elq for sme

e-learning quality for sme's: guidance and counselling

State of the Art Report: E-learning Quality in European SMEs - an Analysis of E-learning Experiences in European Small and Medium-sized Enterprises

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An Analysis of E-learning Experiences in European Small and Medium-sized Enterprises

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State of the Art Report on e-Learning Quality for SMEs: an Analysis of e-Learning Experiences in European Small and Medium Sized Enterprises

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Preface

By Alexandra Costa Artur and Vanda Vieira, CECOA

SMEs have a central role in the European Union that requires special economic and social policy answers, namely, the access to education and continuing vocational training.

Under SMEs framework, e-learning should have a top-down approach and the commitment of the enterprises decision makers. On the other hand, e-learning efficiency will be achieved through end-users motivation towards training and improvement. The use of flexibility and facility of access to online training environments are also factors with strong influence in the return on e-learning investment.

This book presents the results of the ELQ-SMEs partnership by identifying the effects and outcomes, the challenges and barriers, the success factors as well as the costs of e-learning that addresses the learning needs of small and medium-sized enterprises (SMEs). This report is the first product of the E-Learning Quality for SMEs: Guidance and Counselling Project supported by the Leonardo da Vinci Programme.

The general aim of the project is to promote the use of new multimedia and a guidance and counselling approach in order to promote the quality of e-learning by facilitating access to online resources and training services as well as tools to evaluate the quality and the return on investment in e-learning targeted to SMEs.

The study presents the findings of a qualitative methodological approach used to become state-of-the-art within distance learning quality for SMEs. In order to make the quality approach usable, the authors developed a common template as a reminder of the information collected and as a suggested outline for the case studies descriptions.

The objective is to undertake an analysis of e-learning experiences in European small and medium-sized enterprises using 18 transnational case studies of e-learning quality in companies from different European countries, as methodological approach. The report draws on the outcomes of e-learning experiences from Austria, Denmark, Estonia, Germany, Norway, the Netherlands, Portugal and Spain. It presents examples of excellence from small, medium and large enterprises as well as from training providers.

Results showed that SMEs have particular demands and that e-learning may provide a better option in terms of skills improvements, through the use of real learning scenarios, self-learning contexts and more competitive business results, reducing costs and promoting higher levels of interaction and collaboration among workers. Results also showed that training providers and large enterprises have a very important role in advising, mentoring and guiding SMEs to the advantages of e-learning. In fact, business associations and cooperative partners may be powerful content providers and when align with the proper technological partners may create some costs savings to SMEs and return on e-learning investment.

The Project Partners are:

- CECOA – Vocational Training Centre for the Trade (Portugal)
- BFI - Austria Berufsforderungsinstitut (Austria)
- Forschungsinstitut Betriebliche Bildung (f-bb) gGmbH (Germany)
- University of Tartu, Open University Centre (Estonia)
- Confederació de Comerç de Catalunya (Spain)
- ProfitWise (the Netherlands)
- NKI Distance Education (Norway)

Anders I. Mørch, InterMedia, has agreed to act as an external expert and is responsible for the external evaluation of this book. Javier Coll and Isabel Rucaballo, CCC, were responsible for internal evaluation of the case studies.

Some parts of this publication will be available in Dutch, Estonian, German, Norwegian, Portuguese and Spanish. More information about these publications, the project and its outcome is available at www.nettskolen.com/in_english/elq-sme/ or at each partner website.

ELQ-SMEs partnership is fully aware that this "State of the Art Report" is not a complete work. It must be seen just as a "step forward" in the attempt to provide useful data in the field of e-learning quality and return on investment in e-learning in European SMEs.

Assuming this report as the first project product and the beginning of a continuous improvement process, the partnership welcomes all contributions, suggestions and comments that end-users would like to forward.

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Amsterdam-Barcelona-Bekkestua-Graz-Lisbon-Nürnberg-Tartu

Introduction

By Morten Flate Paulsen, NKI Distance Education

This book was written for people who are interested in e-learning in small and medium-sized enterprises, including providers of e-learning, training consultants, HR officers, managers, politicians and other decision makers.

So far, e-learning has primarily been used when there are many learners involved. The reason may be quite simple; the up-front investments related to e-learning are relatively high. Therefore it is necessary to distribute e-learning investments among a relatively large number of learners. The consequence is that e-learning first and foremost has been used by individuals who enroll in generic courses in a large open market and by large enterprises with so many employees that they can afford to develop specialized e-learning internally.

Since SMEs have relatively few employees, few SMEs have much experience with e-learning. According to the EU Commission[1], SMEs are enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding € 50 million, and/or an annual balance sheet not exceeding € 43 million.

Some e-learning is, however, getting less expensive, and some e-learning models are more suited for small-scale training than others. Therefore, this book presents a variety of cases about e-learning experiences in European enterprises. The book also analyses the cases with the intention of presenting e-learning experiences that could be useful and interesting for SMEs. Therefore, the final part of the book presents a number of indicators of success and quality with regard to e-learning in SMEs.

The following e-learning advantages are especially pointed out in the case descriptions:

- Improved flexibility in time and location
- Reduced costs for travel, accommodation and seminar rooms
- Swifter and cheaper distribution of learning material
- Quicker introduction of new products due to accelerated training of many employees
- Increased sales because customers perceive e-learning as a sign of high competence
- Increased sales because e-learning could add value to the product
- Improved relations with customers and suppliers

The project partners quickly experienced that it was harder than expected to find good e-learning cases that were relevant for SMEs. It was relatively easy to find interesting cases in which employees were enrolled in commercial e-learning courses on the open market. It was also easy to find large enterprises with e-learning experiences.

Eventually we chose and developed the eighteen case descriptions that are included in this book. The cases include small enterprises, medium-sized enterprises, large enterprises and e-

[1] European Commission (2003): The New SME Definition. User guide and model declaration. Enterprise and Industry Publications. http://europa.eu.int/comm/enterprise/enterprise_policy/sme_definition/sme_user_guide.pdf (Retrieved 1.3.2005)

learning providers. They also represent a broad spectrum of enterprises with regard to business sector and country. But they all have characteristics and experiences that could be valuable for SMEs that are venturing into e-learning.

As the title of the book indicates, the focal point in the book is e-learning quality in European SMEs. Therefore the introductory article is an overview article that presents the state of the art in distance learning and e-learning quality for SMEs.

Distance Learning and E-learning Quality for SMEs – State of the Art[1][2]

Torstein Rekkedal, NKI Distance Education

Introduction

SMEs represent more than 99 percent of EU companies before the inclusion of the new member states. The expansion of EU has increased rather than decreased the proportion of SMEs and also increased the need for education and training of European SME employees. Less than 25 percent of SME employees participate in vocational training courses, and less than 60 percent of employers provide any type of training for their staff.

The European Council held in Lisbon in 2000 decided on the objective that by 2010 the EU should *"… become the most competitive and dynamic knowledge-based economy in the world…"* Reaching this goal implis a challenging programme for modernisation, not least education and training systems. The transformation of European education and vocational training systems involves both the development of e-learning as a means to increase quality of learning as well as a need to increase the quality of e-learning itself.

It is an agreed belief in European policy that to reach the ambitious goal of the Lisbon strategy there is a need to actively support development and adoption of e-learning throughout Europe, at all levels of education and training for business and industry, not least among SMEs.

There is no doubt that online distance learning and e-learning can be a good alternative for competence development of SME employees. E-learning of high quality can be efficient and cost-effective. E-learning allows for just-in-time updating as it can be organised for anyone, anywhere and at any time. E-learning may also be cost-effective because the learner does not have to leave work to participate in courses that require presence and often imply both travel and accommodation expenses. The training can be tailored to the individual learner's exact needs, learning style and time available. E-learning may require a minimum of ICT-literacy, but when participating in e-learning, the learner also develops ICT skills preparing for efficient work and future career development in the knowledge society.

It seems today that most employers and managers, not least in SMEs, do not realize the potential of e-learning. Many managers know little about e-learning and quality of e-learning and often require strong evidence that e-learning works. Today, there is no doubt that e-learning has demonstrated its potential for high-quality and cost-effective learning.

The purpose of this book is to demonstrate that e-learning works and that e-learning quality measures up well against other types of education, teaching and learning forms.

E-Learning – what is it?

According to the European Commission (2001) and the *The eLearning Action Plan* e-learning is defined as: *"The use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration."*

[2] An extended version of this article is available at: www.nettskolen.com/in_english/elq-sme/ELQ-SMEStateofArt.pdf

This expression actually indicates a belief that e-learning does **improve learning** through **the use of new multimedia technologies and the Internet** and that it **facilitates access to resources and services** and also implies **remote exchanges and collaboration.**

In principle e-learning includes both solutions where the learner works individually on a computer with an interactive learning programme often based on theory and traditions from programmed instruction and/or computer based (or supported) teaching (CBT) and solutions involving tutor support and learner services organised by an educational organisation. The second type of e-learning solutions has developed from distance teaching and is often described as online education. Online learning can be organised in different ways, from programmes that emphasise individual flexibility on one side of a continuum to programmes that emphasise group work and collaborative learning.

Quality in learning

Quality is most often defined as *'fitness for purpose'* related to the needs of the user/customer (Juran 1988), which indicates that quality depends upon a subject's view of what is the purpose of that phenomenon. In education, the customer is not always easily identified. In public education, the government pays, the immediate user is the student; secondary users are employers (e.g. SMEs) etc. Quality, thus, is a value judgement interpreted by different stakeholders; government, teachers, administrators, students, employers etc. On the other hand, to assure and assess quality we must have a clear notion of what it is. For an SME, quality would mean that the educational product fits the purpose of the company, i.e. competence development of its employees, and that the employees as learners experience the learning process as motivating, and that it leads to the expected learning results. Further, learning outcomes must be regarded as cost-efficient relative to other types of training and also as giving sufficient return on investment, i.e. that the company and the employee are better off after the learning, taking financial costs and time invested into consideration.

Quality in e-learning

As mentioned, e-learning has developed from two main origins, programmed computer-based/supported learning and distance education. Both types of education have a long tradition in securing quality through different mechanisms of quality assurance, both through testing of educational products during development and field testing, and evaluation of the product in the first phase of its life and in ordinary use.

Distance education has since its very start always represented an alternative to traditional forms of education and training, and therefore has had to battle for recognition and consequently developed procedures for demonstrating quality early on. Distance education quality has in many countries been assured through specific legislation, through state control, voluntary accreditation, agreed national or international quality standards, and not least through heavy emphasis on research and evaluation directly related to practice.

The need for quality assessment has increased with the introduction of e-learning. As Greville Rumble (researcher at the British Open University) (2000) states: "*one of the problems facing distance education at this time is a concern that new providers are more interested in profit than quality service ... successful operators will need to adopt service management approaches to deliver a quality product*".

Questions and challenges concerning quality management and quality assurance in education in general and specifically in distance education and e-learning have been focused on both by international organisations, national authorities, institutions and consumers during the last 10 to 15 years. A magnitude of quality approaches have been developed based on different purposes

and intentions. Quality systems may be developed and used for international comparisons, national accreditation, and internal institutional quality assurance and quality management, for information to users and for consumer protection. Wirth (2005) has made an attempt to systematize quality approaches in e-learning:

1. Approaches to Quality (Management) Planning

There are three main organisations that drive the development of quality management approaches, namely the European Foundation for Quality Management (EFQM), International Organisation for Standardisation (ISO) and Deutsche Institute für Normung e. V. (DIN). These organisations have reacted to controversies concerning transferring quality management models to the educational sector, and developed approaches that focus on education and e-learning. These systems are used to secure quality in e-learning materials and e-learning learning processes and to provide confidence of the customer that the products match agreed standards. The European Association for Distance Learning (EADL 2003), for instance, transferred the EFQM Excellence Model to distance education when developing their Quality Guide for distance education.

2. Best and good practise, examples/guidelines, benchmarking

These approaches focus on the realisation of e-learning solutions using continuous assessment against best and good practise examples known as benchmarking. A large variety of recommendations, guidelines and criteria catalogues can be found. One example is the French Code of Practice in E-Learning developed by Association Française de Normalisation (AFNOR). The Quality Standards of the Norwegian Association for Distance and Flexible Education (NADE) also belong to this category. Another example is the Institute for IT training at the University of Warwick that for institutional purposes has developed a number of "best practice" documents, such as Code of Practice for E-learning Providers and even a Charter for e-learners to inform learners of what to require from an e-learning course.

