

Resources on Problem-based Learning and Active Learning

Papers and articles

Chappell, A. 2006 Using the 'Grieving' Process and Learning Journals to Evaluate Students' Responses to Problem-Based Learning in an Undergraduate Geography Curriculum, *Journal of Geography in Higher Education*, 30, 1, 15-31

Fox, R. and Rowntree, K. 2004 Linking the doing to the thinking: using criterion-based assessment in role-playing simulations, *Planet* 13, 9-15
<http://www.gees.ac.uk/pubs/planet/index.htm#PI3>

Giles, D., Whitworth, M. and Poulson, A. 2008 The Development of Fieldwork Problem-Based Exercises in the Applied Geosciences. *Planet*, 20, 37-40
<http://gees.ac.uk/pubs/planet/p20/dg.pdf>

Hanson, S. and Moser, S. 2003 Reflections on a discipline-wide project: developing active learning modules on the human dimensions of global change, *Journal of Geography in Higher Education* 27,1, 17-38

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<http://www.gees.ac.uk/pubs/planet/p16/mh.pdf>

Jenkins, J.O. 2006 Problem-based learning in practice: understanding human water needs. *Planet*, 16, 32-35. <http://gees.ac.uk/pubs/planet/p16/jj.pdf>

Jones, P.C., Merritt, J.Q. and Palmer, C. 1999 Critical Thinking and Interdisciplinarity in Environmental Higher Education: the case for epistemological and values awareness. *Journal of Geography in Higher Education*, 23, 3, 1999, 349-357
<http://www.greenwich.ac.uk/~bj61/talessi/paper1.htm>

Jones, P.C. and Merritt, J.Q. 1999 The TALESSI Project: promoting active learning for interdisciplinarity, values awareness and critical thinking in environmental higher education, *Journal of Geography in Higher Education*, 23, 3, 1999, 335-348
<http://www.greenwich.ac.uk/~bj61/talessi/paper2.htm>

MacAndrew, S., Walsh, L. and Oyudemi, K. 2008 Problem based learning in practice: listening to the lecturers. An investigation of academics' perceptions and practice concerning problem based learning. SHEER Final Report. 30 September 2008.
http://www.heacademy.ac.uk/assets/York/documents/aboutus/scotland/SHEER_MacAndrew.pdf

Mergendoller, J. R., Maxwell, N.L. and Bellissimo, Y. 2006 The Effectiveness of Problem-Based Instruction: A Comparative Study of Instructional Methods and Student Characteristics, *The Interdisciplinary Journal of Problem-based Learning (IJPBL)*, 1, 2
<http://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1026&context=ijpbl>

PLANET Special Edition 2 Case Studies in Problem-based Learning (PBL) from Geography, Earth and Environmental Sciences <http://www.gees.ac.uk/planet/index.htm#PSE2>

Pawson, E., Fournier, E., Haigh, M., Muniz, O., Trafford, J. and Vajoczki, S. 2006 Problem-based Learning in Geography: Towards a Critical Assessment of its Purposes, Benefits and Risks, *Journal of Geography in Higher Education*, 30, 1, 103–116

Savery, J.R. 2006 Overview of Problem-based Learning: Definitions and Distinctions, *The Interdisciplinary Journal of Problem-based Learning (IJPBL)*, 1,)
<http://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1002&context=ijpbl>

Simm, D. and McGuinness, M. 2004. Crisis resolution of student-led research projects at distant locations, *Planet* 13, 8-11 <http://www.gees.ac.uk/pubs/planet/index.htm#P13>

Spronken-Smith, R. 2005 Implementing a Problem-Based Learning Approach for Teaching Research Methods in Geography. *Journal of Geography in Higher Education*, Volume 29, Number 2, pp. 203-221

Spronken-Smith, R.A., Bullard, J., Ray, W., Roberts, C. and Keiffer, A. 2008 Where might sand dunes be on Mars? Engaging students through inquiry-based learning in geography. *Journal of Geography in Higher Education* 32, 1, 71-86

