresonline.org.uk/13/6/3.html>) about the impact the exhibit and its messages had on him, and its relevance for the sector. The exhibition remains available online at <http://www.warwick.ac.uk/go/reinvention/filmpublications/sociologiststalking/>.

Part two – evaluative reflection

Question 1

Please reflect on how effective your CETL has been in contributing to the objectives set out for the CETL initiative when it started. Be concise and do not exceed 1,000 words for the whole of the question.

i. To reward practice that demonstrates excellent learning outcomes for students.

We established Fellowship schemes for both staff (Academic Fellowships) and students (SGF/URSS) at each institution. Our Fellows have been key agents of change in the development of curricula and have had a major impact in both host institutions. We have also disseminated our Fellowship work nationally and internationally to other HEIs.

Once undergraduates are undertaking research, it is a natural progression for that research to be published and disseminated. We established *Reinvention: a Journal of Undergraduate Research* www.warwick.ac.uk/go/reinventionjournal in September 2007, since which time it has received national and international attention. In addition to promoting and producing traditional research outputs in the form of publication and academic papers, we have encouraged creativity and experimentation in terms of understanding what research is and what counts as valid research communication.

ii. To enable practitioners to lead and embed change by implementing approaches that address the diversity of learners' needs, the requirements of different learning contexts, the possibilities for innovation and the expectations of employers and others concerned with the quality of student learning.

HEFCE funding facilitated the formation of a collaborative team, from varied disciplines and professional backgrounds, that has developed a characteristic critical pedagogy and an action research approach to pedagogic intervention. Staff and students associated with the Centre have benefited from this environment for academic and professional development, which has in turn rendered both the individuals and the team effective advocates for Reinvention's aims within its host institutions, and beyond.

iii. To enable institutions to support and develop practice that encourages deeper understanding across the sector of ways of addressing students' learning effectively.

One of Reinvention's core commitments has been that all our work should be underpinned by rigorous theoretical and pedagogic principles. From the outset our aims and objectives drew on the work of Ernest Boyer (1990). Taking our name from the Boyer Commission's (1999) 'Reinventing Undergraduate Education', we have built on Boyer's notion of a 'scholarship of engagement' to strengthen the links between teaching and research. Our dynamic logo (<http://www.warwick.ac.uk/go/reinvention>) indicates that our influences include the pedagogies of radical educators such as Paulo Freire (1970). Freire's insight that 'knowledge emerges only through invention and reinvention' has added a political and transformational aim to some of our work as we have sought to interrogate the role of university pedagogies in a changing world.

A notable success of the Reinvention Centre has been in the field of student engagement. The Reinvention Centre created the dedicated post of Student Engagement Officer in April 2009 with the twin aim of enhancing the number of students who were meaningfully engaged in the research activities of the centre and to evaluate and disseminate the student engagement activities of the centre. Student engagement is a very topical issue within the HE sector at present. The Reinvention Centre has argued that student engagement needs to amount to more than the tokenistic involvement of students in the various mechanisms of the HE sector and it sees the involvement of undergraduates as equal partners in the research culture of the university as the means by which meaningful student engagement can be achieved.

We have made use of, and contributed to developing, theories of social learning space. Through, in particular, the work of Reinvention's Academic Co-ordinator at Warwick and PhD student at Oxford Brookes, and the 'Reinventing Spaces' and 'Spaces and Stories' research projects carried out by teams of students and staff at Warwick, we have worked with a number of theoretical perspectives, including social learning and communities of practice, and a wide critical literature taken from the fields of educational history and social geography. Our spatial theory-building has been done in conjunction with the design and development of new spaces for social learning and research-based teaching (most notably the Reinvention Centre at Oxford Brookes and the Reinvention Centre at Westwood, at Warwick). Through hosting five international Space Symposia we have kept the theories and practice of educational space closely connected and productive of each other.

Both inside and outside the curriculum we hold that the student experience should be reinvented in a way that facilitates engagement in research and research-type activities. The enhancement of undergraduate research can in turn serve as a catalyst for the creation of a truly inclusive community of academic practice. In this academic community teaching and research need to be seen as equal partners, with researchers benefiting from being in the classroom as much as students benefiting from exposure to high-class investigation. Thus, the bifurcation between the activities of learning and research would be removed so that all academics are seen as scholars in the pursuit of knowledge.

iv. To recognize and give greater prominence to clusters of excellence that are capable of influencing practice and raising the profile of teaching excellence within and beyond their institutions.

The high profile of the Reinvention Centre's outputs at workshops, conferences and in the peer-reviewed literature, including topics such as Social Learning Space and Student Engagement that extend beyond the Centre's 'Undergraduate Research' theme, suggests that many students and staff welcome a more critical view of HE in reaction to neoliberal Student as Consumer discourses. This readiness in many parts of the sector to adopt more critical pedagogies is one of the key messages the Reinvention team wishes to communicate in this document and links to developments internationally.

v. To demonstrate collaboration and sharing of good practice and so enhance the standard of teaching and effective learning throughout the sector.

Our pedagogic impact has been measured both internally, through the incorporation of CETL practice into university strategies, and externally, through peer review of our numerous research outputs. Research-led teaching is a feature of Warwick's Teaching and Learning Strategy; in its

recent audit, the QAA highlighted our work as an example of good practice. At Brookes the institution has taken on our significant curriculum development.

vi. To raise student awareness of effectiveness in teaching and learning in order to inform student choice and maximize student performance.

The Reinvention Centre enables undergraduates to become research active and thus our approach escapes or exceeds the binary models of 'research' and 'teaching' as separate or overlapping entities (e.g. Robertson and Bond, 2001). Instead the Centre has worked towards a more radical re/definition of research as learning. Here, undergraduate students are not regarded as learners coming into an existing research environment, but as potential and actual co-researchers who are themselves producers of the research cultures they inhabit. This shift has required a re-conceptualisation of students as producers and of environments as dynamic.

The Centre's website (www.warwick.ac.uk/go/reinvention) is the principal channel through which the fruits of the Centre's labours are made available for transference to a wider audience. The content of the site includes: *Reinvention: a Journal of Undergraduate Research*; information on projects in which the Centre is involved; the project reports of all of the Centre's funding recipients; copies of the films produced by the Centre in collaboration with students; details of the student-produced books funded by the Centre, including how to obtain copies; information on the Centre's learning / teaching spaces at the host institutions as well as social learning space in general; lists of Reinvention-related publications authored by Centre staff and funding recipients; information and media from key Centre events.

