

Contents

Note from editors	V
What can you expect?	VII
Part A: Quality development: Methods and approaches	VII
Part B: E-learning standards	VII
Part C: Fields of practice and case studies	VIII
Contents	IX
1 Quality in European e-learning: An introduction	1
<i>Ulf-Daniel Ehlers, Jan M. Pawlowski</i>	
1.1 Introduction: Quality in e-learning as emerging leitmotif.....	1
1.2 E-learning quality: A field of great diversity	2
1.3 Quality & standards for e-learning.....	4
1.3.1 Classification of standards	5
1.3.2 Methodology and instruments to develop quality for e-learning... 6	
1.3.3 Learning technology standards.....	8
1.4 Preview on the book chapters	8
2 Quality in a Europe of diverse systems and shared goals	15
<i>Brian Holmes</i>	
2.1 Europe: A worldwide quality reference	15
2.2 Diverse systems, shared goals.....	16
2.2.1 Education – a global market.....	17
2.2.2 ‘Massification’	18
2.2.3 Lifelong learning	18
2.2.4 The changing learning paradigm.....	20
2.2.5 The introduction of new technologies	20
2.3 Quality and the impact of ICT	21
2.3.1 The scope is wide	22
2.3.2 The dimensions are many.....	22
2.3.3 Islands of quality initiatives – the need to build bridges	24
2.3.4 Standards.....	24
2.3.5 Quality is improving.....	25

2.3.6	Much has still to be done	26
2.3.7	Strategic and long-term objectives.....	27
2.4	Conclusion.....	28
Part A: European quality development: Methods and approaches		29
3	Quality of e-learning: Negotiating a strategy, implementing a policy ..	31
	<i>Claudio Dondi, Michela Moretti, Fabio Nascimbeni</i>	
3.1	Is quality in e-learning a “clear” concept?.....	31
3.2	Why quality in e-learning is not a unified concept?.....	33
3.3	The components of the learning experience and related quality criteria	38
3.4	Quality policy implementation steps.....	46
3.5	Conclusions	49
4	The maze of accreditation in European higher education	51
	<i>Julia Flasdick, Lutz P. Michel, Amaury Legait</i>	
4.1	Introduction	52
4.2	Accreditation bodies.....	53
4.3	Accreditation processes and evaluation methods	54
4.4	Preparation phase	55
4.5	Application phase.....	56
4.6	Evaluation phase	56
4.7	Decision phase	58
4.8	Accreditation standards and criteria in the field of education and training	58
4.9	Sketch for the future.....	62
4.10	How to find a suitable accreditation body, process and criteria?	63
5	Adopting quality standards for education and e-learning.....	65
	<i>Jan M. Pawlowski</i>	
5.1	Introduction.....	65
5.2	Quality standards	66
5.2.1	Classification of quality standards	66
5.2.2	Quality systems	67
5.3	The quality standard for learning, education, and training: ISO/IEC 19796-1	68
5.3.1	Description of ISO/IEC 19796-1.....	68
5.3.2	Usage scenarios.....	73
5.3.3	The Quality Adaptation Model (QAM): Adapting ISO/IEC 1976-1	74
5.4	Summary.....	77
6	Process-oriented quality management.....	79
	<i>Christian Stracke</i>	
6.1	Introduction.....	79

6.2	Quality management and quality development.....	80
6.2.1	Process orientation and holistic quality management.....	81
6.2.2	Integrative management	82
6.3	Influential quality management approaches.....	84
6.3.1	KAIZEN and CIP	84
6.3.2	Business process reengineering (BPR).....	85
6.3.3	Six sigma.....	85
6.3.4	TQM and TQC	86
6.4	Quality standards and reference models.....	88
6.4.1	Process orientation and educational organisations	89
6.4.2	The standards family ISO 9000:2000ff.	89
6.4.3	Reference models (ISO/IEC 197976-1 and PAS 1032-1).....	93
6.4.4	The EFQM excellence model.....	93
6.5	Summary.....	96
7	An analysis of international quality management approaches in e-learning: Different paths, similar pursuits	97
	<i>Markus A. Wirth</i>	
7.1	Introduction: How to differentiate quality management approaches?	97
7.2	Use of quality management approaches in the academic and the corporate sectors.....	100
7.3	Selection of a representative set of quality management approaches.....	102
7.4	Breaking down complexity: From niche-qualityes to generally agreed on concepts	104
7.5	Conclusion.....	107
8	The quality mark e-learning: Developing process- and product-oriented quality	109
	<i>Thomas Lodzinski, Jan M. Pawlowski</i>	
8.1	Introduction.....	109
8.2	Quality marks for e-learning.....	110
8.3	Requirements for a quality mark.....	110
8.4	Quality mark e-learning	113
8.4.1	Quality of educational organisations.....	113
8.4.2	Policy and strategy	115
8.4.3	Management.....	115
8.4.4	Resources	116
8.4.5	Processes	116
8.4.6	Learner-orientation.....	117
8.4.7	Staff management.....	118
8.4.8	External appearance/innovation	118
8.4.9	Results.....	119
8.4.10	Quality of components	119
8.4.11	Certification workflow	122

