

Steven Robert Harris - CV

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Profile

Steve Harris is a Research Fellow at the Schumacher Institute for Sustainable Systems, Bristol, where he researches the social, technical and economic challenges of the transition to post-carbon living, with a particular focus on developments in post-devolution Wales.

Born and schooled in Birmingham, England, Steve returned to education in the 1990s following a career in the construction industry. Steve trained in computer science, specialising in multimedia and hypermedia authoring. His Doctorate applied systems thinking to the participatory design of collaborative computer-mediated learning environments; empirical research was carried out at an adult basic skills open learning centre in south Wales. During this period Steve developed expertise in the use of systemic-structural activity theory - a unique systems approach to design initially developed in the former Soviet Union - working with the theory's founder, Dr. G. Z. Bedny and as a visiting researcher at the University of Aarhus, Denmark,

Steve began to work in Further Education in 1997, and HE in 2001, joining the University of Glamorgan in 2003 as a member of the Centre for Astronomy and Science Education. Increasingly involved with environmental issues, Steve's research and teaching began to focus on community engagement with sustainability and climate change. In 2006 he helped set up Science Shops Wales, a prototype national network of community-based research centres. As project manager over the next four years, Steve initiated and coordinated a programme of demand-driven, community-based action research supporting Welsh civil society responses to climate change, including the Communiversity of Wales pilot project, which involved the design and delivery of a Wales-wide learning exchange network for community-based sustainability practitioners.

Steve is a founder member of the award-winning Aman Valley Conservation Association, a Council Member of the Workers' Educational Association, and a Trustee of the campaigning NGO Sustainable Wales. As a passionate advocate of systems thinking and permaculture design, he is proud to be a shareholder in Lammas, the first planned eco-village in Wales. A practising Buddhist, Steve lives in Cwmaman, south Wales and is married with one daughter.

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Current Positions

Research Fellow, The Schumacher Institute for Sustainable Systems, 3rd Floor, Bush House, 72 Prince Street, Bristol BS1 4QD

Council Member, Workers Educational Association, South Wales
Remit: Steering and advice to leading independent adult education provider. Also member of the WEA Learner Experience Committee and Research Management Group.

Trustee, Sustainable Wales, John St., Porthcawl, Wales
Remit: Steering, advice and fiscal and regulatory oversight for independent sustainable development charity (registration number 1065789/0).

Experience

Coordinator, Communiversity of Wales Pilot Project
2010-11

Remit: Design, development and delivery of a Wales-wide learning exchange network for sustainability practitioners. Funded by the Climate Change and Water Division of the Welsh Assembly Government.

Manager, Science Shops Wales

2006-2010 University of Glamorgan, Pontypridd, Wales
Remit: Design, implementation, strategic & operational management of a prototype network of community-university partnership and research centres in Wales. Sponsors: the University of Glamorgan, University of Wales, Newport. Supported by the Higher Education Funding Council of Wales. Funding: £1.5m over 4 years.

Senior Lecturer, Faculty of Health, Sport and Science

2005-2010 University of Glamorgan, Pontypridd, Wales
Remit: Under- and postgraduate teaching & research in Science Communication, including redesign and validation of MSc Communicating Science.

Senior Researcher, Centre for Astronomy and Science Education

2003-2006 University of Glamorgan, Pontypridd, Wales
Remit: Research in Science Communication. Establishment and initial management of Science Communication Research Unit. From 2004-6 Researcher on the RoCCoTO astronomy outreach programme supported by the European Social Fund (Objective 1). Funding: £1.25m over 6 years.