Question 2

Please set out the aims and objectives specific to your CETL at the start; and for each one reflect how well these have been achieved. Be concise and do not exceed 1,000 words for the whole of the question.

Our objectives, as listed in Table 1 of the original Stage 2 bid, were:

- To increase research opportunities in the curriculum

Achieved. We have provided opportunities for research in the curriculum via Fellowships which have been used to redesign modules. At Warwick we have supported this development in 11 departments spread across all four faculties; at Brookes we have facilitated the development of research pathways in programmes in all eight Schools.

- To measure the impact of the development of undergraduate research on final-year performance

Ongoing. We are considering a broad range of evidence, including information supplied by current and previous Academic Fellows in their final project reports, plus our own study of final-year students writing dissertations.

- To increase the number of students using research to gain Skills Certificates

Revised. At Warwick the Skills Certificate was replaced by Warwick Advantage, and at Brookes the decision was taken at an institutional level not to proceed with the creation of a Skills Certificate; this meant that accreditation for extra-curricular research was not seen as a priority. Instead we have been concentrating on (1) the development of research methods *within* the curriculum, via research methods modules and research pathways, and (2) the development of

research skills *outside* the curriculum, for example through our programmes training undergraduates on writing for publication and our support for URSS.

- To increase the take-up by students of undergraduate research orientated to community needs (e.g. through volunteering)

Ongoing. Although this was not seen as an institutional priority at Brookes, we established a Community Research Fund which funded one project and we funded several Academic Fellowships related to research in and for the community. At Warwick, a number of the student projects funded by our Small Grants Fund were based on volunteering, and our Student Engagement Officer is currently involved in a project with Warwick Volunteers that is concerned with researching the volunteering relationship between Warwick University and a number of partners in the local community. The aim of this research is to examine the effectiveness of a new conceptual basis for volunteering that is being explored by Warwick Volunteers. The findings of the research are intended to inform the future practice of volunteering at Warwick University.

- To develop fellowship schemes

Achieved. We established Fellowship schemes for both staff (Academic Fellowships) and students (SGF/URSS) at each institution. Our Fellows have been key agents of change in the development of curricula and have had a major impact in both host institutions. We have also disseminated our Fellowship work nationally and internationally to other HEIs.

- To integrate Centre activities into teacher development

Achieved. We have worked with the Postgraduate Certificate in Academic and Professional Practice (PCAPP) at Warwick, and the PGCert at Brookes, particularly in the areas of research-based learning and the use of educational and social learning space. Centre staff have been members of institutional committees and working groups relating to teacher development; we have also worked externally with university lecturers and schoolteachers.

- To measure the pedagogic impact of the Centre

Achieved and ongoing. Much research has been carried out in this area by our Warwick PhD student and by staff (see list of publications in Part One for details). Our pedagogic impact has been measured both internally, through the incorporation of CETL practice into university strategies, and externally, through peer review of our numerous research outputs. Research-led teaching is a feature of Warwick's Teaching and Learning Strategy; in its recent audit, the QAA highlighted our work as an example of good practice. At Brookes the institution has taken on our significant curriculum development.

- To establish a physical presence for the Centre

Achieved. The Centre's physical home at Brookes was built and completed as outlined in our original bid; we have a physical presence in the Learning Grid at Warwick, as originally proposed; we also used our supplementary capital funding to create the Reinvention Centre at Westwood. Additionally, we have carried out research in the area of Social Learning Space (primarily produced by our Warwick Academic Co-ordinator and our Brookes PhD student) to analyse the way in which space is used in universities. The Reinvention Centre at Brookes is seen as an exemplary model for parts of that institution's future campus development plan.

- To develop online and hardcopy resources to support undergraduate research

Achieved. Our website contains many resources (see www.warwick.ac.uk/go/reinvention); we have produced hardcopy materials at Warwick informing students about undergraduate

research opportunities and how to access funding; we also established *Reinvention: a Journal of Undergraduate Research*, an academic journal for the dissemination of undergraduate research www.warwick.ac.uk/go/reinventionjournal (see Q3 below)

- To publicise the Centre and to disseminate good practice arising from the work of the Centre

Achieved. We have disseminated via the conference and symposia which we have hosted; also via presentations at external conferences; we have run workshops and given keynote speeches at national and international events. For further details see

http://www.warwick.ac.uk/go/reinvention/resources/profile_and_dissemination.pdf

- To establish the continuity of Centre activities

Achieved. At Brookes, the Centre space will continue to be used as a social learning space for undergraduates; research is embedded in curricula thanks to our School Fellowships; plans are in hand for continued URSS funding. At Warwick we have plans to merge with the CAPITAL Centre (Warwick's other CETL) in order to form an Institute for Advanced Teaching and Learning (for further information see Q11 below).

Question 3

Please add any objectives that emerged as the CETL developed, and reflect on these as for question 2 (500 words maximum).

Further objectives:

- To showcase high-quality undergraduate research via the publication of an academic journal

Achieved. Once undergraduates are undertaking research, it is a natural progression for that research to be published and disseminated. We established *Reinvention: a Journal of Undergraduate Research* www.warwick.ac.uk/go/reinventionjournal in September 2007, since which time it has received national and international attention. We have now received submissions from 8 different countries as well as from a wide range of HEIs in the UK, and the journal averages 2,220 individual visitors per month. For further details see below Qs 4 and 10.

- To encourage and facilitate the development of different and innovative types of teaching and learning space

Achieved. We have hosted a series of annual symposia on the subject of social learning spaces; we successfully bid for supplementary funding and used it for the design and creation of the Reinvention Centre at Westwood; we have close links to the Learning and Teaching Grids at Warwick; members of Centre staff sit on various institutional bodies which deal with the development of space.