3. Quality certification and accreditation at different levels

These are formal quality assessments executed by external accreditation or certification bodies as discussed above specifically in connection with European higher education. Valid evaluation methods and clear quality criteria indicators are crucial elements. Approaches in this category can be divided in three subgroups:

Accreditation and certification mainly of institutions for instance the Distance Education and Training Council in the US (DETC) with its accreditation system. Another example is the British Quality Assurance Agency for Higher Education (QAA) with the general Code of Practice for Higher Education and the Guidelines on Quality Assurance of Distance Learning (QAA 1999).

Accreditation and certification of management-oriented education, for instance The European Foundation for Management Development (EFMD): The European Quality Improvement System (EQUIS), which is claimed to be the leading international accreditation system for business schools. EFMD has also developed a specific scheme for e-learning accreditation, EFMD CEL – eLearning.

Accreditation and certification of e-learning products and services, for instance eQCheck by the private EQCHECK Company with its branch in Europe (UK) offering accreditation of e-learning products based on the Canadian Recommended eLearning Guidelines (Future Ed. 2002).

4. Quality competition and Awards

These approaches do not evaluate products according to defined criteria, but compare solutions according to competitiveness or other defined aspects of a product. The competitive ranking is supposed to effect the development of high quality services and products. These approaches are intended to stimulate top achievements rather than evaluate against minimum criteria, as is normally the case with certification and accreditation approaches. A number of IT, computer and e-learning organisations award prizes for outstanding e-learning solutions, for instance the European eLearning Award and many others award prizes nationally and internationally.

Another way of characterizing quality approaches may be to view them mainly as either *input-oriented* models focusing on the resources utilized for achieving objectives, *output-oriented* models that examine ex-post-facto to what extent goals are met, *process-oriented* models on the potentials within the organisational structure of the educational institution, and *participant-protective and demand-oriented* models that provide results of product tests or criteria for demand-related evaluation of products on the market (Reglin 2006).

There can be no doubt that for an SME planning to use e-learning for competence development, it is important that the supplying institution can prove credibility through reference to its quality management and/or quality assurance system. However, the most important quality indicator is whether the e-learning programme is cost-effective and leads to the defined competencies of the learner. This means that the supplier should be able to demonstrate that the product is tested and evaluated, that it has proved to lead to the promised learning result and also results in the expected return on investment of time and money.

E-learning quality as a subjective characteristic related to the learner's needs

Ehlers (2004) argues that of all the dimensions and aspects of e-learning quality the perspective of the learner is probably the most important. Education differs from other products in that learning is not a product that the consumer buys, *"…learning rather constitutes a process that they* (the learners) *have to carry out by themselves."* This means that a customer, in our case an SME, may buy an e-learning product for its employees, but the SME cannot buy the competence or the desired learning outcome. Learning is the result of the learner's (often hard) work, and learning is dependent on the motivation of the learner and the learner's ability and willingness to study and carry out the learning activities supported by the e-learning programme. Thus, the learner's needs and learning style greatly influence perceived and experienced quality of an e-learning programme. Learners have different preferences, and the main question becomes which quality aspects, dimensions and criteria are most important to the individual learner. According to Ehlers (ibid.) e-learners' subjective quality requirements can be sorted into seven fields of quality, i.e. different learners have different preferences of what constitutes good quality within each field:

Tutor support: Includes two-way communication and interaction between the learner and the tutor, the degree of active moderation of the learning process by the tutor, the tutor's relative emphasis on learner-oriented or content-related communication, the degree of individualized interaction related to the individual learner's support needs and interests, and the degree of attention to the individual learner's personal development or to the stated course goals. Learners also differ in their preference for traditional communication media (telephone, fax, mail), synchronous communication media (video/audio conferencing, chat) or asynchronous media (e-mail, discussion forums).

Cooperation and communication in the course: The online e-learning course can focus on social interaction through discussions, or focus on discourse of controversial topics and knowledge creation in argumentative and collaborative settings.

Technology: The e-learning platform may have the possibility of adapting to the users' settings and provide the possibility of starting where the user finished his last learning period. The platform may have the possibility of synchronous communication and the content may be available in different formats and the learner may be able to save course materials on his/her own computer.

Costs – expectations – value: The cost and effort the learner has to invest in the course relative to benefits and outcomes are important. Expectations towards online learning may be that it is flexible in time and individualized in course structure regarding content and support. Non-economic costs relate to the effort it takes to learn and to concentrate on the course within an individualized learning scenario. Financial costs of taking the course might be seen as the most important quality criterion. The user might be interested in the course primarily because of the technology – online learning and the use of the Internet.

Information transparency: Counselling and advice before entering the course can be an important dimension of quality. It may also be of importance to learners to be able to access information about the course, the tutors and the institution that provides the course. Another important dimension for learners is access to detailed information about the course.

Course structure: This field contains the learner's requirements concerning the structure of an e-learning course. Some learners see presence (face-to-face) periods (blended learning) as important, while other learners prefer pure online learning. The field includes the possibility of presence introduction to the course and the possibility of taking exams and tests during presence phases.

Didactics: This field contains dimensions such as preference for access to background materials related to the e-learning course content, and also the use of multi media and several types of enrichment media. Other quality dimensions are whether the course is structured in a goal-oriented way, whether it includes support in gaining learning literacy (learning to learn) and life-long learning skills, whether tests and exams are integrated in the learning materials and whether the learning tasks are designed to fit the individual learner's needs.

The main point is that the individual learner will have personal preferences that decide whether the e-learning course actually has the expected quality. Of the above fields, it seems that a large majority of learners agree that tutor support is very important for learners in general regardless of their other preferences. The importance of tutor support was also demonstrated in an empirical study among e-learners by Rekkedal & Qvist-Eriksen (2004), where the following aspects of e-learning quality were examined. The aspects are presented in order from pre-course information, a guidance and counselling phase, through the introduction phase, learning phase and examination/completion phase. The numbers in parentheses represent the relative importance of the aspect for e-learning quality from 1 (most important) to 17 (least important).

Support element	Relative importance for e-learning quality
Feedback on assignments submitted	1
Tutor access	2
Possibility to contact tutors via e-mail telephone etc.	3
Information regarding course or module content	4
Information regarding course availability	5
Information regarding the programme to which the course belongs	6
Possibility to contact the institution by phone, e-mail etc.	6
Online tutorials	8
Information regarding pricing	9
Access to real-time technical support services	10
Information regarding online learning techniques	11
Support regarding registration issues	12
Advice on accreditation, certification and further study	13
Information on the web on registration, access etc.	14
Discussion forums/bulletin boards	15
Information relating to course costs, grants etc.	16
Possibility to contact other students via e-mail, telephone etc.	17

Table 1. E-learning students' rating of the importance of support elements in the e-learning course.

As shown in the table above, the three most important quality aspects relate to individual access, contact and feedback from the e-learning course tutor. The next three most important quality aspects relate to information and guidance before starting on the course.

From the understanding that e-learning quality is related to individual preferences, one might conclude that the most important quality characteristic of an e-learning course is that the course is designed to adapt to the needs and preferences of the individual learner. According to the research of Ehlers referred to above, e-learners can be grouped into four different target groups that differ in their demands for communication and tutor support as well as in interest in group activities and social contacts in the e-learning course. These groups are:

- The individualist: Prefers individualistic learning scenarios and self-directed learning, is content focused and not interested in presence courses, communication and interaction.
- The pragmatic: Oriented towards personal needs, information and advice and tutor support on factual matters, non-financial costs important.
- The result-oriented: Learning integrated with work, oriented towards instrumental purposes, learning and media/technology literacy, not interested in presence courses.
- The avant-gardist: Interaction-oriented/communication, learner oriented tutor support, virtual learning groups, media and technology vanguard and interested in rich didactic solutions.

Conclusions – e-learning quality for SMEs

To reach the goal of the Lisbon strategy of Europe, to be the most competitive knowledge based economy in the world, a major transformation of European educational and training

systems in all areas and levels has to take place. In business and industry it is a necessity that small and medium-sized enterprises are not lagging behind in competence development of their employees. While larger companies often have the resources to develop and/or purchase e-learning solutions for their employees, this is out of reach for most SMEs. It also seems that many SME employers and managers are not sufficiently informed about availability, possibilities, quality and cost-efficiency of e-learning. It is a fact that e-learning may be more efficient, cheaper and more practical than many presence courses for competence development, in-service training and life-long learning for employees in SMEs. Most SMEs will have the possibility of finding e-learning solutions on the market that may suit their needs and requirements. SMEs are often members of a national or international organisation together with other companies having the same or similar training needs. In such cases it may be possible to cooperate within a branch organisation in developing e-learning courses for use by its members. It is important that SMEs, managers and employees are informed about the possibilities of e-learning so that they can make decisions about whether e-learning may suit their needs, and also that they are able to judge quality when searching for e-learning solutions.

Important criteria for judging the quality of e-learning programmes are:

1. Credibility of the institution offering e-learning: Is the institution's reputation acceptable; is the institution, the e-learning programme and/or the course accredited according to national standards?

2. Quality assurance or quality management systems: Does the institution have acceptable formal systems for quality management and for quality control of the e-learning courses?

3. Pre-enrolment information and guidance: Is the information about the e-learning courses sufficient for deciding whether the course is suited to the needs of the company and needs of the learner?

4. Course costs: Is the cost of the course, including price and non-economic costs in accordance with expected results and benefits for the learner and the company?

5. Support for the e-learner: Does the course include subject related, social and/or technical learner support? Is the support provided sufficient for satisfying learners' needs and for reaching the course objectives?

6. Individual preferences: Is the e-learning course designed to allow for different learner preferences concerning structure, communication and learning styles?

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Analysis of the Case Descriptions

By Morten Flate Paulsen, NKI Distance Education

This is an analysis of eighteen case descriptions contributed by the partners in the ELQ-SME project. The partners developed a common template (See Appendix 1) for the case descriptions. Each partner was responsible for finding and choosing at least two relevant cases within their geographical area. The analysis indicates that the cases could be divided in the following four categories:

1. The small enterprises include the following seven cases: A-punkt; Elektro-Biergans, Infocut, Medilabor, Tuca Informática, Librería Álvarez and Kometter-Kasca.
2. The medium-sized enterprises comprise these five cases: Balti Investeeringute Grupi Pank – BIG, Associação Nacional de Farmácias, Interpolis, Rabobank and Golff supermarkets.
3. The large enterprises consist of three cases: KPMG, York Refrigeration and Roche Diagnostics.
4. The e-learning providers include these three cases: NKI, ETraining OÜ and CINEL.

The small enterprises have so few employees that they are most likely to enrol individual students in commercial online courses. The medium-sized enterprises may also benefit from more specialized courses offered through a branch association or in cooperation with suppliers or chains. Large enterprises may have enough resources to develop e-learning courses internally. The e-learning providers are SMEs that may be especially interesting as examples of how other enterprises may use e-learning in the future.

Key characteristics of the enterprises and their use of e-learning are listed in Table 1 and commented in the following:

The eighteen cases represent the following eight countries: Germany (2), Portugal (4), Spain (2), Austria (2), Estonia (2), The Netherlands (3), Norway (2), and Denmark (1).

The NACE[3] codes identify the business sector of the SMEs. The codes show that most of the SMEs come from the sales and service sectors.

The revenue, the number of employees and the number of e-learners vary a lot between the enterprises in the case studies. It was therefore useful to divide them into the four categories used in the book.

All but three enterprises have five or less years of experience with e-learning. The three exceptions that have more than five years of experience are NKI, York and Elektro-Biergans.

Eight of the eighteen cases use blended learning, the remaining ten use online education without face-to-face meetings.

External providers of e-learning services hosted all but three of the e-learning platforms used in the cases. The only exceptions were the enterprises in category four that are providers of such services themselves.

The majority of the cases report that the courses provided access to online teachers. The courses that not provided access to online teachers had relatively many employees involved. So, one explanation could be that access to tutors is reduced when the number of online

[3] The NACE codes are defined at http://ec.europa.eu/comm/competition/mergers/cases/index/nace_all.html

learners increase. The cases also show that students can communicate with each other online in the majority of the courses.

The courses could be divided in three types:

1. Generic courses offered on the open market (used by 12 cases)
2. Sector courses developed by associations or cooperating partners (used in 3 cases)
3. Internal courses developed by the SME with some help from external providers of e-learning services (used in 3 cases)

The cases show that there is a wide range of course topics that can be used successfully in e-learning. The generic courses offered on the open market included project management, office management, Microsoft applications, ICT and language courses. The sector courses and internal courses were much more specialized and related to the special needs of the sector or institution.