Whalley, B. 2003. A Geomorphical 'Icebreaker' exercise in team-development for problem based learning, *Planet*, 10, 4-5 <http://www.gees.ac.uk/pubs/planet/p10/bw.pdf>

Woods, D. (2004) *Preparing for PBL*. McMaster University, Hamilton, Canada
<http://www.chemeng.mcmaster.ca/pbl/pblbook.pdf>

Books and publications

Healey M. and Roberts J. (Eds.) 2004 *Engaging students in active learning: case studies in geography, environment and related disciplines*, Geography Discipline Network and School of Environment, Cheltenham <http://www.glos.ac.uk/gdn/active/student.htm>

Gibbs, G. 1988 *Learning by doing: a guide to teaching and learning methods*. Further Education Unit, London <http://www2.glos.ac.uk/gdn/publ.htm#other>

Race, P. 2001. *The lecturer's toolkit: A resource for developing learning, teaching and assessment*, Kogan Page, London

Savin-Baden, M. 2004 *Foundations of problem-based learning*, McGraw-Hill, Maidenhead

Savin-Baden, M. 2004 *Challenging research in problem-based learning*, McGraw-Hill, Maidenhead

Savin-Baden, M. and Wilkie, K. (Eds) 2006 *Problem-based learning Online*, Maidenhead McGraw Hill

Silberman, M. 1996 *Active learning: 101 strategies to teach any subject*, Allyn and Bacon, Boston

Woods, D. 2004 *Preparing for PBL*, McMaster University

<http://www.chemeng.mcmaster.ca/pbl/pblbook.pdf>

Projects

GEES Subject Centre Project theme web site – Active Learning

<http://www.gees.ac.uk/projtheme/learning/learning.htm>

GEES Subject Centre Small-scale Learning and Teaching Research and Development Projects

<http://gees.ac.uk/funding/smallfunding.htm>

- Exploring the use of internet-based problem-solving activities to enhance students' understanding of 3-dimensional spatial relationships - Alan Boyle, 2007
- *The Development of Fieldwork Problem-Based Learning in the Applied Geosciences* - David Giles, 2006
- Module websites as tools for active learning in undergraduate geography - Caedmon Staddon, 2002
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The Talessi Project - Teaching and Learning at the Environment-Science-Society Interface

Resources <http://www.greenwich.ac.uk/~bj61/talessi/>

The Talessi Project promotes active learning for interdisciplinarity, critical thinking and values awareness in higher education. The web page contains very useful teaching and learning resources on Active Learning.

Case studies

Case Studies of Interesting Learning, Teaching and Assessment Practices in Geography, Earth and Environmental Sciences in Higher Education <http://goodpractice.gees.ac.uk>

- How do I encourage active learning?
- Preparing to Teach Large Classes: Strategies to Promote Active Learning -
- 'Teaching Each Other': An Example of Active Learning in a Lecture, Tutorial or Workshop

GEES Subject Centre: Case studies of how you link your Teaching with Research and Consultancy <http://www.gees.ac.uk/linktr/casestud.htm>

- Migration in Mexico: A Problem-based Learning Module
- 'Mutant algal Blooms Wreak havoc on the South Coast' - A PBL exercise for marine pollution students
- A Problem-based Learning Approach to Teaching Research Methods in Geography

CeAL Case Studies in Active Learning

<http://resources.glos.ac.uk/ceal/resources/casestudiesactivelearning/activelearningcasestudies/index.cfm>

- Using Problem Based Learning for Assessment in Large Classes: Triple-Jump
- Problem-Based Learning for Environmental Management in Geography

- The impact of an inquiry-based learning introductory course for social sciences on the development of skills and the subsequent performance of students

Context

<http://www.geog.leeds.ac.uk/courses/other/casestudies/>

A University of Leeds based project aimed at promoting the use of case studies in HE.