- To encourage and facilitate student engagement in all our activities

Achieved. We encouraged the growth and activities of the Student Learning and Teaching Network (formerly the CETL student network), hosting a student-led event on teaching and learning in December 2007, and providing speakers to a number of SLTN events, including the SLTN annual conference in Plymouth 2008 and the Student as Collaborator event in Manchester in November 2009. We were also approached by the QAA in order to advise them on student engagement and our Student Engagement Officer is now a student member of the QAA Audit team. Our Director and Student Engagement Officer jointly wrote a paper for the

QAA on the subject of student engagement; this is available at <http://www.qaa.ac.uk/students/studentEngagement/Undergraduate.pdf>

Question 4

Irrespective of your answers to questions 2 and 3 above, please reflect on, and draw out the achievements and benefits of the CETL (1000 words maximum). (Think about different audiences, types of output, impact internal and externally, on professional / staff development, on student learning, work over an extended period, use of money for facilities development etc.)

(i) Summary of achievements

(a) Funding schemes

One outcome which we expected from the activities of the Centre was a strengthened reward structure for colleagues who were able to demonstrate that they made close links between their teaching and research through the promotion of undergraduate research. The primary method through which this has been achieved is our flagship **Academic Fellowship programme**, which both rewards colleagues for their excellent teaching and encourages them to expand further their notions of undergraduate research. Throughout the lifetime of the Centre we have funded 37 Fellowship projects (details in Part One of the evaluation), including eight 'School Fellowships' at Brookes which enabled Fellows, either individually or in teams, to evaluate and develop the existence of research pathways in their discipline. For further details of each project, together with interim and final reports from each Fellow, see our website at www.warwick.ac.uk/go/reinvention/people/fellows.

While the indirect and direct funding of student research is motivated by our pedagogic rationale (see Q7), the Reinvention Centre also wishes to ensure that student research activity is appropriately rewarded and recognised, and we have used a number of different funding streams to achieve this. The aim of our **Small Grants Fund** was to create a sustainable culture within which students came to be regarded as producers of real knowledge and part of the research culture of departments. With a focus on small-scale, independent and extra-curricular research, grants of up to £1,000 enabled individuals or small groups of students to pursue their own research ideas. Further information, is available at www.warwick.ac.uk/go/reinvention/fundingopps/sgf.

At Brookes we created an **Undergraduate Research Scholarship Scheme**, based on the previously established scheme at Warwick. Since November 2006 it has funded 68 student research projects (see Part One). The success of the Centre's approach to the promotion of undergraduate research was demonstrated by the fact that the applications we received were distributed across a wide range of Schools at Brookes. All students prepared a poster summarising the outcomes of their research and attended presentation days where their research was shared with, and commended by, senior university staff. Further details at www.warwick.ac.uk/go/reinvention/fundingopps/urssbrookes/. The Reinvention Centre also part-funds Warwick's **Undergraduate Research Scholarship Scheme**, run by the Learning and Development Centre. The scheme gives students the chance to become directly involved in the research work of the university: departments and research centres are invited to nominate potential projects which offer good opportunities for students to gain insight into research work and develop valuable skills, and bursaries of up to £1000 are available. Since the Centre became involved in the previously existing programme, the scheme has attracted a great deal of interest, with the number of projects funded rising from 12 per year to over 100.

(b) *Journal*

Reinvention: a Journal of Undergraduate Research was launched during the third year of the Centre's funded period, although it was conceptualised some years before as a lynchpin of the Reinvention Centre's commitment to providing meaningful outlets for disseminating undergraduate research. The aims of the publication were to provide undergraduate students with the opportunity to learn about writing for publication and peer review in a supportive and realistic environment, while offering an outlet for high-quality undergraduate research and a voice to undergraduate students. Since its launch in 2007 the journal has considered over 100 submissions from undergraduate students around the world. With the 6th and 7th issues due to be published in 2010 the journal has not only achieved its original aims but has surpassed them.

The founding editor of *Reinvention* was a Warwick undergraduate student, all authors are undergraduates and the journal management team and panel of Subject Editors are made up of a mixture of staff (academic and administrative) and students. More recently a further four student Editors have been brought onto the journal team. Training sessions were run through the journal for students on writing for publication and peer review, with 130 students signing up to attend in just 10 days. Feedback from both authors and attendees of these training sessions has been overwhelmingly positive, with a major theme being the increase in confidence experienced by students involved with the publication.

An international database of peer reviewers has ensured the quality of the work published and the journal's International Advisory Board has assisted the team in promoting the journal throughout the world. The publication has a wide readership, with the website having almost 150,000 hits since launch and over 8,000 individual visitors to the site in 2008 almost doubling to 15,500 visitors in 2009. With this growing profile the long-term aim of this undergraduate journal is to influence the culture it serves, whilst at the same time reinventing it. The Reinvention Centre and the *Reinvention* journal have created a culture in which there is a presumption that all students have research potential and within this culture we have seen undergraduates thrive. For further details see www.warwick.ac.uk/go/reinventionjournal

(c) *Creative research outputs*

In addition to promoting and producing traditional research outputs in the form of publication and academic papers, we have encouraged creativity and experimentation in terms of understanding what research is and what counts as valid research communication. This creativity has been encouraged in others (for example through the Fellowship schemes) and developed and modelled through our own practice. It has been enhanced by the fact that our work is informed by the values of collaboration and interdisciplinarity. Notable creative outputs produced by Reinvention students and staff include documentary film (*Universities plc*, 2005; *Students at Work: Learning to Labour in HE*, 2009); and public exhibits and installations (*Sociologists Talking*, 2008 & 2009; *Spaces and Stories*, 2010). For details of all these outputs see www.warwick.ac.uk/go/reinvention/filmspublications.

(d) Curriculum change

As noted above, each of the eight Schools at Brookes was awarded an Academic Fellowship in order that an individual or small team could work over a period of two years to enhance undergraduate research in the curriculum. The Fellowships paralleled the university-wide Academic Progression Initiative (API) in which all undergraduate programmes were charged with the task of amending their courses to build in greater continuity. However, the API was also seen as an opportunity to further embed other features that had been identified as key elements of the student learning experience. These features included undergraduate research alongside others such as internationalisation and assessment.

The notion of a 'research pathway' was identified in a key position paper on undergraduate research that the Reinvention Centre presented to the university Learning and Teaching Committee. The pathway was intended typically to include a first year module on Academic Practice and Literacy, a second year module on Research Methods and a final year double module comprising a Research Project or similar. However, undergraduate programmes, through the School Fellows, were encouraged to develop research thinking throughout all modules in order that students have the maximum opportunity to absorb the spirit and ethos of academic research, to apply the skills and methods of conducting research, and to develop the critical awareness to absorb and evaluate research results.