Table 1. Key information from the case studies

Category	Name of enterprise	Country	NACE	Revenue in € M in 2005	Number of employees	Number of e-learners	E-learning experience since	Form	Host	E-learning platform	Online teacher	Online student communication	Course type	Course topic
1	A-punkt	De	O93	0,4	5	3	2004	Blended	External	Bbw-online	yes	no	G	Project management
1	Elektro-Biergans	De	G52	1,1	12	1	1999	Online	External	Minerva online	yes	yes	G	Program for office management
1	Infocut	Pt	G52	0,3	5	1	2003	Blended	External	Blackboard	yes	yes	G	Master program in Educational Technology
1	Medilabor	Pt		1,1	19	1	2006	Blended	External	Blackboard	yes	yes	G	E-learning awareness
1	Tuca Informática	Es	G52	NA	3	1	2005	Online	External	Editrain	yes	yes	G	Business English
1	Librería Álvarez	Es	G52	NA	4	1	2005	Online	External	Editrain	yes	yes	G	Microsoft Word
1	Kometter-Kasca	At		NA	1	1	2003	Blended	External	???			G	Program on Microsoft Office Certification
2	BIG	Ee		34,3	101	22	2004	Blended	External	WebCT	yes	yes	G	Credit management
2	ANF	Pt	G52	NA	140	158	2004	Online	External	Anfonline with Intralearn	no	yes	S	1. Gastroesophageal Refluxes and Peptic Ulcer Disease. 2. Vaginal Infections
2	Interpolis	Nl	G52	<50	<100		2003	Online	External	???			G	Prevention officers
2	Rabobank	Nl		NA	<300		NA	Online	External	???			S	New insurance
2	Golff	Nl		<50	<1800		2006	Online	External	???			S	1. Introduction to working at Golff, 2. Golff Rules, 3. Golff Marketing
3	KPMG Norway	No	K74	NA	700	300	NA	Online	External	SESAM	no	no	I	1. Bookkeeping Legislation 2. Flotation and Capital Increase
3	York	Dk	DK29	NA	220	100	1990s	Blended	External	Arkena	no	no	I	Various
3	Roche Diagnostics	At		NA	250	200	2002	Blended	External	SITOS	yes		I	Producing diagnostic devises
4	NKI	No		24,3	145	145	1986	Online	Internal	SESAM	yes	yes	G	1. Tutor in Distance Education. 2. Broad spectrum of other courses
4	ETraining OÜ	Ee	G52	0,2	20	20	2003	Online	Internal	WebTrainer	yes	no	G	Various ICT courses
4	CINEL	Pt		NA	60	750	2001	Blended	Internal	Self-developed	yes	yes	G	1. English, 2. Domotic issues, 3. Computer science, 4. Business start up.

Small Enterprises

The enterprises in this category have between 1 and 19 employees. All cases, except from the A-punkt case, describe the e-learning experiences of one individual employee. The cases indicate that small enterprises primarily utilize e-learning as a flexible way of providing training and further education for their employees. These SMEs have so few employees that they are most likely to enroll individual students in generic commercial online courses that are relevant to their job performance (project management, office management, business English, Microsoft Word). Key people in a SME may also use e-learning for further education (online master program).

One important observation is that none of the courses were paid for by the enterprises. The courses were either paid by the individuals taking the course or by external funds.

The case descriptions in this category are A-punkt, Elektro-Biergans, Infocut, Medilabor, Tuca Informática, Librería Álvarez and Kometter-Kasca.

A-punkt is a German architecture firm with three employees. One employee and two employers enrolled in a project management course, which is designed for employees in a firm. The course was a combination of e-learning using bbw-online and three days of classroom learning. From a group of about 20, around 18 managed to complete the eight-month course. The satisfaction of A-punkt was really high. The course was promoted and financed by the State Ministry of Employment and Social Security.

Elektro-Biergans is a German company that provides electric installations. The company has 12 employees. Dagmar Biergans, who is in charge of office management issues, enrolled in an online education program for office management. In the beginning there were about 30 participants in the class that was conducted completely online via the Minerva e-learning platform. Dagmar Biergans was really satisfied with the course. The course was supported financially by North-Rihne/Westphalia and the European Union.

Infocut is a software commercialization and maintenance company in Portugal with 5 employees. The company's customers are mainly primary and secondary schools. The company's CEO, Carlos Simão, is one of the 143 students who attended a master program in Educational Technology. The program was offered by the Portuguese Catholic University as a combination of face-to-face meetings and e-learning via the Blackboard LMS system. He paid the tuition himself, and he is now developing his thesis. Carlos considered e-learning a good method for learning technical competencies, however, for soft skills he thinks traditional training would be more efficient.

Medilabor is a Portuguese company rendering Health and Safety services to enterprises. The company has 19 employees. One of them, Training technician Maria João Marques, enrolled in an e-learning awareness course offered by AprendernaNet. She paid the tuition herself. The course was a combination of training sessions in class and synchronous and asynchronous sessions on the Blackboard e-learning platform. There were 21 participants who started the course which lasted 17 days. At the end, Maria João Marques was very satisfied with the results and decided to continue with a second course.

Librería Álvarez is a bookshop in Spain with four employees. The proprietor, Antonio Alvarez, chose a commercial e-learning course to learn Microsoft Word. The course was made up of a series of lessons and a final assessment test. Each lesson consisted of an explanatory text and exercises to be carried out. There was a tutor available for queries and a chat room for students. The course fully met Antonio Alvarez expectations. The course was subsidized by a state-run institution (www.fundaciontripartita.org) responsible

for promoting and coordinating Spanish policies on Lifelong learning – through an agreement signed between the Spanish Booksellers' Gild and the e-learning provider Editrain (www.editrain.org).

Tuca Informática is a small Spanish retail company selling computer products and advisory services. It has three employees. One of the employees, Mercedes Morales, enrolled in a Business English course that was conducted completely online. She completed the course and it met her expectations. A teacher assessed the student work and there was a discussion forum for the students. The course was subsidized by Fundación Tripartita para la Formación en el Empleo (Foundation for the Vocational Training) and Fondo Social Europeo (European Social Fund) (www.fundaciontripartita.org), these organisations promote the Spanish policies on Lifelong learning. This training is made up in a Project financed to Confederación Española de Comercio and developed by Confederación de Comercio de Cataluña. The course was provided by the training centre Editrain (www.editrain.org).

Kometter-Kasca is the name of a woman who is establishing a personal enterprise focusing on adult education in information technology. She enrolled in a five-module course to obtain Microsoft Office certification. The training was a personal investment used to set up the enterprise.

Effects and Outcomes

The reported completion rates in these cases seem to be relatively high:

- Infocut: 119 out of 143 completed the course
- Medilabor: 18 out of 21 completed
- A-punkt: 18 out of 20 completed
- Elektro-Biergans: 15 out of 30 completed
- Tuca Informática: The employee completed the 2 courses
- Librería Álvarez: The proprietor completed the course
- Kommeter-Kasca: 12 employees[mfp2]

One reason for the relatively high completion rates may be that the employees were internally motivated to enrol in these courses. Most of the employees decided themselves that they wanted to enrol in the specific courses. Several of them even paid the tuition fee themselves.

The analysis further indicated that the employees were satisfied with their e-learning courses. The case descriptions include terms such as: high satisfaction, the course met the expectations and the experiences were better than expected.

Challenges and Barriers

The major obstacle for Infocut was a deficient information policy regarding e-learning for SMEs and the challenge of overcoming resistance to e-learning among employees.

Medilabor points out the need for digital literacy and more content in national languages. There is also insufficient knowledge of and adaptation to real needs and expectations of trainees. Lack of human interaction within the e-learning system is also a barrier.

The major obstacle is, according to A-punkt, that face-to-face meetings are not flexible time- and location-wise.

Elektro-Biergans claimed that the major obstacles are deficient policy regarding e-learning, absence of contact partners, complicated adjustments to technical possibilities, and unsuitability of workplaces for undisturbed learning. Other challenges were lack of e-learning competency among tutors and course-length (1.5 years).

Success Factors

For small enterprises it is important that e-learning is flexible with regard to time and location since there are few colleagues to take over the work for those who are absent. To be successful, e-learning must be motivating as well as relevant and useful to the daily work and the tasks in the company. Motivation may be improved by use of multimedia, occasional face-to-face meetings, certificates and external financing.

Costs

The Elektro-Biergans course was paid in full by North-Rhine/Westphalia and European Union funding; there were no tuition fees. For the employees at Tuca Informática, Librería Álvarez and A-punkt, the courses were fully financed by the state and free of charge for the students. The employees at Medilabor and Infocut paid all costs themselves. The Infocut employee argues that some sectors require compulsory training. E-learning can provide cost reductions regarding transportation expenses, less need to be out of office and a long list of courses to choose from.

A-punkt

By Natalie Morawietz, F-BB

1. Facts about the institution

Name of institution	a-punkt
URL of institution	www.a-punkt.info
Country	Nürnberg (Zirndorf), Germany
Number of Employees	3 employees, 2 employers
Revenue in 2005	426.000 €
Experience with e-learning since	Since 2004
Business sector	a-punkt is an architecture firm (service sector)
Target group/participants in e-learning	Employees and employers needing further training in project management
Content	Courses dealing with project management and other "soft-skills"
Form	Blended Learning Arrangement
People interviewed	Ulrich Stieber (employer), Stefanie Brehms (employee), Sabine Bescherer (training provider/consultant)

2. How the institution used e-learning

2.1. Description of SME

a-punkt is a micro-enterprise active in the field of service, specialized in providing service in architecture. They provide complete consultancy and planning in the field of common architecture performance.

For a-punkt and especially the architects employed project management is an important "soft-skill" in their daily work. But competencies in that field are not provided during their study. So it was necessary for them to gain skills and competencies in that field by further training.

2.2. The courses

The course content is mainly focused on the following topics: Project management, social competencies and working techniques:

- Introduction into the project management
- Time- and task management
- Presentation techniques
- Planning of projects
- Planning in projects: time – resources – costs
- Project controlling
- Project finishing

In the program, a combination of eLearning (with teletutoring support) and classroom learning teaches learners key concepts in the field of project management, social skills, and work techniques, which the learners then apply in their respective workplace settings. In order to ensure intelligent and across the board implementation of all relevant concepts, learners work on an actual project and in so doing are provided with tutoring support, if desired. In addition, regularly scheduled workshops promote information sharing and allow for the presentation of interim and definitive results.

2.3. Number of employees involved

From a-punkt one employee (Stefanie Brehms) and also the two employers Ulrich Stieber and Harald Meierhöfer took part in the Blended Learning course “monkey”.

2.4. E-learning platform and technology issues

The eLearning courses are hosted by bbw-online. The courses are available through the Internet Explorer web browser used by a-punkt, no other software was needed.

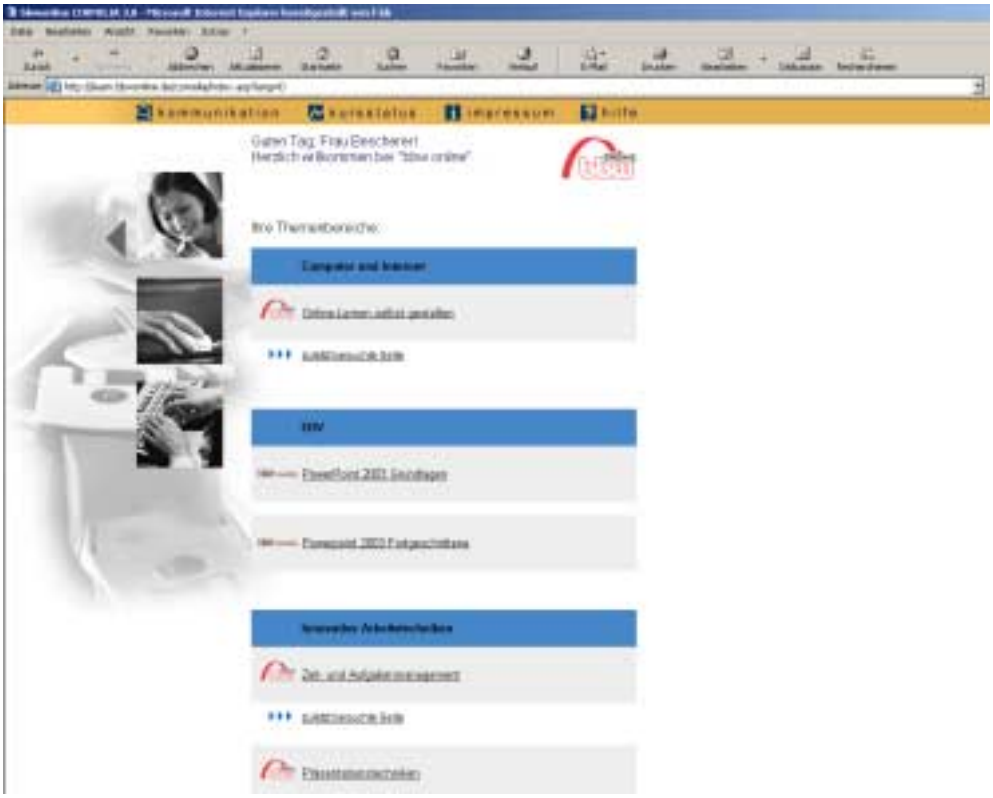

Figure 1. Screen shot from the web portal bbw-online

2.5. Course development

At the beginning of training, the participants come together for a half-day kick-off meeting to be familiarised with the training schedule, technical details and the eLearning system – i.e. with the learning management system and the handling of the modules. This joint introduction provides orientation and security to all those involved and creates trust. The learners personally get to know each other and their tutors; this supports the social component of learning.