Guest Researcher, Institute of Psychology

August-September 2006. Aarhus University, Denmark

Guest Researcher, DAIMI (Department of Computer Science),
September 2005 Aarhus University, Denmark

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Associate Researcher, National Research and Development Centre for Adult Literacy and Numeracy

2003-2004 Institute of Education, London
Principal Investigator on 'CyberLab', part of the National Research and Development Centre for Adult Basic Skills Programme 3 PG3.14 ESF: 'ICT: Effective Teaching and Learning'.

p/t Lecturer in Multimedia and Hypermedia Computing

2000-2003 University of Glamorgan, Pontypridd, Wales

p/t Lecturer in Adult Basic Skills and Information Technology,

1997-2004 Coleg Morgannwg, Pontypridd, Wales

Self-employed Contractor/Subcontractor, Property

Development and Maintenance Services,
1976-1997 London, Bristol

Memberships	1996-	Soka Gakkai International, SGI-UK
	2000-	International Society for Cultural and Activity Research
	2000-	Hypermedia Research Unit, University of Glamorgan
	2001-	British Society for The History of Science
	2002-	British Science Association
	2004-	Scientists for Global Responsibility
	2006-	Institute of Welsh Affairs
	2006-	Centre for Alternative Technology
	2007-	Aman Valley Conservation Association
	2008-	Lammas Low-impact Initiatives CIC
	2009-	Permaculture Association (Britain)
	2009-	Sussed Fair Trade Cooperative, Porthcawl
	2009-	Workers Education Association (South Wales)

Education **PhD. Human-Computer Interaction**

2000-2007, University of Glamorgan, Pontypridd, Wales.

Thesis Title: 'Supporting Learning-in-Use: Some Applications of Activity Theory to the Analysis and Design of ICT-Enabled Collaborative Work and Learning'

Thesis Supervisors: Professor. D. Tudhope, Dr. D. Cunliffe.

Thesis Advisers: Professor S. Bødker, DSc., Aarhus University, Denmark; Professor K. Baerentsen, Institute of Psychology, Aarhus University, Denmark; Professor G. Bedny, DSc., Essex College, NJ, USA.

Doctoral Research included research placements at: Institute of Psychology, Aarhus University, Denmark (2006); Department of Computer Science, Aarhus University, Denmark (2005); and Copenhagen IT University, Denmark (2004).

B. Sc. Computer Science (Multimedia Studies)

1997-2000, University of Glamorgan, Pontypridd, Wales

First Class Honours achieved. Honours dissertation - submitted April 2000: 'Working at the Margins: Web usability in a community context.'
1998 Awarded the University Ede-Ravenscroft Prize (for non final year)

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student of particular merit) - £500.

City & Guilds Initial Certificate in Teaching Basic Skills

1999, Coleg Morgannwg, Pontypridd, Wales

City & Guilds Three-Dimensional Design Using AutoCad; City & Guilds Computer-Aided Draughting and Design Using AutoCad; NVQ Using Information Technology Level 1

1997, AutoCAD Centre, Trefforest, Wales

3 A-Levels, 7 O-Levels

1967- 74, King Edward VI Camp Hill Grammar School for Boys,
Birmingham

Publications

Harris, S. R. (2012). Pushing the Boundaries: The Earth System in the Anthropocene. A Schumacher Institute Report. Bristol: SISS.

Harris, S. R. (2012). Nuclear Energy: One strand of hope for environmental and social justice on a crowded planet? A Schumacher Institute Challenge Paper. Bristol: SISS.

Gold, G and Harris, S. R. (2010) Review of Paul Burkett, *Marxism and ecological economics*. In the Marx & Philosophy Review of Books (June 2010).

Harris, S. R. (2010). Economic Growth Drives Global Warming. GloballySusDCymru, May 2010, 13-14.

Harris, S. R. (2010). People, Power, Politics and Peak Oil. Celyn (May 2010).

Harris, S. R. (2010). Science Shops Wales: Democratising Knowledge. Agenda: The IWA Journal (Spring 2010): 60-61.

Harris, S. R. (2009) 'We must rely on science rather than wishful thinking if we are to build a sustainable Welsh economy', in N. Ingham (ed.), *Defining a Sustainable Economic Future for Wales* (pp. 24-25). Cardiff: Cynnal Cymru.

