

Pedagogy and learning technology: a practical guide

Keith Smyth and Christina Mainka





Authors

Keith Smyth
Academic Development
Bevan Villa
Craighouse Campus
Craighouse Road
Edinburgh EH10 5LG

Christina Mainka Academic Development Bevan Villa Craighouse Campus Craighouse Road Edinburgh EH10 5LG

Dr Keith Smyth is a Senior Teaching Fellow and Senior Lecturer in Higher Education at Edinburgh Napier University. Keith leads Edinburgh Napier's MSc Blended and Online Education, an applied and practice-based programme on which a diverse cohort of education professionals are supported in enhancing and transforming their learner's experiences through technology. Keith is research active in several areas relating to technology-enhanced education, and is involved in cross-institutional activities to disseminate good practice within the sector.

Dr Christina Mainka has been involved in online module design and teaching for over 15 years. As a research chemist by trade her activities started off in science education with the University of Maryland's University College (UMUC) in Germany, moving to staff development in online learning at Edinburgh Napier University in 2004. There she co-developed the fully online MSc Blended and Online Education programme and took on the role of lecturer in technology enhanced teaching and learning. Christina is back in Heidelberg, Germany again currently employed by UMUC's distance education department as adjunct Associate Professor for Physical and Environmental Sciences.

If you have any comments about this publication please e-mail: palt@napier.ac.uk

First published by Edinburgh Napier University, Edinburgh, Scotland © 2006, updated 2010. This online version of 2010 edition is published under a Creative Commons Attribution-NonCommercial-ShareAlike 2.5 UK: Scotland License: http://creativecommons.org/licenses/by-nc-sa/2.5/



Microsoft[®], Windows[®], FrontPage[®] and PowerPoint[®] are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries

All websites indicated were last accessed May 2010 unless otherwise stated

ISBN 0-902703-84-6



Acknowledgements

Sincere thanks are extended to a number of people who have supported, in various ways, the development of this guide in original and updated form.

Professor Morag Gray (Chair) and the membership of the e-Pedagogy Sub Group were generous in the time they dedicated to agreeing the proposed general content of the guide, reviewing extended contents lists, and providing much needed comments on draft versions of the units.

Several colleagues kindly consented to activities, materials and other resources from their own courses being used as examples, and in many instances helped to prepare these examples for inclusion. Many thanks for their contributions therefore go to: Ms Angela Benzies; Dr Norrie Brown; Ms Kathy Buckner; Dr Christine Donnelly; the ESF Health Online Project (HOP) team; Dr Mark Gillham (QMUC); Dr Lynne Kilbride; Mr David Mitchell and Ms Kate Jones (Marie Curie); Mr Mark Meredith; and Ms Noreen Reid and Ms Jackie Husband (Marie Curie).

Professor Fred Percival and Ms Shirley Earl patiently supported this project from the outset, while Elaine Mowat and Panos Vlachopoulos frequently assumed more than a fair share of other key tasks undertaken by Academic Development's online learning team to ensure progress could continue to be made.

The development of this guide was greatly aided by the considerable thought and time that Stephen Bruce and Nicola Whitton devoted to helping scope the topics and issues that needed to be covered. Thanks also to Margaret Nairn, Academic Development, who worked with the authors to complete and publish this guide.

The development of the original version of this guide was supported through the Edinburgh Napier ePedagogy Online project. It is designed to meet needs of Edinburgh Napier University staff together with the ePedagogy Online objective to 'document best practice approaches to design and development and to enable further resources to be developed effectively after the completion of the project'.

The ePedagogy Online project was part-financed by the European Union.

The production of this 2010 updated version of Pedagogy and Learning Technology: A Practical Guide was undertaken within the Create2 project which was part-financed by the European Social Fund.

Thanks go to Rosemary Allford and Anna Drobczynska for their help and support in producing this updated version as part of Create2.



Table of contents

Unit 1 Introduction

		Page
1.0	So what can educational technology offer you?	1
2.0	About this guide	2
2.1	What is the purpose of this guide?	
2.2	What does this guide cover?	
2.3	Who is this guide for?	
2.4	How to use this guide	
3.0	Hit and myth! Some things to know right now	4
4.0	What is educational technology?	6
4.1	The technologiesand where to find the answers!	6
4.2	Contexts for using technology	
4.2.1	Stand alone self-study and classroom tools	7
4.2.2	Blended	7
4.2.3	Fully online	8
4.2.4	Mobile learning	8
5.0	Why is educational technology important?	9
5.1	The big picture	
5.2	Advantages for students	10
5.3	Advantages for tutors	11
5.4	Advantages for institutions	12
5.5	It's not going to go away!	12
6.0	The key challengesand making them smaller!	12
6.1	Shifts in teaching practice and responsibilities	13
6.2	Making the transition	13
6.3	Developing expertise	14
6.4	Finding the time!	
6.5	Knowing where to find help and resources at Edinburgh Napier	
6.6	Consult the Quality Framework	
6.7	Consider the PGC/PGDip/MSc Blended and Online Education	18
7.0	So where do you go from here?	18
8.0	Further reading	19
Unit	2 Starting to use technology in teaching	Doe-
1.0	Little blends, big benefits	Page 21
1.1	Some real examples of 'little blends'	21
2.0	Enhancing lectures	22

