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Quality in e-learning

Use and dissemination of quality approaches in European e-learning

A study by the European Quality Observatory

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Ulf-Daniel Ehlers
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Preface

What are the current and future challenges quality and standardisation of e-learning in Europe? What are the difficulties and the opportunities, and where can hidden potential be released? Under its e-earning Action Plan, the European Commission has supported research into the quality of e-learning at various levels. This project cluster has 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 all European conferences in the field. The resultant debate will produce an appreciable impact on the community of all those involved in e-learning. As the initiators of this study, we regard such an outcome as certain, even though we are unable to provide hard facts and figures.

Quality in e-learning has a twofold significance in Europe: first, e-learning is associated in many discussion papers and plans with an increase in the quality of educational opportunities, ensuring that the shift to the information society is more successful. We call this context ‘quality through e-learning’. Second, there is a separate but associated debate about ways of improving the quality of e-learning itself. We term this context ‘quality for e-learning’.

It is this second area on which we concentrate in our work, and in this study. When we set up the European Quality Observatory in 2003, we became aware in many discussions of the importance of quality in a united Europe. We also discovered that there was no such thing as a common view of quality and quality planning, or indeed of e-learning. Today we have moved a step further forward.

This report makes this plain. The 1 750 or so people surveyed have differing opinions on the notion of quality development in European e-learning. They can provide detailed information about opportunities and difficulties in the area of quality development. It is apparent that quality is currently perceived as something essentially European and international. This may be regarded as an imperative for the European Commission, to take further its programmes and activities in the field of quality.

A study on this scale always has its predecessors, and cannot be carried out by one organisation alone. We have been able to build on a network of supporting organisations throughout Europe, whose commitment and willingness to help have constantly carried us forward, making the impossible possible and finally enabling us to present a report bringing together individuals from all European countries. We should like here expressly to thank all those who have supported our work, above all Brian Holmes of the European Commission and Werner Hermann and Colin Mc Cullough of Cedefop, who are typical of many other organisations and individuals.

One of our major findings may be mentioned at the outset: that quality is improved by moving away from fixed concepts applied universally towards flexible processes of negotiation. This requires a very high level of quality competence from those involved. The future challenge facing e-learning is to expand and support this trend. We hope that this report will take us a step nearer to meeting that challenge.

Essen, Germany, January 2005

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1. Executive summary

In simple terms, the message from the 1 750 or so people surveyed in this study might be expressed as, 'We need more quality competence for e-learning in Europe.' This need is evident in numerous findings. There is widespread realisation that quality is now, and will also in future be, of great importance in their own fields of work, regardless of the country or group to which they belong. At the same time, there is insufficient experience of implementing quality strategies, and the level of information is described by over half of all those surveyed as inadequate.

The study 'Use and distribution of quality approaches in European e-learning' was carried out as part of the EU-supported research project 'European Quality Observatory' (EQO) (http://www.eqo.info).

The European Quality Observatory is a European research consortium consisting of five partner organisations:

(a) University of Duisburg-Essen, Institut für Wirtschaftsinformatik der Produktionsunternehmen (project management),

(b) MMB – Institut für Medien- und Kompetenzforschung, Essen, Germany,

(c) Ecole Nationale de Ponts et Chaussées, Paris, France,

(d) European Schoolnet, Brussels, Belgium,

(e) Centre for Research and Technology Hellas, Athens/Thessaloniki, Greece.

The EQO project had two aims in preparing the study:

(a) to reach as large a number as possible of people associated in any way with e-learning;

(b) to cover as broad as possible a spectrum of e-learning experts, e-learning decision-makers and e-learning users.

Within this spectrum, EQO distinguished between six target groups:

Table 1: Target groups of the study

Providers	**Decision-makers** (including policy-makers)	**Operatives** (Media designers, authors, etc.)	**Learners**
Users	**Decision-makers**	**Operatives** (Teachers, tutors, etc.)	**Learners**

Source: the authors

The study was carried out as an online survey with a self-administered online questionnaire accessible to the public via the EQO portal. The EQO was given extensive coverage by a widespread advertising campaign using e-mail information shots, banners and info texts, using a multiplier approach to distribute information through national and European networks (e.g. Cedefop's European Training Village Community). It is known that around 75 000 people were reached direct (via e-mail and newsletter subscriptions) by this campaign. The number of contacts through links and banners on various websites was probably higher.

The questionnaire deals with five blocks of topics: (a) e-learning in general, (b) quality in e-learning in general, (c) use/implementation of quality instruments in e-learning, (d) experience with quality instruments and approaches, and (e) issues of statistics/demography. With the aid of these overall questions, information could also be obtained about 'quality competence', which can be broken down into the four dimensions 'knowledge of quality', 'experience of quality', 'design of quality' and 'criticism of quality'. The level of 'quality competence' expresses the command of quality in e-learning practised by the user.

1.1. Sample survey

Between 15 August 2004 and 15 November 2004, 5 023 people called up the questionnaire, of whom 1 407 (28 %) actually completed it, and a further 336 (7 %) finished the two basic sections on quality in e-learning and were included in the sample as valid responses. The results are thus based on N=1 743 responses. Since not all respondents could answer all questions, the evaluations relate in some cases to sub-samples (e.g. only those respondents who were already concerned with quality in e-learning).

There was good coverage of European countries in the survey. The response was particularly high from the EQO partner countries, Germany (21 %) and Greece (15 %). The majority of those who responded (around two thirds) were involved professionally in e-learning, many of them at the 'operational level', such as media designers, authors, etc. A large number of e-learning users also took part. Among the institutions represented by respondents, universities (28 %) and companies (22 %) stood out.

1.2. Meaning of 'quality in e-learning': a primarily pedagogical view

As regards what respondents understand by quality in e-learning, the predominant view is that quality relates to obtaining the best learning achievements (50 %). Together with 'something that is excellent in performance' (19 %), this primarily pedagogical understanding was more widespread than options related to best value for money or marketing.

1.3. Differences in the approach to quality in the various countries and regions of Europe

Despite differences in circumstances, quality in e-learning is seen as more or less equally important in all European countries and regions. The individual regions expect support for quality primarily from the European, followed by the national level. Regional and local support are seen as less significant.

Quality standards and approaches are used particularly widely in the Anglo-Saxon and Benelux countries (82 %), while usage in the new EU Member States is appreciably lower (58 %). The latter make considerably less use of external quality approaches (19 %), while the German-speaking and Anglo-Saxon countries make greater use of these (28 and 27 % of respondents respectively).

Moreover, it is respondents in the new Member States who feel particularly ill-informed about the subject. Generally, views differ on the quality of provision of programmes, products and services in Europe. The results show that there is not one single right way of delivering quality in all sectors. The study suggests rather that the particularities and traditions of each individual country need to be taken into account.

1.4. Quality is seen as very important, but is seldom implemented in practice

An overview of a number of variables concerned with knowledge and usage reveals two different types of ‘quality gap’.

The first ‘quality gap’ is that among the target groups, appreciably more e-learning providers (70 %) than e-learning users (33 %) have experience of quality in e-learning. And in both groups, it is decision-makers (77 %) who have disproportionately high experience of dealing with quality by comparison with the operational level (63 %), to say nothing of learners (4 %). Learners in particular do not feel that they have been adequately informed about e-learning quality.

The second ‘quality gap’ is that although almost three quarters (72 %) of all respondents regard the issue of ‘quality in e-learning’ as ‘very important’ – with some gradation between ‘decision-makers’ (78 %), the operational level (73 %) and learners (57 %) – not many institutions have as yet applied this belief in practice. Around 34 % describe the issue as part of the philosophy of their institution, yet only 16 % of respondents state that a quality strategy has actually been implemented in their own institution.

1.5. Sources of information about quality in e-learning: preferably from the web, and free of charge

Most respondents make extensive use of the support available for 'quality in e-learning', information from the Internet (66 %), examples of best practice (65 %) and information brochures and books (55 %) currently being more popular than discussion forums (30 %) – which are obviously of no help to e-learning beginners – and than outside consultants (26 %).

1.6. External quality approaches – only of help so far to e-learning experts and decision-makers

A quarter of respondents already use external quality approaches, i.e. standards, quality strategies or public checklists developed elsewhere. Admittedly, these are predominantly (training) companies in the commercial sector and government agencies. Universities prefer to go their own specific way.

External quality approaches can also be of help to decision-makers in companies and to e-learning researchers.

Among the quality approaches mentioned that are already familiar and in use, the most common are official quality management approaches such as EFQM and ISO 9000, and quasi-standards such as SCORM or the new PAS from the DIN.

1.7. Standards: requirements of future guidelines for quality in e-learning

The findings of the study demonstrate the need to develop a generally recognised standard which leads to certification of e-learning provision (or of providers). An outline of the main requirements for the formulation of such a standard can be summarised in the key words 'participation', 'transparency', 'degree of familiarity and acceptance', 'openness', 'adaptability and scalability', 'harmonisation and integration', 'integrated methodology', 'quality awareness' and 'measurability'.

1.8. Quality competence among respondents still differing widely

Of the four dimensions of quality competence (see above), there is still insufficient knowledge of quality. 'Quality in e-learning' may be regarded as important, but there is a lack of actual implementation and information about the issue – for example, about specific quality

approaches. There is a need for new information strategies to remedy this lack of information among specific target groups.

Users seldom have experience of developing their own quality strategies. The quality strategies found in institutions are generally regarded by users as abstract quantities (e.g. in terms of the goals of the organisation), and more rarely in terms of actual implementation.

Many respondents see it as preferable to develop their own quality design within the institution than to adopt an external quality approach. Indeed, 35 % of respondents maintain that e-learning quality strategies are being developed in and for their own institutions. If this is confirmed by subsequent investigation, these institutions demonstrate a high degree of operationalisation capacity, creativity and therefore e-learning competence.

The data from the study are not sufficient for the measurement of analysis and criticism of quality. A further case study would have to be designed for this purpose.

1.9. The study provides guidelines for a future quality action plan in e-learning

On the basis of the results, and other experience from the EQO project, the following guidelines should shape the quality of e-learning by 2010:

(a) learners must play a key part in determining the quality of e-learning services;

(b) Europe must develop a culture of quality in education and training;

(c) quality must play a central role in education and training policy;

(d) quality must not be the preserve of large organisations;

(e) support structures must be established to provide competent, service-oriented assistance for organisations' quality development;

(f) open quality standards must be further developed and widely implemented;

(g) interdisciplinary quality research must become established in future as an independent academic discipline;

(h) research and practice must develop new methods of interchange;

(i) quality development must be designed jointly by all those involved;

(j) appropriate business models must be developed for services in the field of quality.

2. Introduction and background: the need for quality in European e-learning

The issue of quality in e-learning is both topical and widely discussed. On the one hand, it provides material for political debate at national and European level, and on the other, it leaves those involved in e-learning scratching their heads. How can quality be best developed? And, even more important, what is in fact the right kind of quality? At first there was an attempt to find the one concept that would be right for all, but we have now become more cautious. Various types of analytical description now head the list. These are intended to ascertain and describe how quality development functions in different sectors of education and in different European countries.

The European Quality Observatory is one such observation platform for quality development in European e-learning. However, there is more to it than 'pure' data collection and description. A key aim is to analyse what actually makes successful approaches successful ([1]). In a way, the aim is to find a quality concept for quality concepts. Decision-making and implementation strategies also need to be designed. One thing is clear today: the main problem is not finding a quality approach *per se*, but rather choosing the right one from among the huge number of quality strategies available.

One of the main purposes of this study on 'The use and distribution of quality approaches in European e-learning' is to achieve the following objectives:

(a) to ascertain the distribution of quality approaches: who uses what?

(b) to investigate the use of quality approaches: how are they used?

(c) to identify possible factors for success, on which the development of quality may depend.

As a theoretical yardstick, the concept of quality competence was developed by analogy with that of media competence (Baacke, 1996). This assumes that quality development is a competence that must be possessed by those involved in the learning process – in e-learning, for example, by tutors, media designers, authors and of course learners – if successful quality development is to be made possible (see Chapter 3.1 of this report). This competence can be broken down into four dimensions:

(a) knowledge of what opportunities are available for quality development;

(b) ability to act and experience of using existing quality strategies;

(c) ability to adapt and further develop, or to design original quality strategies;

([1]) By quality approaches we mean any policies, procedures, rules, criteria, tools, checklists or any other verification instruments or measures that have the purpose of enhancing the quality of e-learning products or services.

(d) critical judgement and analytical ability to enhance quality in one's own field of operation.

This study arose out of the need to establish the usage and state of the art of quality in European e-learning. In this endeavour, quality competence acted as a guiding concept for the analysis of the prevailing situation. In other words, this report aims to analyse the quality competence of those involved in European e-learning and to make recommendations for research and support measures in the medium term up to 2010.

Our work in the European Quality Observatory (http://www.eqo.info), the European centre for the observation and analysis of the development of quality in European e-learning, shows clearly that although there are already a wide range of strategies and proposals for quality development, many of those involved in e-learning as decision-makers at an institutional or policy level, as teachers applying e-learning at the operational everyday level, or as media designers developing e-learning, as well as many users, demonstrate too little quality competence to meet the 'quality' challenge. This study therefore investigates primarily what quality strategies there are in European e-learning, which of these are regarded as successful and on what grounds, and what degree of quality competence users, decision-makers and learners demonstrate in dealing with the issue of quality.

3. Research design and methodology

The aim of the study is to arrive at a comprehensive picture of usage and experience of quality in e-learning in the European education and training landscape. The design and methodology of the survey are explained below.

3.1. The survey

In order to achieve a successful survey, the EQO project pursued two objectives:

(a) to reach as large a number as possible of people involved in e-learning;

(b) to cover as broad a spectrum as possible of e-learning experts, e-learning decision-makers and e-learning users.

These objectives led to the following survey design: an online questionnaire was placed on the EQO website, accessible to all Internet users. There was no need for prior registration. Versions were available in English, German, French and Greek. The OPST system developed by the 'Globalpark' company was used for the technical administration of the survey. This instrument was particularly helpful as a filter, so that respondents were automatically directed to the questions that were relevant to them. The questionnaire consisted of the five sections shown in Table 2.

Table 2: Structure of the questionnaire

Section of questionnaire	**Description of content**
A. E-learning in general	- Involvement in e-learning - Role in e-learning (provider or user, as decision-maker or learner) - Length of involvement with e-learning - Number of people using e-learning in the institution
B. Quality in e-learning	- Involvement with quality in e-learning - Personal understanding of quality - Sources of information about quality in e-learning - Importance of quality e-learning - Importance of quality in e-learning in future - Use of quality approaches/quality strategies - National or international support for quality in e-learning
C. Use of quality instruments in e-learning	- Use of a quality approach - Type of quality strategy - Reasons for non-use - Reasons for use of quality strategies

	- Familiarity with quality approaches (unprompted naming of five approaches) - Full description of one of these approaches (according to EQO model, http://www.eqo.info)
D. Experience of quality instruments and approaches	- Cost - Number of users - Evaluation: recommendations regarding the approach
E. Questions on statistics/demography	- Type of institution - Target groups for e-learning provision/branch (in the case of providers) - Level of education/training provided by the institution - Number of employees - Respondent's own role - Country - Age - Educational qualifications

Source: the authors

Since not all questions could be answered by all respondents (e.g. questions about experience of a quality approach in the case of people unable to name an approach), the online questionnaire automatically jumped these questions. For that reason, the baseline figures vary by sub-group in the evaluation.

3.2. The key construct of quality competence

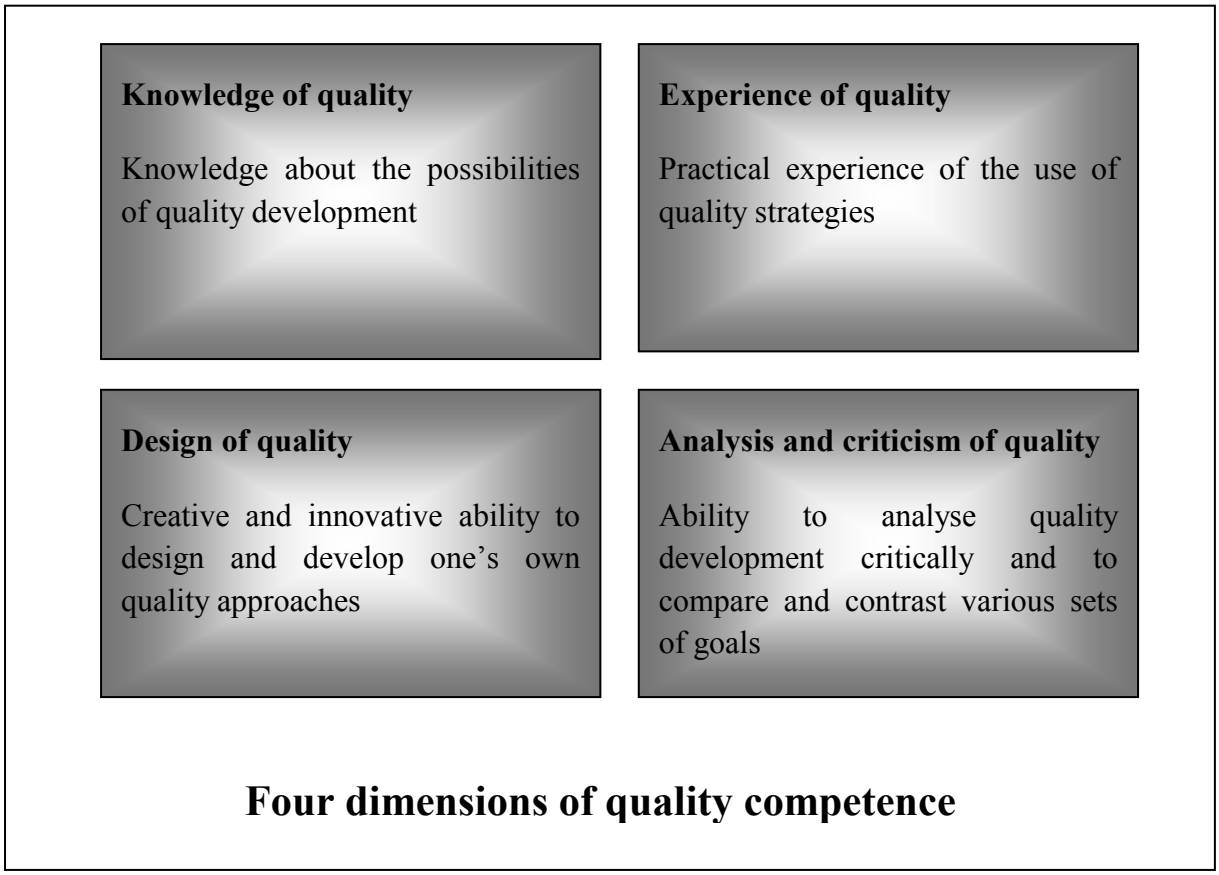
In this study, the concept of quality competence was empirically operationalised for the first time, and breaks down into four dimensions (Figure 1). Three general considerations are of particular importance for quality competence in e-learning:

(a) The term 'quality competence' is comprehensive and refers both to technology-based concepts of education, integrated blended learning concepts and conventional face-to-face teaching.

