

Handbook on Quality and Standardisation in E-Learning

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With 91 Figures and 51 Tables

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Note from editors

The motivation to publish the Handbook for Quality and Standardisation in E-Learning has its origin in numerous discussions during the last few years with colleagues from all over the world, in research projects, from universities or on policy level. They gave us the chance to learn that quality for e-learning on the one hand is of utmost importance and on the other hand is a field of great uncertainty. How to achieve high quality e-learning experiences is still subject to investigations and highly dependent on the context considered. During several voyages through the quality landscape we had the opportunity to look at successful models and learn from sophisticated strategies. The handbook is intended to be a travel diary in the best sense of the term. It covers the state-of-the-art of current burning questions and discussions around the field of quality in e-learning in order to help stakeholders in the e-learning scene in their every day quest for quality.

It is intended to provide guidance for learners, professionals, and educational practitioners, to facilitate researchers' investigations and help policy makers in their decision making towards a 21 centuries' learning society. It is also our intention to provide a concise overview on the knowledge field of quality research which can be used for teaching purposes.

We chose the format of a handbook because it is a possibility to bridge the gap between theory and practice. All contributions therefore contain theoretical foundations and research questions as well as methodologies for quality development on the one hand, and state practical examples and factors of success as well as experiences on the other hand.

We have been able to synthesize work in this publication which partly was carried out under the E-Learning Action Plan of the European Commission which supported research into the quality of e-learning at various levels. A project cluster led to intensive debate about instruments and concepts, but it has also been concerned with basic aspects of the definition of quality and has given rise to over 100 events in 20 months (2003 and 2004), has initiated workshops and discussions, and has contributed publications to a variety of conferences in the field. We believe that our synthesis will have a positive impact on the community of all those involved in e-learning.

However, publishing a handbook is a collaborative exercise because it brings together researchers and experts to form a discussion community. A work of this extent would not have been possible without the immense effort of all the authors who contributed their work to this handbook, agreed to take part in reviews and provided input for great discussion and debates. We have been able to build on a network of supporting organisations, whose commitment and willingness to help

have constantly carried us forward, making the impossible possible and finally enabling us to present this handbook. Due to this support it is a handbook comprising over 30 articles from authors coming from over ten countries. We would like to express our sincere gratitude to all authors for their great support.

Apart from the authors we also would like to thank all persons and organisations without whom this handbook would not have been realised. Brian Holmes and Maruja Gutierrez-Diaz from the European Commission have supported our work to a great extent and always been contributed constructive advisers throughout our project. Prof. Dr. Heimo H. Adelsberger deserves a special thanks for promoting our work in a very encouraging manner on personal and professional level. In the same way a big thanks goes to all our colleagues who contributed with their ideas and reviews and without whom this handbook would have not been possible.

Essen, May 2006

Ulf-Daniel Ehlers & Jan M. Pawlowski

What can you expect?

When you really get down to analysing it, the promises of e-learning often have yet to materialise. The question how e-learning can be successful becomes more urgent as we move from an 'early adopter' stage to a more general offering. In a global educational market, for e-learning it is critically important to gain understanding of quality in e-learning. Many different concepts and approaches have been developed so far for many different contexts and purposes. The *Handbook on Quality and Standardisation in E-Learning* provides a European and global perspective on these issues. It involves all important actors and draws a picture of the situation in quality development. The Handbook is directed to learners, professionals, researchers and policy makers in e-learning. It covers topics of a rather foundational nature in quality research, the description of quality approaches and instruments as well as experiences and best practises. It is structured into three main parts dealing with methods, standards and practical experiences.

Part A: Quality development: Methods and approaches

Part A of the handbook focuses on introductory background topics of quality development in education and especially e-learning. It gives an overview on the topic of educational quality research, describes developments and the relevance of quality development and introduces the cultural dimension. Methods, models, concepts and approaches for the development, management and assurance of quality in e-learning are introduced. The chapters are all structured alike: First the theoretical model is described in detail and then a practical implementation and the challenges and experiences connected to it are accounted for.