3.0	Enhancing seminars	23
4.0	Supporting collaboration	24
5.0	Improving tutorial support	25
6.0	Taking it further	26
7.0	Further reading	26
Unit	3 Designing blended and online modules	_
1.0	What is blended and online teachingreally?	Page
1.0	What is blended and online teachingreally :	20
	etting started	
2.1	First: Get in touch with your ADA!	
2.2	Next: Ready already?	30
2.3	Finally: Be prepared-not scared	30
3.0	Issues to consider in developing online learning	30
3.1	Your students	
3.1.1	Technical orientation	
3.1.2	Online learning orientation	
3.2	Activities and assessment online	
3.2.1 3.2.2	Activities online	
3.2.2	The content and file formats	
3.3.1	Hyperlinking	
3.3.2	General guidance	
3.4	Formats for publishing in the VLE	
3.4.1	HTML	
3.4.2	File formats other than HTML	43
4.0	Rethinking content	45
4.1	Alternatives to content	45
5.0	Online course design timeline of events	48
6.0	Further reading	49
Unit	4 The role of the tutor	
1.0	Why bother?	Page 51

2.0	Teacher, moderator, facilitator, coach?	52
3.0	Things to do	52
3.1	The term begins	
3.2	The term is underway	53
4.0	Supporting the learner community	54
4.1	Tutor online presence	54
4.1.1	Welcome	
4.1.2	Additional communication spaces	
4.2	Online discussion moderation	
4.2.1	Managerial tips	
4.2.2		
4.2.3		
4.2.4	Managing the challenging student	58
5.0	Managing conflicts	60
5.1	Strategies for avoiding conflict	60
5.1.1	Online discussion	
5.1.2	Chat	61
5.1.3		
5.2	Conflict handling tips	
5.2.1	Flaming e-mails to the tutor	
6.0	Further reading	63
Unit	5 Communication and collaboration	Page
1.0	Asynchronous discussion	raye 66
1.1	Why would I use it?	67
1.2	Uses of the asynchronous discussion	
1.2.1	Informal social space (eg Chatterbox, Teatime)	67
	Problems forum	
	Directed discussion	
	Debate	
	Peer review	
	Student led discussion activity	
2.0	Chat tool and whiteboard	69
2.1	Why would I use it?	
2.2	Uses of the chat tool	
	Socialisation space	
	Virtual office hours	
	Group work activities	
	Online learning activity	

3.0	E-mail	72
4.0	Online collaboration	72
4.1	Online myths	72
4.2	Teaching tips	74
5.0	Online collaboration tools	75
5.1	Desktop sharing applications	75
5.2	Audio conferencing	75
5.3	Video conferencing	76
5.4	Interaction 'rich' web collaboration tools	76
6.0	Social computing	76
6.1	Blogs	77
6.1.1	Why use blogs?	78
6.1.2	Teaching tips	79
6.2	Wiki	80
6.2.1	Why use wikis?	80
7.0	Further reading	82
1.0	ne learning	Page
1.0	Why is a separate approach needed? The reality of online student engagement	
1.1	Exploiting the opportunities for realistic tasks	
1.3	Engagement, collaboration and rich interactions	
1.4	The problem with summative assessment	
2.0	Key characteristics of good online coursework	86
3.0	Forms of coursework for online learning	87
3.1	Case-based learning	87
3.2	Problem-based learning	88
3.2.1	WebQuests	
3.3	Student-led seminars and debates	
3.4	Web-based presentations	
3.5	Research and report	
3.6	Design projects	
3.7	Portfolios	
3.8	Reflective journals	
3.9	Critical essays	
3.10	Objective self-tests and exams	95
4.0	Key issues in designing online coursework	
4.1	Consider what is realistic and possible	
4.2	Provide clear assessment criteria	97