2.5.1. eLearning phases

To acquire theoretical knowledge, the participants independently work on Internet-based learning programmes at their company workplace in three eLearning phases. An eLearning phase lasts for a period of approximately three weeks, in which three modules of three to four learning hours each are included. The contents come from the subject areas of project management, social competencies, work techniques, self-management, time and task management etc. During this time, the participants receive support from a teletutor who is available to them for questions and for correcting the integrated tests via e-mail with a response interval of 24 hours.

2.5.2. Face-to-face meetings

On three face-to-face days, the theoretical contents of the processed modules are consolidated and supplemented by practical examples and exercises. The participants learn from each other and with each other. They work out solutions in groups, creating e.g. a project schedule for a training project or finding practicable solutions for dealing with disturbances of their eLearning during working hours.

On the third face-to-face day, the transition to the practical company phase is made. The participants introduce the projects that they will carry out at their company. The human resource managers are also present at this meeting; in this way, they are actively included in the entire development process early on.

2.5.3. The practical phase: learning by working on a company project task

Project learning

In the four- to five-month practical phase, the participants work on their company project tasks. They are supported with expert coaching. The goal is to concretely implement and practice what they have learned during the self-learning phase in their everyday work environment. During this time, the eLearning-modules continue to be available to the participants as "reference material".

Intermediate workshop

The practical phase is interrupted by an intermediate workshop: the participants meet again to present the intermediate status of their projects to each other and to discuss their experience with the others.

Final workshop

In a two-day final workshop, to which the human resource managers of the co-operating businesses are invited again on the second day, the participants present their project results. The goal is to represent oneself and one's success in implementing the company project task. The learning processes are evaluated by the participants together. This makes it easier to communicate experience with the learning project to colleagues. Exchanging experience outside of one's own company expands one's perspective and helps to develop interdisciplinary competencies.

2.5.4 Disseminator model

A disseminator model ensures that knowledge is transferred at a respective company during the practical phase. The participants act as disseminators by directing at least one other employee at "their" company.

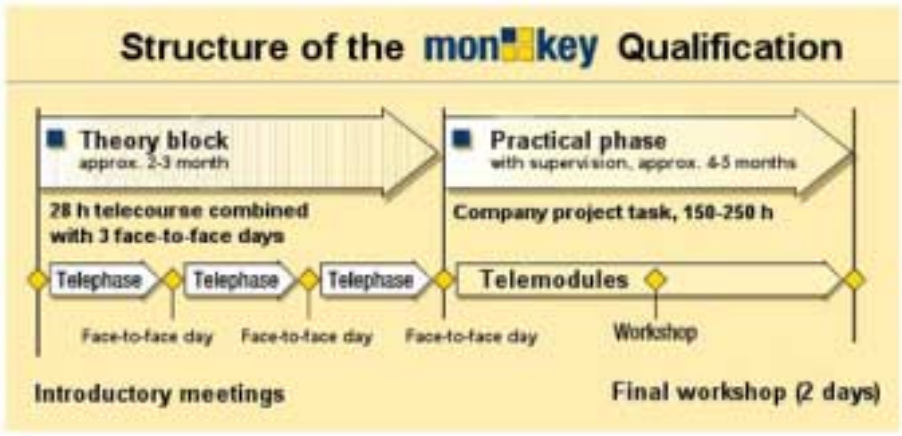

Figure 2. Structure of the Blended Learning Arrangement "monkey"

3. Effects and outcomes of the e-learning activities

3.1. Completion rates

From about 20 beginners in total about 18 managed to finalise the eLearning course. For all participants of a-punkt the driving force was to move forward the company and be able to use the learing outcomes in their daily work. Especially the project work implemented in the Blended Learning Arrangement is fully applicable to the needs of a-punkt. For example Ulrich Stieber developed as his project work in the course a new website for his company.

3.2. Satisfaction

Satisfaction of a-punkt is really high. The free organisation of learning time and learning place meets perfectly the needs of a-punkt as well as the provided course contents. The interactive learning arrangement can be simply transferred to other topics and places.

4. Challenges and barriers

In general the biggest obstacles for a-punkt can be stated as the following:

Sometimes it was not so easy to take part in the in-person venues as the fixed dates were not freely changeable. But nevertheless the face-to-face days were also a motivation to continue the further training. Concerning technical and organisational issues no barriers can be identified as the platform already existed and is easy to handle.

5. Success factors

5.1. Motivational impulses

"I am always amazed at how much I get from the feedback of the other participants. Today, I was completely frustrated and discouraged when I came, because my project isn't coming along well, but now I am returning to my work with a lot of suggestions and a new motivation."

This is what one participant said during the feedback round at the end of the intermediate workshop in the practical phase. Regular, joint meetings are not only good for loosening up the often ponderous learning process at the workplace. The social contacts in the workshop also aid self-directed learning and greatly contribute to the participants'

motivation. Inter-company meetings additionally encourage participants to learn from the experiences of others. The theoretical phase as well as the practical phase should therefore be interrupted by one or (even better) two intermediate workshops.

Another motivational impulse was the supervision of the learning process. One participant especially emphasised that it felt good to be able to call the trainer or tutor at any time. In practice, however, the participants rarely made use of this possibility on their own. In most cases, the initiative came from the tutor, who contacted the participants and visited them at their workplace at regular intervals.

5.2. "Control points"

In addition to the company visits of the trainer/tutor, there were also inter-company meetings. By presenting their own project status, everyone could find out whether and to what extent they had been able to apply what they had learned.

The following method has proven worthwhile: On the first day of the final workshop, the participants work in groups to prepare a presentation using guiding questions. This presentation gives the human resource managers, who are invited on the second day, specific feedback on what progress has been made with which elements of the further training measure.

The presentations give insight into the implementation of the company project tasks and document whether and to what extent the theoretical contents have been successfully applied in practice. All participants found the presence of the human resource managers on the second day to be beneficial.

5.3. General conditions at the company

When the "monkey" concept was being developed, it became increasingly clear that learning and company change processes had to be connected with each other. This requires that the learners inform their co-workers and superiors about the company project tasks that they have taken on and also include them in their learning process as early as possible. This was done by integrating the people responsible for human resources and the above-mentioned disseminator model.

The participants were directed not only to apply what they learned at the company but also to disseminate it actively. This organised transfer of knowledge can ensure learning success as well as make the acquired knowledge widely available at a company.

However, it has become apparent that the disseminator model cannot be implemented everywhere in the same way. Different company sizes, structures and cultures and different social backgrounds of participants make it necessary to adapt the concept. Possible measures are:

- setting up learning groups,
- organising an internal information event on the implemented project,
- setting up an information board or corner,
- individual coaching etc.

In any case, the sustainability of the further training (for the participant as well as for the company) depends on how successfully the measure is anchored in the company context: the earlier human resource managers and employees were informed and

integrated, the greater the success that was attained. Participants from companies that sent several employees also profited from a lively exchange, increased motivation and greater acceptance of the further training at the company.

"The concept of "monkey" is based on a high-quality further training that for once is really oriented to company practice. Because the participants not only learn things on a theoretical level, as is usual, but also have to apply them personally in company project tasks, the learning success is noticeable not only to the participants themselves, but also to the company."

This is how Ulrich Stieber summarised the very positive experiences of the participating companies with the pilot scheme. The acceptance grew rapidly even among smaller companies. At the beginning of the pilot scheme, several of them had still been sceptical whether the relatively complex learning arrangement would be practicable for them.

6. E-learning investments, developmental costs and operational costs

As the Blended Learning Arrangement “monkey” was developed in a project promoted by the State Ministry of Employment and Social Security a-punkt did not have to pay for the enrolment of the course. But of course the investment of work time and the investment for the project work had to be financed by a-punkt itself. But Ulrich Stieber does not see why SMEs will not easily profit from eLearning as further training. All employees working in a-punkt have to take part in further training from time to time. At the moment this is done by face-to-face seminar, e.g. in “security in building lots “. But Ulrich Stieber can imagine to do this continuously for all employees with eLearning if courses are offered from external training providers.

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Elektro-Biergans

By Natalie Morawietz, F-BB

1. Facts about the institution

Name of institution	Elektro Biergans
URL of institution	www.elektro-biergans.com
Country	Köln (Porz-Zirndorf), Germany
Number of Employees	12 employees
Revenue in 2005	1,1 Million
Experience with e-learning since	Since 1999
Business sector	Elektro Biergans provides electric installation (trade sector)
Target group/participants in e-learning	Employees working in office management
Content	1 course dealing with office management
Form	Online education (web based)
People interviewed	Dagmar Biergans

2. How the institution used e-learning

2.1. The courses

Elektro Biergans is a micro-enterprise active in the field of trade, specialized in electric installation (consulting, planning and implementation).

For Elektro-Biergans it became necessary to have one person in charge with all office issues. So Dagmar Biergans – prior employed at the civil engineering office – decided to overtake the job in the conjugal enterprise and was searching for a further training in office management (in German: Fachkauffrau für Bürowirtschaft). She decided not to do the course offered by the chamber of commerce but to try the quite new solution with Minerva Online. Elektro-Biergans saw several advantages with web-based online training, among others the flexibility for the learner to study. For Dagmar Biergans it was not possible to join classes two times a week for one and a half years. Minerva online focuses especially on women as a target group not being able to attend face-to-face seminars because of their family situation.

The content of this eLearning course was divided into several subcategories, among that typical subjects for office management:

- Introduction into Internet
- Basics in computing
- Office management
- Economics
- Working and contractualisation law
- HR-Management
- Controlling

2.2. Number of employees involved

From Elektro-Biergans just Dagmar Biergans was enrolled in the Minerva-online course. The whole course had in the beginnings about 30 students – the course was finished by about 15 students.

2.3. E-learning platform and technology issues

The course was hosted by Minerva online. Minerva online is a virtual training further platform. The Thinkhouse GmbH addresses its offer to small and medium-sized enterprises, private people as well as to organisations and institutions. Through different learning arrangements it is possible to decide exactly for the form of learning which is fitting to the individual needs.

The Thinkhouse GmbH gained with the Minerva online project three years (from 1997 to 2000) experience within the further training offer in the range of virtual learning. The project was promoted by the initiative ADAPT. Since the project encountered large resonance, the Thinkhouse team enhanced Minerva online.

The course is available through the Internet Explorer web browser used by Elektro-Biergans, no other software was needed.