Higgs, B. 2005. The evolution from problem solving to problem-based learning: a case study of earth sciences at University College Cork, in Barrett, T., Mac Labhrainn, I. and Fallon H (Eds) 2005 *Handbook of enquiry and problem-based Learning: Irish case studies and international perspectives*, Center for Excellence in Learning and teaching, NUI Galway and All Ireland Society for Higher Education (AISHE), Dublin <http://www.aishe.org/readings/2005-2>

LTSN Economics Good Practice Showcase

http://www.economics.ltsn.ac.uk/showcase/forsythe_pbl.htm

LTSN Physical Sciences Primer: Web Resources for Problem Based Learning & LTSN Physical Sciences Primer: An Introduction.

<http://www.heacademy.ac.uk/physsci/home/pedagogicthemes/pbl>

National Center for Case Study Teaching in Science <http://sciencecases.lib.buffalo.edu/cs/> A website hosted by the University of Buffalo providing background, methods, links and case study ideas for those interested in case study teaching in science.

PLANET Special Edition 2 Case Studies in Problem-based Learning (PBL) from Geography, Earth and Environmental Sciences <http://www.gees.ac.uk/planet/index.htm#PSE2>

General web sites and web resources

Kiley, M.; Mullins, G.; Peterson, R. and Rogers, T. 2000 Leap Into Problem Based Learning. University of Adelaide

<http://www.adelaide.edu.au/clpd/resources/leap/leapinto/ProblemBasedLearning.pdf>

University of Delaware and the PBL Clearing House

<http://www.udel.edu/pbl/>

The University of Delaware website provides links to articles and books written by UoD staff on PBL and links to the PBL Clearing House, which contains triggers for PBL.

Problem-based Learning Directory

<http://feedback.bton.ac.uk/pbl/pbldirectory/index.php>

A database currently aiming to provide a central point of access to information on PBL in all subjects within Higher Education.

PBL JISCmail

Everyone who wishes to receive more up-to-date information about PBL can subscribe to the PBL JISCmail list: <http://www.jiscmail.ac.uk/lists/pbl.html>

University of Maastricht <http://www.unimaas.nl/pbl/>

Seen as the European experts, PBL is one of the main characteristics of education at Maastricht. The PBL webpage provides a bibliography of PBL publications, with the majority in English. General description and goals of PBL etc..

Centre for Leadership in Learning (CLL) at McMaster University www.mcmaster.ca/cll/
The McMaster University/Centre for Leadership in Learning's web page provides useful resources about implementing an inquiry based curriculum, including module descriptions for Inquiry-based modules in various subject disciplines.

UK Centres for Excellence in Teaching and Learning (CETL) emphasising active learning and inquiry and research-based learning

- Sheffield Hallam University, the Centre for Promoting Learner Autonomy
- <http://extra.shu.ac.uk/cetl/cpla/cplahome.html>
- University of Gloucestershire, the Centre for Active Learning in Geography, Environment and Related Disciplines (CeAL) <http://resources.glos.ac.uk/ceal/>
- University of Durham Active Learning in Computing (ALiC) www.dur.ac.uk/alic
- University of Manchester, Centre for Excellence in Enquiry-Based Learning (CEEBL) www.manchester.ac.uk/ceeb/
- University of Oxford Learning Institute <http://www.learning.ox.ac.uk/>
- University of Plymouth Experiential learning in environmental and natural sciences <http://www.plymouth.ac.uk/cetl/el>
- University of Reading Centre for Excellence in Teaching & Learning in Applied Undergraduate Research Skills <http://www.rdg.ac.uk/cdotl/cetl-aurs/>
- University of Sheffield, Centre for Inquiry-based Learning in the Arts and Social Sciences (CILASS) <http://www.shef.ac.uk/cilass/>
- University of Surrey, Surrey Centre for Excellence in Professional Training and Education (SCEPTrE) http://portal.surrey.ac.uk/portal/page?_pageid=1218.1&_dad=portal&_schema=PORTAL
- Universities of Warwick and Oxford Brookes, The Reinvention Centre for Undergraduate Research <http://www2.warwick.ac.uk/fac/soc/sociology/research/cetl/>

Seven of these have formed the Learning Through Enquiry Alliance (LTEA) www.ltea.ac.uk