Part B: E-learning standards

Part B focuses on standards for e-learning. The controversial discussion on standards of the last decade is reflected: On the one hand, cost-reduction, secure investments, and new market potentials are expected. On the other hand, there is the fear of limitations for creative solutions. Standards are often misunderstood, and perceived as restricting flexibility or creativity or huge additional effort, especially in the education community. Therefore, we draw a clear picture what can and what cannot be achieved by the use of standards. The main goal of e-learning

standards is to provide solutions to enable and ensure interoperability and reusability of systems, components, and objects. The handbook gives an overview on a variety of standards and discusses their practical use and benefit for e-learning.

Part C: Fields of practice and case studies

Part C focuses on quality development in practice and case studies. Transversal themes which set quality development in relation to the cultural dimension, business models and elaborate on quality development in different educational sectors are presented. Also a number of articles of foundational nature, introducing future challenges in the field of quality for innovation of e-learning in the 21st century are included in this part.

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1 Quality in European e-learning: An introduction

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1.1 Introduction: Quality in e-learning as emerging leitmotif

There is no doubt that quality is the most decisive factor determining the future of e-learning. This is the reason for the great variety of concepts, suggestions and debates which now encompass a large section of society and effect many social sub segments. It shows that the question of quality touches the heart of the learning debate. We can regard quality more and more as a subjectively individual and collectively influential category. How should learning opportunities look like and learning environments be structured, now and in the future? How do we meet the demand for building high quality learning capacities which are needed to transform our societies into learning societies? Quality in e-learning brings together the field of education, technology and economy in comprehensive concepts in order to contribute to societal development, to innovate formal, non-formal and informal learning opportunities, and empower learners as citizens to take part in the building of a shared European knowledge and learning space. It becomes clear that the debate on quality is a debate about how learning and education should look like in the future. It is a debate about values and cultures and it takes place on basis of diverse experiences and convictions.

The concept of quality in the public perception and debate today has gained the significance of a leitmotiv for the educational field in all European countries, having the same importance like “equality” or “scientific orientation” in the educational debates of the 1970s in some European countries. Such concepts do not appear as empirical accurately defined and operationalised notions but are rather constituted by a dense bundle of a broad range of arguments, objectives, convictions and procedures (Terhart, 2000, p. 809). Quality in e-learning in this sense has become a leitmotiv for educational policies, a slogan for practitioners and a

huge demand for learners. Achieving high quality is a hotly debated and much-sought-after goal in all segments of society and education. It is less characterised by its precise definition but rather by its positive connotation. The very impact of the word “quality” on behavior demonstrates its meaning. The word merely signifies “composition” (Latin: *qualis*) but in everyday language it is used to distinguish a characteristic of an object as being of a higher calibre than that of another object.

The task to develop or to provide a high quality educational experience is, however, especially in the field of e-learning an extremely difficult challenge. First, it is necessary to find a valid perspective and definition of quality. This requires an answer to the question for which processes of the educational scenario quality development has to be carried out, which quality and from which perspective it is defined – a learners’ view may differ considerably from the view of a teacher, developer or the government.

1.2 E-learning quality: A field of great diversity

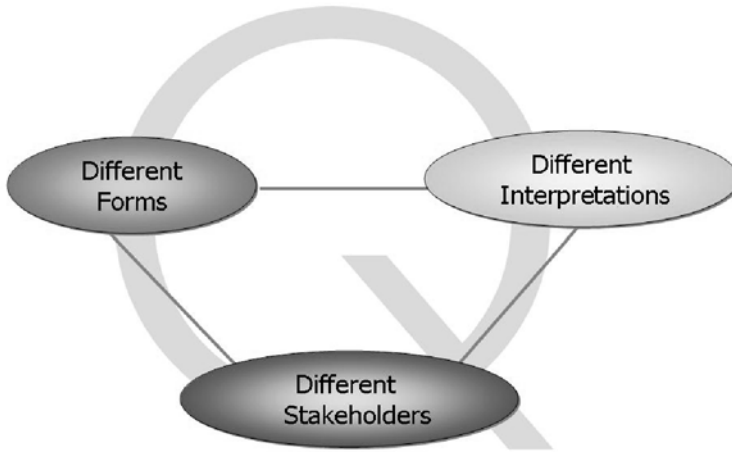
E-learning quality – or educational quality in a wider context – is a diverse concept. It is not an absolute and fixed category but rather depends on the situation in which it is employed. No country has reached a social, political or academic consensus on what educational quality actually is. Different methods are used to assure quality, ranging from market-oriented instruments, government-driven consumer protection mechanisms and accreditation concepts to institutional strategies and individual instruments. Approaches can have an explicit intentional character or can be rather implicit – when quality development is left to individuals’ professional competences.