Harris, S. R. (2009) 'Science Shops Wales: Welsh Higher Education Institutions and the Sustainable Wales Agenda', *Welsh Economic Review* 20/5: 32-34.

Bedny, G. Z., & Harris, S. R. (2008). "Working sphere/engagement" and the concept of task in activity theory. *Interacting with Computers*, 20(2), 251-255.

Harris S. R, and Thiessen, C. (2008) Experiments in Total Engagement: Science-Society Interactions in the People's Republic of China, 1949-66. In Bell A, Davies SR, and Mellor F. 2008. *Science and its Publics: Following Scientists into Popular Culture* (pp. 37-56). Cambridge: Cambridge Scholars Publishing. ISBN: 1-84718-588-6.

Chainova, L., Yakovetc, D., Harris, S. R., & Kwon, Y.-G. (2006). Analysis of students' functional state during computer training. In R. N. Pikaar & E. A. P. Koningsveld & P. J. M. Settels (Eds.), *IEA 2006: Meeting Diversity in Ergonomics*. Proc. of the 16th World Congress of the International Ergonomics Association, Maastricht, the Netherlands. Amsterdam: Elsevier. ISSN: 0003-6870.

Bedny, G. Z., & Harris, S. R. (2006). *Triadic Schema of Activity* (pp.

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38-41); Structure of the Production Process (pp. 55-56); Structure of the Operational-Monitoring Process (pp. 57-59); Classification of Work Processes (pp. 59-61). All in Bedny, G. Z., Karwowski, W., A Systemic-Structural Theory of Activity: Applications to Human Performance and Work Design. Boca Raton: CRC Press/Taylor & Francis. ISBN: 0849397642.

Brake, M., Griffiths, M., Hook, N. & Harris, S. R. (2006). Alien Worlds: Astrobiology and Public Outreach in The International Journal of Astrobiology, Volume 5: 319-324.

Bedny, G. Z. & Harris, S. R. (2005). The Systemic-Structural Theory of Activity: Applications to the Study of Human Work. *Mind, Culture and Activity*, 12(2), 128-147. ISSN: 1074-9039

Harris, S. R., & Shelswell, N. (2005). Beyond Communities of Practice in Adult Basic Education. In D. Barton & K. Tusting (Eds.), *Beyond Communities of Practice: Language, Power and Social Context* (pp. 158-179). Cambridge: Cambridge University Press. ISBN 0521544920.

Harris, S. R. (2005). Investigating Interaction Breakdown: A Systemic-Structural Activity Approach to the Analysis of HCI Field Data. In M. J. Smith & G. Salvendy (Eds.), *HCI 2005: Proceedings of the 11th International Conference on Human-Computer Interaction*. Mahwah, NJ: Lawrence Erlbaum Associates. ISBN: 0805858075.

Harris, S. R., & Reddy, M. (2005). Evaluating the Usability of Visual Programming Environments for Educational Robotics: An Activity Walkthrough Approach. In M. J. Smith & G. Salvendy (Eds.), *HCI 2005: Proceedings of the 11th International Conference on Human-Computer Interaction*. Mahwah, NJ: Lawrence Erlbaum Associates. ISBN: 0805858075.

Harris, S. R. (2005). Integrating ICT, Literacy and Numeracy: *CyberLab. Numeracy Briefing*, 1(3), 18-19. ISSN: 1742-5891

Harris, S. R., & Shelswell, N. (2005). Beyond Communities of Practice in Adult Basic Education. In D. Barton & K. Tusting (Eds.), *Beyond Communities of Practice: Language, Power and Social Context* (pp. 158-179). Cambridge: Cambridge University Press. ISBN: 0521544920.