(b) 'Quality competence' is a matter of learning and experience; it cannot be acquired exclusively from training courses or handbooks, but requires experience and reflection.

(c) 'Quality competence' is a task of lifelong learning both for learners and providers, such as teachers and tutors. Since educational concepts and objectives are constantly changing, it is necessary to keep relearning afresh how to put new contexts, goals and prior requirements into practice.

Figure 1: Dimensions of quality competence



Source: the authors

Quality competence is thus a key element in the successful implementation of education and training concepts. A description of the four dimensions into which the term can be divided will give a precise clarification of what it covers and includes.

3.2.1. Dimension – Knowledge of quality

This means the 'pure' knowledge of the potential for present-day quality development, and of current quality approaches. By quality approaches we mean any policies, procedures, rules, tools, checklists or any other verification instruments or measures that have the purpose of enhancing the quality of e-learning products or services. For the purposes of this study, this dimension was evaluated through variables such as respondents' assessments of their level of information or of the present and future importance of quality development in e-learning. Respondents were also asked to provide specific data on the quality strategies with which they were familiar.

3.2.2. Dimension – Experience of quality

This dimension describes the ability to use quality strategies. It is based on the experience of those involved with quality development activities and the use of quality strategies. This study established whether respondents had experience of quality development in e-learning, and if so, what experience.

3.2.3. Dimension – Design of quality

This dimension refers to an ability that extends beyond the use of available quality strategies, i.e. to the ability to design quality strategies for one's own context. This requires both the innovative ability to change and further develop quality strategies by applying the logic of the media system, and a creative ability to design entirely new forms of quality development. This dimension was operationalised in the questionnaire by asking about respondents' experience of developing their own quality strategies.

3.2.4. Dimension – Analysis of quality and criticism of quality

This dimension refers to the ability to analyse quality development processes critically, comparing and contrasting a range of target systems and perspectives. 'Criticism' originally meant 'distinguishing' and is used to ascertain the ability to reflect on existing knowledge and experience. In the case of learners, this essentially means awareness of their own responsibility for quality in e-learning. In that of providers, it means the ability to undertake quality development through a process of flexible negotiation, allowing a variety of individual and societal target systems to be involved in the issues addressed by education and training. This dimension was not covered by the current questionnaire and can only be analysed indirectly since it is better suited to qualitative procedures.

3.3. Target groups of the questionnaire and field access

The questionnaire was addressed to all those involved in any way in e-learning processes. Since the survey was concerned with the issue of 'quality in e-learning', the target groups were defined somewhat differently than in other studies. 'Users' may be schools and institutions of higher education, initial and further vocational training, policy-makers, decision-makers on the client side, and learners.

'Providers' include professionals such as managers of e-learning production, tutors and trainers, media designers and IT administrators. This restricted set of target groups was selected on the premise that it would give a good impression of its members' views on quality in e-learning. The results of the study largely confirm this assumption, so that this target group model can be recommended for future research on quality.

The following table shows six target groups, into which the persons mentioned above can be grouped:

Table 3: Target group matrix of the survey

	Decision-makers	**Staff at operational level**	**Learners**
Providers	People concerned with e-learning products exclusively at decision-making level and not involved with either the adoption or the implementation process, e.g. managers of manufacturing companies, decision-makers at Cedefop, policy-makers	People providing or marketing e-learning at an operational level, e.g. as authors, tutors or programmers.	People providing e-learning products and services but also using e-learning as learners.
Users	People involved both in the decision-making processes of institutions and concerned as users with e-learning products and services, e.g. managers of user companies, personnel managers, IT managers.	People using e-learning products but not pure learners, e.g. in-house trainers in user companies, staff developers, system administrators.	People merely using e-learning as consumers.

Source: the authors

The study covers all European countries. Open access to the Internet also means that people outside Europe took part in the survey.

In order to reach as many of those involved in e-learning as possible within the shortest possible time, a wide-ranging information campaign was organised. This used:

(a) e-mail shots inviting recipients to take part in the survey,

(b) e-mails to multipliers, who forwarded or publicised these,

(c) banners on the EQO website and other websites,

(d) short announcements as links on external websites,

(e) telephone calls to multipliers.

In this way around 80 institutions were contacted, including:

(a) Cedefop, Greece,

(b) Bundesinstitut für Berufsbildung (BIBB), Germany,

(c) European Schoolnet, Belgium,

(d) Le Preau, France,

(e) Ecole nationale de Ponts et Chausées (ENPC), France,

(f) other partners in the EQO network.

There was a very large take-up among these institutions. By passing on the information, many organisations showed that they regarded the issue of 'quality in e-learning' as highly important.

Around 75 000 people were contacted direct in this way, 13 000 of them through Cedefop alone. The number of 'chance' contacts via Internet links and banners is certainly even higher, but cannot be quantified exactly.

Table 4: Profile of the EQO study

Field period:	15 August to 15 November 2004
Number of people calling up the questionnaire online	5 023
Number of people calling up but not filling in the questionnaire (= invalid responses)	1 263 responses (25 %)
Number of respondents discontinuing the questionnaire before Section C (= invalid responses)	2 017 responses (40 %)
Number of respondents completing the questionnaire at least as far as Section C, but discontinuing thereafter (= valid responses)	336 responses (7 %)
Number of respondents fully completing the questionnaire (= valid responses)	1 407 responses (28 %)
Total number of valid responses	1 743 responses (35 %)

Source: the authors

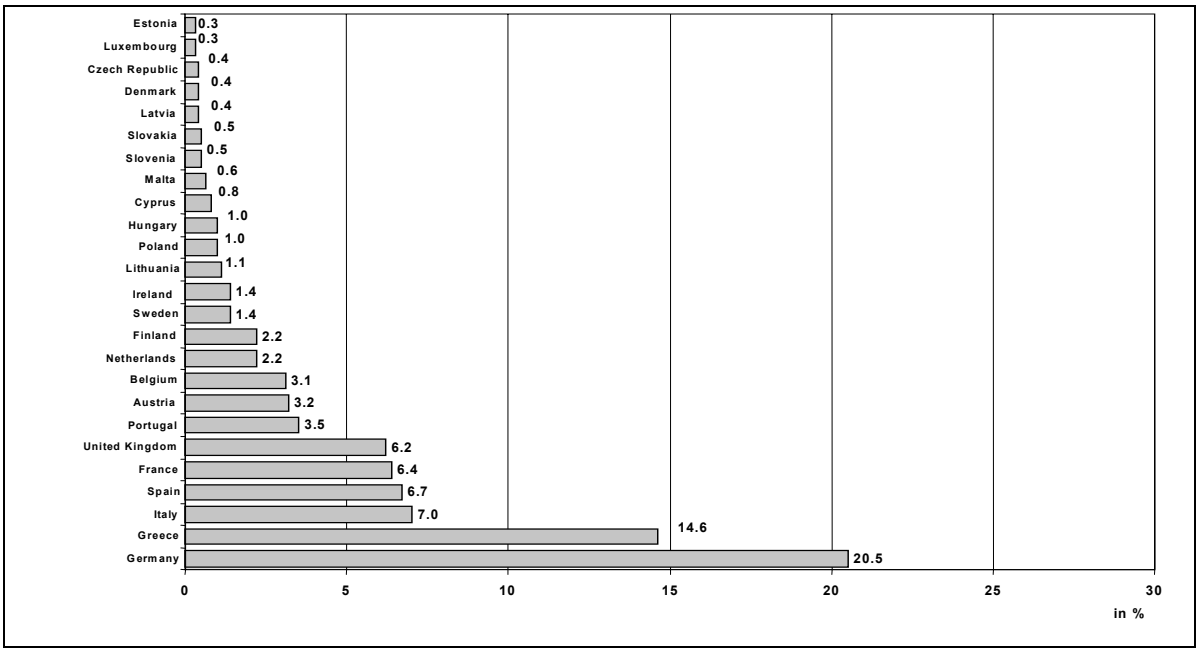
There was thus a very large response to the questionnaire. The number of those who at least glanced at the questionnaire is evidence of respondents' curiosity about the issue. The fact that 1 743 people largely or fully completed the questionnaire demonstrates the huge commitment to the question of 'quality in e-learning'.

3.4. Description of respondents (sample)

Who took part in the survey?

The breakdown of respondents by country shows that all European countries were covered, and even smaller countries are well represented. Some countries are over-represented in proportion to their population, however, including Germany, with almost a fifth of all respondents, and Greece, with 15 %. This high take-up may be due to differences in the intensity of the campaign. The availability of Greek and German-language versions of the questionnaire may also have contributed.

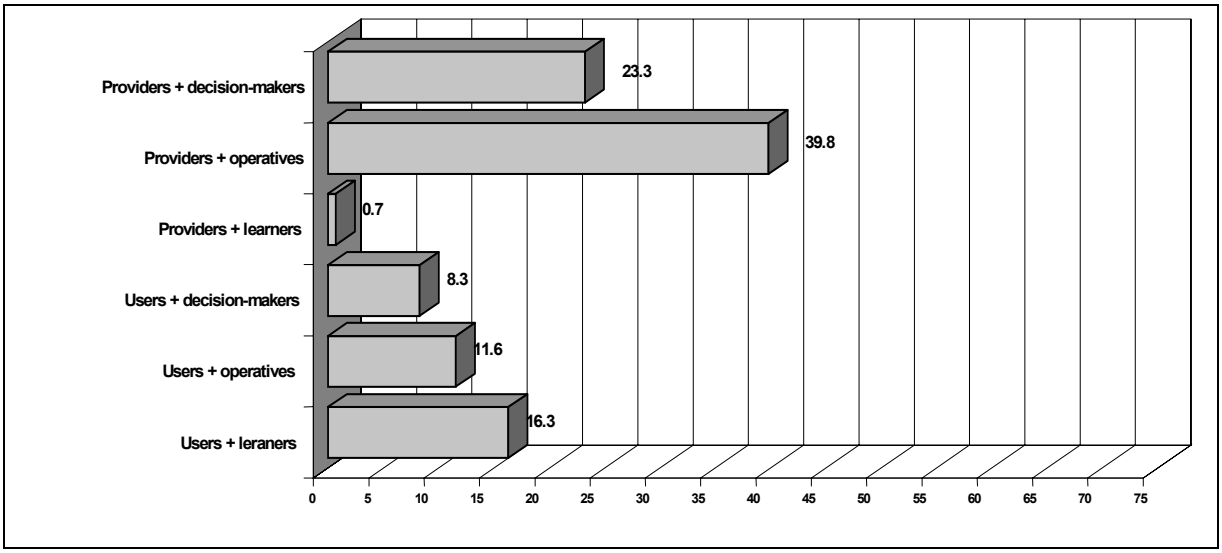
Figure 2: Country distribution in the sample (N=1 440)



Source: the authors

The target groups defined above are also well represented in the survey sample: around 64 % of respondents were professionally engaged in e-learning ('providers'), and almost 40 % of the total sample is accounted for by designers, programmers, authors, teachers and tutors working in e-learning.

Figure 3: Breakdown of target groups in the sample (N=1 617) (*)



(*) The definition of target groups was based on the following question: In the following we are interested in the perspective which you personally have on e-learning. For that purpose we need two pieces of information.

Do you belong to the providers of e-learning or to the users of e-learning? If there are several options which apply, please check the option which best represents your position:

(a) I belong rather to the provider side:
  (i) I belong to the group of providers of e-learning services (e.g. educational institutions offering courses, teacher or tutor, CEO of a provider, etc.)
  (ii) I belong to the group of producers of e-learning products/services (e.g. developer)
  (iii) I belong to the group of policy-makers for education/e-learning.

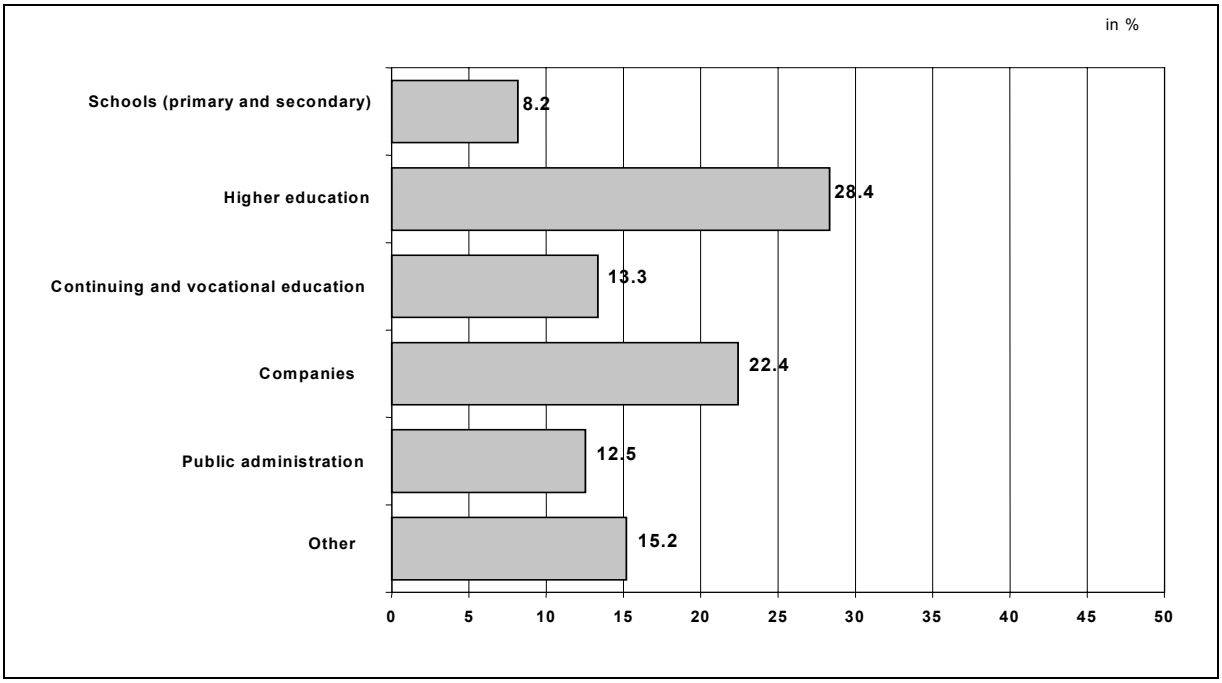
(b) I belong to the user side:
  (i) I belong to the group of e-learning users (learners),
  (ii) I belong to the group of users on the decision-maker level (e.g. as a CEO who is currently introducing e-learning).

(c) Within this group, which position do you hold regarding your involvement in e-learning?
  (i) I am a decision-maker (e.g. COE of company, head of organisation/department/institution, or as policy-maker),
  (ii) I am a teacher/tutor,
  (iii) I am a course author,
  (iv) I am a media developer,
  (v) I am in a position on operational level different from the above listed,
  (vi) I am a learner/user.

Source: the authors

It was to be expected that the group of learners among the 'providers' would be small. This category was only included for the sake of completeness. It is pleasing, however, that there were a large number of e-learners among the 'users'. As a result, the study also reflects the views of those for whom e-learning is produced.

Figure 4: Distribution of institutions in the sample (N=1 125)



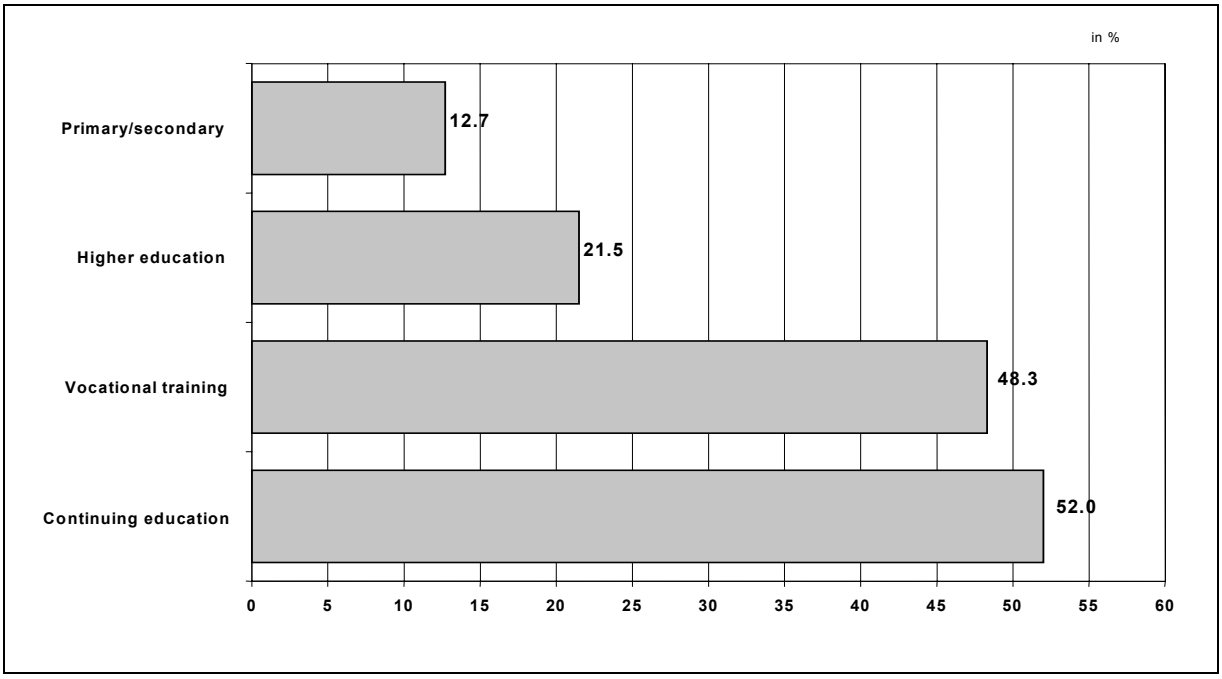
Source: the authors

There is also a good balance between the types of institution from which respondents came. Universities account for a large proportion, 28 %, followed by companies, with 22 % of respondents. It is known from earlier studies that the use made of e-learning by these two groups varies widely. In companies, considerations of cost play a major role. Public administration is also well represented, with 13 % of respondents.