4.3 4.4 4.5	Provide clear guidance	98
5.0 5.1 5.2 5.3 5.4	Practicalities in submission and assessment Electronic submission issues Handling increased marking load Assessing originality of coursework Assessing online discussion participation	99 100 102
6.0	Further reading	104
Unit	7 Educational multimedia	
1.0	Why use multimedia?	age 105
1.1	When to use multimedia	106
2.0		407
2.0 2.1	Graphics	
2.1.1	Benefits of graphics	
2.1.2	Teaching example	
2.1.3	Web resources for graphics	
2.1.4	Implementation tips	
2.2	Video	
2.2.1	Benefits of video	
2.2.2	Teaching example Web resources for video	
2.2.3	Implementation tips	
2.3	Audio	
2.3.1	Benefits of audio	
2.3.2	Teaching example	109
2.3.3	Web resources for audio	
2.4	Animations	
	Benefits of animations	
	Teaching example Web resources for animations	
2.4.3	Web resources for animations	110
3.0	Interactive technologies	
3.1	Courseware	
3.1.1	Benefits of courseware	
3.1.2	Teaching example	
3.1.3	Web resources for courseware Implementation tip	
3.1.4	Tutorials	
3.2.1	Benefits of tutorials	
3.2.2	Teaching example	
3.2.3	Web resources for tutorials	112

3.3	Virtual worlds	
3.3.1	Benefits of virtual worlds	112
3.3.2	Teaching example	
3.3.3	Web resources for virtual worlds	
3.4	Virtual labs	
3.4.1	Benefits of virtual labs	
3.4.2	Teaching example	113
3.4.3	Web resources for virtual labs	113
3.5	Virtual field trips	113
3.5.1	Benefits of virtual field trips	113
3.5.2	Teaching example	
3.5.3	Web resources for virtual field trips	114
3.6	Simulations	
3.6.1	Benefits of simulations	
3.6.2	Teaching example	
3.6.3	Web resources for simulations	114
4.0	Emerging technologies	
4.1	Wireless and m-learning	
4.1.1	Teaching examples for wireless and m-learning	
4.1.2	Benefits of the use of mobile technologies	
4.2	Podcasting	
4.3	Augmented realities	
4.3.1 4.4	Teaching example Educational gaming	
4.4 4.4.1	Teaching examples	
4.4.1	reaching examples	110
5.0	Incorporating multimedia	117
5.1	Using third party material	
5.2	User generated multimedia	
5.2.1	The design pitfalls	
5.2.2	Accessibility considerations for multimedia	
5.3	Multimedia created by the student	
	·	
6.0	Selection of multimedia development tools	
6.1	Graphics and slideshows	
6.2	Video	
6.3	Audio	
6.3.1	Narrated screencasts	
6.3.2	Extras	
6.4	Animations, interactive courseware, tutorials, simulations	121
7.0	Further reading	122
7.0	Further reading	122
Unit	8 Issues in student support	
J.111	o locaco ili otaaciit oappoit	Page
1.0	Individual differences	
1.1	Getting to know your student	
1.2	Welcoming and student bonding strategies	
	The state of the s	

1.2.2 1.2.3	Create an Introduction (asynchronous) discussion	127 127
2.0 2.1 2.2	Online learning orientation	130
3.0 3.1 3.1.1 3.1.2 3.1.3 3.2	Continuous facilitation Key considerations Clarity, depth and usability of course materials Accessibility considerations Just-in-time guidance Supporting student flexibility in ways of working	131 131 132 133
4.0 4.1 4.1.1 4.1.2 4.1.3 4.2 4.2.1 4.3	Communication The asynchronous discussion Preparing for the online discussion Stages of the asynchronous discussion Online discussion assessment strategies Synchronous chat Preparing for a chat activity E-mail	136 136 137 138
5.0 5.1 5.2 5.3 5.4 5.5	The international student Online content and design Online communication Teaching style Studying at a distance Conclusion	140 141 141 142
6.0	Further reading	143
Unit	9 Evaluating technology-supported learning	Page
1.0	Why evaluate technology-supported learning?	145
2.0	Contexts for evaluation	145
3.0 3.1 3.2 3.3 3.4 3.5 3.6	Finding a focus for evaluation	146 147 147 148
3.7	Infrastructure and support	