Most undergraduate programmes are now in the process of establishing a first-year Academic Literacy module or similar to include reading and writing skills and the avoidance of problems such as plagiarism. Despite some difficulties that have been encountered, such as discipline-specific differences in the way in which 'research' is defined, the Reinvention Centre is confident that in September 2010 in the majority of the university's Schools, the first cohort of students will enter a new academic programme that displays a strong and embedded element of research or research-like activity which supplies them with a rewarding and enriching learning experience.

(ii) The impact of our achievements

Impact on the team

HEFCE funding facilitated the formation of a collaborative team, from varied disciplines and professional backgrounds, that has developed a characteristic critical pedagogy and an action research approach to pedagogic intervention. Staff and students associated with the Centre have benefited from this environment for academic and professional development, which has in turn rendered both the individuals and the team effective advocates for Reinvention's aims within its host institutions, and beyond.

Impact on host institutions

The Centre's approach to institutional change has aimed for lasting impact. We have encouraged staff and students to think critically about their roles as teachers, learners, researchers and practitioners and thereby to explore new visions of our Universities. We have worked with our Fellows to research the impact of their new courses and modules, undergraduate research projects and research outputs. Dissemination of the new practice through word of mouth, School/Faculty and University-wide workshops, showcases and publications has embedded the concepts in University culture and Strategy and been acknowledged as good practice by the QAA at Warwick. More recently, the Centre has

experimented with approaches to student engagement, building on and extending the experience of our colleagues in the CETL networks.

Impact on the CETL Community

The Reinvention Centre has engaged with and helped shape both the Learning and Teaching through Enquiry Alliance of CETLs (www.ltea.ac.uk) and the Student CETL Network (now the Student Learning and Teaching Network, SLTN). The SLTN will continue as an important voice for student engagement with national learning and teaching initiatives, while LTEA will continue a virtual existence through maintenance of its website by the Reinvention Centre at Warwick. The Reinvention team has learned a great deal from its network colleagues, while advocating its own approaches. In particular, the Student as Producer concept has been adopted widely around these networks, encouraging more student engaged modes of teaching and research and challenging prevalent discourses.

Impact on the National HE Sector

The high profile of the Reinvention Centre's outputs at workshops, conferences and in the peer-reviewed literature, including topics such as Social Learning Space and Student Engagement that extend beyond the Centre's 'Undergraduate Research' theme, suggests that many students and staff welcome a more critical view of HE in reaction to neoliberal Student as Consumer discourses. This readiness in many parts of the sector to adopt more critical pedagogies is one of the key messages the Reinvention team wishes to communicate in this document and links to developments internationally.

Impact on the International HE Sector

The Reinvention Centre has an emerging international profile. Most notably, *Reinvention: a Journal of Undergraduate Research* has become truly international (see above and Q10). The Reinvention Centre has been a "critical friend" in government-funded developments in research-based learning (Netherlands) and social learning space (Australia).

Impact on Policy

The Reinvention Centre has collaborated with the QAA, in Scotland where it has contributed to the Research-Teaching Links enhancement theme, and also in England, where the CETL has been an advocate of more student-engaged approach to Quality Assurance and Enhancement, as highlighted in Taylor and Wilding (2009), commissioned by the QAA. Reinvention has engaged with RCUK's Careers and Diversity unit to help shape the debate on research careers following Thrift (2009).

Question 5

Have there been any disappointments in how the CETL has developed/what it has achieved. What are they, why did they happen? (600 words maximum)

Our few 'disappointments' mainly related to the way in which ideas and opportunities which arose out of our activity have not to date been exploited fully. For example, it has proved difficult to "spin out" the results of our success in creating innovative social learning and teaching spaces and we were unable to generate sufficient momentum in the area of community-based research. These areas were related to, but not part of, the central aims in our initial bid.

We observe that these fields cross traditional boundaries within HE, which may result in them being given lower priorities in the current funding mechanisms.

Question 6

Please reflect on the difficult and easier aspects of getting the CETL going and of getting your messages across. For example: Has action/change followed; where and why did you meet success or resistance. What worked, how did you discover this, how do you know it worked?
(1000 words maximum)

One of our immediate concerns in 2005 was the extremely short lead-time for spending the original capital money, especially given that we were encouraged to aim for quite ambitious building projects, and that we were also trying to set up funding schemes etc with the recurrent allocation at the same time. If HEFCE were to finance a similar initiative again, it might be worth considering a 'year 0' for capital expenditure, particularly if building work is to take place; this was mentioned to a HEFCE representative in informal conversation some time ago and the idea seemed to be well received.

Establishing the funding schemes had both easier and more difficult aspects. Before we could start awarding funding, we felt that we had to establish robust structures for the schemes, in terms of the criteria for assessing projects, the method of assessment and the formation of a proper assessment panel; the rules on what the funding could or could not be spent on, the guidelines for writing and submitting project reports, and so on. All this necessarily took some time. However, once these procedures had been established, we were pleased by the number and quality of applications which we received from both staff and students within a very short space of time, and we were able to start awarding funding for projects very quickly. We were therefore able to expand the schemes and to bring forward the roll-out of our Academic Fellowship programme; initially we intended to aim it principally at members of our core team in years 1 and 2, but we were able to open it out fully to members of both universities almost straight away.

The collaborative nature of the Reinvention Centre has been both challenging and invigorating. The Centre team, based in two very different institutions, has an excellent working relationship with frequent meetings either face to face or via telephone, video-conference or Skype. More formally, the Centre at each institution has a Management Committee – meeting three times per year – comprising Centre staff and other members of the core team, along with institutional representatives; we also have a joint Steering Committee which includes senior staff from both Warwick and Brookes and external representatives, which meets twice per year. At an institutional level, a contractual agreement was agreed and signed at an early stage in the Centre's life. Overall, the collaboration between our institutions has worked extremely well.