Among educational institutions (n=537), the majority are within vocational training (48 %) and continuing education and training (52 %, multiple answers were permitted). School and university education are appreciably less well represented. This corresponds to current activity in e-learning, in which schools appear to be far less involved.

In respect of demographic variables, respondents were almost evenly spread in age and gender. The number of respondents in each of the four age groups between 21 and 60 years works out between 19 and 30 % (almost 95 % of the total sample). However, three respondents were already over 80 years of age. The proportion of men to women in the sample is 57 to 43 %.

Figure 5: Types of qualification offered by the education and training institutions surveyed (N=537)



Source: the author

4. Results of the survey

The data set for this study covers more than 300 variables, which provide material for a variety of in-depth evaluations and reports. The following evaluation of the study centres on key questions of 'quality in e-learning' that are currently being discussed. In the following sub-sections, each question begins with the statement of a thesis. Each sub-section:

(a) sets out the thesis;

(b) describes the findings of the EQO study;

(c) places this in the context of overall discussion of 'quality in e-learning';

(d) makes recommendations for the further treatment of the issue.

The order of the theses is based on the principle 'from the general to the specific'. They begin by examining in general terms the understanding of quality, and then deal with knowledge about and the importance of quality in e-learning. Next, the actual implementation of quality strategies is considered, and finally the use of particular quality approaches.

4.1. Meaning of quality in e-learning

Learning outcomes are at the heart of respondents' understanding of quality in the field of e-learning. When we talk about quality in e-learning, we assume an implicit consensus about the term 'quality'. In fact, however, 'quality' means very different things to most e-learning providers. Harvey and Green (2000), (and see Ehlers, 2004, pp. 52-56) have suggested the following set of categories:

(a) exceptionality,

(b) perfection or consistency,

(c) fitness for purpose,

(d) adequate return,

(e) transformation (Ehlers, 2004, p. 52).

The last perception of quality, transformation, is the most relevant to the pedagogical process. It describes the increase in competence or ability as a result of the learning process as transformation. In order to make these categories manageable for respondents, they were operationalised as follows in the study:

Considering everything asked so far, which of the following statements best represents your own personal understanding of quality? Please choose only the one element from the list below which best represents your own opinion.

(a) avoiding mistakes (2. perfection),

(b) a marketing instrument,

(c) that something meets the standard requirements (2. consistency),

(d) that something is excellent in performance (1. exceptionality),

(e) to receive the best value for money (4. adequate return),

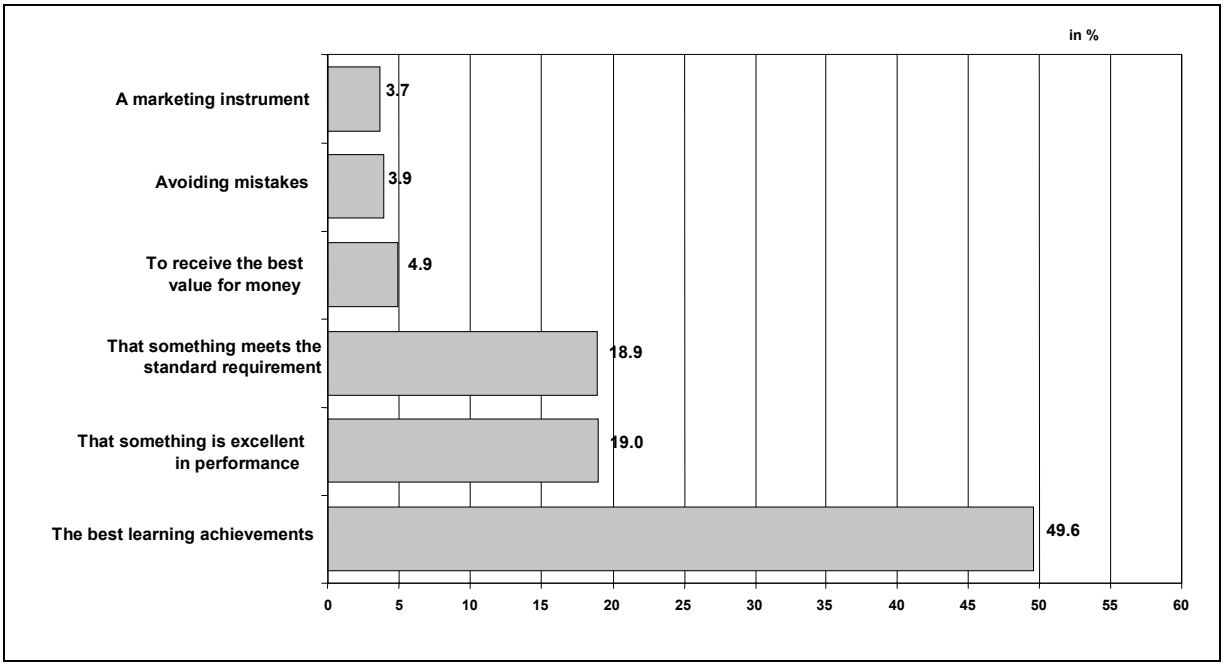
(f) the best learning achievements (5. transformation).

In the event, the pedagogical aspect clearly plays the greatest role in the meaning of quality (see Figure 6).

Half of all respondents equate 'quality in e-learning' with the best learning achievements. This means that quality in the educational sense requires not just average performance but the best performance imaginable. This is closely connected with something being excellent in performance ('exceptionality'). Hence, a fifth of all respondents call for excellence in performance, although this may mean not only successful learning but also, for example, 'carrying out and navigating a learning programme' or 'applying what has been learnt in practice'.

Another fifth of respondents expect quality to mean fulfilling a certain minimum standard. Of all responses, 90 % thus relate to the way in which the product or service compares with other products and services. The remaining 10 % covers answers associating 'quality' with a specific aspect, namely marketing or value for money (4 % each).

Figure 6: Perceptions of quality (N=1 564) (*)



(*) Considering everything asked so far, which of the following statements best represents your own personal understanding of quality? Please choose only one element from the list.

Source: the authors

The choice of 'best learning achievements' is particularly high among e-learning providers, medium-sized institutions and universities. These organisations obviously place particular value on the quality of teaching and the standard of learning outcomes. From this it can be concluded that these groups in particular focus in their work on pedagogical quality, while other target groups such as companies, private-sector institutions of continuing education and training, very small institutions and learners (users) pay more attention, for example, to value for money or to meeting a minimum standard.

Recommendation: in future work on quality approaches, providers and universities could take the lead in looking at quality standards for teaching. They should be facilitated particularly by the committees of standard-setting organisations.

Furthermore, notions of quality need not automatically correlate with the goals set out when quality measures are introduced in e-learning. Respondents wishing to improve services for their students, for instance, did not exclusively select 'the best learning achievements' as their understanding of quality.

Recommendation: providers should make the effort to present the learning that they offer as transparently as possible. Only if the main content-related, technical and pedagogical criteria are described clearly – perhaps by some kind of 'instruction leaflet' – can users of e-learning decide what particular provision will actually help their learners to achieve the best learning outcomes.

4.2. Quality competence in Europe

There is awareness of e-learning quality throughout Europe, but respondents' quality competence in e-learning nonetheless varies. Although there is a great debate about European reform and harmonisation of education among policy-makers, at the level of practical implementation the question arises as to what is commonly 'European' in education and training. In the case of quality in e-learning this means enquiring into the peculiarities of a specifically European approach to quality in e-learning.

A key question to be clarified by the study in this area was the picture of quality competence in the individual countries or regions. The study shows that the individual dimensions of quality are distributed very unevenly across the regions when it comes to dealing with quality strategies. The investigation focused on two constructs in particular:

(a) knowledge of quality, which ascertains the awareness and familiarity with the topic of those who develop, use or learn from e-learning;

(b) experience of quality, which looks at length of experience of putting quality development measures into practice.

Table 5: Operationalisation of knowledge, design and experience of quality (*)

Implementation experience	**Quality knowledge and quality awareness**
• Have respondents already had experience of quality development? • What quality strategies are used by respondents? • How are quality assurance, quality evaluation and quality development enshrined in national policies, research and support programmes?	• Global importance (**) of quality strategies for e-learning • Assessment of future importance of quality strategies for e-learning in respondents' own organisations • How well do respondents feel they are informed about quality development in e-learning? • Assessment of future importance of quality development in e-learning in respondents' own countries • Are respondents familiar with a quality approach?

(*) Table 5 shows the variables making up 'quality knowledge' and 'implementation experience'.

(**) Global importance asks about the general importance of a topic, in this case for respondents' general opinion of the importance of the use of quality strategies in e-learning.

Source: the authors

The survey also asked how respondents estimated the degree of penetration of quality assurance and quality development in their own country. They were asked the extent to which e-learning products, services, programmes and products focused on quality in their own country, and were invited to pick one of the following answers:

(a) in my country quality assurance/management and/or evaluation is a requirement in most national funded research programmes about e-learning;

(b) in my country quality assurance/management and/or evaluation is a requirement for national funded educational programmes;

(c) in my country quality assurance/management and/or evaluation in educational programmes offered by private providers is required by law;

(d) in my country quality assurance/management and/or evaluation in e-learning is a major factor in marketing.

People from all 25 European countries took part in the survey ([2]). For the purposes of the research, and for reasons of clarity, so that even low sample figures from some countries could be counted in the analysis, country groups were formed for the analysis. They were divided up as follows:

([2]) This was based on the political definition of Europe. Norway, for example, is not included in the list and is covered by 'other countries'.

Table 6: Grouping of countries for evaluation of results

Anglo-Saxon and Benelux countries	Belgium, Ireland, Luxembourg, Malta (former British colony), Netherlands, UK
Mediterranean countries	Cyprus, France, Greece, Italy, Portugal, Spain
Scandinavian countries	Denmark, Finland, Sweden
German-speaking countries	Austria, Germany
New Member States	Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia
Other countries i.e. all those who took part in the survey but were not from a European country	e.g. Canada, Korea, USA

Source: the authors

It is very important to point out once again here that countries were grouped into larger units solely for the practical purposes of the research. These do not represent culturally homogeneous areas, and contain wide variations in many respects. This analysis looks exclusively at certain aspects of implementation and affinity in relation to quality development.

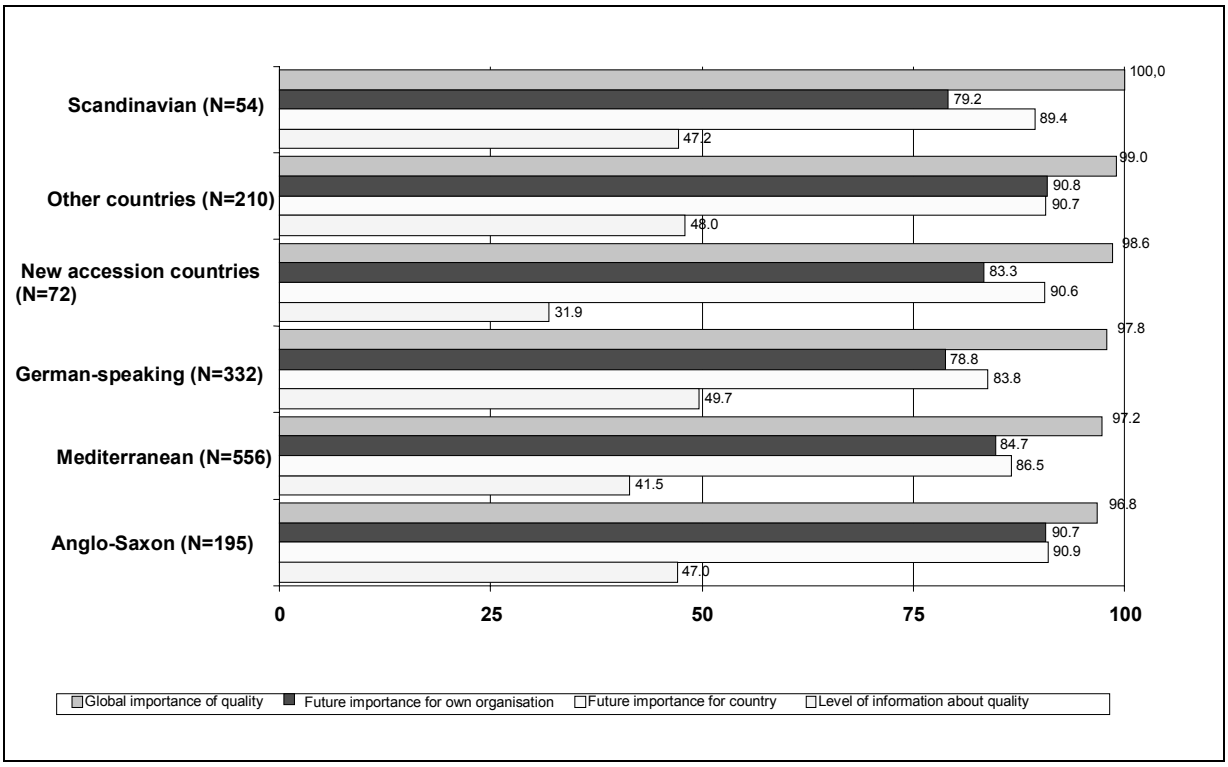
4.2.1. What priority is given to quality in European e-learning, and how well informed are those involved in e-learning?

There are four dimensions to quality competence. One important dimension consists of knowledge about concepts and possibilities of quality development on the one hand, and awareness of the meaning of quality in respondents' own contexts on the other. These fundamentally determine the capacity of those involved to enhance quality.

All those involved in European e-learning regard quality development as very important. Although different conditions obtain in the individual countries and regions, the evaluation is equally high in all regions. The question read, 'How important do you rate the use of quality strategies in e-learning in general?' Respondents expressed their opinion on a four-point scale.

Figure 7 shows that quality development in e-learning is universally seen as highly significant when the two scale points 'very important' and 'rather important' are combined. Views on the future importance of quality in e-learning are somewhat lower overall, but across all country groups, almost all respondents also regard this as significant.

Figure 7: Knowledge of and attitudes towards quality in e-learning by country group (varying N) (*)



(*) The information was obtained by means of the following questions:

(a) How important do you rate the use of quality strategies in e-learning in general?

(b) What is your prediction for the next 5-10 years? In my organisation quality in e-learning
  (i) will be more relevant than today,
  (ii) will have the same relevance as it has today,
  (iii) will be less relevant than today.

(c) How would you estimate the importance of quality development in e-learning in your country in the future? In my country quality in e-learning will
  (i) be more relevant than today,
  (ii) have the same relevance as it has today,
  (iii) be less relevant than today,
  (iv) I don't know.

(d) Do you believe that you are sufficiently informed about quality control/assurance/management procedures?

Source: the authors

This applies both to respondents' own organisations and to their own countries. In the German-speaking (78.8 %), Scandinavian (79.2 %) and Mediterranean (84.7 %) countries, around 8 out of 10 respondents, and as many as 9 out of 10 (90.7 %) in the Anglo-Saxon countries, regard the issue of quality in e-learning as rather or very important for their own organisation. The importance of quality for their own country is without exception higher than for their own organisation, which is already at a high level. The group of respondents from other countries shows the same response behaviour ([3]).

([3]) For the importance of quality in e-learning see also Section 3.4.

In the quest for what 'binds together' the European debate about quality, the finding that quality in e-learning is of great significance throughout Europe may be identified as a common basis for discussion. This awareness forms the basis for an e-learning Europe that possesses quality competence.

Other responses show that quality is seen by respondents as mainly supra-national. Respondents perceive quality overall to have a strongly international and European significance. Considerably more respondents across all countries would like to see support at international, European and national levels than at regional and local level. The European level stands out in particular (Table 7).

Table 7: Quality in terms of regional and international support (percentages of responses)

	Responses	International	Europe	National	Regional	Local
Scandinavian (N=54)	88	14.8 %	35.2 %	30.7 %	8 %	11.4 %
German-speaking (N=332)	476	20.6 %	34.7 %	27.3 %	9.5 %	8 %
Mediterranean (N=556)	813	22.3 %	33.3 %	23.4 %	10.6 %	10.5 %
Anglo-Saxon (N=195)	294	23.8 %	32 %	23.5 %	10.9 %	9.9 %
Other countries (N=210)	348	33 %	21.3 %	21.3 %	11.2 %	13.2 %
New accession countries (N=72)	106	34 %	30.2 %	17 %	8.5 %	10.4 %

Source: the authors

While there is a high level of awareness of the need for quality and quality development in e-learning, the picture is different with regard to knowledge in this area. Figure 7 shows that fewer than half of respondents across all European countries consistently feel sufficiently well informed about quality development. Respondents in the new Member States in particular point to a lack of information. Almost 7 out of 10 respondents (31.9 %) state that they are not adequately informed.

The lack of information about quality development contrasts with widespread awareness of quality competence, which points to a high level of potential. Information and support measures at a European level, such as the development of country-specific quality strategy portfolios, could be beneficial.