The definition of quality always takes place as a normative act, referring to a specific context. Consequently, situations and interests always influence its definition. This applies specially to the sector of social and educational services, since here we can not follow patterns which are virtual laws of nature and always turn that which we deem suitable in its composition to fulfil a certain requirement – i.e. quality – into a negotiable issue between various propounded academic theories and subjective, political and social interests.

To critically analyse quality it is helpful to identify the basic points of the debate. We can distinguish between three fundamentally different aspects in the discussion (Ehlers, 2003):

- different interpretations of quality
- different stakeholders with different perspectives on quality
- different forms of quality (input-, process-, output-quality)

Together these three aspects provide a general frame of reference for the described debate.



Source: Ehlers, 2003

Fig. 1-1: Dimensions in the quality debate

One dimension is the different *interpretation* of the meaning of quality. Numerous definitions from various fields are available. For example, economics adopt the product based definition which views quality as a physical characteristic of an object. The quality of a piece of jewellery then depends on its gold fraction and the quality of a whisky on the length of its storage. There is also a user based approach which relates to individual customer preferences. Under this interpretation optimal fulfilment of demand signifies the best possible quality: An often borrowed book therefore attains a higher quality than a seldom borrowed volume. We also have the production based approach which sets standards, compliance with which equals quality. Here, the main focus is on functionality. All books which do not fall apart then have the same quality.

Of course these attempts of definition can not easily be transferred to the educational sector. Unlike businesses education does not involve classic supplier-customer relationships. It is an association of co-producers. An e-learning program supplies technology and content but it is down to learners themselves to actively use it, i.e. learn. This interaction between the learning environment and the learner is known as a co-production process. In education, we can currently identify about five different meanings of quality (Harvey, Green, 2000):

- quality as an exception, describing the surpassing of standards,
- quality as perfection, describing the state of flawlessness,
- quality a functionality, referring to the degree of utility,
- quality as an adequate return, measured by the price-performance or cost-benefit ratio,
- quality as transformation, describing the above mentioned co-producer relationship between the learner and the learning environment and referring to the learners progress in terms of a learning process.

However, there are not only different interpretations of quality but also different stakeholders' perspectives: the enterprise as a user of a training measure, the tutors supervising an e-learning-program, the human resource managers who establish a framework for continuing education in their sector, and the learners. Each of these players generally has divergent interests and differing quality requirements and interpretations. It is therefore important to regard quality not as a static element but as a negotiation process between different stakeholders involved in the social process.

Last but not least, quality can also refer to different educational processes or levels. We can cite the different levels of the famous quality triad by Donabedian (Donabedian, 1980a):

- e-learning prerequisites (input or structure quality): availability or capability of the technological infrastructure, qualification of tutors, etc.,
- the learning process (process quality): the interaction of learners, learning formats, corporate learning culture, learning content and desired training goals,
- the result (output/ outcome quality): the increase in learners professional competence.

Quality can not be generalised. There is no direct relation between action and impact. Quality development – as much as education – is rooted in cultural and learning contextual conditions. Defining quality therefore means navigating this multidimensional space. There is no easy answer or standard quality assurance solution. We have to abandon the hope of only having to define quality criteria once to be able to appraise e-learning-services and formats properly in the future. A key factor for e-learning thus will be a concise *quality orientation* which spans all processes and puts learners first. They must take the pole positions in the quality debate since their (professional) development is on stake – regardless of formal or informal environments.

Even more dimensions of diversity which influence the quality debate can be identified. There is, for example, the notion of quality in different subjects and topics. From a European perspective the cultural diversity places enormous challenges on the quality debate. Nagel (2004) reports that students are viewed from different angles in Anglo-Saxon, Scandinavian and southern European countries. In Anglo-Saxon countries, he reports, students are seen as investors in their own carrier, in Scandinavian countries they are viewed as young citizens and in southern European countries as family members. It becomes manifest that the structure of educational systems determines the answer to the quality question to a high degree, and cultural diversity has to be taken into account.