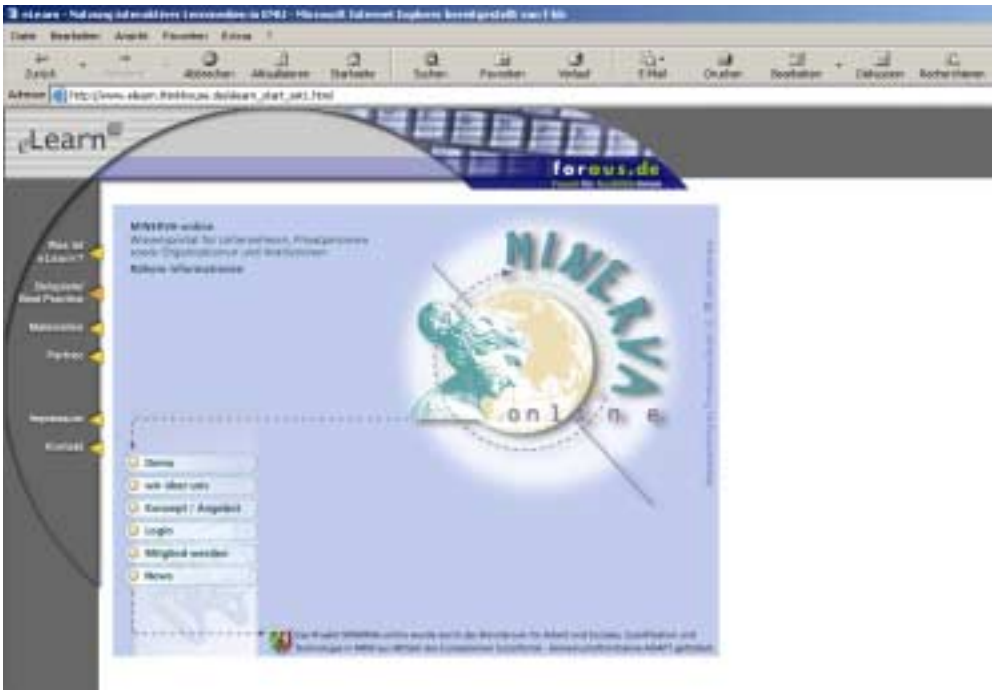

Figure 1. Screen shot from Minerva online

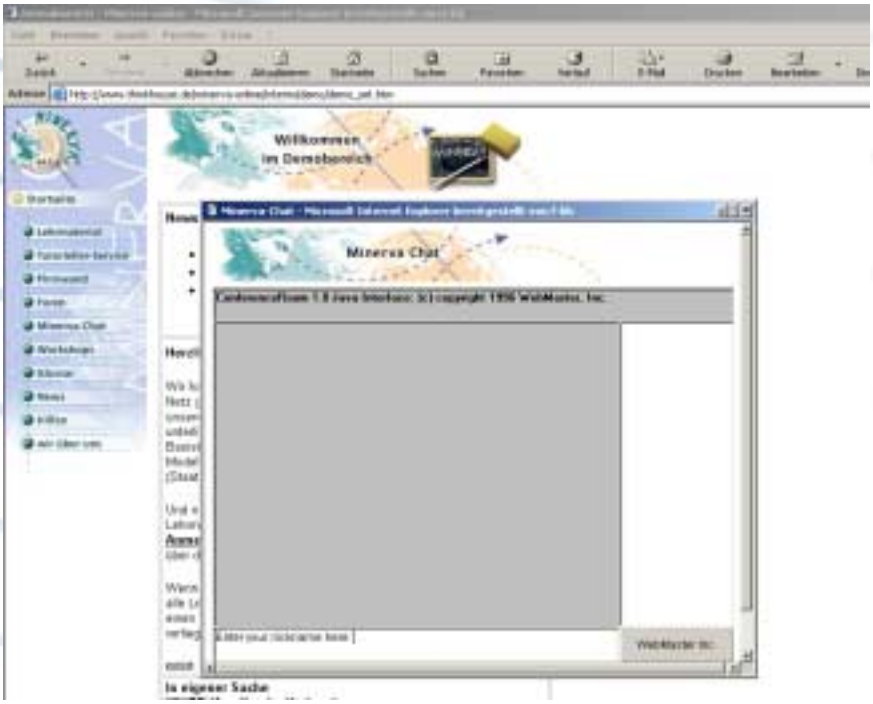

Figure 2. Screen shot from the Minerva online chat room

2.4. Course development

For the introduction to the eLearning environment an inauguration workshop was held. Course structure, important technical questions, access data and information about Minerva online were handed over to the students. Small groups of about 15 people gathered to one class.

Altogether the advanced training took 1.5 years. On average the student had to learn 7-10 hours a week (mainly in evenings and weekends). The learning contents were provided via email on Fridays, so that students were able to learn during weekends. Learning targets were clearly mentioned so that students were able to control themselves. For discussion and questions two times a week all students met with their tutors and trainers in the Minerva chat room. Homework had to be done and was evaluated by the tutors and teachers quickly. For the time between the chat meetings tutors were available via email all over the time.

Apart from the qualification to practical questions of office´s everyday life each student could enrol himself/herself for examination at the responsible chamber of trade. Success in learning was controlled by the regular treatment of homework continuously by tutors.

2.5. Course administration

Implementation of the eLearning course was quite easy for Elektro-Biergans as the hosting of the web based training was coordinated by Thinkhouse. The course did not acquire difficult enrolment or examination procedures.

The learning media is mainly composed of text files, which are usually printed out for learning. For the learner a simple Internet connection (simple modem) is sufficient in order to participate.

3. Effects and outcomes of the e-learning activities

3.1. Completion rates

From about 30 beginners in 1999 15 students managed to finalise the eLearning course. For Dagmar Biergans the driving force was to move her company forward and be able to handle the entire office management by herself. She admits that 1.5 years just learning online is not the easiest way and sometimes it was exhausting to motivate herself – especially when dealing with difficult subjects and contents not being able to ask directly teachers and trainers face to face.

3.2. Satisfaction

Satisfaction of Elektro-Biergans and Dagmar Biergans herself is really high. She was able to enrol for further training without obligations to join classes in the evening or on Saturdays. The free organisation of learning time and learning place meets perfectly the needs of the target group. The interactive learning arrangement can be simply transferred to other topics and places.

4. Challenges and barriers

In General the biggest obstacles are seen in the deficient information policy of the enterprises regarding the eLearning, in the absence of a contact partner in enterprises, in the complicated adjustment to existing technical possibilities and in the bad suitability of the workplace for undisturbed learning.

Faults are to be found in qualification of tutors and trainers, who are able to deal with the electronical learning media and the extended requirements to the learner but have no competencies in teaching the different learning contents. Often eLearning courses are not really applicable for the precise target groups.

In the on hand case these barriers were perfectly released. Technical solutions were very easy to adapt. The only requirements for attending the course were Internet facilities, computer and printer. The adoption to the target group was managed easily. For different topics and learning contents specific teachers acted as tutors.

The main challenge of the on hand case was the long run time of 1.5 years. To keep up such a long time the main point which can be identified was the fact that e.g. Dagmar Biergans was learning for her own enterprise.

5. Success factors

The acceptance of the offered online training is high as the obtained learning contents are meeting the demand of the daily work: The knowledge in office management was useful for most of the challenges in Dagmar Biergans work. Above all the possibility in determining learning times herself was one success factor which could be identified. The second success factor and a driving force not to quit the real long lasting eLearning course was the fact that Dagmar Biergans was learning for her own enterprise. All women enrolled in the eLearning course were able (optionally) to acquire the certificate for office management of the chamber of commerce as the learning contents were harmonised. This was an additional fact which increased the attractiveness of the on-line training course.

This learning arrangement is a model of the traditional telecourse. The distribution of the learning letters took place electronically, likewise the dispatch of the tasks and solutions. The measure would receive a revaluation if interactive, multimedia media were used

more often, which could be supported by virtual conferences in synchronous communication. The Chat was judged by the participants as differently important. But it is remarkable that face-to-face meetings were not missed by the participants. Altogether all participants were highly motivated and had the necessary self-discipline to be successful in such learning setting.

The described learning solution is transferable to other learning providers and consultants. The target group (women) is represented country wide, the learning contents are standardized. Not only for commercial topics in the trade sector, but also for a multiplicity of qualification contents such learning arrangements would be quite use- and helpful. This addresses especially to women in the triple burden "occupation, education and household".

Minverva online was promoted in the framework of a pilot project by means of the country North-Rhine/Westphalia and the European Union. To what extent a financing can take place only via participant contributions, is open. In this case the learning course would have to use surely much more the possibilities of synchronous voice communication, virtual working group environments and WBTs.

6. E-learning investments, developmental costs and operational costs

Not applicable (Minerva online was promoted). Fully paid by North-Rhine/Westphalia and the European Union funding, no tuition fees

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Infocut - UCP

By Vanda Vieira, CECOA

1. Facts about the institution

Name of institution	Infocut
URL of institution	www.infocut.pt
Country	Lisbon, Portugal
Number of Employees	5 (2 associate partners)
Revenue in 2005	300.000 €
Experiences with e-learning since	Since 3 years
Business sector	Software commercialization and maintenance
Target group/participants in b-learning	Teachers and other staff members from basic and secondary schools and vocational training centers (mainly public schools)
Content	Educational Sciences - specialization on Educational Technology
Form	B-Learning
Interviewed people	Carlos Simão is a student from the master on Educational Sciences. At this moment, Carlos is developing his thesis. José Lagarto is an Associate Professor, invited by the Portuguese Catolic University - Institute of Education Sciences to coordinate the Master in Educational Technology. With a PhD in Educational Science and a specialization on Systems and Training Organization, Prof. Lagarto is a well know expert in this field in Portugal.

2. Description of how the institution has used e-learning

2.1. Description of e-learning courses provided

Carlos Simão is the Infocut CEO, a small enterprise active in the field of software commercialization and provision of consulting and implementation software services to basic and secondary schools, mainly from Lisbon area.

During the last 10 years, Carlos has been involved in several projects providing technologic and technical support to public schools.

Lately he felt the need to improve his own knowledge about the pedagogical aspects of learning technologies as well as to improve his skills in the ICT's field applied to teacher and trainers continuing vocational training.

So, Carlos decided to attend the master on Educational Technology. The reasons behind the choice of a b-learning training solution are clear: flexibility provided by the b-learning methodology; congruency with his learning style and time available to explore the contents; the possibility of working in asynchronous and synchronous environments.

For the company, the advantages with the b-learning experience were evident since Carlos is the company CEO and, at the same time, he is the responsible for the company marketing and sales policy and costumer service.

The Master in Educational Technology is promoted by the Institute of Education Sciences of the Portuguese Catolic University. The main objectives are:

- To offer post-graduated training courses to the Portuguese education and vocational training wider community;
- To create conditions for an ICT's teaching specialization of the education and vocational training providers;
- To develop studies and research in the specific area of education and ICT's.

At the end of the course, students should be able to:

- Recognize the importance of the Learning Psychology Theories and promote the connection between those approaches and the regular use of computers as a teaching support;
- Demonstrate how internet and multimedia technologies can be applied in learning and teaching process;
- Use the computer as a creativity and inductive thinking facilitator;
- Use the Internet and other networks as supporting tools to the research and learning and teaching process;
- Develop education and vocational training programs using ICT's;
- Plan and manage the training process;
- Select suitable methodologies to conceive, implement and evaluate e-learning and b-learning courses.

The Master provides contents from the following topics:

- Conception of multimedia materials for the web;
- Didactics on ICT's;
- Distance learning and e-learning;
- Education research methodologies;
- Hardware and networks basic foundations;
- Internet and education;
- Learning Psychology;
- Project seminar;
- Software basic foundations.

The Master follows a modular structure and is organized on 4 trimesters with 2 disciplines per trimester. The course assessment is both formative and final, respectively, online and in presence.

2.2. Number of employees involved in each of the courses

143 students attended the Master in Educational Technology. Carlos Simão was the only Infocut employee enrolled in the Master.

2.3. Description of e-learning platform and other relevant technology issues

The course is hosted by the UCP website and the virtual environment powered by the Blackboard Academic Suite platform.

The Blackboard is a fully integrated, open architected solution. The platform enables the administration team (coordination team and professors responsible for each discipline) to create, publish and manage the course contents, create the assessment tools and promote the communication with students.

The course is available through a Internet Explorer web browser; no other software is needed.

Fig 1. Screen shot - entrance page of the Blackboard Academic Suite platform.