4.2.2. Quality indicators in Europe

Respondents were invited to go a step further and to assess the extent to which quality in their countries was already enshrined in existing regulations and legislation. Four possible replies to the following question were chosen as indicators: 'To what degree do e-learning services, programmes and products in your country focus on quality? In my country:

(a) quality assurance/management and/or evaluation is a requirement in most national research programmes about e-learning;

(b) quality assurance/management and/or evaluation is a requirement for national educational programmes;

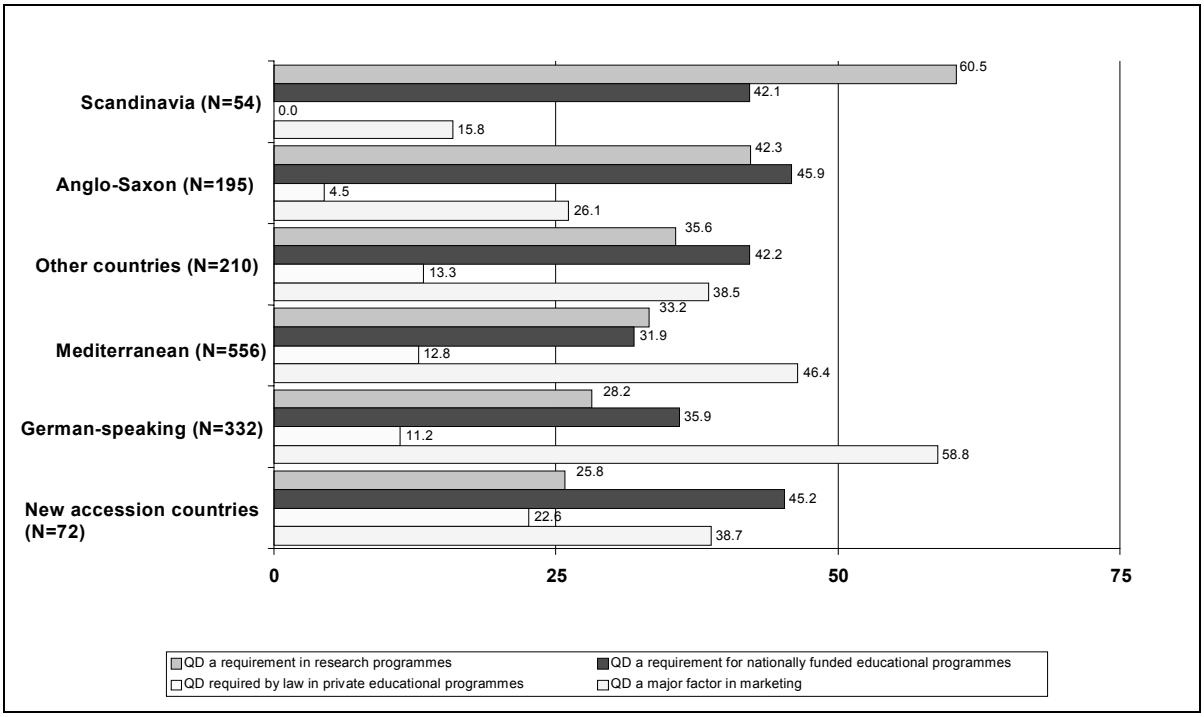
(c) quality assurance/management and/or evaluation in educational programmes offered by private providers is required by law;

(d) quality assurance/management and/or evaluation in e-learning is a major factor in marketing.'

The question deliberately asked for respondents' subjective opinions rather than seeking to analyse the legal situation in each country, since a subjective assessment of the situation would better reflect the quality awareness of decision-makers and learners than the official legal position. The result is a heterogeneous picture.

In the field of research programmes, respondents in the Scandinavian countries in particular (over half, 60.5 %) stated that quality assurance, quality evaluation and/or quality management were compulsory for approval. In the Benelux and Anglo-Saxon, Mediterranean and German-speaking countries, one third of respondents reported regulations of this nature. However, e-learning is largely – and in some countries overwhelmingly – funded and supported by public research and development programmes. Regulations governing quality assurance have in these cases not yet become sufficiently well established.

Figure 8: A European comparison of quality indicators for e-learning (varying N) (*)



(*) To what degree do the e-learning services, programmes and products focus on quality in your country? In my country:

(a) quality assurance/management and/or evaluation is a requirement in most national funded research programmes about e-learning;
(b) quality assurance/management and/or evaluation is a requirement for national funded educational programmes;
(c) quality assurance/management and/or evaluation in educational programmes offered by private providers is required by law;
(d) quality assurance/management and/or evaluation in e-learning is a major factor in marketing;
(e) I don't know.

Source: the authors

In the area of education and training programmes, there is a clear difference between provision that is publicly supported and provision offered in the open market. Publicly supported education and training provision is, in the opinion of a third of respondents in Mediterranean and German-speaking countries and up to one half of respondents in Anglo-Saxon, Scandinavian and new accession countries, subject to regulations on quality assurance in the respective country. The open market in education and training is consistently subject to considerably less regulation. No respondents in the Scandinavian countries state that e-learning is subject to binding regulations on quality assurance, and only 4.5 % of respondents in the Anglo-Saxon countries believe this to be the case. This area seems to be most heavily regulated in the new accession countries. More than one in five respondents (22.6 %) state that there are binding quality assurance measures for education and training provision in the open education market. All other regions fall between these two. The figures reflect known quality strategies. Publicly supported provision reveals the strategy of state guidance through legislation and regulations governing quality. In the open education and training market, on the other hand, the market-oriented model of quality tends to apply, poor quality being weeded out.

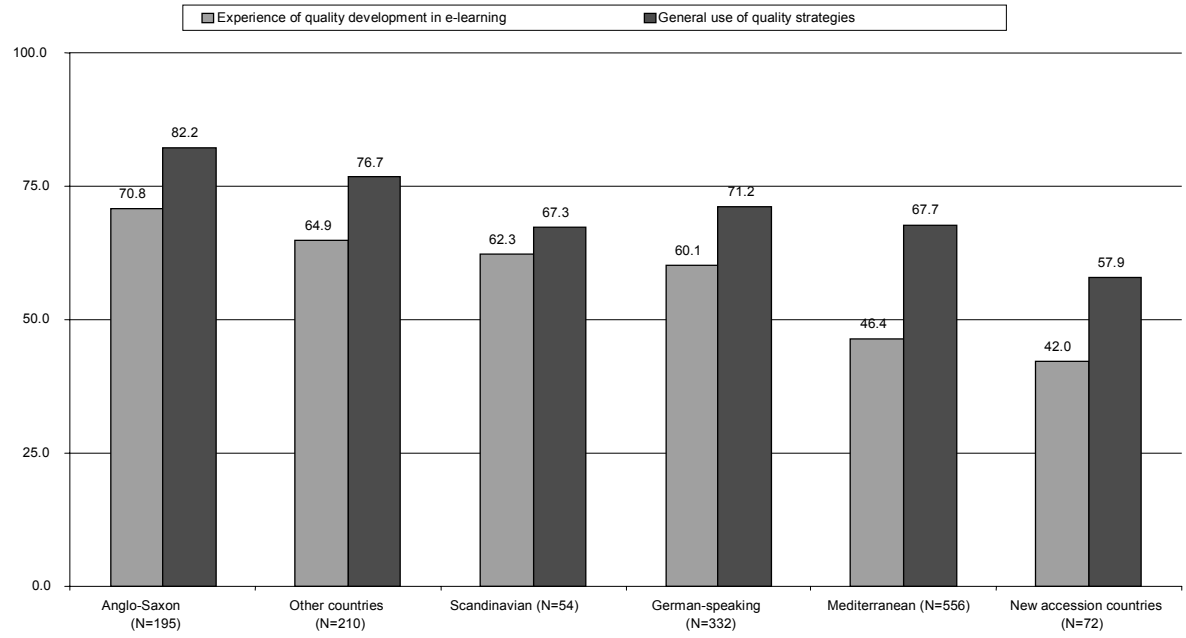
Quality is an essential aspect of marketing. This applies in particular to the German-speaking (58.8 %) and Mediterranean countries (46.4 %), and less so in the Scandinavian countries (15.8 %). Support strategies in the field of quality need to take fundamental account of the differing opinions on the market impact of quality in e-learning.

There are differing views in Europe of the degree to which programmes, products and services focus on quality. It should be understood, however, that there is not one single correct way of focusing on quality in all sectors. The study shows rather that country-specific circumstances and traditions need to be taken into account.

4.2.3. Implementation of quality in practice

In addition to the importance accorded to quality development, and knowledge about possibilities and concepts of quality development in e-learning, one other dimension plays an important role in quality development competence: experience of quality. Respondents were asked whether they had experience of using quality strategies, and what quality strategies they used to develop quality in e-learning.

Figure 9: Experience of quality development in e-learning by region (varying N) (*)



(*) The figure is based on the following questions:

(a) Have you already been actively involved in activities aiming to improve the quality of e-learning (such as evaluations, introducing a quality strategy, etc.)?

(b) At first we would like to know if you use any quality approaches in your organisation.

The size of sample varies for each question within the individual regions, but it does not differ substantially from the standard value given in the figure for the various regions.

Source: the authors

Figure 9 reveals that there is a connection between the variables shown. Anyone using quality strategies generally within an organisation very probably has previous involvement in quality assurance activities specifically for e-learning (Cramers V=0.28, $p=3.91 \bullet 10^{-25}$). The Anglo-Saxon and Benelux countries stand out particularly here. More than 8 out of 10 respondents (82.2 %) stated that they used general quality strategies. Almost as many already had experience of quality development in e-learning (70.8 %).

Respondents in the new accession countries, on the other hand, have less experience. This applies in all three areas. Around 6 out of 10 respondents (57.9 %) have experience with general quality strategies, and approximately 4 out of 10 respondents (42 %) have already been involved in quality assurance activities in e-learning. The remaining regions fall in between.

If experience of quality development is compared with the importance accorded to the issue (Fig. 7), a discrepancy is seen between what is claimed and reality. Section 3.4 looks in detail at this discrepancy – not only in terms of differences in distribution between countries, but also in the actions of the stakeholders involved. This is particularly necessary if strategies are to be developed to compare the relationship between general strategies and experience of quality development specifically for e-learning.

The analysis goes one stage further. Respondents were asked to provide specific data on quality development in e-learning. The emphasis was on strategies specifically related to e-learning. It was assumed that organisations always use some form of quality strategy – even if it is not called by that name or described as such and consists rather of internal rules and procedures. Respondents were asked to choose which of the following four options best described the strategy that applied to their organisation. A distinction was made between so-called explicit quality strategies – official instruments and concepts of quality development, designed either externally or internally – and implicit procedures, in which quality development is left to those involved and is not part of an official strategy:

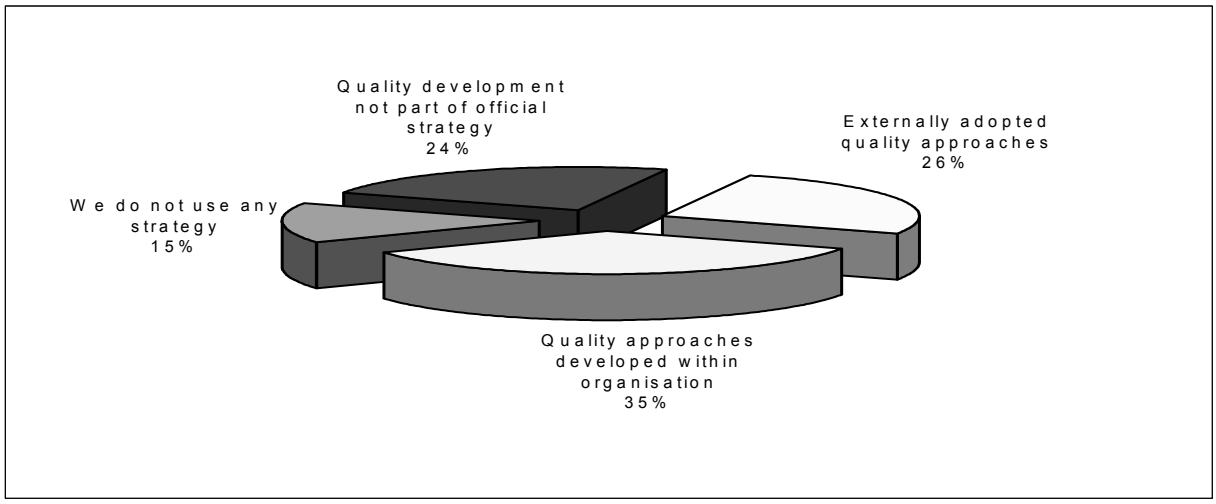
(a) quality strategies or instruments coming from externally adopted approaches (e.g.. ISO, EFQM, BAOL Quality Mark) (explicit);

(b) quality strategies that are developed within your organisation (explicit);

(c) quality development is not part of an official strategy but is rather left to individuals' professional activities (implicit);

(d) we do not use any quality strategies.

Figure 10: What strategies are used (N=1336) (*)



(*) To what degree do the e-learning services, programmes and products focus on quality in your country? In my country:

(a) quality assurance/management and/or evaluation is a requirement in most national funded research programmes about e-learning;
(b) quality assurance/management and/or evaluation is a requirement for national funded educational programmes;
(c) quality assurance/management and/or evaluation in educational programmes offered by private providers is required by law;
(d) quality assurance/management and/or evaluation in e-learning is a major factor in marketing;
(e) I don't know.

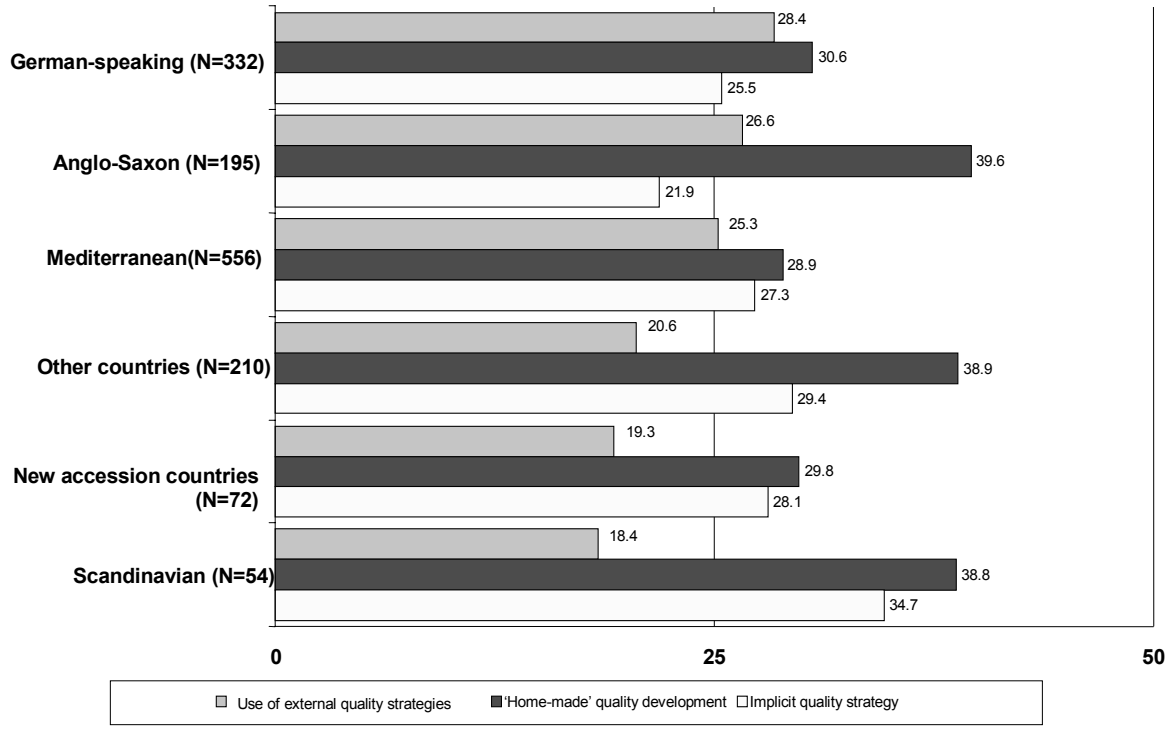
Source: the authors

Figure 10 shows that internally (35 %) and externally developed (26 %) quality approaches are used in particular. A quarter of respondents (24 %) work in institutions in which quality development is left to the staff. Around one in six (15 %) uses no quality strategies for e-learning. Overall therefore, around four out of ten respondents (39 %) do not use any official quality strategy.

Recommendation: it should be noted here, however, that the heterogeneity in e-learning that without doubt exists in Europe has an impact on findings on quality, but overall – even in the new accession countries – there are already numerous approaches and experiences. It is suggested that a permanent European quality reporting system be set up for education and training, and specifically for e-learning, to investigate the longitudinal effect of support measures.

The results of the study thus confirm the expected division into explicit and implicit approaches. 'Explicit quality development' predominates (61 %), while 'implicit quality strategies' shift responsibility for quality in e-learning to individuals, such as teachers and developers, and are appreciably less common (24 %).

Figure 11: Use of quality strategies by aggregated country comparison (varying N) (*)



(*) Which of the following best fits to your organisation?

(a) Quality strategies or instruments coming from externally adopted approaches (e.g. ISO, EFQM, BAOL Quality Mark),
(b) Quality strategies that are developed within your organisation,
(c) Quality development is not part of an official strategy but is rather left to individuals' professional activities,
(d) We do not use any quality strategies.

Source: the authors

It requires a very high degree of competence to develop one's own quality strategies. This calls for knowledge, experience, design skills and critical judgement. Instead of adopting a strategy devised externally, it means examining one's own needs, developing, implementing and evaluating one's own special instruments and guidelines, and constantly updating them.

From the aggregated country comparison it is apparent that the order identified is reproduced in all regions: external strategies come first, and internally developed strategies come second, followed by implicit strategies. The Anglo-Saxon and Benelux countries (39.6 %), the Scandinavian countries (38.8 %) and other (international) countries (38.9 %) have a preference for internally developed strategies.

Around one quarter of all respondents in the German-speaking (28.4 %), the Anglo-Saxon and Benelux (26.6 %) and the Mediterranean countries (25.3 %) stated that they used external strategies. This figure is around one in five in the new accession countries (19.3 %), the Scandinavian countries (18.4 %) and other countries (20.6 %).