Question 7

Has your CETL adopted/used/been based around any specific theories, e.g. of change, or of student learning? If so, what, how have these underpinned your work, have they been useful?
(1000 words maximum)

One of Reinvention's core commitments has been that all our work should be underpinned by rigorous theoretical and pedagogic principles. From the outset our aims and objectives drew on the work of Ernest Boyer (1990). Taking our name from the Boyer Commission's (1999)

'Reinventing Undergraduate Education', we have built on Boyer's notion of a 'scholarship of engagement' to strengthen the links between teaching and research. Our dynamic logo (<http://www.warwick.ac.uk/go/reinvention>) indicates that our influences include the pedagogies of radical educators such as Paulo Freire (1970). Freire's insight that 'knowledge emerges only through invention and reinvention' has added a political and transformational aim to some of our work as we have sought to interrogate the role of university pedagogies in a changing world. Over the five years, members of the Reinvention team have pursued and utilised these and other progressive theoretical resources and in turn we have been responsible for the development of new concepts which are having an impact across the sector. Perhaps the most powerful, and most useful, of these, has been the notion of the 'Student as Producer'. This concept reconfigures the student as an engaged, research-active, productive member of the university whose academic work is of scholarly value. In 2007 we hosted an international conference entitled 'The Student as Producer' which drew together examples of research-based teaching and learning, and we continue to define, refine and develop the concept through our practice and publications (e.g. Neary and Winn, 2009; Lambert, 2009; Taylor and Wilding, 2009). The notion of the Student as Producer has been used by the QAA, where it has resonated with recent debates regarding student engagement in quality enhancement, and by other HEIs.

In addition we have made use of, and contributed to developing, theories of social learning space. Through, in particular, the work of Reinvention's PhD student at Oxford Brookes, and the 'Reinventing Spaces' and 'Spaces and Stories' research projects carried out by teams of students and staff at Warwick, we have worked with a number of theoretical perspectives, including social learning and communities of practice, and a wide critical literature taken from the fields of educational history and social geography. Our spatial theory-building has been done in conjunction with the design and development of new spaces for social learning and research-based teaching (most notably the Reinvention Centre at Oxford Brookes and the Reinvention Centre at Westwood, at Warwick). Through hosting five international Space Symposia we have kept the theories and practice of educational space closely connected and productive of each other.

Both inside and outside the curriculum we hold that the student experience should be reinvented in a way that facilitates engagement in research and research-type activities. The enhancement of undergraduate research can in turn serve as a catalyst for the creation of a truly inclusive community of academic practice. In this academic community teaching and research need to be seen as equal partners, with researchers benefiting from being in the classroom as much as students benefiting from exposure to high-class investigation. Thus, the bifurcation between the activities of learning and research would be removed so that all academics are seen as scholars in the pursuit of knowledge.

The implication of a truly inclusive community of practice is that universities should be organised into groupings that are based more on academic interest than on institutional function. Lecturers will be able to manage more effectively the teaching/research balance, support staff will be afforded parity of status and become full members of the community, as will students, who will enjoy an enhanced learning experience.

An example of the Reinvention Centre's drive towards this inclusive community of practice is the way in which we have turned the *concept* of the Student as Producer into *practice*. One of the best examples of this is *Reinvention: a Journal of Undergraduate Research*, a means whereby undergraduate students can publish their research in the same way as more established

members of the academic community. The feeling of having made a contribution has been cited by more than one author as a motivating factor behind their submitted journal paper:

It made me engage with the topic in far greater depth than is usual with undergraduate study; the extra motivation existed because of the promise of a tangible end product, and a sense of actively creating something, rather than the usual undergraduate activities of writing essays simply to 'make a grade'. (Undergraduate author)

This view illustrates the value of reconfiguring the student as an active producer. It also shows that undergraduate publication has potential far beyond initiating students into academia, something that the journal team have built on since 2007.

Finally, a commitment to undertaking pedagogic research has characterised the Reinvention Centre's activities from the outset, in order that we can document, analyse and evaluate our own work and that carried out by Reinvention Fellows (students and staff). Here our journal provides an intellectual framework for evaluating and understanding the issues raised by the production and publication of undergraduate research. Such issues have included the reluctance of some academic staff to acknowledge undergraduate students as their peers within the research environment, a topic that has also been debated amongst the journal team; the enthusiasm with which other academics have embraced the concept of the Student as Producer through our undergraduate publication; and the experiences of students, as authors, of becoming producers of knowledge.

Question 8

Reflecting on the last five years what other important messages are there that you want to convey about your CETL - its successes, difficulties, impact etc. (1000 words maximum)

As noted above in Q7, one of the strengths of the Reinvention Centre is that, unlike many CETLs and other Teaching and Learning ventures in HE, our work is underpinned by relevant theory and has contributed to the development of new conceptual tools. We argue that this enables our key aims of promoting research-based learning and reinventing pedagogic spaces to travel far beyond our own localised practice and be taken up and adapted into diverse contexts, nationally and internationally, across (and indeed beyond) the HE sector. As our remit entails troubling the problematic boundaries between teaching and research, we have not been pigeon-holed as a teaching and learning intervention but also recognised for our research impact. Evidence of this can be found in our discussions with Research Councils UK and the likely contributions that Reinvention activities will make as impact case-studies for the forthcoming REF 2013 at Warwick.

A notable success of the Reinvention Centre has been in the field of student engagement. The Reinvention Centre created the dedicated post of Student Engagement Officer in April 2009 with the twin aim of enhancing the number of students who were meaningfully engaged in the research activities of the centre and to evaluate and disseminate the student engagement activities of the centre. Student engagement is a very topical issue within the HE sector at present. The Reinvention Centre has argued that student engagement needs to amount to more than the tokenistic involvement of students in the various mechanisms of the HE sector and it sees the involvement of undergraduates as equal partners in the research culture of the university as the means by which meaningful student engagement can be achieved.

This approach towards student engagement taken by the centre has its basis in the theoretical underpinnings of the centre outlined above and we have successfully built a number of collaborative research teams consisting of academics, administrative staff, postgraduate and undergraduate students. As well as undertaking high-quality research in a variety of areas, these research teams are also a source of data in themselves; they represent a direct challenge to the hierarchical nature of the status difference between staff and student, and also a challenge to the prevailing separation between teaching and research in higher education. For this reason the Centre has continuously aimed to investigate reflexively and to theorise the collaborative teams that it creates. A clear example of this can be found in Taylor and Wilding (2009) which was published by the QAA as part of a series of national papers examining student engagement in the HE sector.

The Reinvention Centre has become a source of expertise on student engagement both within and beyond our host institutions. Within Warwick the Centre has placed considerable effort into helping academic departments, research working groups and organisations such as Warwick Volunteers recruit and train undergraduate students to carry out research. Outside of Warwick the Centre's expertise on student engagement has been sought by the QAA, the Student Learning and Teaching Network, the HEA History Subject Centre and by other HEIs.