Harris, S. R. (2005). Systemic-Structural Activity Analysis of HCI Video Data. In O. W. Bertelsen & M. Korpela & A. Mursu (Eds.), *Proceedings of ATIT04: 1st International Workshop on Activity Theory Based Practical Methods for IT-Design*, September 2-3, 2004, Copenhagen, Denmark (pp. 48-63). Aarhus: DAIMI. Report No. PB-574.

Harris, S. R. (2004). Morphological Analysis of HCI Video Data Using Activity Theory. In A. Dearden & L. Watts (Eds.), *Proceedings of HCI2004: Design for Life (Vol. II)*, pp. 41-44). Bristol: Research Press International. ISBN: 1897851138.

Harris, S. R. (2003). Motivation, Participation and Co-location: Key aspects of Technology-based learning in Adult Basic Education. Wales: University of Glamorgan. CASE Technical Report CTR0041.

Harris, S. R. (2002). PD in Ponty: Design-by-Doing in Adult Basic Education. In T. Binder, J. Gregory & I. Wagner (Eds.), *PDC 02 Proceedings of the Participatory Design Conference* (pp. 278-283).

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Malmö, Sweden: CPSR. ISBN: 0996781821.

Harris, S. R. (2001). Conflicts in User Perception and Design Representation as Causes of Interaction Breakdown, Proceedings of the First Annual Doctoral Seminar, University of Glamorgan (pp. 14-15). Wales: Pont Dysgu/Learning Bridge.

Harris, S. R., & Shelswell, N. (2001). Building bridges across the digital divide: supporting the development of technological fluency by Adult Basic Education learners. In A. Mason (Ed.), Proc. FACE Annual Conference 2001 (pp. 42-51). Southampton: FACE. ISBN: 1860433308.

Presentations, Seminars & Outreach

2012 'Nuclear Power – Panacea or Pipe Dream?' – Public Debate, The Sustainable Wales Green Room Programme, Porthcawl, UK. April 6th 2012.

2011 'Scientific Evaluation of the Earth System' – Guest Lecture, MSc Community Regeneration, University of Glamorgan, Pontypridd, UK. December 14th 2011.

2010 'Common Wealth in Wales' – Workers Education Association 'Issues of our Time' Lecture, Torfaen Peoples' Centre, Pontypool, UK. April 22nd 2010.

2010 'The Science Shops Model' – ESRC Social Science Exchange (Wales), ESRC Centre for Business Relationships, Accountability, Sustainability and Society, Cardiff University, UK. March 30th 2010.

2010 'Climate Change and the Earth System Crisis' – Green Futures Programme, Bron Afon Housing Association, Cwmbran, UK. February 15th 2010.

2009 'Science Shops Wales – Interdisciplinary and Participatory Action Research on the Community Impacts of Climate Change' – ESRC Workshop on 'Working with Stakeholders on Climate Change', Institute of Advanced Studies, Bristol University, UK. June 3rd 2009.

2009 'Welsh and African HEIs as facilitators of civic participation in sustainability, environment and development: Synergies between the Science Shops model and innovative practice in African Universities' – Perspectives on Development VI – A University of Wales Colloquium, Gregynog Hall, Powys, UK. Thursday 22nd January 2009.

2008 'Science Shops Wales – Setting up a new national network of community-based research centres' – All Our Futures 1, Plymouth University, UK. 10th September 2008.

2008 'Science Shops Wales – Setting up a new national network of community-based research centres' – Science Shops Workshop, Department of Biosciences, University College Cork, Eire.

2005 'Practical activity analysis and design: methods and principles of the systemic-structural approach', 1st Congress of the International Society for Cultural and Activity Research (ISCAR), Universidad de Sevilla, Spain. 20th September 2005.

2005 'Activity Theory and information technology design: toward a third generation HCI', 1st Congress of the International Society for

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Cultural and Activity Research (ISCAR), Universidad de Sevilla, Spain. 20th September 2005. Co-authored with Dr. O. Bertelsen, Aarhus University, Denmark.