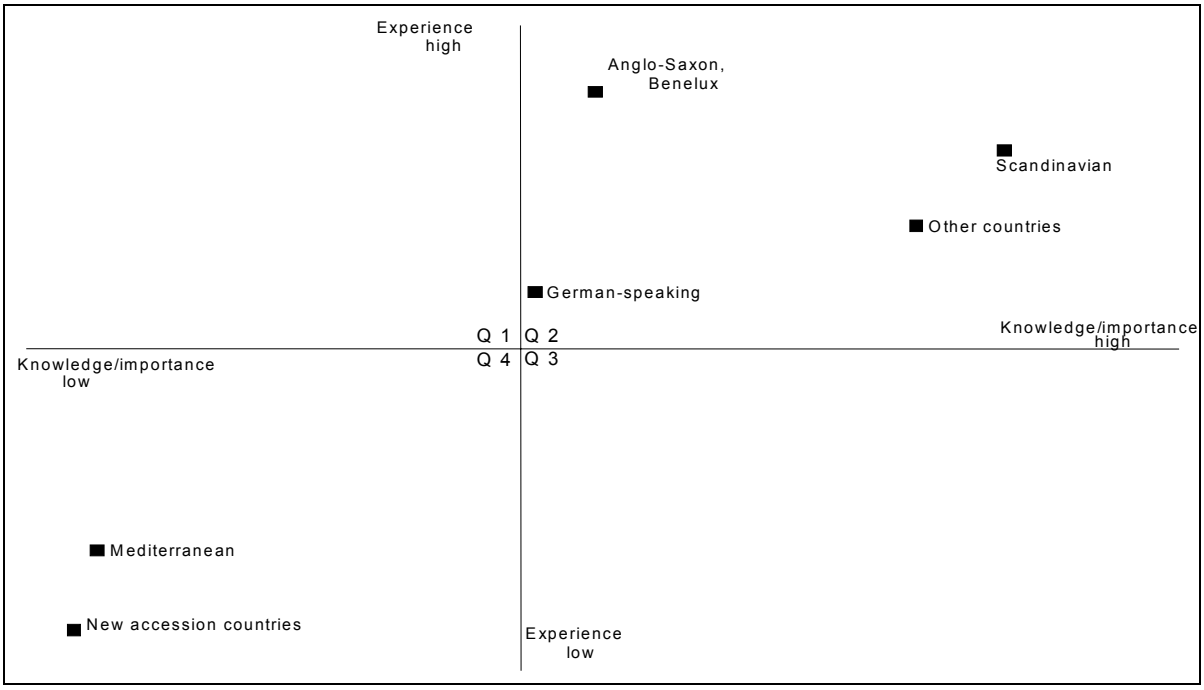
Overall, it became clear in relation to the 'experience of implementation' dimension that although there are already many different experiences of quality development for e-learning, these have not yet had an impact everywhere in terms of external and internal quality strategies. The Anglo-Saxon countries are playing a major role, while the new accession countries still demonstrate a need for further support.

4.2.4. Summary and recommendation

The aggregated country comparison shows that quality is perceived as something overarching and specifically European. In respect of the competence dimensions referred to as knowledge, awareness and experience of practice in quality development, it can be concluded that quality development is on the verge of becoming the norm in Europe. Experience is still very varied, and the use of instruments, concepts and strategies specifically for e-learning is still not universal, but there is a very high level of awareness of the importance of quality in European education and training. Suitable support strategies are therefore needed to equip countries with appropriate, country-specific portfolios of quality strategies. Country-specific and European forums for the exchange of experience will play an important role in this.

Figure 12 gives an overview of the average values of aggregated regions. From a methodological point of view, this can only be treated as a preliminary indication, however. It does not so much show that individual regions can be classified as 'better' or 'worse', as that both of the dimensions examined can in fact be used to show up differences in quality competence. The dimensions of the analysis thus make clear distinctions – although the aggregated presentation does not permit differentiation at country level. France, for example, should be rated higher on the experience dimension (average value 0.2) than the aggregate of the Mediterranean group (average value: -0.2).

Figure 12: Estimated importance and experience of implementation



Source: the authors

Both dimensions should be supported separately. A permanent system of reporting quality in e-learning in European countries would give an insight into the effects of support measures. In terms of a strategy for implementation, this could mean either greater activity among target groups as a result of information campaigns on the subject, or encouragement for individuals to become involved in quality in e-learning in a variety of ways, thereby increasing the importance of the issue. For those who do not yet feel very familiar with the issue, however, support strategies must be found.

4.3. Quality in terms of strategy and experience

Attitudes towards, experience and assessment of quality development in e-learning vary according to the target group.

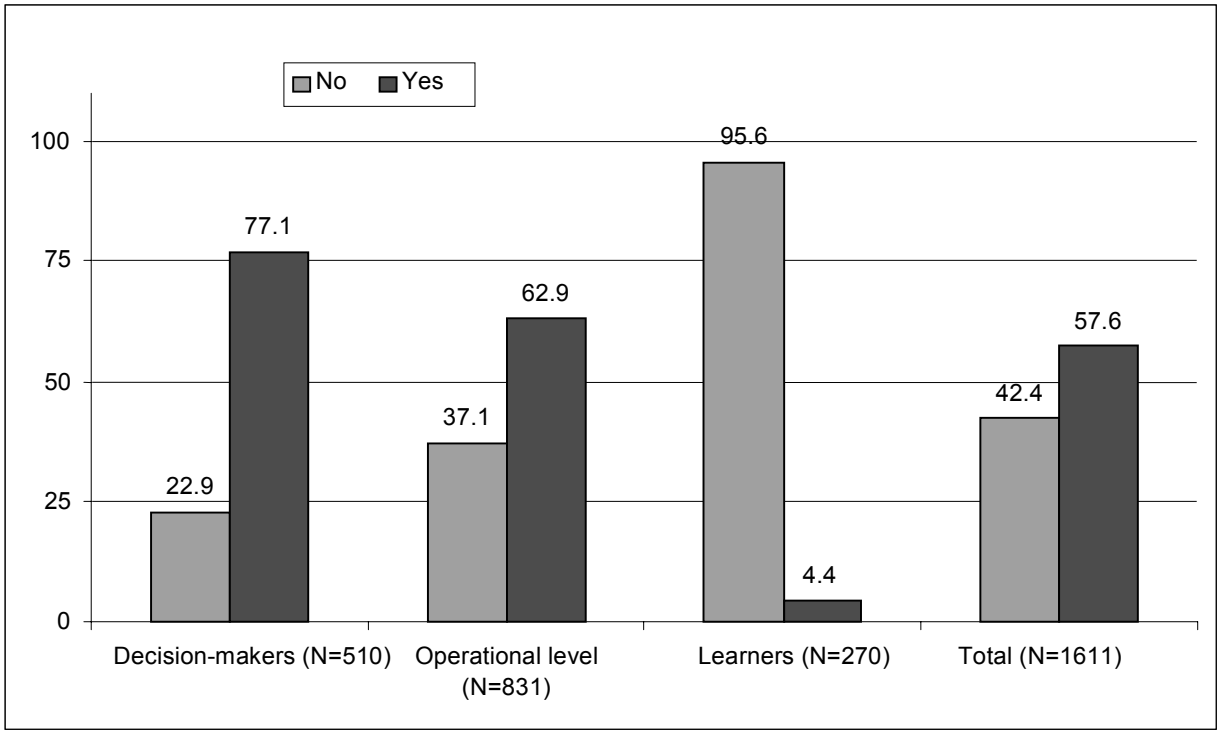
The concept of quality competence includes both the area of knowledge and that of experience of implementation. While there is considerable agreement overall as to the importance of quality development, by no means all respondents have yet been able to gather experience of activities in this field. There is a clear ‘quality gap’ between respondents at decision-making level, at operational level and at learner level on the one hand, and between providers and users of e-learning products and services on the other.

In response to the question ‘Have you already been actively involved in activities aimed at improving the quality of e-learning (such as evaluations, introducing a quality strategy, etc.)’, over half of all respondents (57.6 %) stated that they already had experience of quality

development in e-learning. There is, however, a clear gap between providers and users of e-learning provision. Among e-learning providers, over 70 % had already been involved personally in quality management measures, while the proportion is almost reversed among users of e-learning (67 % with no personal experience of activities serving to enhance quality).

A similar picture emerges in respect of the differences in view between respondents who are decision-makers, at the operational level, or learners. Among decision-makers, 77 % already had practical experience of activities serving to ensure improved quality, while two thirds of respondents in the operational sphere had not yet been involved personally in such activities. Very few learners have experience in the area of quality management (barely 4.5 %) (see Figure 13).

Figure 13: Experience of quality development by target group (percentages) (*)



(*) Have you already been actively involved in activities aiming to improve the quality of e-learning (such as evaluations, introducing a quality strategy, etc.)?
(a) Yes
(b) No

Source: the authors

If the groups of e-learning providers and users are divided by decision-making authority, the following picture emerges (see Table 8). In both groups, decision-makers have the most experience: 81.9 % among providers and 63.4 % among users. The operational-level groups have less experience in each case. This group includes media designers and course authors, for example, among providers, and teachers and facilitators among users. The learners in both groups lag well behind.

Overall, this makes clear first of all that users, especially learners, are seldom involved in quality development, which is thus a process guided by providers that normally excludes learners. There is no evidence of a participatory understanding of quality, in which quality is worked out in collaboration between providers and users and automatically involves learners in the process.

Table 8: Experience of quality assurance measures in the target groups (*)

	Providers + decision-makers		Providers + operatives		Providers + learners		Users + decision-makers		Users + operatives		Users + learners	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Yes (N=928)	308	81.91	423	65.68	7	58.33	85	63.43	100	53.48	5	1.94
No (N=683)	68	18.09	221	34.32	5	41.67	49	36.57	87	46.52	253	98.06
Total (N=1 611)	376	100.0	644	100.0	12	100.0	134	100.0	187	100.0	258	100.0

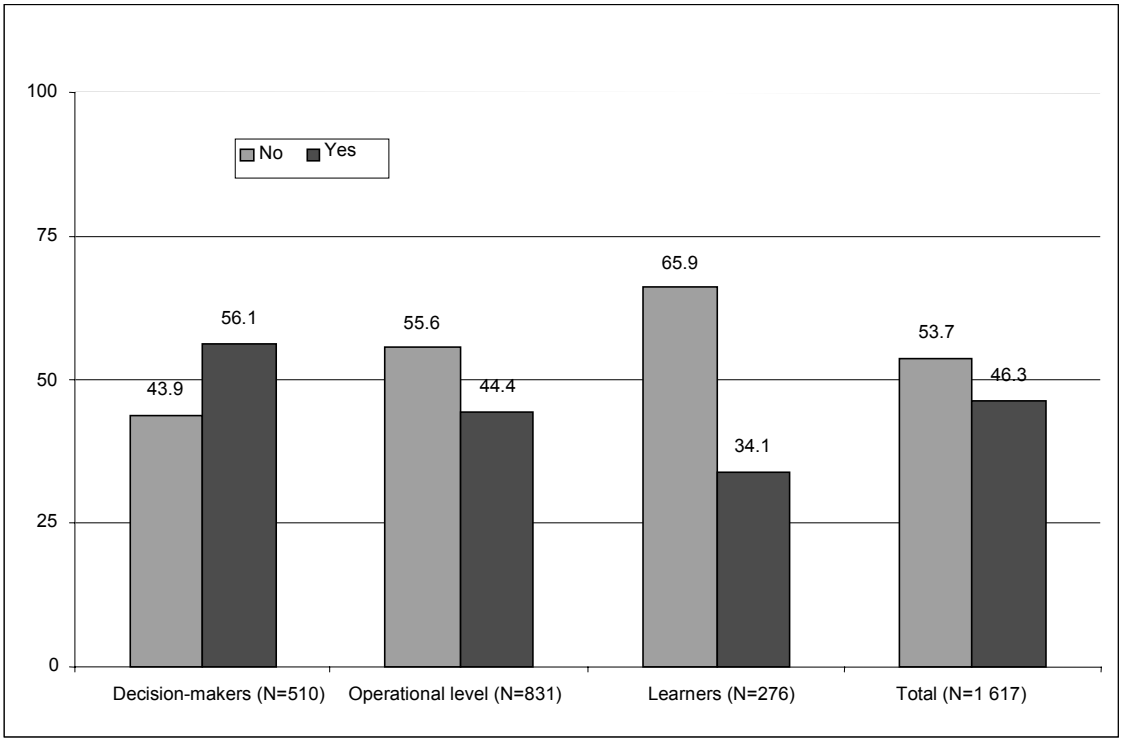
(*) Question: Have you already been actively involved in activities aiming to improve the quality of e-learning (such as evaluations, introducing a quality strategy, etc.)?

Source: the authors

Another area of research interest was whether respondents felt sufficiently well informed about the issue of quality and quality assurance/development/management.

Overall, more than half of all respondents felt that they were not sufficiently informed about possible measures of quality management. When the group is divided by decision-making authority, this shows that the information situation is very unequal. Of decision-makers, 56 % said that they felt sufficiently well informed, while a roughly similar proportion of respondents at the operational level feel insufficiently informed. Among learners, as many as two thirds felt insufficiently informed (see Figure 14).

Figure 14: Level of information by target group (percentages) (*)



(*) Do you believe that you are sufficiently informed about quality control/assurance/management?
(a) Yes
(b) No

Source: the authors

Among e-learning providers, almost as many respondents felt sufficiently well informed (51.26 %) as insufficiently informed (48.7 %). On the user side, however, two thirds of respondents did not feel sufficiently informed.

If we examine the connection between personal involvement in quality management measures and the subjective impression of level of information, the data show that only a quarter (25.3 %) of respondents who had as yet gained no (conscious) experience of quality measures felt sufficiently informed about possible measures. This suggests that comprehensive knowledge and hence potential competence are considerably strengthened by practical experience. That said, 38.1 % of respondents who had been involved in such measures themselves still stated that they felt insufficiently informed.

Table 9: Connection between experience and level of information

			Level of information (**)		**Total**
			No	Yes	
Experience (*)	No	Number	510	173	683
		%	59.0	23.2	42.4
	Yes	Number	354	574	928
		%	41.0	76.8	57.6
Total		Number	864	747	1 611
		%	100	100	100

(*) Have you already been actively involved in activities aiming to improve the quality of e-learning (such as evaluations, introducing a quality strategy, etc.)?

(**) Do you believe that you are sufficiently informed about quality control/assurance/management?

Source: the authors

There is thus a clear shortfall in information on the user side, which is a barrier to quality development in e-learning. Given the differing perspectives and positions in respect of quality and quality development, there is a need to develop concepts of quality for specific target groups. The primary concern is not to design new quality concepts, but to devise channels of communication and ways of providing information which transparently and understandably convey existing options. There are already plenty of quality strategies, but there is too little knowledge of which strategy is appropriate in any particular case.

Although at a higher level overall, this also applies to the provider side. Over 40 % of decision-makers and more than half of those at the operational level (53.3 %) also felt insufficiently informed (see Table 10).

Table 10: Level of information in each target group (*)

	Providers + decision-makers		Providers + operatives		Providers + learners		Users + decision-makers		Users + operatives		Users + learners	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Yes	224	59.57	300	46.58	5	41.67	62	46.24	69	36.90	89	33,.1
No	152	40.43	344	53.42	7	58.33	72	53.73	118	63.10	175	66.29
Total	376	100.0	644	100.0	12	100.0	134	100.0	187	100.0	267	100.0

(*) Question: Do you believe that you are sufficiently informed about quality control/assurance/management procedures?

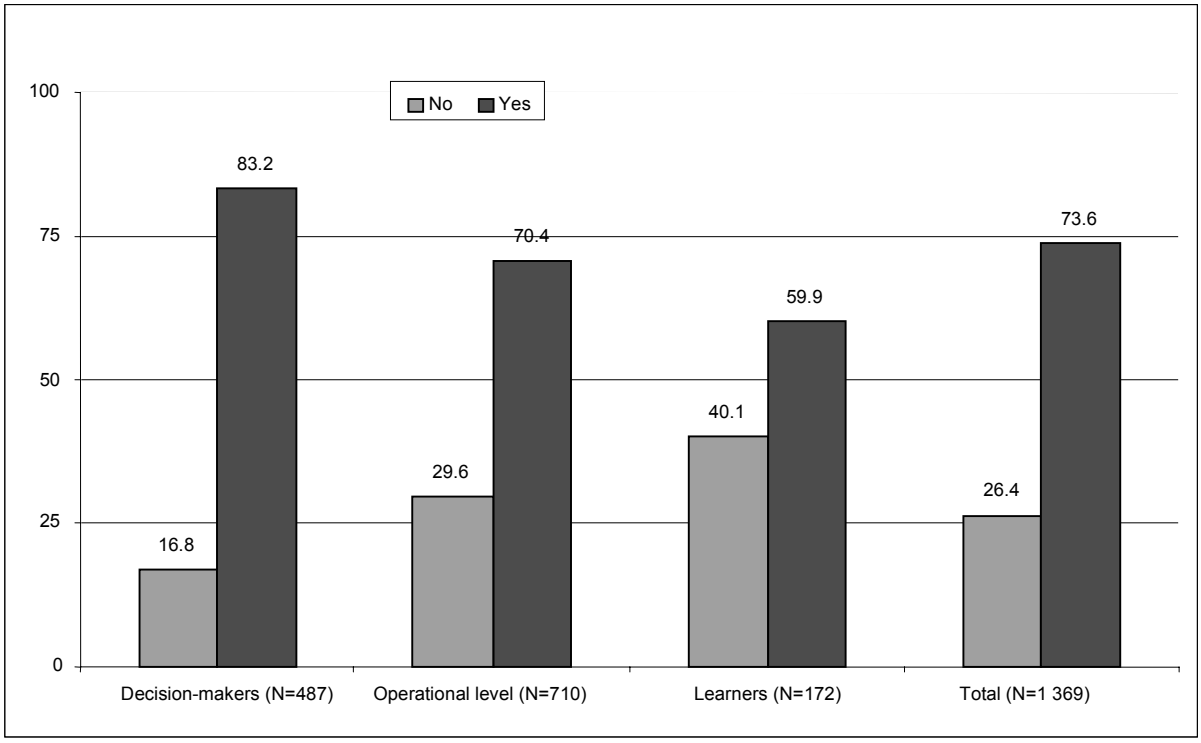
Source: the authors

An information and advice strategy must be matched not just to the needs of the relevant target groups but also to the particularities of the institutional context in which those concerned operate. There is most satisfaction with the level of information about quality development in the universities and among public institutions of education and training. Schools and private education and training providers feel least secure. The picture is thus similar to that in relation to previous experience.