8.5	First experiences	123
8.6	Summary and future developments.....	124
9	Competency-based quality securing of e-learning (CQ-E)	125
	<i>John Erpenbeck, Lutz P. Michel</i>	
9.1	Introduction	125
9.2	E-learning and the consignment of know-how, abilities, qualifications and competencies.....	126
9.3	E-learning within the context of job-related operational learning forms	130
9.4	E-learning, competency measurement and competency training	135
9.5	E-learning and quality security of learning based on the concept of competencies (CQ-E).....	140
10	Quality of e-learning products	143
	<i>Thomas Berger, Ulrike Rockmann</i>	
10.1	Introduction	143
10.2	Quality criteria	144
10.2.1	Criteria derived from international standards.....	144
10.2.2	Criteria derived from laws	146
10.2.3	Criteria derived from scientific findings	146
10.3	Different categories of criteria	147
10.4	Using the QCC-eL - An example from category 6.....	149
10.5	Methods and tools of combining a product and a process oriented approach	151
10.6	Outlook.....	155
11	Quality evaluation for e-learning in Europe	157
	<i>Ulf-Daniel Ehlers, Lutz Goertz</i>	
11.1	Introduction: Evaluation for e-learning.....	157
11.2	Evaluation: What is it about?.....	158
11.2.1	An overview on terminology, concepts and methods	158
11.2.2	European initiatives and actors in the field of evaluation	159
11.3	Evaluation concepts for e-learning	161
11.4	Evaluation of e-learning.....	163
11.4.1	Special characteristics of the evaluation of e-learning	163
11.4.2	Methods of evaluation: A guideline	164
11.5	Conclusion: Evaluation of quality on every level	169
12	Towards a model for structuring diversity: Classifying & finding quality approaches with the EQO model.....	171
	<i>Barbara U. Hildebrandt, Sinje J. Teschler</i>	
12.1	Introduction.....	171
12.2	Decision support	173
12.3	How to find a suitable quality approach?.....	175
12.3.1	EQO metadata model	175

12.3.2	EQO decision cycle.....	177
12.4	Conclusion	181
Part B:	E-learning standards	183
13	The standards jungle: Which standard for which purpose?	185
	<i>Kai Heddergott</i>	
13.1	Introduction	185
13.2	Standards and standardisation – what are we talking about?.....	186
13.3	A hot spot on the map – what are the purposes of learning technology standards?	188
13.4	After passing the jungle: What lies ahead?.....	189
13.5	Good reasons for the use and support of learning technology standards.....	190
13.6	Lessons learned for future trips through the jungle	191
14	Architectures and frameworks.....	193
	<i>Rolf Lindner</i>	
14.1	Introduction.....	193
14.2	Quality and e-learning architectures or frameworks	194
14.3	Standardisation: Architectures and frameworks.....	195
14.3.1	A simple standards typology	195
14.3.2	Typical properties of ITLET architectures and frameworks	197
14.3.3	Strategy of abstraction in the IEEE LTSA	198
14.3.4	Strategy of abstraction in the ERILE proposal.....	201
14.3.5	Strategy of abstraction in the IMS abstract framework.....	205
14.3.6	Strategy of abstraction in a service oriented framework	206
14.4	Practical use of e-learning architectures or frameworks	207
15	Content and management standards: LOM, SCORM and Content Packaging	209
	<i>Christian Prpitsch, Patrick Veith</i>	
15.1	Introduction.....	209
15.2	IEEE learning object metadata (IEEE LOM).....	211
15.2.1	The basic structure of IEEE LOM.....	211
15.2.2	Integration of IEEE LOM in other standards	213
15.3	IMS content packaging (IMS CP).....	213
15.4	Shareable Content Object Reference Model (SCORM).....	215
15.4.1	The SCORM manifest file.....	216
15.4.2	LOM and SCORM	218
15.5	A short note on learning design and other didactic standards	219
15.6	Profiling metadata to enhance reusability	219
15.7	Example of use.....	221
15.8	Future trends	222