1.3 Quality & standards for e-learning

In the quality debate, we can distinguish between the idea of developing quality *for* e-learning – using methods and instruments – and the concept of improving quality *through* e-learning – using e-learning as a means to improve educational

opportunities, access and learning. This chapter focuses on the first meaning of quality development – describing quality methodologies and instruments to improve quality for e-learning. Different approaches and methodologies have been developed to meet the goal of high quality for e-learning throughout all European countries. Today, the question which arises when developing quality is not any longer, where to find a suitable approach, but how to find out which of the available approaches could fit the individual purposes.

1.3.1 Classification of standards

Standards for Quality and for e-learning have been discussed controversially in the last decade: On the one hand, cost-reduction, secure investments, and new market potentials are expected. On the other hand, there is the fear of limitations for creative solutions. Standards are often misunderstood, especially in the education community. They are perceived as restricting flexibility or creativity or huge additional effort. However, new generations of quality standards provide only a basic framework and help organisations to develop quality systems according to their own requirements. In the same way, learning technology standards provide descriptive specifications to develop interoperable solutions. A variety of standards has been developed and adopted for different contexts and have improved the flexibility and effectiveness of e-learning. Fig. 1-2 shows a classification for standards in the field of learning, education, and training.

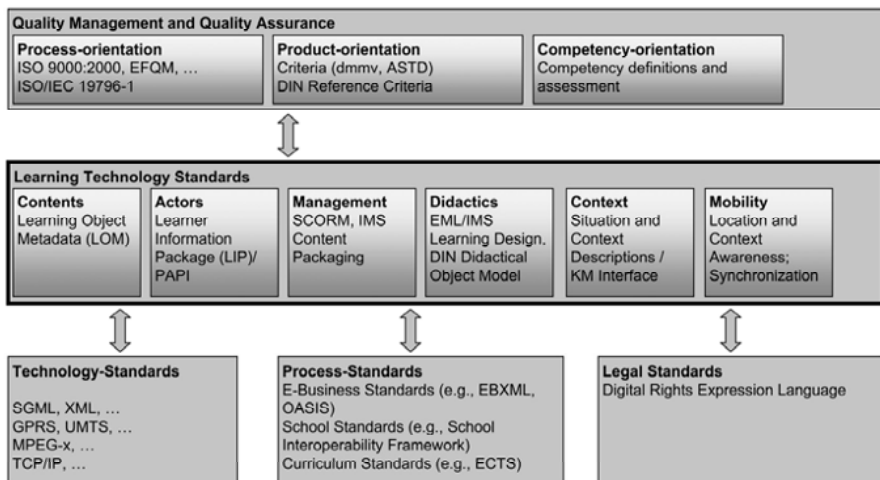


Fig. 1-2: Classification of standards

- *Quality Standards* support quality development in organizations according to their specific needs and requirements. The standard should improve flexibility, reusability, transparency, and comparability and is widely accepted in the

community. Usually they are classified into standards for processes, products, and competencies.

- *Learning Technology Standards* deal with the interoperability of components of learning environments, such as authoring systems, learning management systems (LMS), and learning resources and services. The variety of these standards contains standards for content, management, actors, and didactics. Recently, new areas such as context description or mobility aspects gain more importance. They contribute to fulfilling the quality objective of interoperability.
- *Related standards* are used within quality or learning technology standards, such as technology, process, or legal standards. They are usually developed in other domains.

This book deals mainly with the first two classes of standards. Related standards are mentioned within the articles and specifically in chapter 19.

1.3.2 Methodology and instruments to develop quality for e-learning

In the following, we provide a brief survey of methods and instruments in the field of quality, based on (Ehlers, Pawlowski, 2004).