Another question ascertained whether methods or instruments of quality management were used generally in respondents' organisations. It became apparent that respondents as a whole were relatively conscious of measures of quality management. Almost three quarters of respondents overall stated that quality approaches were used in their organisations. Among e-learning providers, quality approaches were used in almost 77 % of organisations, while the proportion was less favourable among e-learning users, although still relatively high (a good two thirds of those respondents).

If respondents are divided by level of decision-making authority, it becomes clear that quality awareness among decision-makers is appreciably higher. Of decision-makers, 83 % stated that quality approaches were generally used in their organisations, while this applied in only 70 % of cases among respondents at the operational level. Among learners, the proportion was yet lower; in this case only 60 % stated that quality approaches were used in their organisation (Figure 15).

Figure 15: Use of quality strategies in organisations (*)



(*) Question: In the next section we would like to know if you are using any policies, procedures, rules, criteria, tools, checklists or any other verification instruments or mechanisms that have the purpose of ensuring or enhancing the quality of e-learning offerings. In the following all those measures will be considered as quality approaches. At first we would like to know if you use any quality approaches in your organisation.
(a) Yes
(b) No

Source: the authors

Interestingly, a further question revealed that 86 % of respondents regarded certification as important in the choice of e-learning courses for their own personal use (39.7 % 'rather important' and 46.3 % 'very important'), and in this case there were few differences between the groups of respondents. This suggests that these measures will find broad acceptance among all groups of respondents, assuming the requisite understanding of the function and benefits of quality approaches. Certificates provide a relatively 'tangible' instrument for determining quality, so that in this case a uniform level of information can be assumed, extending beyond the groups of respondents. This in turn implies that lack of information must be overcome on the operational level and among e-learning users if quality management is to be successful, and that management needs to ensure that all those concerned are involved equally.

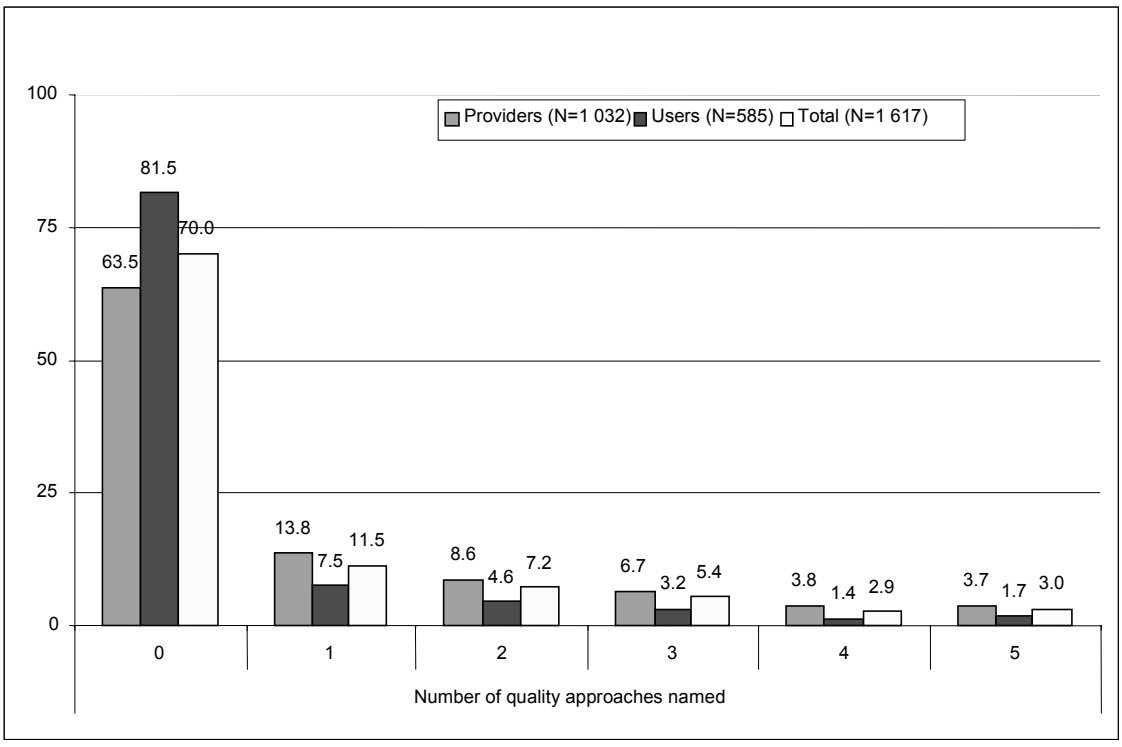
The question about which quality strategy had been found to be the right one in practice, and which had in fact been used in the organisation, revealed the following distribution among groups of respondents. Overall, it was stated in half of all cases (50.4 %) that an explicit quality strategy was used in the respondent's organisation. The group of decision-makers was heavily over-represented (68.2 %), while respondents at the operational level were slightly

under-represented (45.5 %). Among learners, however, a majority (55.1 % compared with an average of 29.6 %) stated that no quality strategies at all were used in their organisation. Among providers, over half of respondents (54.9 %) picked the explicit strategy option, while the rest chose more or less equally the implicit strategy option (21.4 %) or the no strategy option (23.6 %). On the user side, however, almost equal numbers of respondents stated that an explicit (42.4 %) strategy was used as that no strategy was used (40.0 %).

These data demonstrate that there is a considerable lack of information about quality management measures among those working at the operational level since a large proportion of respondents in this group are evidently not aware of the use of quality measures in their organisations. This lack of information is even more pronounced among learners, among whom a below-average number of respondents (32.2 % compared with an average of 50.4 %) stated that an explicit quality strategy was being used, and an above-average number (55.1 %) stated that no quality strategy was used in their organisation.

The lack of information in the groups of respondents mentioned above is further demonstrated by their replies to the request to list the quality approaches suitable for use in e-learning with which they were familiar (Figure 16). The overwhelming majority (70 %) of all respondents could not explicitly name a quality approach. Up to five quality approaches could be listed, but only 10 % of respondents were able to name even one. E-learning providers were far more likely to be able to name quality approaches than e-learning users.

Figure 16: Level of knowledge of quality strategies by target group (*)



(*) Question: Please list any quality approaches for e-learning that you know. You can enter the official name or any other title that this quality approach is known by.

Source: the authors

If the distribution is examined by level of decision-making, it can be established that decision-makers could consistently name more quality approaches than respondents at operational level, who could in turn consistently name more quality approaches than learners. Overall, a third of decision-makers were able to list one or two quality approaches, and only just over half as many respondents at the operational level could name one or two quality approaches (16.5 %). Among learners, this proportion sank to just over 7 %.

In summary it can be said that there is generally a great lack of information about possible quality strategies. Respondents could not think of the names of many quality approaches, and the subjective impression among respondents that they felt sufficiently well informed about possible quality measures is obviously deceptive.

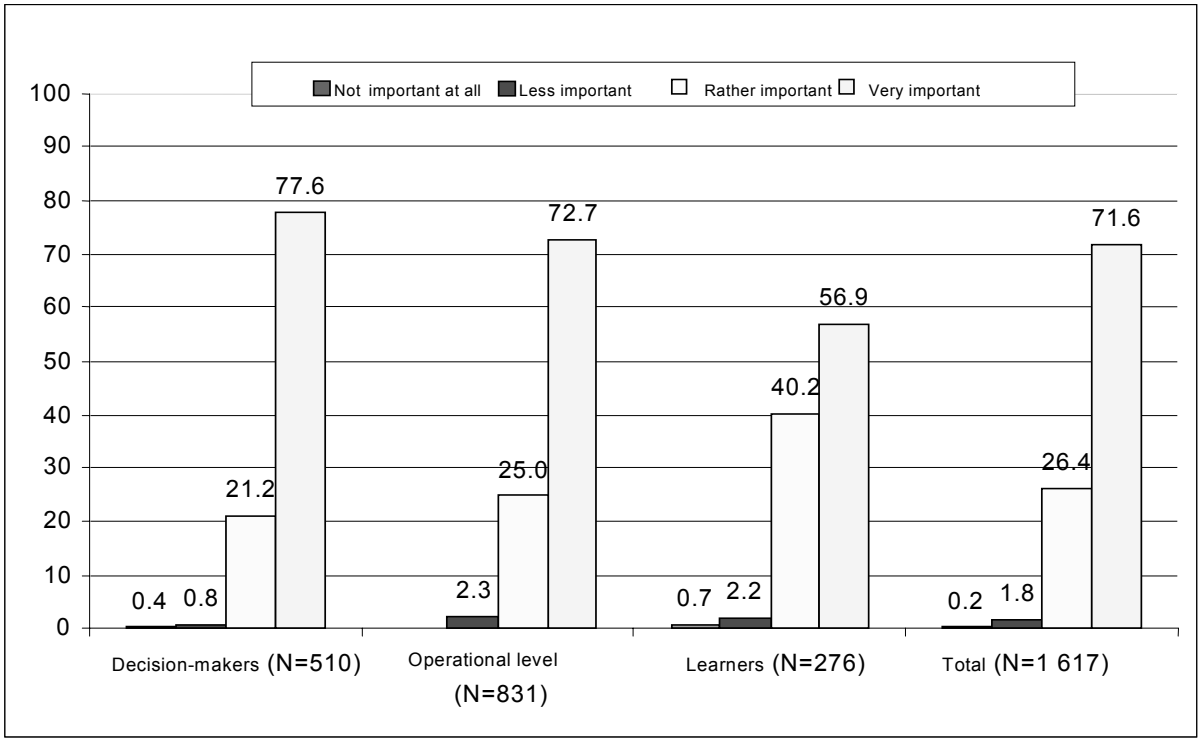
It is therefore necessary to begin by finding suitable information strategies with which to overcome or at least reduce this general lack of information so that the most appropriate quality measures can be selected. Once the decision has been made to select a particular quality strategy, the process of implementing it within the organisation needs to involve all levels of staff considerably more than at present. The awareness of quality currently demonstrated at the strategy level must permeate all levels of the organisation if there is to be the prospect of truly integrative, comprehensive and successful quality development.

4.4. Quality as reflected in intentions and reality

Quality is high on the agenda but is not (yet?) reflected in the actions of individuals and organisations.

What priority do e-learning providers and users give to quality? From the above findings it is already evident which groups are particularly well informed, i.e., to what extent they are aware of quality and put this into practice. But how high a priority is given subjectively to this issue, and how will the situation change in the opinion of respondents? The question also arises in this context as to whether there is a gap between the subjectively felt importance of the issue and its actual implementation. The question in the study was, ‘How important do you rate the use of quality strategies in e-learning in general? Quality strategies in this context are any policies, procedures, rules, criteria, tools, checklists or any other verification instruments or mechanisms that have the purpose of ensuring or enhancing the quality of e-learning offerings.’ Respondents could express their opinion on a four-point scale (Figure 17).

Figure 17: Importance of quality development by target group (percentages) (*)



(*) Question: How important do you rate the use of quality strategies in e-learning in general? Quality strategies in this context are any policies, procedures, rules, criteria, tools, checklists or any other verification instruments or mechanisms that have the purpose of ensuring or enhancing the quality of e-learning offerings. From my perspective quality strategies in e-learning are ...

Source: the authors

The high level of importance accorded to the issue is not surprising, particularly given the general theme of the survey. Of respondents, 72 % stated that quality strategies were very important, and another 26 % said 'rather important'. However, a difference in opinion between target groups is also apparent, albeit at a very high level overall. The trend in quality awareness already noted in Section 4.3, is confirmed here in respect of the importance of quality. While an above-average figure of 77 % of decision-makers rated quality development very important, the proportion is average at the operational level, and the figure of 56.7 % of learners saying quality development was very important is below the average. The trend to choose 'rather important', on the other hand, runs in the opposite direction, with the result that all groups gave either a 'rather important' or a 'very important' rating.

It might be thought that the importance of quality in e-learning could rise no further if a clear majority of respondents already state it to be very high (the 'ceiling effect'). But the importance of the issue as a whole can obviously be increased: most of those who stated it now to be very high also expected that it would be higher in future.

All respondents were in agreement that quality in e-learning would be more relevant in future. Of respondents, 85 % were of the opinion that quality in their organisation would in future be more relevant than it is now, and another 15 % thought that it would have the same

importance as today, while only 1 % believed that it would be less relevant. In response to the question about the future relevance of the issue in their country in future, 87 % of respondents stated that this would increase, another 1 % thought that would have the same (high) relevance as today, and fewer than 1 % again thought that it would be less relevant. Surprisingly, there was little difference in the distribution of responses between respondents either by level of decision-making authority or by provider versus user status.

Table 11: Importance of quality in respondents' own organisations

	Frequency	Percentages
Quality is a goal described in the organisation's philosophy and thus is also relating to our e-learning activities.	478	33.6
Quality development in e-learning is left to individuals because we do not use an official quality strategy.	443	31.2
We are currently implementing a quality strategy which (also) relates to e-learning.	228	16
We use quality assurance measures which are directed at e-learning.	185	13
We use a company/organisation wide quality management system, called ..., which also covers our e-learning activities.	88	6.2
Total	1 422	100

Source: the authors

However, if we now look at what actually happens in organisations, almost as many respondents stated that quality was a goal of the organisation (33.6 %) as that quality in e-learning was left to individuals (31.2 %). In other words, in over half of the organisations in question, quality measures are perceived by respondents only at a very abstract level (an organisational goal) or as an implicit requirement (Table 11). Only 13 % of respondents stated that methods and instruments were used which were explicitly aimed at ensuring quality in e-learning products and processes. Even fewer respondents were aware of the use of an integrated quality management system in their organisation (6.2 %). However, 16 %, stated that a quality strategy which related to e-learning was currently being implemented in their organisation.

If these estimations are looked at in terms of distribution within the various target groups, it is noticeable that specific instruments (measures explicitly aimed at quality in e-learning) are rated more or less equally highly by all respondents. This confirms the impression that arose from the importance given to certification as a specific quality instrument in the choice of e-learning course for personal use. The more tangible and concrete the way in which quality strategies are implemented in methods and instruments, the more homogeneous will be the reaction to them from the various groups of respondents.

Differences do appear in the subjective assessment of importance, depending on what strategies were used or proposed for the implementation of quality in e-learning:

(a) **Involvement in quality activities:** respondents who were already involved in quality in e-learning stated this issue to be considerably more important (78 % 'very important') than those who were not yet actively involved (62 %) – this may be a result of interaction between the two variables.

(b) **Good level of information about quality in e-learning (familiarity):** the situation was similar among respondents who already felt well informed about the issue. Those who were 'into it' were significantly more likely to choose 'very important' (76 %), while those who were less well informed chose this assessment in 68 % of cases.

(c) **Use of quality approaches/quality strategy:** there was a close connection between the rating of quality as very important and the use of external (or internal) quality strategies. Those who used no (explicit) quality strategy or left it to individuals, tended to regard quality instead as 'rather important'.

(d) **Future use of quality approaches:** among those who stated quality to be 'very important', the proportion of those intending to implement a quality approach in future was higher.

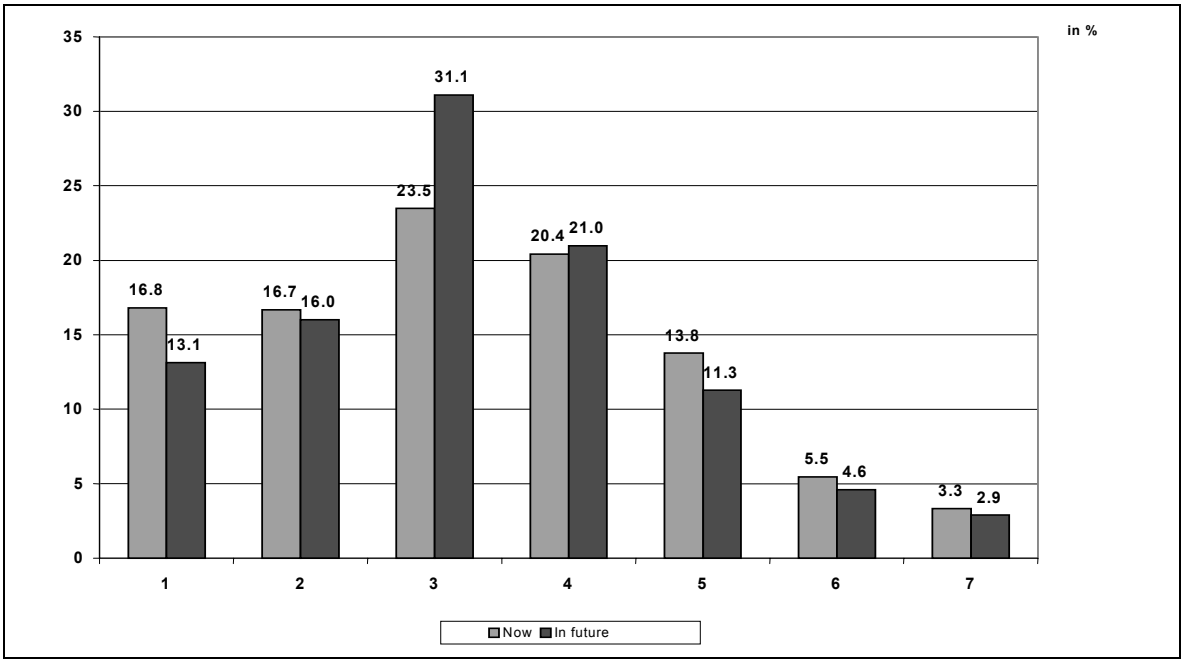
This also shows clearly that there is an interaction between the estimation of the importance of quality for e-learning on the one hand, and respondents' knowledge about the subject and own activities on the other. The more people have to do with the issue, the more important it is, and vice versa.