Reflecting on the various collaborative research teams that the Reinvention Centre has put together during the last five years, it is clear that, despite the different nature of the research projects, each has been successful in engaging students within the research culture of the Reinvention Centre. Such engagement has not only provided students with a vast array of research skills and knowledge but has also encouraged them to think critically about higher education and how they can become meaningfully engaged in shaping their own learning and in the institutional structures around them. A number of reflexive accounts from the undergraduate researchers clearly demonstrate this success:

I learned from the start that The Reinvention Centre had its own distinctive view to learning and working practices. I was happy to find that the working environment was both relaxed and friendly, while still maintaining standards in productivity and intellectual rigour. By being on first name terms with each other and by meeting regularly to share ideas, I found that my own learning and research experiences were greatly enriched [...] In summary, researching in The Reinvention Centre was not only a very useful learning experience, but also enjoyable and rewarding. I found the team-based aspect of the research worked especially well and the support from more experienced researchers invaluable. I would say that the project has further increased my desire to participate in research. (First-year undergraduate researcher)

I have realized through our research that there are many ways to conceptualize a student, and these vary by institution, department and even lecturer. I see myself more now as both a learner and contributor to the education process. Consequently, I have gained an appreciation for the different components of higher education and the importance of constantly reviewing and even challenging the role of teachers, researchers and students in this environment. (Third-year undergraduate researcher)

(Excerpts from Mockridge *et al.* (2010), pp. 20-21)

From the outset, all our activities, whether administrative, pedagogical or research-based, have involved the active engagement of undergraduate as well as postgraduate students with whom staff (academic and administrative) work in collaboration. We have made active student engagement a point of principle, alongside other CETLs such as CILASS (Sheffield) and CEEBL (Manchester), and we have a reputation amongst the wider Scholarship of Teaching and Learning (SoTL) community for the fact that students and staff, wherever possible, represent the Reinvention Centre at academic conferences. Others have taken up this initiative and a number of organisations (such as the SRHE Student Experience Network) now actively encourage student involvement. Within our host institutions, we have promoted student and staff collaborations through shared research (such as the documentary films, projects such as Gender Transformations, Reinventing Spaces and Spaces and Stories (see Part One)) and co-authorship of academic papers for journals and conferences. *Reinvention: a Journal of Undergraduate Research* has student and staff collaboration built into its structure and editorial practice, and at Warwick the 'Collaboration Fund' encourages staff/student research ventures across the university.

Question 9

Reflecting on the last five years what important messages are there that you want to convey about the experience of being part of a wider 'movement'/experience of other CETLs. (600 words maximum)

We have benefited from being part of the Learning and Teaching through Enquiry Alliance (LTEA; see above Qs 1 and 4). This community was set up independently of HEFCE or the HEA by a group of like-minded CETLs and it proved to be very useful: we were able to share ideas and practice, and we have held a series of conferences.

We did not find it so easy to feel part of the general CETL community. The CETLs had a very wide range of foci and it was therefore difficult to group them all together, and various attempts to do so (e.g. the HEA conference at Leicester in April 2008) merely highlighted that there was no one common template.

We very much valued HEFCE's large-scale commitment to Teaching and Learning, including the allocation of capital funding which enabled us to build and/or refurbish spaces which were both progressive and suitable for our needs. However, we were disappointed that HEFCE does not seem to be planning any kind of evaluation of the way the capital money has been used throughout the CETL programme and lessons to be learnt from it; we feel that this would be valuable research.

Question 10

Please reflect on work emerging from your CETL that has been 'transferable', i.e. useable beyond the home audience for which it was originally developed. (You may wish to comment in terms of materials produced, a community created, understandings that CETL work has illuminated and which are useful to others, etc) (1000 words maximum) It would be useful to hear 'messages' and lessons learnt that you would like to continue to be disseminated.

Although some of our work was originally intended for use by a 'home audience', we had from the outset a number of outputs which were always intended for an external audience. Both types will be discussed here in terms of their transferable nature.

Website

The Centre's website (www.warwick.ac.uk/go/reinvention) is the main channel through which the fruits of the Centre's labours are made available for transference to a wider audience. The content of the site includes: *Reinvention: a Journal of Undergraduate Research*; information on projects in which the Centre is involved; the project reports of all of the Centre's funding recipients; copies of the films produced by the Centre in collaboration with students; details of the student-produced books funded by the Centre, including how to obtain copies; information on the Centre's learning / teaching spaces at the host institutions as well as social learning space in general; lists of Reinvention-related publications authored by Centre staff and funding recipients; information and media from key Centre events.

New content is added regularly to the site, steadily increasing its usefulness as a resource for staff and students across the HE sector. The graph below shows the increasing number of page views the website receives each month; it is hoped that this upward trend will continue once the content of the site is transferred to a new website for the proposed Institute of Advanced Teaching and Learning at Warwick (see Q11), leading to greater transference of the work of the Centre. Also, the Centre will assume responsibility for maintaining the Learning Through Enquiry Alliance (LTEA) website following the closure of the other member CETLs.