Quality management approaches

Quality management approaches can be used to ensure or optimize the quality of an educational process. They generally do not follow a product-related quality understanding; they are directed at creation, implementation, and performance processes. According to this understanding, QM approaches focus on customer and, specifically, learner requirements for planning, implementing and providing a product (such as an educational product like an e-learning course). Due to their generic scope, these approaches can be applied in different branches and contexts. For e-learning, there are currently no generally recognized quality management approaches. However, concepts are increasingly being developed that are based on the generic process orientation of quality management approaches and are then especially adapted for the educational field or e-learning.

Quality assessment on the basis of criteria lists and checklists

Quality criteria are mostly normative-static tools for the assessment, development and selection of learning platforms, learning software or learning environments. Assessment tools based on quality criteria lists are relevant and popular because they seem to make it relatively easy to evaluate learning effectiveness, although this is usually only possible with time-consuming empirical methods. As a result, these tools enable people to assess the quality of a learning arrangement or learning software without prior empirical studies.

Quality criteria are defined as a characteristic attribute of a learning program whose learning effectiveness has been proven in a validity study. Many quality criteria lists, however, contain criteria for which no explicit validity prove exist, but which are simply assumed to be effective for learning. Meier (1995) points out that many quality criteria lists mainly contain criteria from the area of "screen interface design" or "technical usability"; however, pedagogical/ didactic criteria are often underrepresented. Metastudies on the learning effectiveness of multimedia learning environments, though, show that in particular the didactic concepts implemented in e-learning-modules and learning arrangements have a greater effect on the learning process than the so-called "delivery technology" that is used (cf. Weidenmann, 1997), (Kulik, 1991), (Kulik, Kulik, 1994).

Evaluation as a quality approach

Evaluation approaches can be used for assessing learning situations in which e-learning is used. These methods do not focus on a product itself, but a learning process and thus puts the learners in the focus of attention.¹ Specialised evaluation approaches for assessing e-learning require a learning-theoretical basis to determine which processes in media-supported learning affect each other and how. Only by this means it is possible to investigate assumptions about how or whether someone learns effectively or not, using evaluation methods. Possible theoretical foundations are described in chapter 11.

Further quality approaches for e-learning

In addition to the previously described quality approaches, there are other methods for assessing or assuring quality. These include above all approaches such as

- Benchmarking (for example, "Quality On The Line" of the Institute of Higher Education Policy, USA, 2001), which attempts to compare different offers – for example, from e-learning-providers – on the basis of specified criteria,
- Accreditation and certification approaches (for example, from the ZFU, being the State Office for Distance Learning in Germany), in which providers of e-learning must submit to one-time or regular audits and are then awarded a certificate, or
- Quality mark organizations (e.g. British Learning Association, eQCheck, Weiterbildung Hamburg e.V. in Germany etc.) are usually associations of several organizations in the educational field and award a self-developed mark of quality to their member organizations when these meet previously defined criteria.

¹ Strictly speaking, the assessment of e-learning offers using quality criteria lists is also a form of quality evaluation, a so-called expert assessment or product evaluation. However, since it clearly differs from more process-related evaluation approaches in its conceptual approach and implementation, both types – quality criteria assessment and evaluation – are considered separately (Tergan, 2000).

1.3.3 Learning technology standards

Another development is the introduction of standards for e-learning arrangements, -platforms and -content. These standards mainly serve the goal to achieve interoperability and reusability. They focus on various aspects from a technological as well as pedagogical/didactical perspective. However, the intention of standardization is not, as often assumed, to reduce and unify the didactic or technological options, but to standardize their description. The goal is to attain a greater transparency for all users of learning technologies (learners, teachers, etc.) and a greater interoperability and reusability. This is more and more important in e-learning, particularly in global education markets. A progressive understanding of standardization in this sense means to provide structured information about learning resources to enable learners, teachers, and systems to adjust to the respective teaching/learning context. Learning technology standardization as quality approach is therefore related to a quality in the sense of a pedagogical, process-related quality. As a basic requirement for multi-system, interoperable e-learning, standardization is becoming a critical success factor as Europeanization and globalization progress. In general, standards should follow these guiding principles:

- **Transparency:** Standards should improve transparency of processes and systems. This means that all stakeholders should have access to clearly structured, accurate information.
- **Openness:** Standards should be developed in a consensus process. In this process, all stakeholders should be involved, such as developers, teachers, designer, and, most important, learners.
- **Adaptability:** Standards should be adaptable to national, regional, local, or organizational requirements. This means that harmonization can be done on an abstract level, whereas profiles are built based on specific requirements and needs.
- **Extensibility:** Standards should be open for extensions when new requirements or developments occur. This means that the basis can be stable for a longer period of time, only extensions need to be integrated.