2005 'Theories in History' - 4th Decennial Aarhus Critical Computing Conference, Aarhus University, Denmark. 24th August 2005. Short Paper Session Chair.

2005 'Evaluating the Usability of Visual Programming Environments for Educational Robotics: An Activity Walkthrough Approach' - HCII 2005: The 11th International Conference on Human-Computer Interaction, Las Vegas, USA. 27th July 2005.

2005 'Investigating Interaction Breakdown: A Systemic-Structural Activity Approach to the Analysis of HCI Field Data' - HCII 2005: The 11th International Conference on Human-Computer Interaction, Las Vegas, USA. 27th July 2005.

2005 'Appropriating Activity Theory: Soviet Psychology and the Western Worldview' - Annual Conference of the British Society for the History of Science, Leeds University, UK. 17th July 2005.

2004 'Morphological analysis of HCI video data using activity theory' - HCI 2004, The 18th British HCI Group Conference, Leeds Metropolitan University, UK. 9th September 2004.

2004 'Systemic-Structural Activity Analysis of HCI Video Data' - ATIT04: 1st International Workshop on Activity Theory Based Practical Methods for IT-Design, Third Nordic Conference on Cultural and Activity Research, Copenhagen University, Denmark. 2nd September 2004.

2004 'Investigating Integration: Basic Skills in the CyberLab' - 1st National Conference of the National Research and Development Centre for Adult Literacy and Numeracy, Loughborough University, UK. 26th March 2004.

2002 'Developing literacy and empowerment through the use of ICT: some guidelines from practice' - 5th Congress of the International Society for Cultural Research and Activity Theory (ISCRAT), Vrije Universiteit Amsterdam, the Netherlands. 22nd June 2002.

2002 'Bridging the Gap between Field Studies and Design' - NordiCHI 2002, The Second Nordic Conference on Human-Computer Interaction, Aarhus University, Denmark. 19th October 2002.

2002 'Process, Practice & Reflection: Integrating Technology With Learning in Adult Basic Education' - RAPAL 2002, The Conference on Research and Practice in Adult Literacy, University of East London, UK. March 2002.

2002 'PD in Ponty: Design-by-Doing in Adult Basic Education' - PDC 02 The Participatory Design Conference, Malmö, Sweden. June 25th 2002.

2001 'Conflicts in User Perception and Design Representation as Causes of Interaction Breakdown' - First Annual Doctoral Seminar, University of Glamorgan UK. 7th December 2001.

2001 'Supporting the development of technological fluency in Adult Basic Education learners' - Sixth Annual Conference of the Forum for the Advancement of Adult Continuing Education (FACE), Southampton Institute, UK. 3rd July 2001. With N. Shelswell, Coleg

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Morgannwg.

1999 'Supporting the development of technological fluency in Adult Basic Education learners' - Fourth Annual Conference of the Forum for the Advancement of Adult Continuing Education (FACE), Nottingham Trent University, UK. 8th July 1999.

Conferences organised

2009 'A Prosperous Way Down? Exploring Green Economic Futures for Wales' - City Hall, Cardiff, Wales. Conference Chair & Keynote Speaker.

2008 'A Sustainability College for the Valleys?' - Innovation Centre, Abercynon, Wales. Conference Chair & Keynote Speaker.

2007 'Whole-Systems Sustainable Development in Wales' - Coed Hills, Wales. Conference Chair & Keynote Speaker.

2006 '2nd Glamorgan Postgraduate Science Communication Conference' - Innovation Centre, Abercynon, Wales. Conference Chair & Judge.

2005 '1st Glamorgan Postgraduate Science Communication Conference' - Innovation Centre, Abercynon, Wales. Conference Chair & Judge.

Funded Research

2006-2010 Lead Investigator 'Widening access to Higher Education through community-based Learning and Research in the Heads of the Valleys Area' (£3m). Joint action research project between the University of Glamorgan (Science Communication Research Unit) and University of Wales, Newport (Community University of the Valleys). Funded from the Strategic Development Fund of the Higher Education Funding Council of Wales.