16	Educational interoperability standards: IMS learning design and DIN didactical object model	225
	<i>Michael Klebl</i>	
16.1	Introduction on educational interoperability standards	225
16.1.1	From content to process	225
16.1.2	History	227
16.1.3	Documents and scope	230
16.1.4	Intended use	232
16.2	Educational interoperability standards in relation to quality	235
16.3	IMS learning design and DIN didactical object model: Elaboration and comparison	237
16.3.1	“Units of learning” as a starting point	237
16.3.2	Conceptual core: Activities	238
16.3.3	Aggregation of activities	239
16.3.4	Resources and services within a learning environment	242
16.3.5	Adaptability: Level B, C in IMS-LD	243
16.3.6	Lifecycle: Context and annotation in DIN-DOM	244
16.3.7	Practical use: Examples and issues	245
16.3.8	Runtime environments	245
16.3.9	Authoring environments	248
16.4	Conclusion	250
17	Developing and handling learner profiles for European learner information systems	251
	<i>Cleo Sgouropoulou</i>	
17.1	Introduction	251
17.2	Requirements for a European Education Area: The europass framework	253
17.3	Implementing European requirements through learning technology standards	254
17.3.1	Policy issues regarding the attributes of learner profiles	255
17.3.2	Learner Information interoperability specifications	256
17.3.3	European learner profile interoperability specifications	259
17.4	Conclusion	261
18	Improving European employability with the e-portfolio	263
	<i>Michel Arnaud</i>	
18.1	Introduction	263
18.1.1	Definition	264
18.1.2	Relevance for target groups	265
18.1.3	Challenges	265
18.2	Related research and experiences	266
18.3	E-portfolio: The concepts	267
18.3.1	Common definitions	268
18.4	Related specifications	269

18.5	Practical examples which illustrate the quality approach/concept in practice	272
18.6	Conclusion.....	273
19	Interface standards: Integration of learning and business information systems.....	275
	<i>Markus Bick, Jan M. Pawlowski</i>	
19.1	Introduction.....	275
19.2	Data standards.....	278
19.2.1	EDI.....	278
19.2.2	XML.....	279
19.3	Infrastructure standards.....	283
19.3.1	Middleware	284
19.3.2	Web services	285
19.4	Conclusion	288
20	Facilitating learning objects reusability in different accessibility settings	291
	<i>Pythagoras Karampiperis, Demetrios G. Sampson</i>	
20.1	Introduction.....	292
20.2	Methodology for defining an accessibility application profile.....	293
20.3	An accessibility application profile based on IEEE LOM	296
20.3.1	Extension of the IEEE LOM general category	297
20.3.2	Extension of the IEEE LOM technical category	300
20.3.3	Extension of the IEEE LOM educational category	302
20.3.4	Extension of the IEEE LOM relation category	304
20.3.5	Extension of the IEEE LOM annotation category.....	304
20.4	Case study: The eAccess project.....	305
20.5	Conclusions.....	308
21	Out of the past and into the future: Standards for technology enhanced learning.....	309
	<i>Wayne Hodgins</i>	
21.1	Introduction.....	309
21.2	Overall assumptions and perspectives	311
21.3	Out of the past.....	312
21.4	Up to the present.....	312
21.5	Into the future.....	313
21.5.1	The near term future (2005 to 2007)	313
21.5.2	Gain from pain	314
21.5.3	GUIDs.....	314
21.5.4	Finding & discovery vs. searching & directing.....	315
21.5.5	CORDRA: Already working on the future.....	315
21.5.6	Wanted: Implementation of SS&N	316
21.5.7	Assessment.....	316
21.6	Medium term future: 2005 to 2010	316