Using these principles, the adoption and acceptance of new standards will be improved and accelerated.

1.4 Preview on the book chapters

The handbook is structured into three main parts. After a general introduction on challenges of European quality development in a Europe of shared visions and divers goals (Brian Holmes), part A gives an overview on methods and approaches which can be used for the development of quality in different educational contexts. Part B focuses on e-learning standards, as there are quality and learning technology standards. The third part of the handbook, part C, brings together articles centring around practical experiences and case studies. All articles are bridg-

ing the gap between theory and practice. They lay out basic concepts and theoretical foundations, describe methodologies and finally give practical examples and suggestions for realisation.

Part A on Methods and approaches for quality development in e-learning starts with chapter 3 on “Quality of e-learning: Negotiating a strategy, implementing a policy” by Claudio Dondi, Michela Moretti and Fabio Nascimbeni. They state in their article about that dialogue among individuals, organisations, policy makers and other involved stake-holders is a pre-condition to create clarity and trust without which a quality strategy for e-learning may not progress. A phased approach on how to build public policies and institutional strategies for e-learning quality is suggested.

Chapter 4, by Julia Flasdick, Amaury Legait and Lutz P. Michel, focuses on accreditation (“The maze of accreditation in European higher education”). They describe the accreditation process, give an overview of the tools and methods and thus help to select appropriate accreditation for particular circumstances. Additionally they sketch out the future evolution of accreditation in the European Higher Education Area.

In chapter 5, “Adopting quality standards for education and e-learning”, Jan M. Pawlowski shows how to implement and adapt the quality standard for e-learning ISO/IEC 19796-1. The Quality Adaptation Model shows the steps to develop and implement quality in organisations: the main steps (Context Setting, Model Adaptation, Model Implementation and Adoption, and Quality Development) are explained in detail to show how an organisation can develop its individual quality system.

Christian Stracke explains in chapter 6 about “Process-oriented quality management” the importance and relevance of process orientation in quality management for educational organisations. First, the relevance of process orientation for a holistic quality management concept is described and then an overview on several quality management concepts is given.

In chapter 7, Markus A. Wirth approaches quality management approaches from a different perspective: “An analysis of international quality management approaches in e-learning: Different paths, similar pursuits”. The contribution intends to break with some commonly accepted statements that solely emphasise the heterogeneity of nowadays quality approaches. A systematic overview of four generically different fields of quality management approaches points out some basic differences in the underlying objectives and the ways in which these goals are prosecuted. However, a deeper look below the surface reveals some striking similarities between various quality management approaches.

Thomas Lodzinski and Jan M. Pawlowski describe a new quality mark in chapter 8, “The quality mark e-learning: Developing process- and product-oriented quality”. The presented Quality Mark e-learning (Qualitätssiegel e-learning, QSEL) is an example of a holistic quality mark. It analyses the quality of organisations and its products and services.

In Chapter 9, John Erpenbeck, Lutz P. Michel focus on “Competency-based quality securing of e-learning (CQ-E)”. The article deals with crucial questions of

measuring and making up a balance of professional competencies – in contrast to skills and qualifications. The article sketches a proposal for a special model of securing the quality of formal as well as informal learning, based on the concept of competencies.

Thomas Berger and Ulrike Rockmann describe the use of product oriented quality criteria in chapter 10 “Quality of e-learning products”. The contribution provides background information about the concept and the development of the Reference Quality Criteria Catalogue. The catalogue contains quality criteria for e-learning products and processes and is part of the Public Available Specification (PAS) 1032-1 of the German Institute of Standardisation, and also annexed to the standard ISO/ IEC 19796-1.

Evaluation is on stake in chapter 10, about “Quality Evaluation for e-learning”, by Ulf-Daniel Ehlers and Lutz Goertz. They give an overview on evaluation concepts for e-learning and describe evaluation as a means to find out whether e-learning is effective, in which contexts and for what groups of learners.