2007-2009 Co-investigator 'Genetic Literacy and Family History: a Study of Young People in the South Wales Valleys' (£128K) Collaboration between Science Communication Research Unit and Genomics Policy Research Unit, University of Glamorgan. Funded by the Wellcome Trust.

2004-6 Researcher on the RoCCoTO astronomy outreach programme (£1.25m) Centre for Astronomy and Science Education and Science Communication Research Unit, University of Glamorgan. Funded by European Social Fund (Objective 1).

2003-4 Principal Investigator 'CyberLab', part of the National Research and Development Centre for Adult Basic Skills Programme 3 PG3.14 ESF: 'ICT: Effective Teaching and Learning'. Coordinated by Institute of Education, London.

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Doctoral Thesis Abstract

Supporting Learning-in-Use: Some Applications of Activity Theory to the Analysis and Design of ICT-Enabled Collaborative Work and Learning

Abstract. This thesis discusses some applications of activity theory to the analysis and design of collaborative work and learning processes either partially or wholly enabled by the use of information and communication technology (ICT). Activity theory (AT) is a monistic, materialistic psychological meta-theory comprising several distinct strands of historical and theoretical development. Founded in the former USSR in the early 1930s, it became a fundamental approach in Soviet psychology. In the West, AT was first adopted as a conceptual framework for human-computer interaction (HCI) and information systems design (ISD) in the late 1980s by researchers associated with the Participatory Design (PD) and Computer-Supported Cooperative Work (CSCW) movements. Mainly drawing on Scandinavian interpretations of AT, this work established a distinctive, predominantly cultural-historical approach to context-aware information technology design now known as ATIT. ATIT is widely recognised as having made significant contributions to the theory and vocabulary of HCI and ISD; the principal aim of this thesis is to further develop its usefulness for ICT design. The research discussed explored the theory, history and development of ATIT while also applying and evaluating various established and new practical ATIT methods. These included the breakdown and focus-shifts analysis approach developed by Bødker and her associates and some novel techniques based on systemic-structural activity theory (SSAT), a modern, explicitly design-oriented synthesis of the cultural-historical and systems-cybernetic strands within Soviet activity theory.

The empirical investigation involved participatory action research into the uses of ICT at an adult basic education (ABE) Open Learning Centre in south Wales, UK. A longitudinal study of an intensive ICT-enabled ABE course, *Computer Creative*, was carried out between September 2000 and May 2001 using ethnographic techniques. This was followed-up by a short video-based study in May 2002. In both cases the aim was to use activity-theoretical techniques to identify ways of improving the use of ICT to support the Centre's learner-centred, empowerment-oriented ABE practice. Using the key ATIT notion of breakdown as a starting-point, a number of factors influencing participants' effective and creative learning-in-use of and with the available technologies were identified. Among the most significant of these was learners' motivation during the ICT-enabled work-process. Conditions observed to encourage positive motivation included physical co-location in a material and sociocultural environment favouring self-regulation and mutual coordination through communicative and instrumental means and the structuring of ICT-enabled tasks so as to facilitate the formation and alignment of personally meaningful task-goals. Although user-interface (UI) design emerged as only one among many task-conditions impacting on motivation, some applications were persistently associated with recurrent and/or catastrophic breakdown. The principal UI characteristics identified as likely contributors to such breakdowns were inadequate provision of task-relevant information and under- or over-representation of task complexity. Based on these findings,

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the thesis presents a number of recommendations and guidelines for researchers and designers on the use of activity-theoretical techniques to create and evaluate interactive information and communication systems, ICT-enabled work-processes and tasks, and ICT use-settings. In doing so it provides further evidence of the potential applicability of AT to a range of IT-design challenges, while concluding that in order to more fully realise this potential researchers should consider revising and expanding the conceptual framework of ATIT to include ideas from SSAT.