4.5. Support for quality development

Quality development calls for a range of different support strategies since information and advice can only cover existing needs if they are designed for specific target groups.

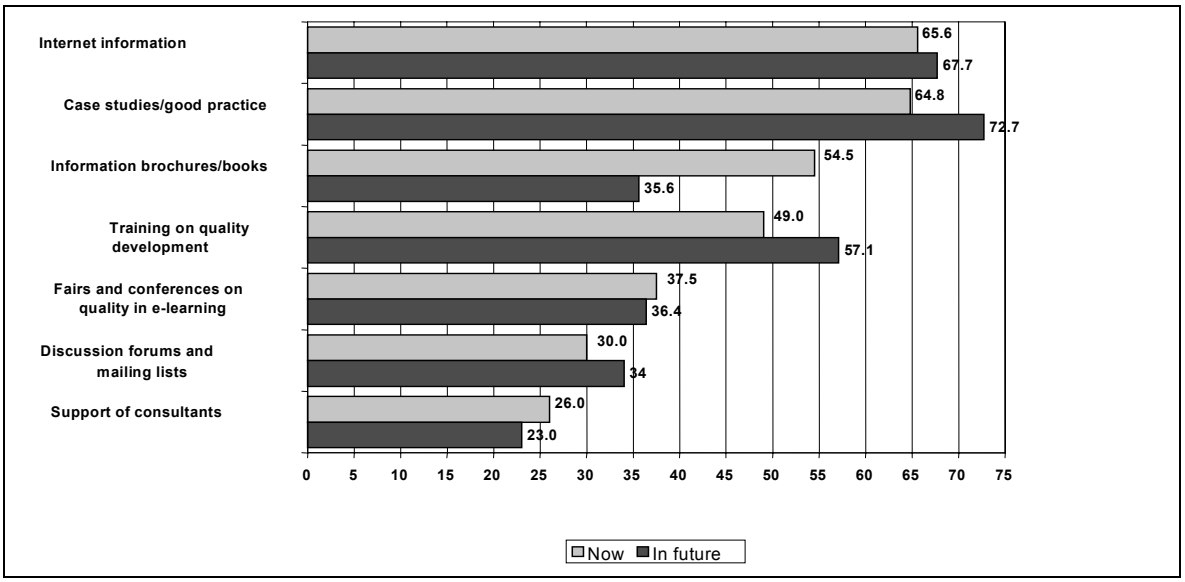
Appropriate support strategies must be found for those who are not yet very familiar with the issue of 'quality in e-learning'. What support strategies have respondents used to date, and what do they want to use in future? The EQO study asked about different types of information and made a distinction between respondents who already felt well informed about the subject and those who had as yet had little to do with it. The former were asked about the sources of information already used, and the latter about sources which they would prefer to use to find out more about the issue. Many respondents used three different sources to become familiar with quality issues in e-learning.

Figure 18: Number of support strategies used now and to be used in future in the area of quality ('now' n=749; 'in future' (for respondents not yet familiar with the issue) n=868)



Source: the authors

Figure 19: Types of information and support strategies used in the area of quality ('now' n=749; 'in future' (for respondents not yet familiar with the issue) n=868)



Source: the authors

Essentially, there is little difference in percentage terms between current and anticipated future sources of information.

The most important sources of information are Internet websites and examples of good or best practice, from which it is possible to learn in different ways. It was to be expected that provision which has to be paid for would be less popular (consultants, fairs and training courses). It is curious that there was appreciably less enthusiasm for Internet discussion forums, which are another free service. This may be because it is difficult to join in a group discussion without a firm foundation of knowledge. It may also be that forums for beginners are either not good enough or not sufficiently informative.

Recommendation: provision that is free of charge, especially via the Internet, could certainly be one future information strategy for increasing awareness of quality in e-learning, provided that this provision is easy to find and suitable for all target groups. If a target group is more used to relying on consultants or other paid provision such as courses or fairs, consideration should be given to the provision of such services.

Significant differences in current information behaviour between the various target groups are only found in relation to a few sources of information:

(a) discussion forums are used largely by providers at operational and decision-making levels with experience of the Internet, who tend to prefer this medium. Otherwise, decision-making providers tend to seek information from specialist fairs;

(b) providers at operational level also rely more frequently than others on examples of best practice. The same applies to staff in companies generally and universities.

Recommendation: in any information campaign on quality in e-learning it is important to take into account target groups' preferences for sources of information.

4.6. Use of specific quality approaches

The use of specific quality approaches tends to be more widespread among those in positions of responsibility than those at the operational level.

Section 4.2.3 has already provided a detailed description of the use of a variety of quality strategies:

(a) quality strategies or instruments coming from externally adopted approaches (e.g. ISO, EFQM, BAOL Quality Mark) (explicit);

(b) quality strategies that are developed within your organisation (explicit);

(c) quality development is not part of an official strategy but is rather left to individuals' professional activities (implicit).

The following analysis looks at the 25 % of respondents belonging to the first group, i.e. those using an external quality approach. Which respondents, and which institutions, make greater

use than other groups of external resources ([4])? The following groups can be identified as 'frequent users' of external quality approaches ([5]):

(a) companies, commercial continuing education and training institutions, establishments of public administration;

(b) providers of vocational training;

(c) decision-makers among providers and users, and e-learners;

(d) senior management (CEOs) and researchers.

It is apparent that these groups are generally those who have already been seen in the preceding sections to have a high level of awareness and active involvement. The fact that learners are over-represented among users of a specific quality approach – which is also the step with the greatest level of investment – may be due to the fact that they are eager to turn to what is already available because they do not know enough to develop their own quality approach.

The analysis also shows which groups have as yet made little or no use of external quality approaches: these include schools, and above all universities.

It may be that this reflects the ability of the latter to devise their own yardsticks for quality in e-learning even though they do not make these assessments binding. The target groups which make the least use of external quality approaches are those working at the operational level (among both providers and users).

Recommendation: the information campaign about quality approaches should be strengthened in future for these groups in particular, if the aim is to achieve the widest possible support for generally accepted standards of quality. This is a specific challenge for the EQO project and for the other EU projects working on this topic.

4.7. Making European quality approaches usable

As has already been said in Section 4.3, respondents were asked to provide the names of quality approaches which they knew. A total of 650 quality strategies were named, covering a vast range of different strategies known to and used by respondents. Most of the strategies mentioned were described in full and have been made available via the EQO database: http://www.eqo.info.

([4]) The basis for this analysis is connections between institutional and demographic variables, significant at least at the 5 % level.

([5]) Since the numbers on which demographic variables are based vary because respondents declined to answer certain questions, it is not possible to make a direct comparison of percentages between sub-groups.

The strategies listed come from all fields of quality development. They include official quality management approaches such as EFQM and ISO 9000, evaluation approaches such as Kirkpatrick's four-level approach, benchmarking approaches such as 'Quality on the line' (Institute for Higher Education Policy, USA) and catalogues of criteria such as 'MEDA' (Gräber, 1991) and 'AKAB' (see Ehlers, 2004). The data collection produced a comprehensive list of quality strategies with descriptions and recommendations on how to use them.

Table 12: List of the most common quality strategies mentioned

Name/institution	Number of mentions
ISO 9000	127
EFQM excellence model	51
SCORM	38
TQM	25
Public available specification from DIN	23
AFNOR, France	19
AICC	19
BAOL Quality Mark	12
Learning object metadata	12
EQO-analysis model	11
IMS-learning design	9

Source: the authors

Among the answers there were also a large number of other, informal descriptions such as 'Quality development through evaluation' or 'Transparency towards learners'. Respondents thus listed not only official quality strategies but also their implicit 'home-made' strategies. A second report on the EQO study to appear probably in autumn 2005 will provide an analytical summary and comparison of the individual strategies.

For those not concerned on a daily basis with 'quality in e-learning', such a list of different quality strategies may appear unwieldy since it is difficult to put the individual approaches into any particular order. Together with a summary of the results of the study, the next sub-

section, which looks in greater detail at 'standards' and sets out the requirements for future standards, is therefore included as a digression to round off this analytical section of the report.

4.8. Quality standards

Quality standards have the aim of underpinning the process of quality management and assurance, using a variety of methods – and these methods are explicitly intended to provide support rather than standardisation. In the context of this study, it is relevant to ask what requirements can be deduced for the current and future design of standards. In the discussion of quality, the term 'standard' is often taken to mean merely a technological standard or standardised methodology. We use the term 'open standards' deliberately to counter this perception. What we mean is an open methodology which can be used in a variety of contexts (organisations and education sectors) and provides a set of instruments for a variety of purposes, to support quality development in each individual case.

4.8.1. Are standards of quality management and quality assurance generally sensible?

Given the variety of potential standards, it is not possible to give a straightforward general answer. *Standards* are taken to mean harmonisation or formalisation of products, services and processes in the form of rules, guidelines or specifications that are based on a consensus. Standards are intended to make things simpler. The (broad) term standard is also used even where there is as yet no formally recognised document from a standards institution (e.g. Deutsches Institut für Normung e.V., DIN; International Organization for Standardization, ISO). There are also quasi-standards, which usually arise out of practice and are recognised among a particular group of users. The term *norm* is used for formally recognised documents (e.g. ISO 9000). Standards are as numerous as quality approaches themselves, and can be classified according to the following features:

(a) *context:* in what context is the standard developed and used (e.g. industries, sectors)?

(b) *purpose:* what is the aim of the standard (e.g. more successful learning, better value for money, company targets, integrated objectives)?

(c) *quality dimension:* what items are investigated (e.g. process orientation, product orientation or competence orientation)?

(d) *perspective:* what actors are involved (e.g. learners, authors, administrators, external assessors, internal quality monitors)?

(e) *methodology:* what methodology is followed by the standard (e.g. certification, guidelines, regulations, outlines, frameworks)?

(f) *measurement:* how is compliance or success measured and checked (e.g. audit, document review, statistics)?

As has been seen, no standards have yet achieved general recognition in the field of quality management and quality assurance. Norms such as ISO 9000:2000 are not suited to all quality aims or types of organisation, and other approaches have not yet come to dominate the market.

Nonetheless, the study shows that the adoption of a standard would meet a pressing need for support: the development of generally accepted certificates and procedures is seen as a sensible element that would take the process forward. The reason for this statement is that certificates provide some outside evidence and are helpful in marketing, as well as acting as internal guidelines so that internal development occurs automatically and skills can be built up to meet the requirements of certification.

It follows that a standard must be developed which is transparent and achieves wide acceptance, thereby combating the lack of information that has been found above to exist among users. The requirements of such a standard can be deduced from the study.

4.8.2. What requirements can be deduced for standards?

The study has revealed several requirements which must definitely be taken into account in the future development of standards if a successful solution is to be delivered:

(a) participation: the greatest weakness in current approaches is the lack of equality between those involved (see for example Section 4.3, on the gap between target groups in quality development). This must be addressed on two levels. First, all groups need to be involved in the standardisation process. Unless all groups are involved, the outcome cannot be a balanced consensus, and there is no guarantee of acceptance. The learner group should be involved more strongly, e.g. by involving consumer protection or student organisations. Secondly, the quality standard itself must incorporate a guarantee of participation by all those concerned. Here too, learners must be included in order to close the quality gap identified between them and other users;

(b) transparency: the study has shown that there is a demand for and some awareness of quality standards, but that there is a lack of transparency (see Section 4.4 on the gap between perceived importance, level of information and actual implementation). This needs to be remedied in three ways. The standardisation process has to be transparent, so that all those concerned are involved and can influence development, and a genuinely consensual process of standardisation can result. The standard to be developed must itself ensure transparency of processes, products and services. This is the only way of achieving benefits for all and taking differing interests into account. Examples are making information available through strategies, processes and products, and the publication of quality guidelines. Should a standard lead to a certificate, the certification process must also be transparent. Procedures must be clearly specified, comprehensible and consistent to avoid disadvantaging anyone and creating a negative impression. This is the only way of achieving the requisite level of acceptance and confidence;

(c) familiarity and acceptance: standards will only be adopted on a large scale if they succeed in the market and are accepted both internally and externally;

(d) openness: the study has shown that in Europe in particular, the goal cannot be strict standardisation. Differing perceptions, perspectives and circumstances must be taken into account. No one-fits-all solution can therefore be created, but the standard must be open and hence expandable;

(e) suitability and scalability: it must be possible to adapt a standard to the needs of individual users (e.g. developers), and to accommodate cultural, organisational and individual requirements and peculiarities. This affects methodological procedures, for example. In many organisations, for instance, all that is required is measures to support individual components, while in other situations complete quality management concepts need to be introduced;

(f) harmonisation and integration: it has become apparent that a variety of approaches and methods have already been successfully implemented. These existing approaches must feed into a new quality standard so that existing approaches and methods can still be adopted. This applies equally to the implicit quality approaches used in organisations;

(g) integrated methodology: it has become apparent that a standard cannot be restricted to individual components, i.e. that account must be taken of different aspects. These include strategies, processes, competences, products and services;

(h) quality awareness: the study has demonstrated that quality is not yet perceived as equally necessary and important by all groups, and that where its importance is appreciated, it is not put into practice. A quality standard must therefore lead to an increase in awareness of quality-oriented action;

(i) measurability: one important requirement is successful measurement of processes, products and services. Instruments must therefore be provided to facilitate measurement and to be used as guidance tools. Examples would be statistical references or benchmarks.

These requirements may serve as a framework for the future standardisation process. The study has thus provided an empirical profile of requirements for the success of the process.

4.8.3. What standards meet these requirements, and what form should the future development of quality standards take?

The standards EFQM and ISO 9000 are used in initial and continuing training in particular, together with a large number of isolated approaches and certificates. These approaches have at least led to a widespread awareness of quality in organisations (see Sections 4.2 and 4.3). However, it is apparent that these standards do not fully meet requirements such as transparency, adaptability and scalability, and especially participation (see Sections 4.3 and 4.4).

Current developments in standardisation already provide a framework for individual quality development. A brief description will therefore be given here of what these standards offer, and how they should be further developed in accordance with this investigation.

On the basis of national approaches, a common approach has been defined by the *ISO/IEC JTC1 SC36* working group (International Organization for Standardization/International Electrotechnical Commission, Joint Technical Committee 1, Subcommittee 36: Information Technology for Learning, Education, and Training) ([6]), which is the standardisation committee for learning technologies. A crucial contribution was the German reference model, DIN PAS 1032-1 ([7]) (DIN 2004). The ISO/IEC standard (ISO 2004) contains the following components.

The *Reference framework for the description of quality approaches (RFDQ)* contains a descriptive framework and a process model, so that process-oriented quality approaches can be described in identical terms and made transparent. The following table illustrates the components of the descriptive framework.

([6]) For further information on ISO/IEC JTC1 SC36 see http://jtc1sc36.org/

([7]) For further information on the development of norms by the Deutsches Institut für Normung (DIN e.V.) see http://www.ebn.din.de/sixcms/detail.php?id=17320 and http://www.qed-info.de

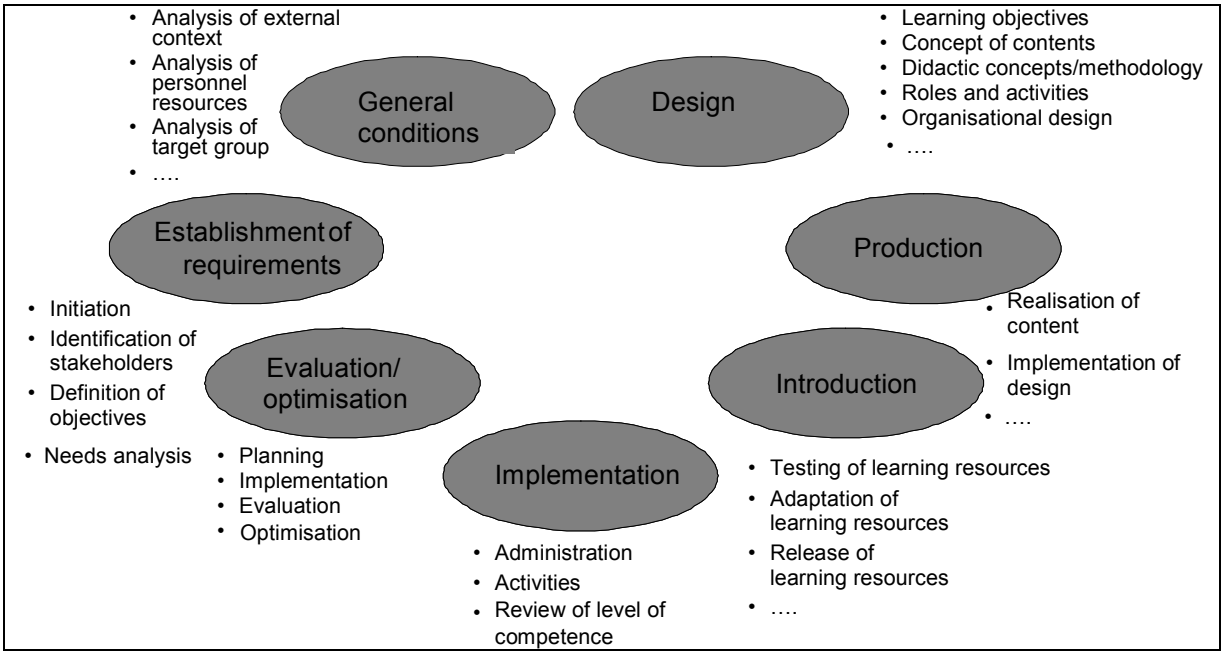
Table 13: Descriptive criteria of ISO/IEC 19796-1

Attribute	Description	Example
ID	Unique identifier	ID1234
Category	Main process	Course development
Process name	Process name	Method selection
Description	Description of the process	Within this process the didactic concept and methods are evaluated and selected
Relations	Relation to other processes	Before the method selection a target group analysis must be performed; FA.6
Sub-processes/sub-aspects	Sub-processes/sub-aspects/ tasks	Method identification, method alternatives, method priorisation
Objective	Objective of a process	Adequate selection of one or more didactic concepts
Method	Methodology for this process Reference to guideline/ documents	Method selection shall be based on the target group. Methods are selected based on the teachers' experience. See Method guidelines handbook
Result	Expected result of a process	Method specification documents
Actors	Responsible/participating actors	Team didactical design
Metrics/criteria	Evaluation and metrics for this process	Criteria catalogue 3.2.2-3.2.6
Standards	Standards used	DIN EN ISO 9241, LOM
Annotation/example	Further information, examples of usage	

Source: the authors

A standardised process model was also developed to act as a reference model for comparing and describing process-oriented quality concepts (see Figure 20). As a result, quality development is being conducted for the first time on a common basis. The following figure shows the processes and sub-processes.