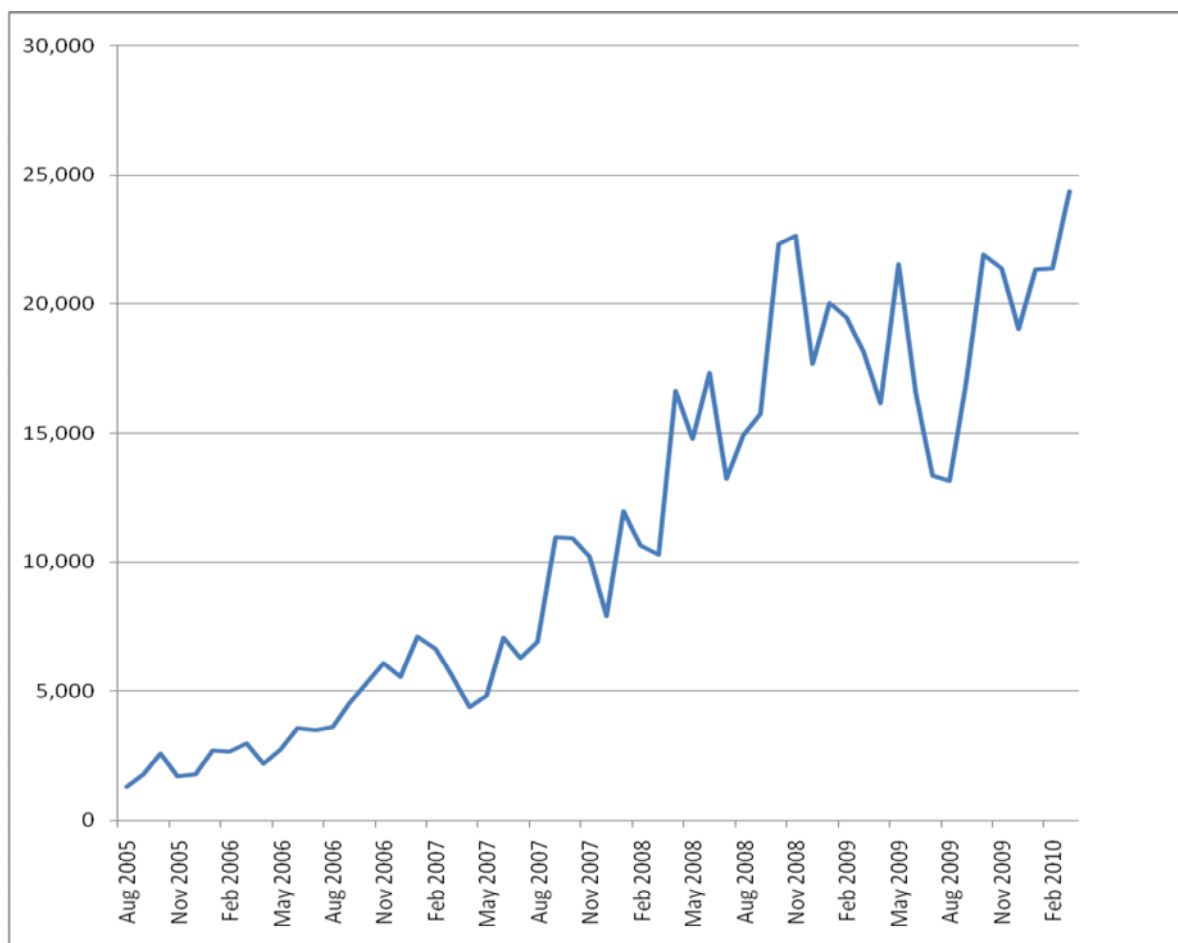


Figure 1: Page views received by the Reinvention Centre's website, August 2005 – March 2010

Journal

Reinvention: a Journal of Undergraduate Research was initially established in order to publish the research work of undergraduate students at the Universities of Warwick and Oxford Brookes. After the first two issues were completed it was recognised that the publication had the potential to offer the same support and learning experience to students outside the Reinvention Centre's two host institutions. The journal was opened to submissions from all undergraduate students from its third issue and has since published the work of undergraduate students from around the UK as well as in America, Australia, Canada, India and Puerto Rico. The journal also has a well-established and growing International Advisory Board, with members of twenty-one different Universities in four countries, as well as a representative of the National Union of Students, creating a journal community that has grown in strength and number since the launch of the publication in 2007.

Linking to the work of *Reinvention: a Journal of Undergraduate Research*, the journal's Managing Editor and the Centre's Academic Manager designed and delivered training for undergraduate students on writing for publication and peer review. The sessions were designed to support and inform undergraduate students and proved hugely popular, with 130 students signing up to attend in just 10 days. The number of planned sessions had to be expanded to accommodate all of the students who signed up and we had requests from students external to the Reinvention Centre's host institutions to run sessions at their universities. We hope to run further sessions in the coming months and believe that the training could also be offered externally to other institutions.

Space

The importance of social interaction to the learning process has only relatively recently been acknowledged. Russian and American psychologists Vygotsky (1962, 1978) and Bruner (1986, 1990) in particular have promoted a social-constructivist view of learning; that is, the notion that the stimulus of interaction with each other, in social groups, is central to the construction of learning. This has led to a growing diversity of learning opportunities such as seminar and group discussion, and group and project work, all of which have implications for physical learning space. Universities have therefore started to recognise the need to correlate the design and nature of the spaces in which students learn with the learning activities undertaken. A variety of spaces may be needed to deliver the new varied curriculum and those that support activities which require social interaction, have been termed 'third space' or 'social learning space'.

The capital programmes for the Reinvention Centre at Brookes and ASKe, the other CETL at Brookes, both focused on the creation of social learning spaces, and the supplementary capital programme for Reinvention at Warwick involved the creation of a social teaching space. It therefore seemed natural for the two CETLs to work together and out of this decision came the annual Space Symposia (see Part One). These five annual events provided a forum for those across the sector working and interested in this developing area of importance.

The Reinvention Centre at Brookes also appointed a PhD student who focused on developing design principles for the design of social learning space. The research included an in-depth study of a new amalgam of social learning spaces at Oxford Brookes and a number of

conference presentations which included being invited to speak at the *Making Spaces* conference at the University of the Arts, London.

Question 11

How will the work and achievements of your CETL continue after HEFCE funding ends (1000 words maximum)? Please reflect on how far you think CETL work has become embedded in your institution or discipline and indicate if any structures have been put in place to ensure its legacy is not lost (1000 words maximum)

The future of the Centre's work will be different at each of our host institutions.

At **Brookes** our ideas and achievements will be sustained via the research pathways embedded in all Schools thanks to School Fellowships; the continuation of funding for the URSS; the continued use of our dedicated social learning space; and the retention of the 'Reinvention' brand as a part of the Oxford Centre for Staff and Learning Development.

At **Warwick**, both of the university's CETLs (the Reinvention Centre and the CAPITAL Centre) have been asked to offer a proposal for a merger into a combined Institute for Advanced Teaching and Learning (IATL). This proposal will be considered by the University over the next few months.

The proposal has the following to say in its introduction:

Warwick aims to be a 'Top 50' university by 2015, with a world-class reputation. Potential students, therefore, will expect a distinctive experience that includes world-class teaching. They will expect rewarding relationships with their academic teachers and stimulating learning spaces. In addition to disciplinary knowledge and high-quality extracurricular activities, students will expect to develop the skills to operate in interdisciplinary, globalised research and practice settings that will bring success during their studies and beyond.