21.6.1	C'ing the Future of Standards	317
21.6.2	Content: (All).....	317
21.6.3	Context.....	320
21.6.4	Competencies: Connecting content, learning and performance	322
21.7	The long term future: Into the next decade, 2010 and beyond.....	324
21.7.1	The magic of metadata and beyond.....	325
21.7.2	The next big thing? Getting small!.....	325
21.7.3	Getting to all the letters in ADL?	325
21.8	Conclusion	326
21.8.1	Back from the future	326
21.8.2	Underestimation experts.....	326

Part C: Fields of practice and case studies.....329

22	Organisational and cultural similarities and differences in implementing quality in e-learning in Europe's higher education....	331
	<i>Bernard Dumont, Albert Sangra</i>	
22.1	Introduction: Facing with quality in open and distance practices	332
22.2	Methodology and design of the case studies.....	333
22.3	Quality in higher education: 5 case studies.....	334
22.3.1	Different models for different geographical areas.....	335
22.3.2	Standards and guidelines for quality assurance in the European higher education area	335
22.3.3	The situation in Finland	336
22.3.4	The situation in France.....	336
22.3.5	The situation in Poland.....	337
22.3.6	The situation in Spain	337
22.3.7	The situation in Switzerland.....	338
22.4	Organisational and cultural specificities that influence the implementation of quality in higher education institutions in 5 European countries	338
22.4.1	The situation in Finland	339
22.4.2	The situation in France.....	339
22.4.3	The situation in Poland.....	340
22.4.4	The situation in Spain	340
22.4.5	The situation in Switzerland.....	340
22.5	Examples of quality strategies in institutions offering ODL courses	341
22.5.1	Examples in France.....	341
22.5.2	Example in Poland	342
22.5.3	Example in Spain	342
22.6	Summary: Organisational and cultural factors blocking or helping quality implementation	342
22.6.1	Facilitating factors for quality development	343
22.6.2	Barriers for quality development.....	344

22.7	Conclusions: Main challenges for implementation of quality in higher education.....	346
23	Rethinking quality for building a learning society	347
	<i>Maureen Layte, Serge Ravet</i>	
23.1	Introduction.....	347
23.2	The need for a new quality framework	350
23.3	Measuring the quality of learning	353
23.3.1	Who has learned?.....	354
23.3.2	What has been learned – and how? The contribution of technology to quality.....	356
23.3.3	The 21 st century e-learner.....	361
23.4	Linking learning individuals, communities, organisations and territories for quality	363
23.5	Conclusion for an organic approach to quality	365
24	Myths and realities in learner oriented e-learning-quality	367
	<i>Ulf-Daniel Ehlers</i>	
24.1	Learner orientation: Myth or reality in an European quality debate...	367
24.2	Learner oriented quality development: Impact on the learning process.....	369
24.2.1	What is learner orientation in e-learning? A definition attempt.....	370
24.2.2	Four plus one reasons for learner orientation	373
24.3	Learners' quality concepts on stake	375
24.3.1	Quality from a learner's perspective	376
24.3.2	Agenda for learner oriented quality development in e-learning	383
24.4	Learner participation in quality development	384
24.5	Conclusions: Towards e-learning quality through learner orientation.....	386
25	The e-learning path model: A specific quality approach to satisfy the needs of customers in e-learning	389
	<i>Anne-Marie Husson</i>	
25.1	Introduction.....	389
25.1.1	Our choice: The point of view of the customers	390
25.1.2	The choice of a particular period: The delivery of the offering.....	391
25.1.3	Guiding questions.....	391
25.2	Methodology	391
25.2.1	Our field of investigation	392
25.2.2	Representative and complementary partners.....	392
25.2.3	A work methodology belonging to the register of quality.....	392
25.2.4	Benchmarking	393
25.3	The e-learning's customers	393

