

The European Workshop: a course aimed at educating students to cross boundaries

Karen P.J. Fortuin*, Simon R. Bush**, Astrid Hendriksen**

*Environmental Systems Analysis Group and **Environmental Policy Group,
Wageningen University
P.O. Box 47, 6708PB Wageningen, The Netherlands
Email: karen.fortuin@wur.nl

Abstract

The current problems engineers are facing are so complex that they require boundary-crossing skills, such as the abilities to change perspective, to cope with complexity and to synthesize knowledge of different disciplines or areas of expertise in a critical and creative way. This paper addresses how educational programmes at universities can better equip students to adequately cross boundaries and find sustainable solutions for complex environmental problems by giving an example of a course that has been offered for several years to master students at Wageningen University. In this course, called the European Workshop (EUW) thirty students with different disciplinary and cultural background work together on a consultancy project in a well structured way. Teachers' and students' reflections are used to analyze four key components which make up the didactic model of the EUW: the organizational 'matrix structure', a two week field-trip, a customized SharePoint website, and the facilitation role of the teachers. The paper concludes that the EUW as a didactic model to educate students to cross boundaries was very successful. It also showed how bridges and barriers can be overcome in an interdisciplinary project.

References

1. Van der Lecq, R., et al., *Interdisciplinair leren denken*. Onderzoek van Onderwijs, 2006. **35**(December): p. 60-66.
2. Spelt, E.J.H., et al., *Teaching and learning in interdisciplinary higher education - a systematic review* in press.
3. Cash, D., et al., *Salience, Credibility, Legitimacy and Boundaries: Linking Research, Assessment and Decision Making*, in *KSG Working Papers Series RWP02-046*. 2002. p. 24.
4. Klein, J.T., *Prospects for transdisciplinarity*. *Futures*, 2004. **36**(4): p. 515-526.
5. Mollinga, P., *The rational organisation of dissent; Boundary concepts, boundary objects and boundary settings in the interdisciplinary study of natural resources management*, in *ZEF*. 2007, University of Bonn: Bonn. p. 46.
6. Jakobsen, C.H., T. Hels, and W.J. McLaughlin, *Barriers and facilitators to integration among scientists in transdisciplinary landscape analyses: a cross-country comparison*. *Forest Policy and Economics*, 2004. **6**: p. 15-31.
7. Pohl, C.C., *Transdisciplinary collaboration in environmental research*. *Futures*, 2005. **37**(10): p. 1159-1178.
8. De Boer, Y., *Building bridges; Researchers on their experiences with interdisciplinary research in the Netherlands*. 2006: RMNO, KNAW, NMO and COS. p. 72.

9. Morse, W.C., et al., *Bridges and Barriers to Developing and Conducting Interdisciplinary Graduate-Student Team Research*. Ecology and Society, 2007. **12**(2): p. 8.
10. Parker, P., et al., *Progress in integrated assessment and modelling*. Environmental Modelling & Software, 2002. **17**(3): p. 209-217.
11. Cash, D.W., et al. (2003) *Knowledge systems for sustainable development* Proceedings of the National Academy of Sciences of the United States of America **100** (14), p. 8086-8091
12. Martens, P., *Sustainability: science or fiction?* Sustainability: science, Practice, & Policy, 2006. **2**(1): p. 36-41.
13. Steiner, G. and A. Posch, *Higher education for sustainability by means of transdisciplinary case studies: an innovative approach for solving complex, real-world problems*. Journal of Cleaner Production, 2006. **14**(9-11): p. 877-890.
14. Scholz, R.W. and O. Tietje, *Embedded Case Study Methods: Integrating quantitative and qualitative knowledge*. 2002, Thousand Oaks - London - New Delhi: Sage Publications. p. 392.
15. Vedeld, P. and E. Krogh, *Crafting interdisciplinary in an M.Sc. programme in management of natural resources and sustainable agriculture*. Forestry Chronicle, 2005. **81**(3): p. 330-336.
16. Gossling-Reisemann, S., *Training engineers for sustainability at the University of Bremen*. International Journal of Engineering Education, 2007. **23**(2): p. 301-308.
17. Hurtado, O. and C. Hunte, *Educating engineers in sustainable energy development: an interdisciplinary approach*. International Journal of Engineering Education, 2007. **23**(2): p. 266-275.
18. Millennium Ecosystem Assessment, *Ecosystems and Human Well-being: a Framework For Assessment*. 2003: Island Press. p.212.
19. Juist, N. and C. Blom, eds. *SharePoint als leer- en werkomgeving in het hoger onderwijs; Verslag van het SURF Onderwijsvernieuwingsproject 'Kenniswerken in SHAPE'*. 2008, Stichting SURF: Utrecht. 59.