4.0	Forms of evaluation	148
4.1	Diagnostic evaluation	149
4.2	Formative evaluation	149
4.3	Summative evaluation	149
5.0	Common data collection methods	150
5.1	Questionnaires	
5.2	Interviews and focus groups	
5.3	Tracking data	
5.4	Observations	
5.5	Peer review	
5.6	Study diaries	
5.7	Course grades	
6.0	Practicalities in evaluation	154
6.1	Access to participants	
6.2	Sampling. '	
6.3	Ethical considerations	
6.4	Piloting	
7.0	Useful evaluation resources	156
7.1	General information on good evaluation practice	156
7.2	Rubrics	
7.3	Toolkits	157
8.0	A note on quality assurance	158
9.0	Further reading	158
Unit	10 Issues in using third party material	Page
1 0	Copyright	
1.1	Copyright infringement	159
1.2	Copyright myths	
1.3	In the VLE	
1.4	Copyright scenarios	
1.5	Managing copyright risk	
1.6	Further reading	
2.0	Third party resource collections	164
2.1	Local resource collections	
2.2	National resource collections	
2.3	World wide web	167
2.3.1	Search engines	
2.3.2	Hints for effective web searching	
2.3.3	Evaluating web resources for use in your teaching	

3.0 3.1	Plagiarism For more information on Turnitin [®] UK	170
3.2	Be sure your students are aware of:	171
3.3	Be sure you are aware of:	1/2
4.0.	Further reading	173
_	t 11 Further books and resources related to ucational technology	Dono
1.0	Introduction	Page 175
1.1	Further recommended readings	175
2.0	E-books and e-journals at Edinburgh Napier	176
3.0	Selected periodicals	177
Арр	pendices	Page
Appe	endix 1 Sample text (online learning guidance for DE students)	
Appe	endix 2 Case study	181
Appe	endix 3 Sample text (the successful online learner)	185
Appe	endix 4 Sample text (Module overview)	187
Appe	endix 5 Writing for online and distance learners	193
Appe	endix 6 Converting WORD docs to HTML in WebCT	197
Appe	endix 7 Module evaluation checklist	201
Appe	endix 8 Netiquette guidelines	207
Appe	endix 9 Online group work guidelines	211
Appe	endix 10 Flaming mail management	213
Appe	endix 11 Module email rules	215
Appe	endix 12 Example end of course survey for tailoring and re-use	217
Appe	endix 13 Online communications guidelines	221

Glossary	222
Table of figures	
Figure 1: A WebCT module homepage with relevant module information for students	Page 32
Figure 2: Module Guide and Module Materials folders on WebCT homepage	32
Figure 3: Module Guide folder content in WebCT	33
Figure 4: Example Module Overview found in the Module Guide folder of a WebCT module	34
Figure 5: Example of Module Materials folder content in WebCT	34
Figure 6: Example of an opening text in the Problems Forum of a WebCT module	55
Figure7: Example discussion thread	66
Figure 8: Problems Forum discussion icon and annotation in WebCT	68
Figure 9: WebCT Chat tool and whiteboard	70
Figure 10: Group sign up sheets in WebCT	71
Figure 11: Groups in WebCT module: Neuromuscular principles of movement and therapy	74
Figure12: Example of a blog created to support an Online Taster course at Edinburgh Napier (blog provider: WordPress)	78
Figure 13: Example of a wiki created to support writing this guide (Wiki provider: wikispaces)	81
Figure 14: Waterman and Stanley's case-based learning tutorial at http://cstl-csm.semo.edu/waterman/CBL/	88
Figure 15: The Problem Based Learning website from Australia's Central Queensland University available at http://www.pbl.cqu.edu.au/	89
Figure 16: Searching for China WebQuest by Tom March available at http://www.kn.pacbell.com/wired/China/ChinaQuest.html	90
Figure 17: The ePortfolio Portal at http://www.hanwilton.com/eportfolios	93

http://www.pics4learning.com/details.php?img=europe.jpg107
Figure 19 : Ball and stick model of methane, CH ₄ . Image from http://treefrog.fullerton.edu/chem/mog/ch4.htm
Figure 20: Example of a Flash animation from http://www.hhmi.org/biointeractive/dna/DNAi pauling triple helix.html111
Figure 21: A virtual biology lab from http://www.sciencecourseware.org/vcise/
Figure 22: Informal communications area for students in a WebCT module128
Figure 23: A screen shot from WebCT showing the kind of general tracking data available for the tutor to view for each student
Figure 24: Screenshot from WebCT showing tracking data for chat and discussion board activity, including discussion messages read and posted
Figure 25: Excerpt from the CSU Chico Rubric for Online Instruction157
Figure 26: Example of a request granted via e-mail to upload a video clip into a VLE161
Figure 27: An example of a website link within a WebCT module set to open in a new browser window163
Figure 28: Edinburgh Napier library Copyright website164
Figure 29: JISC BioScience ImageBank at http://bio.ltsn.ac.uk/imagebank/ 166
Table of tables
Page Table 1: Real examples of activities that work well online

For further info about the work of Academic Development at Edinburgh Napier University, please contact ccr@napier.ac.uk or visit www.napier.ac.uk/ccr