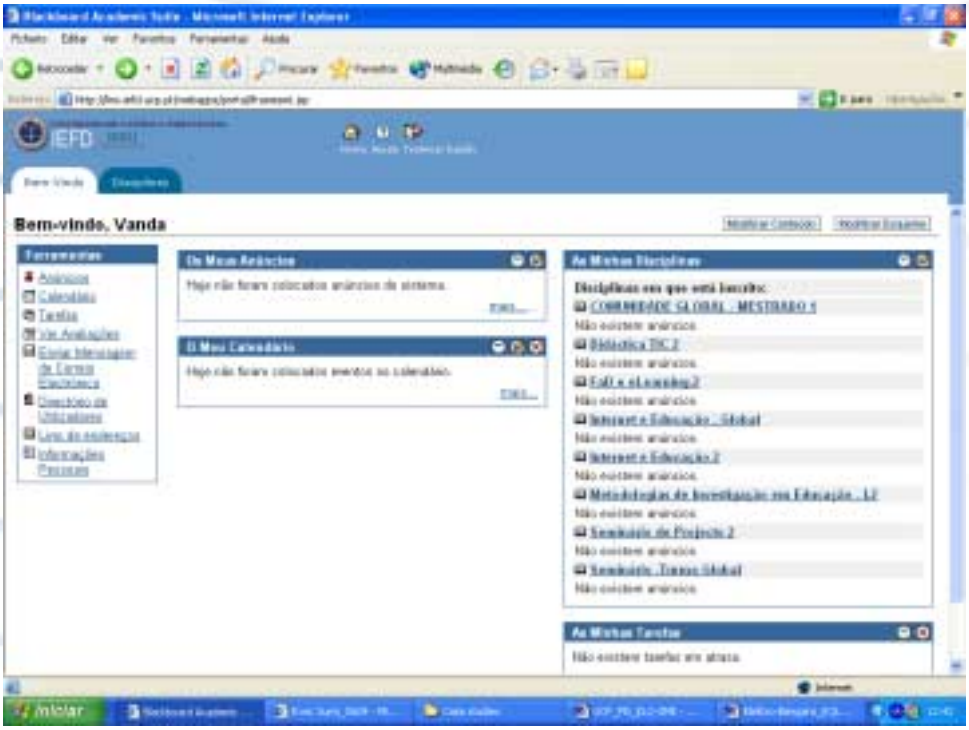

Fig 2. Screen shot - home page of the MBA in Educational Technology.

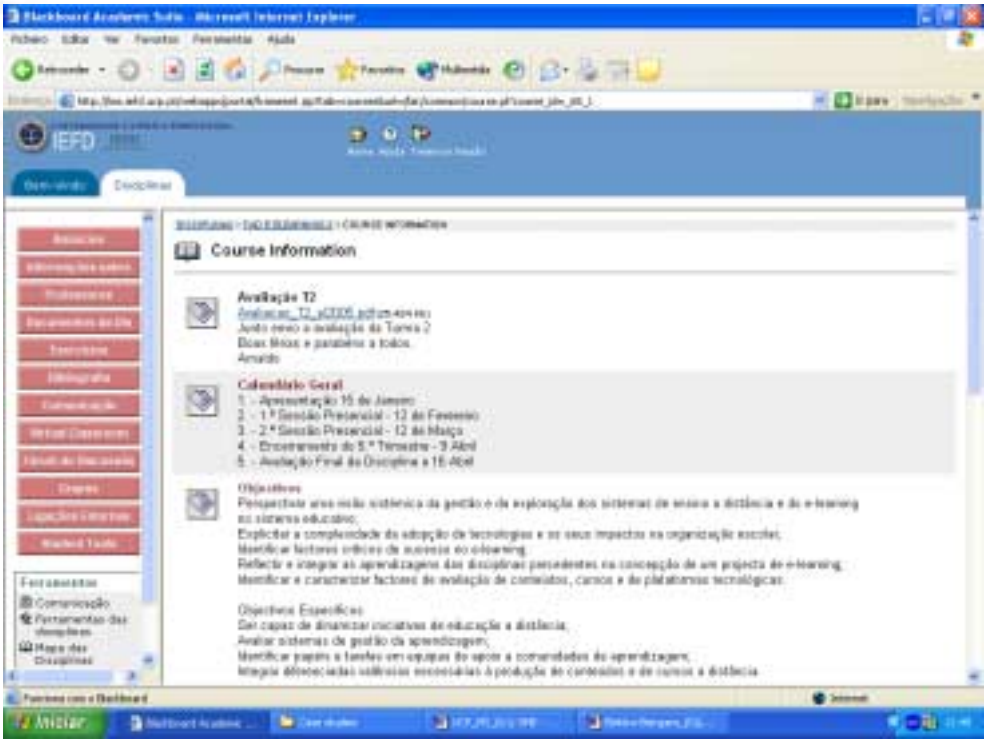

Fig 3. Screen shot - one course topic of the MBA in Educational Technology.

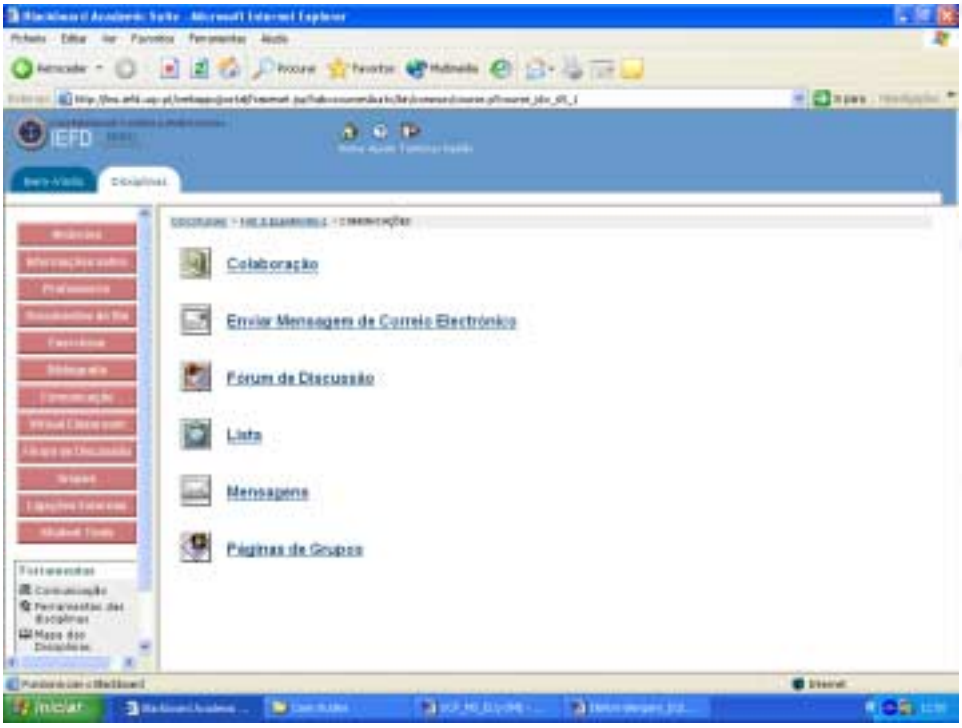

Fig 4. Screen shot - Communication tools of the MBA in Educational Technology.

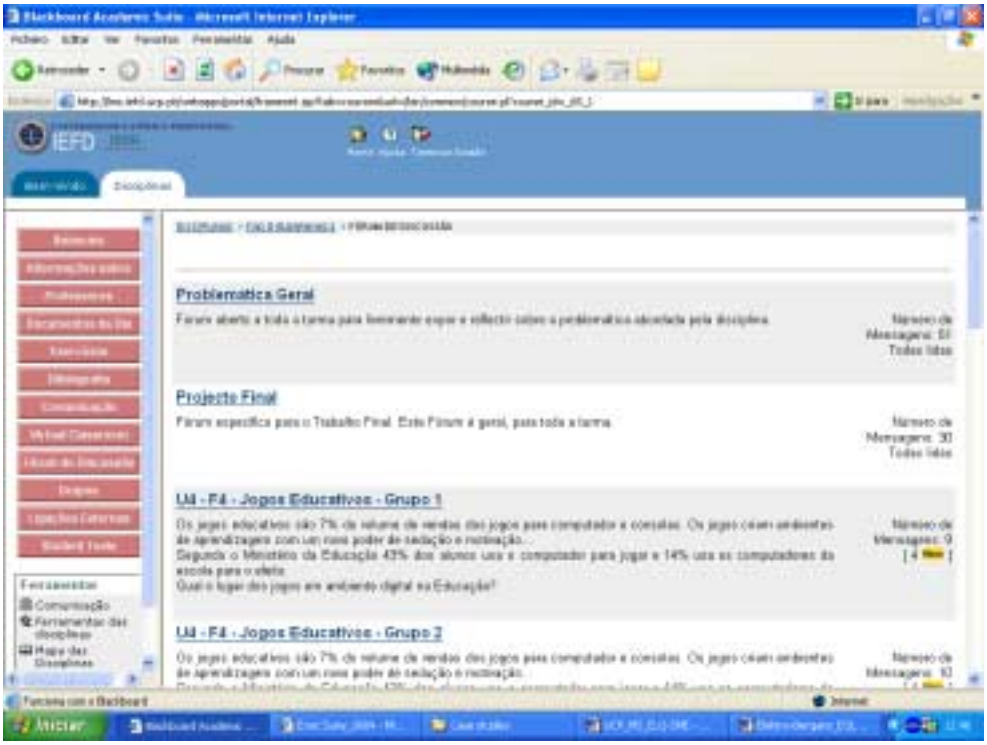

Fig 5. Screen shot - Forum room of the MBA in Educational Technology.

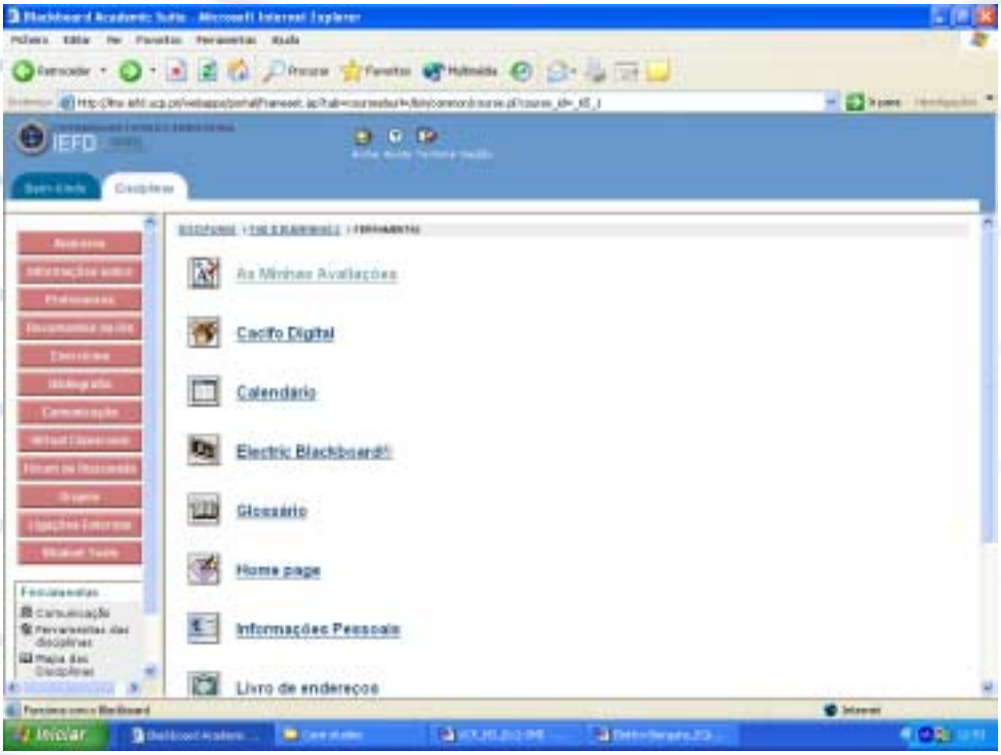

Fig 6. Screen shot - Student tools of the MBA in Educational Technology (assessments, calendar, glossary, personal information, etc).

2.4. Description of the course development process

The Master was promoted through the UCP – Institute of Educational webpage (www.ucp.pt) and also through several advertisements in one of the most important weekly newspapers in Portugal.

For the Master presentation, the coordination team organized a Seminar in order to present the entire course (structure; functionalities; pedagogical, technical and technological support, etc.) to the students and the set of professors, teachers and tutors from each discipline.

The students were distributed in 5 classes (4 in Lisbon and 1 in Oporto) and each class was divided in 4 or 5 groups. The groups were composed by 4 to 7 elements.

The Master curricular part took 18 months and the development of the thesis is planned for 1 year.

The students spent 14 hours a week in self study (in average). The traditional training classes were provided on Saturdays and some Seminars were also organized on Friday's afternoon.