The last chapter of part A focuses the question how to find the best quality model. Barbara U. Hildebrandt and Sinje J. Teschler describe in chapter 12 about “Towards a model for structuring diversity: The EQO approach for better quality in e-learning” a possibility to structure the diversity of quality approaches and strategies in European e-learning. The EQO Analysis Model enables a consistent description and thus comparison of quality approaches based on a harmonised metadata scheme.

Part B on E-Learning-Standards starts with a journey into the sometimes confusing standards jungle. Kai Heddergott shows how better transparency can be achieved using standards. His journey leads us to the parts of architectures and frameworks, management standards, standards for contents, didactical standards, learner model standards and inter-face standards. The orientation serves as a guideline for the complex field of standards.

In chapter 14, Rolf Lindner gives a survey of architectures and frameworks as the conceptual umbrella for standards. He shows how architectures and frameworks for e-learning relate to quality aspects. He outlines the major approaches and explains their features, strengths and weaknesses. He concludes with identifying the major differences between educationally-oriented approaches favoured in Europe or technology-oriented approaches found in the USA.

In chapter 15, Christian Prpitsch and Patrick Veith describe the most adopted standards so far: For the description of Content, Learning Object Metadata (LOM) and in the field of management standards, SCORM and IMS Content Packaging. They focus on the procedure to adapt these standards using application profiles for a context specific.

In chapter 16, Michael Klebl introduces didactical standards or, as he names them, educational interoperability standards. He shows two alternatives: IMS Learning Design (IMS-LD) and DIN Didactical Object Model (DIN-DOM). A description of examples and issues in practical use concludes this article.

In chapter 17, Cleo Sgouropoulou describes learner profiles and their contribution to the development of the European education area. Her article presents an

overview of the new European educational setting, discussing issues and initiatives.

Michel Arnaud describes in chapter 18, how e-portfolios contribute to creating employment opportunities. He shows the need to have common references for competency definitions with the learner competency model: IMS LIP as well as an e-portfolio format in agreement with IMS Reusable Definition of Competency or Educational Objective (RDCEO), Europass Diploma Supplement, Data Protection and Privacy procedures. He concludes how the e-portfolio can provide an opportunity for the European Union to have a stronger implication in improving European employability through its promotion.

In chapter 19, Markus Bick describes the integration of business information systems and learning systems. The goal is to integrate learning and business tasks and other enterprise applications. He shows corresponding standardisation activities for integrated information systems, especially emphasizing how learning and business systems can be integrated into a common framework. He describes selected data exchange standards, especially the Extensible Markup Language (XML) and infrastructure standards, like the Open Management Architecture (OMA) and Web services.

Chapter 20 focuses on accessibility aspects of standards. Pythagoras Karampiperis, and Demetrios Sampson present in their work on “Facilitating learning objects reusability in different accessibility settings” a methodology for defining an accessibility application profile that captures the accessibility properties of learning objects in a commonly identified format. This information is critical in order to be able to match learning content with learner accessibility preferences, as well as, to allow the use of generic hypermedia and multimedia based educational content which is not originally developed for a particular group.

With chapter 21, Wayne Hodgins concludes this part of the book with an outlook into the future of standardization. He describes the first steps and initiatives. A main conclusion is that supporting tools and technologies are readily available today. He shows how we enter a new era for standards to develop new tools, specs, and standards. Finally, he provides a look ahead at the next decades and the future of standards for technology enabled learning.

Part C of the book puts forth practical experiences in form of case study accounts or reports about implementation, chances, benefits and pitfalls of quality development in e-learning.

Based on 5 national studies, from Finland, France, Poland, Spain, and Switzerland, Bernard Dumont and Albert Sangra present and analyse in chapter 22 organisational and cultural factors that can facilitate or block the implementation of Quality in Higher educational institutions in general and for e-learning in particular: “Organisational and cultural similarities and differences in implementing quality in e-learning in Europe’s higher education”. They make a comparison between these factors, some of them being common to the 5 countries, the other being relevant for only one or more countries.

Chapter 23 gives a visionary account on “Rethinking quality for building a learning society” by Maureen Layte and Serge Ravet. The article explores how the