The Institute for Advanced Teaching and Learning (IATL) would provide the impetus and means to effect change across the entire University, ensuring provision of a distinctive 'Warwick experience' for all students, regardless of discipline. It would be a focus for teaching and learning activity and would work with departments to deliver that experience.

Our proposal contains much detail, but a summary of proposed activities and outcomes is as follows:

Students who feel part of Warwick's culture of research and/or practice

IATL would work with departments to review curricula and embed innovative and student-centred teaching and learning, to be achieved by:

Reinvention: a Journal of Undergraduate Research

The journal would continue to provide the opportunity for students to write for publication in a supportive and realistic environment, and to learn about academic publishing and produce a peer-reviewed journal.

Performance-based Learning

IATL would work with departments to introduce methodologies which promote the use of intelligences other than the linguistic, and learning styles beyond the auditory; specifically demanding that students develop both their subject knowledge and enhance their “soft skills” in areas such as responsibility, sociability, self-esteem, self-management.

Research-led Teaching

IATL would work with departments to produce curricular interventions: the re/development of modules which encourage a more research-based approach. It would also award funding to innovative staff-student projects which cross traditional collaborative boundaries, and to independent undergraduate researchers.

Academic Literacy

IATL would work with the University Library to promote academic literacy across all its activities to support students in writing and speaking clearly and effectively and thinking critically and analytically. It would develop and embed teaching methodologies and pedagogic interventions using Open-space Learning to bridge formal academic study with the practical, professional applications of theory in practice.

Students who engage with global culture

Collaborating with existing partners and other HEIs both nationally and internationally, IATL would research and support initiatives aimed at a globally-oriented curriculum; would foster a multiplicity of learning styles for different futures; and would carry out research into how students from different educational backgrounds experience practice-based teaching and research-based learning.

Students who participate in interdisciplinary activity

Collaborating with departments, the Board of Undergraduate Studies and interdisciplinary Doctoral Training Centres, IATL would make available to all students the option of an interdisciplinary module; would develop a portfolio of interdisciplinary modules; and would host interdisciplinary projects and seminars to bring together academics and research-active students across faculties.

Students who benefit from innovative pedagogy

Working with departments, Faculty Teaching and Learning Fora, the Postgraduate Certificate in Academic and Professional Practice, the Centre for Student Careers and Skills, and the International Gateway for Gifted Youth, IATL would ensure that all students have experienced innovative pedagogy. This would be achieved by pedagogic interventions encouraging active and performative participation by learners and teachers; learning experiences that encourage a more performative and applied approach; promotion of digital media initiatives and innovations

in collaboration with eLearning; and an embedded student ensemble to promote and develop creative methods of Open-space Learning.

Students who have experienced innovative learning spaces

Working with departments, the Teaching and Learning Grids, and the Space Management section to develop new teaching spaces, redevelop traditional teaching spaces and increase innovative use of existing spaces, IATL would co-ordinate the provision and further development of effective, flexible, open learning spaces to enhance the University's prestige; offer a research-informed approach to the planning and use of learning spaces, exemplified by CAPITAL's Open-space Learning initiatives and Reinvention's extensive work on social learning spaces; ensure that students in all faculties have access to spaces which will enable them to benefit from innovative teaching practice; and develop interdisciplinary Open-space Learning projects e.g. Creative Environments for Learning.

IATL would disseminate Warwick's innovative practice beyond the University by:

- conference presentations;
- a biennial conference on teaching and learning;
- up to 3 drama festival presentations per year;
- publications, for both academic and general audiences, including the generation of copy for the national press;
- *Reinvention: A Journal of Undergraduate Research*;
- a new website to raise awareness of IATL and its activities, to serve as an information resource and to facilitate student engagement;
- other creative and inclusive modes of communication such as film-making and installation;
- joint projects with Warwick's preferred international partners.

Question 12

Do you think there are any emerging aspects of your CETL activity that will have greater importance in the future? (600 words maximum)

The role of students in contemporary HE is increasingly debated. Research from the Reinvention Centre and published by the QAA (Taylor and Wilding, 2009) shows that the 'student as consumer' label (see McCulloch, 2009) fails in many respects to describe the complex motivations that students have with respect to HE institutions. Given the opportunity, some students decide to undertake and publish their own research, to participate in curriculum and policy development, and to spend time encouraging other students to do the same.

Meaningful student engagement of this kind challenges models of HE that emphasise binaries between research and teaching and between staff and students. Student researchers as producers of original knowledge and designers of curriculum raise important questions about the status of participants in HE and the resources allocated to their interests. Such questions lead in turn to broader debates about the role of the contemporary university.

This is highly relevant, since 'learning within a research-led environment has been prioritised and valued as the optimum higher education experience by the UK's New Labour government and businesses' (Mockridge *et al.*, 2010), despite the continued promotion in the UK of students as 'choosier and more demanding consumers of the higher education experience' (Mandelson, 2009). Noteworthy here is the different discourse advanced in the US recently.

The Department of Energy and the National Science Foundation will be launching a joint initiative to inspire tens of thousands of American students to pursue [careers in science, mathematics and engineering]. It will support an educational campaign to capture the imagination of young people and will create research opportunities for undergraduates and educational opportunities for women and minorities who too often have been underrepresented in scientific and technological fields. (Obama, 2009)

The Reinvention Centre enables undergraduates to become research active and thus our approach escapes or exceeds the binary models of 'research' and 'teaching' as separate or overlapping entities (e.g. Robertson and Bond, 2001). Instead the Centre has worked towards a more radical re/definition of research as learning. Here, undergraduate students are not regarded as learners coming into an existing research environment, but as potential and actual co-researchers who are themselves producers of the research cultures they inhabit. This shift has required a re-conceptualisation of students as producers and of environments as dynamic.

We suggest that it is not enough that students are educated within a 'research-rich' environment. Although there is some evidence to indicate that their learning benefits from being in such a context, there is also an (as yet) underdeveloped strand of enquiry (cf. Creighton, 2009) suggesting that students undertaking their undergraduate degree in research-rich universities have few opportunities for collaborative work.

Development of environments that facilitate collaborative research between staff and students could therefore be a priority for research-intensive departments / institutions. This presents a challenge to designers of the built and virtual learning environment and designers of curriculum, including assessment.

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