About the course development process, José Lagarto stated that there were the following basic assumptions/considerations:

1. Each discipline was conceived and developed by the Master coordination and professor responsible. The coordination team was responsible also for the conception and development of the contents and materials. In each discipline there was also a tutor to monitor the training and provide feedback and support to the students (tutorial system);

2. All disciplines follow a work plan with learning objectives, modules and units, proper materials (graphics, audio, video, power point presentations, reports, etc.) and tools to foster the communication and the support among members of the learning community;
3. All disciplines use asynchronous and synchronous tools: forums and chats were intensively used since the beginning of the course (e-mails between trainees and with tutors or teachers are discouraged);
4. All disciplines provide a set of resources, library items and references, links to explore further information;
5. In all disciplines tutors track students' results and provide up-date feedback.

2.5. Description of the course administration process

All students must be registered. The management of user names and passwords is made by an internal technical administrative office. Students are able to modify their passwords.

The platform offers, in one hand, a system student's database to storage and make data retrieval of assignments, online questionnaires, students and teacher information, forums participation and emails exchanged through the platform.

On the other hand, all course materials are stored for post consultations.

In some disciplines, online assessment is used for comparative analysis and learning results monitoring. Final exams are mostly developed in traditional training classes (paper and pencil exams, with or without consultation). Online final exams can also be completed in the classroom but with tutors' supervision.

Another important administration issue is the information about payments. At this moment, invoicing and payment of the course fees are available through ATM (automatic teller machine) or directly in the University administrative services.

3. Direct and indirect effects and outcomes of the e-learning activities

3.1. Completion rates

143 students enrolled in the course;119 students finished the course.

3.2. Satisfaction

Carlos Simão stated that the course was important to enlarge his skills and knowledge about specific tools and pedagogical techniques, for example, MODE and DOKEOS.

At the beginning of the course, Carlos' motivation was to get experience as distance student. During the course, his motivation decreased especially because of the long training duration. Carlos expected to get more practical knowledge and in-deep contents development in some of the learning topics. However, some factors were essential to maintain his motivation and interest along the training process: the role of the coordinator, the good relationships developed with all professors/teachers/tutors and other students, and finally, his wife and family support.

The company level of satisfaction with the course is directly related with the potentiality to transfer this knowledge to other company employees.

Nowadays, as HR manager, Carlos considers b-learning/e-learning solution as his 1st option to answer to some employee specific training needs.

Carlos considers b-learning/e-learning a good methodology to train technical competencies (hardware, networks or competencies in a specific software): However, he considers that traditional training is more efficient to train "soft skills" (costumer service or negotiation and sales techniques).

4. Challenges and barriers

In Infocut and for Carlos Simão the biggest obstacles to the development of e-learning training solutions are seen in two ways:

- There is already available in the Portuguese market some distance learning courses. However, there is still a deficient information policy regarding e-Learning solutions for SMEs;
- Carlos considers that it is easier to train and involve trainees without any prior ICT experience than trainees who use ICT for pleasure, entertainment or to develop basic tasks, because those people get into bad habits concerning ICT use.

In Infocut and for Carlos Simão the main challenge is:

- Technical solutions are very easy to adapt and there are already in the Portuguese market good solutions and good tutors and trainers. The main challenge is to overcome human resistance to the concept of e-learning.

5. Success factors

Nowadays in Portugal, e-learning is really moving and growing, in particular, the initiatives addressed to the continuing vocational training and to the improvement of trainers and teachers skills and competences.

The 1st success factor results from a winning combination between a realist assessment of the target group's needs and the development of low prices/investments e-learning solutions.

The 2nd success factor lies on a growing e-learning market of assistance and administrative staff of public and private schools and SME's less qualified workers.

6. E-learning investments, development costs and operational costs

Carlos Simão supported all Master costs and fees. However, he is already getting some return on his investment. Carlos is now on the process of creating a new business with one colleague from the Master aiming to promote b-learning/e-learning courses to teachers, professors and tutors.

Carlos Simão thinks that e-learning will be the future of the education and training in Portugal and he presents the following arguments to stress his position:

- *"Imagine you have a SME as costumer and you want to sell e-learning courses. According to the Portuguese legislation, it's compulsory to have a minimum of 35 training hours per employee per year";*
- *"As usual, employers want to reduce costs and don't like to have their employees out of the office, for many reasons…";*
- *"E-learning, even to SMEs, is a great solution since this training methodology provides:*
    - *Costs reduction in the transportation expenses;*
    - *Employees receive training courses in the work place and they don't need to be out of the office during 35 hours. As manager you can't say to your costumers:" sorry but I can't solve your problem now because my employees are attending a training course all week and there is anyone else to help you"…*
    - *During the training, coordinators/supervisors can follow the course and monitor the learning improvement and also try to adapt, more easily, the course content to the company needs;*
    - *Finally, the manager can select training providers with a long list of courses and experience and select the best training option according to the employees needs. The manager will be more demanding when he/she is paying for the course.*

Medilabor - SAF

By Vanda Vieira, CECOA

1. Facts about the institution

Name of institution	Medilabor – Medicina do Trabalho, Higiene e Segurança e Formação, Lda.
URL of institution	www.medilabor.pt
Country	Portugal
Number of Employees	19
Revenue in 2005	1 080 757,37 €
Experiences with e-learning since	Since 2006
Business sector	Medilabor is one of the pioneering companies in the area of Safety and Health at Work services, for small, medium and large enterprises. Its activity has remained the same since its foundation in 1972, demonstrating well the quality of its services recognized by costumers and official entities. The activity developed currently by the Medilabor consists on the installment of a set of complementary services to the valorization and engagement of the human resources of the company customers: - Safety and Health at Work: Organization of medical services, Health at Work, Safety at Work and Environment; - Vocational training services.
Target group/participants in e-learning	1 Training Technician
Content	e-Learning awareness
Form	b-Learning (traditional training lessons; online synchronous and asynchronous sessions)
Interviewed people	José Manuel Martins Monteiro, Medilabor General Director Maria João Marques, Medilabor Training Coordinator Gabriela Paleta, responsible for the b-learning course from the VET provider SAF – Sistemas Avançados de Formação, S.A. (Novabase Group)

2. How the institution used e-learning

2.1. The courses

Course name:	e-Learning awareness
Duration:	39h (9h traditional training + 30h online training)
Target groups:	Managers/training coordinators Training promoters Training technicians Employees and decision makers from VET providers
Objectives:	To learn in e-Learning systems (integration of the online training with the knowledge management) To identify advantages and limitation of e-Learning courses To calculate the ROI of e-Learning
Programme:	Module I –e-Learning awareness Module II – ROI of an e-Learning system Module III – Design of e-Learning pedagogical contents

2.2. Number of employees involved

Each training group has around 20 employees (min. 15 and max. 25). From Medilabor, 1 employee was enrolled in the course.

2.3. E-learning platform and technology issues

Learning Management System – Blackboard v.7.

Fig. 1 – Screenshot of the AprendernaNet Portal (course access).

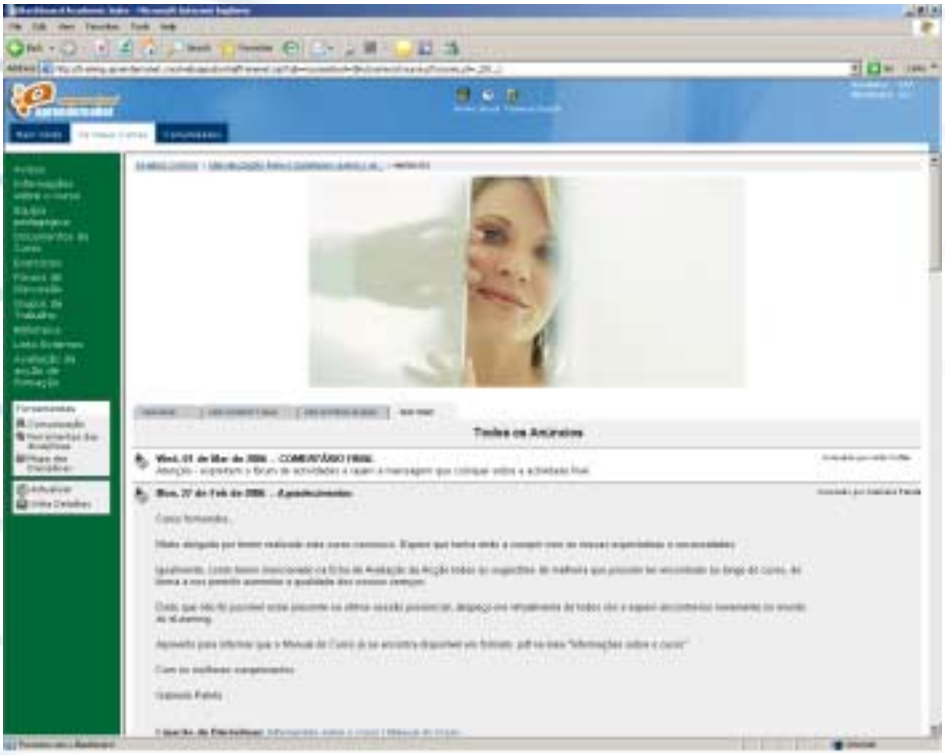

Fig. 2 – Screenshot - first page of the course.

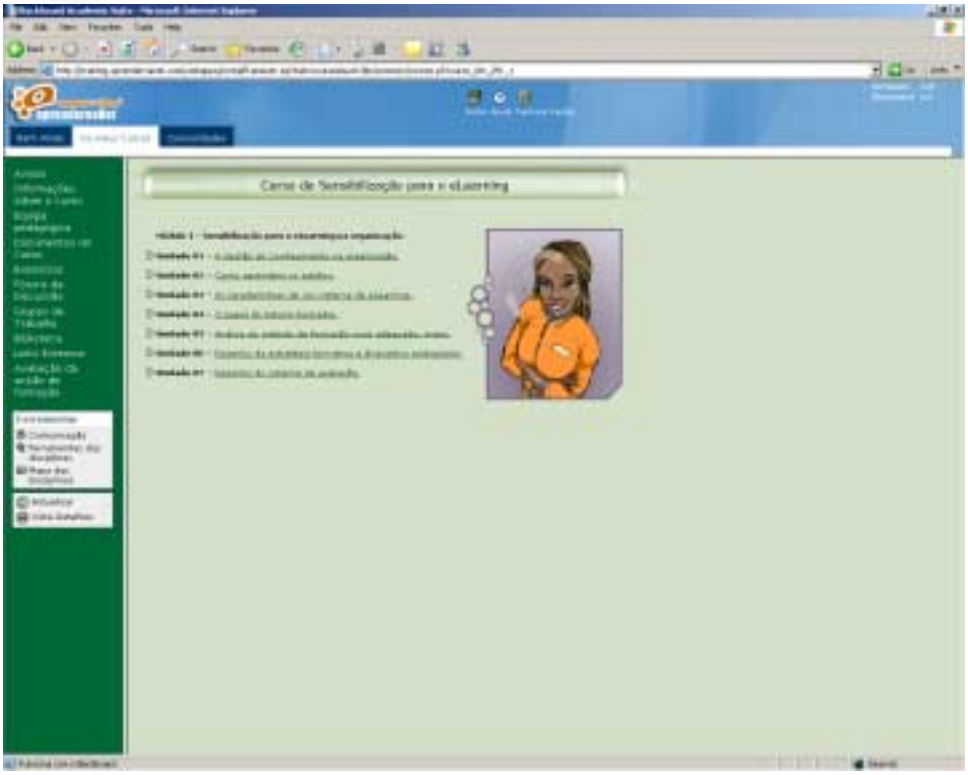

Fig. 3 – Screenshot - course content (self-study).

Fig. 4 – Screenshot - course content (self-study).