Figure 20: Processes of the reference framework for the description of quality approaches



Source: the authors

Another element is the specification of reference quality criteria (RQC). These contain a collection of some 800 criteria which may be used for evaluation purposes. From these, it is possible to deduce requirements for further standardisation on the basis of the ISO/IEC 19796-1 standard:

(a) quality standards should use frameworks and reference models: the RFDQ model meets many of the requirements. However, it is primarily only a framework and does not provide for specific instruments or procedures. It serves rather as an outline, a structural aid and a basis for the development of computer-supported tools;

(b) reference models need to be completed and updated: the use of individually adaptable reference models may be seen as promising. However, only reference processes and criteria are currently specified. For other categories, similar collections should be compiled. This particularly concerns reference methods, potential participants and reference metrics;

(c) guidelines and good practice need to support implementation: reference models can only be adapted successfully if adaptation aids are made available. Guidelines should be developed as an aid to individual adaptation, embracing scenarios for application, criteria for success and solutions. Such approaches are currently being discussed at European level in the CEN/ISSS Workshop Learning Technologies ([8]);

([8]) Homepage CEN/ISSS Workshop learning technologies. Available from Internet: http://www.cenorm.be/cenorm/businessdomains/businessdomains/isss/activity/wslt.asp.

(d) participation must be introduced at all levels: standardisation committees may be open, but they do not always involve all individuals and groups concerned. New ways must be found of conducting a broad consensual discussion;

(e) transparency creates acceptance and support for the decisions taken: despite various positive approaches (e.g. Learning object metadata), learning resources and courses are still not described in standard terms, so that users and learners are not given the information to make well-founded choices of products and services;

(f) every quality standard needs an implementation strategy: there are currently few aids to the implementation of a quality standard for processes and products. Support measures must be made available to simplify the complex process of implementation;

(g) education and training organisations need a culture of quality: a standard must offer organisations ways in which they can make quality the guiding image for organisational and individual action. These can obviously not take the form of rules or regulations but must offer opportunities and potential for the implementation of quality in an organisation at all levels;

(h) tools support quality development: the successful use of standards depends on ease of application and use. In particular, ICT tools need to be further developed to provide both for integration into the entire operation of an organisation and for individual support functions. Without effective tools, even well-designed approaches with good methodology will not succeed.

The discussion of standards should take up and build on these proposals so that quality becomes an integral part of action in the medium and long term.

4.9. Summary: quality competence

The study shows that there are numerous quality strategies and concepts in the European environment, and that the competence to use these varies widely among those involved in e-learning who took part in the survey. However, it is this competence which determines the degree to which strategies and concepts of quality development are implemented. The core results of the study are summarised once more below, and related to the individual dimensions of quality competence.

4.9.1. Knowledge about quality and the challenges ahead

This dimension covers knowledge of the possible ways of developing quality in e-learning. In this study, data were collected on five areas:

(a) global importance ([9]) of quality strategies for e-learning;

(b) expectations of the future importance of quality strategies for e-learning in respondents' own organisations;

(c) how well informed respondents felt about quality development in e-learning;

(d) expectations of the future importance of quality strategies for e-learning in respondents' own countries;

(e) whether respondents knew of a quality strategy.

The results show that there is broad agreement among respondents that quality is now and will in future be of great importance for e-learning. On the other hand, it is evident that there is generally a great lack of information about possible quality strategies. Respondents could not think of the names of many quality approaches, and the subjective impression among half of the respondents that they were sufficiently well informed about possible quality measures is obviously deceptive. In terms of knowledge about quality, there is thus a gap between the perceived importance of and demand for quality, and the knowledge available to meet that demand.

It is therefore necessary to begin by finding suitable information strategies with which to overcome or at least reduce this general lack of information so that the most appropriate quality measures can be selected. Once the decision has been made to select a particular quality strategy, the process of implementing it within the organisation needs to involve all levels of staff considerably more than at present. The awareness of quality currently demonstrated at the strategy level must permeate all levels of the organisation if there is to be the prospect of truly integrative, comprehensive and successful quality development.

4.9.2. Experience of quality and the challenges ahead

This dimension refers to an ability that extends beyond the use of available quality strategies. This means creating a quality strategy for each individual context, calling for both the innovative ability to change and further develop quality strategies by applying the logic of the media system, and a creative ability to design entirely new forms of quality development. This dimension was operationalised in the questionnaire through questions about respondents' experience of developing their own quality strategies.

(a) Did respondents already have active experience of quality development?

(b) What quality strategies were used by respondents?

(c) How were quality assurance, evaluation and development reflected in policies guidelines and research and support programmes?

([9]) Global importance asks about the general importance of an area, in this case respondents' general estimate of the importance of using quality strategies in e-learning.

Overall it is apparent that users, especially learners, are seldom involved in quality development, which is thus a process guided by providers that normally excludes learners. There is no evidence of a participatory understanding of quality, in which quality is worked out in collaboration between providers and users and automatically involves learners in the process.

However, almost three quarters of respondents stated that quality approaches were used in their organisations. Among e-learning providers, quality approaches were used in almost 77 % of organisations, while the proportion was less favourable among e-learning users, although still relatively high (a good two thirds of those respondents). A detailed analysis showed that in over half of the organisations in question, quality measures were perceived by respondents only at a very abstract level (an organisational goal) or as an implicit requirement (Table 10). Only 13 % of respondents stated that methods and instruments were used which were explicitly aimed at ensuring quality in e-learning products and processes. Even fewer respondents were aware of the use of an integrated quality management system in their organisation (6.2 %). However, 16 % stated that a quality strategy which related to e-learning was currently being implemented in their organisation.

The gap between what is claimed and the real situation can only be reduced if those involved are given better targeted, more transparent information about possibilities of quality development. Instruments and methods must be collected in a quality strategy portfolio and made available together with decision-making aids.

4.9.3. Design of quality and the challenges ahead

This dimension relates to respondents' ability to design quality strategies for their own contexts. This calls for both an innovative and a creative dimension (see Section 3.1). In the questionnaire, this dimension was operationalised largely through questions on respondents' experience of developing their own quality strategies and on suitable ways of supporting quality development. Respondents were also asked to make recommendations for successful quality development.

The institutions in which respondents work handle the use of quality approaches very differently. Some do not use them at all, while others develop a checklist for their own use or a kind of 'rulebook' for 'good e-learning'. In yet other cases, a standardised but internally developed system is used in a company or institution (an implicit quality strategy). Some institutions also use a quality approach developed elsewhere (explicit quality strategy). Where organisations develop their own quality strategies – 34.8 % of respondents stated that they developed their own quality strategies internally – those involved need a high degree of e-learning competence, operationalisation ability and creativity. Respondents were actively seeking information about possible designs for quality development, and the most important sources of information were Internet websites and examples of good or best practice.

It is also evident that discussion forums are used largely by the target groups which have experience of the Internet, providers at operational and decision-making levels, who use this medium. Decision-making providers also tend to seek information from specialist fairs. Providers at operational level also rely more frequently than others on examples of best practice. The same applies to staff in companies and universities organisations generally. In relation to design competence, further investigation will be required to show exactly which processes and abilities are the key to successfully adapting externally developed quality strategies that are already available. It can be assumed that a low level of design competence will mean that quality approaches are simply imported directly and not adapted independently, so that users are obliged to use what is offered. This will result in low levels of acceptance.

4.9.4. Analysis and criticism of quality, and the challenges ahead

This dimension refers to the ability to analyse quality development processes critically, and to compare and contrast different sets of objectives and perspectives. This study has not examined this dimension since it is qualitative analyses and case studies in particular which can provide information about the individual critical and analytical ability of those involved in the e-learning quality development process.

The results do show that there is a high degree of critical awareness in individual areas. Respondents are aware of the importance of quality, in their own contexts as well as in general terms, and they see quality as an overarching, international or European concern. An analysis of individual assessments of actions and decisions cannot be provided, however, in a study such as this.

Our work in the European Quality Observatory and in other contexts (e.g. Ehlers 2004) shows nonetheless that the understanding of quality has shifted from standardisation to individualisation. Quality systems must therefore be able to reconcile the objectives of the individuals involved – both learners and teachers – or to take these into account through a process of negotiation. Standardisation initiatives such as those described in Section 3.8 can support this endeavour. Quality is thus no longer something static and immutable but a dynamic process of adaptation to the needs of the stakeholders, and primarily those of the learners (Ehlers, 2004). This process calls for a high degree of analytical competence and discrimination. The analysis and criticism dimension of quality competence is therefore of great importance.

5. A European quality programme for e-learning

In Lisbon in March 2000, the European Council set an ambitious strategic objective, namely that the Union should 'become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion'. In March 2001, the European Council set out three general goals (and 13 specific targets) for the systems of general and vocational education to achieve by 2010:

(a) improving the quality and effectiveness of education systems in the EU;

(b) making access to general and vocational education easier for all;

(c) opening up systems of general and vocational education to the world.

Improving quality – an explicit goal of the Resolution – may be seen as a cornerstone of a future programme of work on e-learning. It is the one of the crucial factors which will determine the success of the transformation of Europe into an information society. Quality is thus a matter which is at the heart of all e-learning developments. It relates to all neighbouring fields: pedagogical concepts, economic issues and technological challenges.

In this report we have summarised some of the findings of our research in the European quality observatory. They are based principally on the empirical data of the study 'Use and distribution of quality approaches in European e-learning', but also bring in aspects of research in other contexts, such as the development and evaluation of an Internet-supported database of quality strategies (www.eqo.info).

The study has shown that quality plays a key role in the success of e-learning, blended learning and learning in general. The question arises as to how Europe can play a leading role in this area in order to hold its position in the global education and training market. In the next five years, efforts will have to be made at all levels to turn Europe into a quality-oriented world leader in the educational landscape. This calls for targeted programmes in policy, research and the economy. The action programme set out below will function as a structural aid. The requirements provide a kind of matrix of practical, short-term and medium-term proposals to guide future support and development in e-learning. They are addressed to both the European support landscape and national programmes.

5.1. Learners must play a key part in determining the quality of e-learning services

In any examination of the development of quality, the question necessarily arises, quality for whom? Education providers – whether electronically based or conventional – are faced with this question. Should the quality to be delivered satisfy the requirements of the company which is paying for the measure, or those of the staff who are learning from it – or should it in state-funded programmes meet the requirements of education policy?

Since perspectives vary, divergent demands are sometimes made of the quality required. E-learning provision has a set of features which mean that a learner orientation is imperative in the area of quality. This form of learning, for example, makes it possible to match provision to individual needs after the fashion of 'learning just in time' and to move away from the Taylorian principle of learning and teaching, 'the same for all at the same time and place' (in the instructional paradigm of a classroom scenario). This study shows that the predominant understanding of quality in e-learning is primarily pedagogical. The need to move towards a greater learner orientation in e-learning is confirmed by other studies that are available. This is taking place within a broader framework which can be described in pedagogical terms as 'empowerment' of the learner. In financial terms, it is expressed through a greater contribution by the learner, direct or indirect, to the cost of the continuing education or training – for example by attending work-related courses during leisure time. And in social terms, there is a shift towards a knowledge society in which educational biographies will be less and less standardised and the emphasis is on individual skills development, for which increasingly individualised – i.e. learner oriented – provision must be made available in future.

5.2. Culture of quality

Europe must develop a culture of quality in education and training in order to position itself globally. From the strategic to the operational level, quality needs to become a feature of personal and organisational actions. Quality must no longer be regarded as a burdensome, costly evil, but as a paradigm for action to establish such a culture. Quality development must become a core process of educational organisation. This requires both comprehensive portfolios of tried and tested quality strategies and experiences, and carefully designed decision-making aids and implementation processes. We must move away from unwieldy global designs to precise 'my quality' approaches which deliver tailor-made solutions for specific needs.

5.3. Quality development as a responsibility of education policy

Quality must play a key role in education policy. A culture of quality cannot be achieved without policy support and associated action programmes. Quality must become a metaphor for the successful use of education and training measures. Quality development should be seen as an integrating concept with the help of which it is possible to orient frequently divergent pedagogical, economic and technological objectives towards a common goal. Support measures such as a European quality report such be introduced to back this up.

In earlier discussions the impression has often arisen that e-learning is merely an economic good, a bit like a product. E-learning is primarily an educational tool, however. Government has invested heavily in its development and implementation by making available generous funding for the exploration of e-learning. In very simple terms, the main question asked has been, 'What is e-learning' (Ehlers et al., 2003). The question that needs answering now is: 'How should e-learning be done so that it is financially self-supporting?'.

5.4. Quality development as the norm

Quality must not be the preserve of large organisations. The educational landscape must reach a qualitatively higher level in toto. Programmes must be put in place for the large number of SMEs and public sponsors of education which have so far neglected this area. Commercial and public funding has been committed to the development of e-learning. From what has happened in the market it has become clear, however, that companies cannot market e-learning solely on the basis of commercial decisions. One reason for this is the frequent lack of quality. Major companies and SMEs need high-quality e-learning-supported continuing education and training if they are to achieve their commercial goals in the face of European and international competition. Quality development concepts for e-learning are not yet adequately implemented in state education programmes. Schools and universities are also having difficulties with the implementation of quality strategies.

5.5. Quality services

Support structures must be established to provide competent, service-oriented assistance for organisations' quality development. Skills and information centres, quality services, consultancies or electronic support tools might be created, for example. Provision that is free of charge, especially via the Internet, could certainly be one future information strategy for increasing awareness of quality in e-learning, provided that this provision is easy to find and suitable for all target groups. The study shows that one important factor in the take-up of information and advice is tailor-made provision which exactly meets the needs of the target groups in question.

5.6. Open quality standards

Open quality standards which support a culture of quality and individual, participatory quality development must be further developed and widely implemented. This will strengthen both the European educational landscape as a whole and individual education and training organisations. Open standards do not – as is often wrongly assumed – serve to standardise quality in e-learning but make it possible to capture the variety of existing experience in European e-learning, and to enable individuals to use this.

5.7. Quality research as an academic discipline

Interdisciplinary quality research must be strengthened in future and become established as an independent academic discipline. In particular, a separate theoretical basis still needs to be created. Quality research as a separate discipline must also give prominence to the contribution to quality development of all related disciplines such as the educational sciences,

economics and information science. It must play a pragmatic role in order to make well-founded suggestions for the discussion of quality. Research in this field needs to network closely with neighbouring fields to feed what is learnt from individual disciplines and special fields of research into global quality concepts.

5.8. Promoting the transfer of research

Research and practice must develop new methods of interchange. User-oriented research has to be implemented as quickly as possible in the practice of education and training organisations, and to feed rapidly into the standardisation debate so that it has a wider impact. New discoveries from research projects supported nationally or at the European level are often inadequately applied, so that it is frequently necessary to reinvent the wheel. Research projects must be designed from the outset to be applied, and theoretical discoveries must be practically validated through pilot stages. Strengthened moderation of project clusters, which is currently encouraged by the European Commission in some programmes, can create additional transparency of information.

5.9. Integration of all stakeholders

Quality development must be designed jointly by all those involved. Quality development is not a one-off, centrally guided process but a process of negotiation between all stakeholders, who develop individual quality profiles for their organisations by consensus. The user group – the learners – who were previously neglected, need in particular to play a major role in this process.

5.10. Development of business models for services in the field of quality

There is at present no systematic market for quality assurance services. E-competence initiatives have no sustainable, firm basis. Accreditation agencies, rankings (e.g. by the Centrum für Hochschulentwicklung, Stern or Spiegel), higher education information systems (e.g. HIS) and portals in the field of evaluation (e.g. http://www.evaluationsnetz.de, http://evanet.his.net) generally aim at quite different or more specific sets of questions, which do not usually fall within the area of e-learning and do not provide either know-how or experience or viable business models for quality assurance services.

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Annex 1

This report was drawn up by the European quality observatory (EQO) as part of an EU research project. It is the first part of a series of evaluations on the use of quality strategies in European e-learning. This first report concentrates on quantitative aspects of the dissemination and use of quality strategies. A further report providing an in-depth qualitative analysis of quality strategies is currently in progress, and publication is planned for autumn 2005.

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Annex 2

Questionnaire and appendix

The complete questionnaire (in all four languages) can be downloaded from the Internet at http://www.eqo.info. This site also provides further information such as tables, additional evaluations, etc.

Cedefop (European Centre for the Development of Vocational Training)

Quality in e-learning. Use and dissemination of quality approaches in European e-learning
A study by the European Quality Observatory

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This report on the 'Use and dissemination of quality approaches in European e-learning' investigates the current state of e-learning quality in Europe. It is based on a survey initiated by the European Quality Observatory – the European platform for quality in e-learning – involving over 1700 participants from all European countries.

The survey focused on the 'use and dissemination of quality approaches in European e-learning' by tackling three questions:

- who is using which strategies?
- how are the strategies used?
- which factors can facilitate or hinder the development of quality in e-learning?

The findings show that European e-learning stakeholders attach considerable importance to quality but that there are still obstacles that need to be overcome before we can make a direct improvement in the quality of education. The survey also analyses the current situation in relation to various dimensions of significance for the development of quality: knowledge, experiences and the capacity to deal creatively with quality approaches. The concept of quality competence is introduced here for the first time and is empirically contextualised.

PANORAMA

Quality in e-learning

Use and dissemination of quality approaches in European e-learning

A study by the European Quality Observatory

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