25.3.1	Identification of the learners' needs	393
25.3.2	Other customers' needs	393
25.4	Design of an e-learning path model	394
25.4.1	A description on three levels	394
25.4.2	The learning path model of customers in e-learning	395
25.4.3	The two phases upstream the arrival of the learner	396
25.4.4	The five phases relating to the learner's path	396
25.5	Practical uses of this model	404
25.5.1	A tool for e-learning designers	404
25.5.2	A conceptual model for further work on quality	404
25.6	Convergent researches	405
25.7	Conclusion	406
26	Pedagogic quality – supporting the next UK generation of e-learning.....	407
	<i>John Anderson, Robert McCormick</i>	
26.1	Introduction.....	408
26.2	Methodology of creating a quality reference framework	409
26.3	Context and rationale	410
26.4	The common framework for e-learning quality	411
26.5	Core pedagogic principles.....	415
26.6	The 10 principles	416
26.7	Conclusion	420
27	Quality in cross national business models for technology based educational services	423
	<i>Martin Gutbrod, Helmut W. Jung, Stefan Fischer</i>	
27.1	Introduction	423
27.2	Quality as a strategic perspective.....	424
27.3	The learner as the central reference point for divergent requirements	425
27.3.1	Multidimensional divergent prospects	425
27.3.2	Learner orientation	426
27.3.3	Quality strategy for learner-oriented educational services	426
27.4	Learner-oriented quality strategy	426
27.4.1	Basics	426
27.4.2	Phase 1	427
27.4.3	Phase 2	429
27.4.4	Phase 3	429
27.5	Conclusion	431
28	E-learning quality and standards from a business perspective.....	433
	<i>Thomas Reglin</i>	
28.1	Learning and quality	433
28.2	Process quality of e-learning from a business perspective.....	436
28.2.1	Requirement analysis	437

28.2.2	Context	438
28.2.3	Concept	438
28.2.4	Production	438
28.2.5	Introduction	439
28.2.6	Implementation	439
28.2.7	Evaluation	439
28.3	Significance of standards	440
28.4	Perspectives in the discussion concerning product quality: Objectives for implementing e-learning as a mediating category?	440
29	A framework for quality of learning resources	443
	<i>Frans van Assche, Riina Vuorikari</i>	
29.1	Introduction	443
29.2	What processes and roles are involved?	444
29.3	Quality aspects of the usage scenario	447
29.3.1	Use	448
29.3.2	Integration, repurpose & reuse	450
29.3.3	Resolution & obtain	451
29.3.4	Discover & evaluate	452
29.3.5	Approve and publish	454
29.3.6	Describe	455
29.3.7	Create	455
29.3.8	Retract and delete	455
29.3.9	Summary and conclusions	456
30	LearnRank: Towards a <i>real</i> quality measure for learning	457
	<i>Erik Duval</i>	
30.1	Introduction	457
30.2	Early Ariadne experiences	458
30.3	The problem with quality	459
30.4	LearnRank	459
30.4.1	Context revisited	459
30.4.2	PageRank revisited	461
30.4.3	Towards the development of LearnRank	462
30.4.4	If content is king, then context is queen	463
30.5	Conclusion	463
31	Quality of e-learning in tertiary education: Managing a balance between divergence and convergence	465
	<i>Miho Taguma</i>	
31.1	Introduction	466
31.2	Methodologies	466
31.2.1	The OECD/CERI international case studies	467
31.2.2	Desk research	467
31.3	Government-led or national initiatives	468

- 31.3.1 E-learning policies, strategies and official documents:
Integrated or distinct 468
- 31.3.2 E-learning programmes and projects: Quality enhancement
and quality assurance 469
- 31.3.3 Divergence versus convergence 473
- 31.4 Institutional strategies: Managing divergence and convergence 476
 - 31.4.1 Institutional response to divergence: E-learning strategies,
faculty development, research and programme evaluation 476
 - 31.4.2 Institutional response to convergence: Standardisation and
system integration 478
 - 31.4.3 Institutional response: Localisation, transverse
dissemination, and development 479
- 31.5 Conclusion and implications 482

- 32 Best practices for e-learning 485**
 - Rob Edmonds*
 - 32.1 Introduction 485
 - 32.2 Design, methodology and summary of results 486
 - 32.3 Best practices in detail 488
 - 32.3.1 Learning strategy 488
 - 32.3.2 Organisation and process 490
 - 32.3.3 Learning content 493
 - 32.3.4 Learning infrastructure 497
 - 32.4 Conclusion 499

- List of projects, organisations and initiatives 501**

- List of references 513**

- Editors of the handbook 553**

- List of contributors 555**

- Index 571**