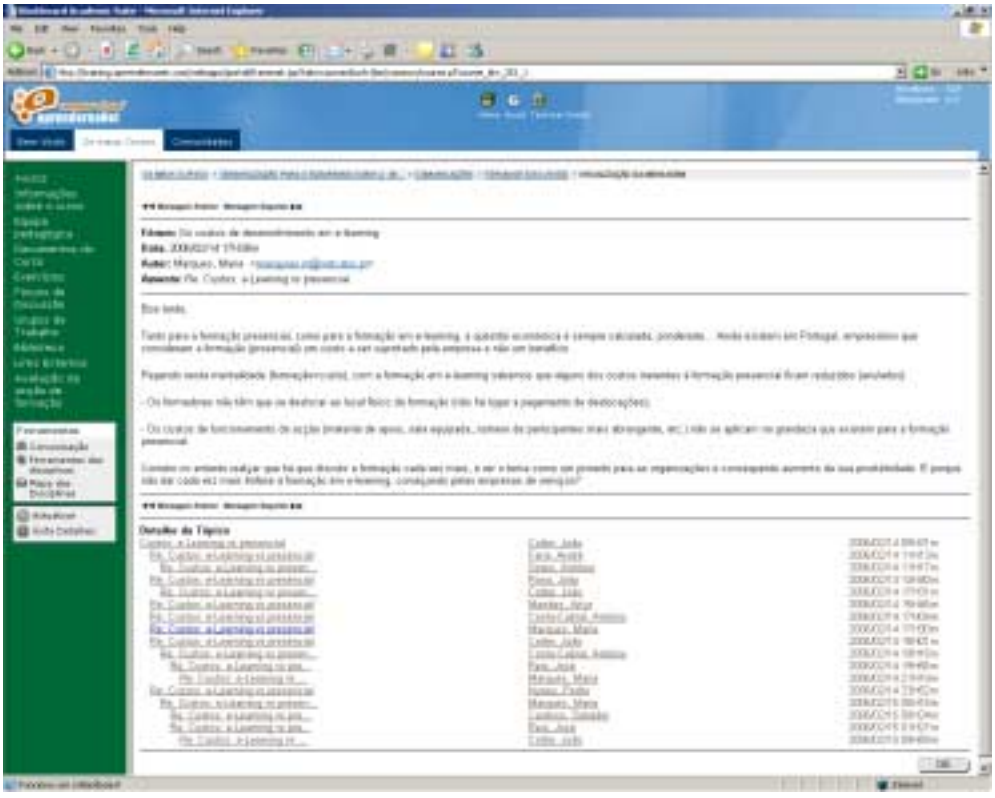

Fig. 5 – Screenshot - course content (Forum).

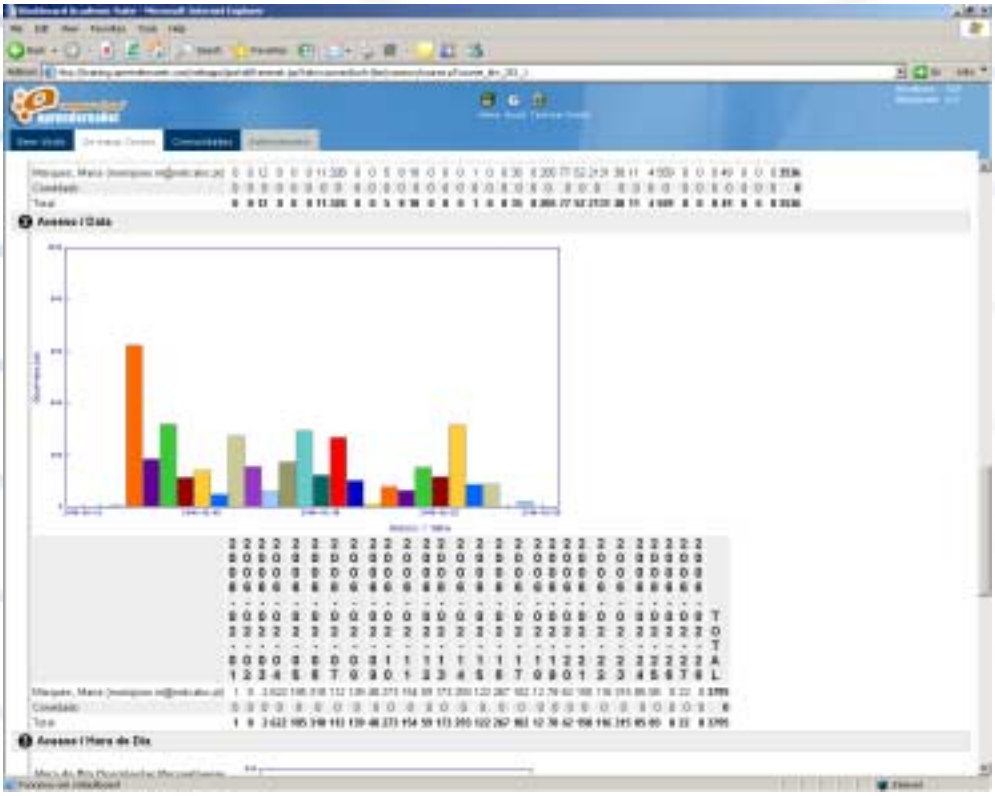

Fig. 6 – Screenshot - course statistics (available to the tutor).

2.4. Course development

The “e-Learning awareness” course is a b-learning course. The course has a total duration of 17 days. The traditional training sessions lasts 3 hours each, from 19h to 22h (3 sessions of 3 hours each). Trainees are advised to dedicate, in average, 2 hours per day to the online sessions; however they are responsible for their own time management.

The course progression depends of the tasks performed during the modules. The course activities must be carried out in groups of 4 elements decided on the first training session (or proposed by the e-tutor, in case of trainees’ absence during the first training session). The activities may also be commented in the forum according to tutor’s instructions.

At the end of each module, 2 assessment tests must be completed. Each test can only be carried out one time; however trainees have the possibility to revise the tests whenever they want.

After completing the assessment tests, trainees receive an automatic feedback with each test results. At the end of the course, trainees have access to the course overall assessment results.

2.5. Course administration

The administration process is powered by the Learning Management System – Blackboard v.7.

Trainees have a user name and password to access to the training course. When entering the platform trainees has access to the following areas:

- Training course contents;
- Information about the platform functionalities as well as minimum technological and technical requirements to access to the e-course;
- News, articles about e-Learning and Highlights.

In the training course contents area, trainees have access to: information about the course; course supporting documents; set of exercises per module; thematic forums; groups work area; library; e-course coordination and e-tutors notices; training assessment; external links.

Trainees can access to course materials all along the course and after the course ending.

At the end of the course, a course handbook is available for the trainees, in .PDF format, containing all course contents. Equally, trainees receive the course diploma, stating the course name, the course structure, the number of hours completed and the assessment results achieved (in accordance with the national standards defined by the national VET authority - IEFP – Employment and Vocational Training Institute).

3. Effects and outcome of the e-learning activities

3.1. Completion rates

The course in which one person from Medilabor participated achieved the following results:

Enrolments: 21

Dropouts: 3

Graduations: 18

3.2. Satisfaction

Maria João Marques did her 1st training of trainers' certification in CECOA. Some year's later she did her 2nd training of trainers' certification in order to up-date skills and competences as a trainer. In Portugal this is a compulsory requirement concerning trainers professional certification, for trainers working in vocational education and training, in particular, for trainers working in training initiatives funded by the European Social Fund.

It was precisely during her last course certification that Maria João Marques learned about the importance of self-learning systems as a traditional training complementary methodology.

At that time, Maria became aware of the importance of the self-learning courses material conception and development and since then, she started to collect information from the web about distance learning and e-learning.

In a particular occasion, when she was at home for a considerable period of time, she decided to invest her time in an e-Learning awareness course promoted by SAF. The course was co-financed by the ESF, so there was a small risk in terms of money and time investment and the return was very high when compared with her previous level of knowledge.

At the end, she has very satisfied with the results and decided to attend a 2nd e-Learning training course, this time about "Conception and development for e-Learning contents".

4. Challenges and barriers

Maria João Marques is a self-taught person. She likes to explore information and get involved in new training experiences and she is a very social oriented person. To her b-learning/e-learning as a learning methodology was very challenging because she could learn specific contents, according to her needs and expectations, in her own rhythm and timeframe.

Maria considered as an eventual barrier to the use of e-learning solution, the low level of digital literacy of the potential trainees.

In her opinion, e-learning or b-learning will only be interesting to persons with a minimum level of experience with ICT basic tools as Word, Power Point and Internet.

Maria stated that if people don't have a minimum level of practical knowledge about how to use these tools they won't be motivate and will consider the e-learning experience a waste of time.

Another eventual barrier is the amount of contents available in English. Maria pointed out the need to develop more contents in Portuguese language, in particular, for less educated trainees.

She also considered a barrier the fact that some e-courses are developed and implemented without knowing the real needs and expectation of the end-users. How will e-courses drive results in those circumstances? She also stated that it will be important to adapt the language, the training metaphors and the duration to the trainees' needs and previous level of knowledge.

She mentioned that the lack of human interaction within the e-learning systems, most of the time perceived as a barrier can, in fact, be seen as an advantage since each person will be online when they are really available to learn, to explore and to share the knowledge with the other learning community members.

In Maria opinion and taking into consideration that Medilabor is also providing vocational training services to its costumers, to invest in e-learning solutions to offer into the market is a possibility that should be considered.

Maria considered there is some market for it. For example, training courses as "Fire protection" or "Safety and Health at Work Technicians" or even "Safety and Health at Work Superior Technicians" could easily be provided on a b-learning solution, with theoretical contents provided in online sessions and practical contents provided in traditional training classes or even through on-the-job-training sessions. Maria, also, stated that, in that case, a set of investments both at technological and pedagogical level would be necessary.

5. Success factors

For Medilabor and in particular for Maria João Marques the e-learning success factors are the following:

- Existence of user-friendly platforms with various communication channels available to promote the contact between trainees and between trainees and tutors;

- Existence of updated training contents;
- To mix traditional training with online classes;
- To use traditional sessions to motivate trainees and promote the team work spirit;
- To use simple and work related metaphors to design e-courses layout;
- To promote a link between the theoretical contents, that can be delivered online, with the practical contents, that can be explored individually or in team work exercises as demonstrations, simulations, real cases discussion, etc;
- To use the animations, graphics and multimedia effects to foster customers and end-users motivations;
- To invest in short duration courses.

6. E-learning investments, developmental costs and operational costs

Medilabor had no direct costs, since the training course was co-financed by the ESF and the participation fee supported by Maria João Marques.

Nevertheless, Medilabor had a set of indirect e-learning returns since Maria João Marques is already enrolled in a 2nd course. During the 1st b-learning experience she was able to invest her time and money. Maria considered the e-Learning as an investment to her and to company she works in.

Nowadays, she is investing in a 2nd course, also co-financed and this time she is dividing her time between her work and her training - she is no longer at home. Maria is attending a “Conception and development for e-Learning contents” course. This course is more ambitious than the 1st one: 120 hours, 18 hours traditional training and 102 hours online training.

What is more interesting, Maria directly involved her top level manager in the process. Her General Director and another employee from Medilabor are now enrolled in the same first course she attended!

Tuca Informática

By Javier Coll, Confederació de Comerç de Catalunya

1. Facts about the institution

Name of institution	Tuca Informática
URL of institution	Under construction
Country	Spain
Number of Employees	3
Revenue in 2005	-
Experience with e-learning since	2005
Business sector	Sale of and advice on computer products
Target group/participants in e-learning	Intermediate command
Content	Business English
Form	e-learning
People interviewed	Mª Mercedes Morales

2. How the institution used e-learning

2.1. The courses

Tuca Informática is a small retail company selling computer products (both hardware and software) and providing computer advisory services.

Mrs. Morales became aware of e-learning English courses for retail sector workers subsidised by *Fundación Tripartita para la Formación en el Empleo* (Foundation for the Vocational Training) (www.fundaciontripartita.org) and *Fondo Social Europeo* (European Social Fund), these organisations promote the Spanish policies on Lifelong learning. This training is made up in a Project financed to *Confederación Española de Comercio* and developed by *Confederación de Comercio de Cataluña* and, given that she has little time available for training and that English is an indispensable tool for her work, she took advantage of this opportunity to broaden and bolster her knowledge of the language.

Given that she works in the ICT sector, she had no worries about this form of learning. Nevertheless, she is of the opinion that e-learning is not the most appropriate method for learning completely unfamiliar subjects, although it is very useful for broadening and updating already-acquired knowledge.

The targets of the course are aimed at the knowledge of grammar, phonetics and vocabulary necessaries to acquire an advanced knowledge enabling fluent conversations about several subjects regarding professional and familiar branches.

She has now completed two e-learning English courses and does not rule out doing more.

2.2. Number of employees involved

One manager

2.3. E-learning platform and technology issues

Editrain (www.editrain.com) supplies the training platform and takes charge of managing the course. Editrain is a company specialising in consulting and training, with more than 10 years' experience in the field. Made up of highly-specialised professionals, it carries

on its activities in Spain, Latin America and Central and Eastern Europe. It participates in European Commission meetings on “life-long learning” and has developed training consultancies in countries such as Russia, Hungary, Latvia, the Ukraine and Brazil. It has participated in numerous European technology and training-related courses. It is a EFQM quality-certified company.

To do the course, users require a PC with audio output and a microphone for oral responses and pronunciation exercises. No special software is required, only the Internet Explorer browser.

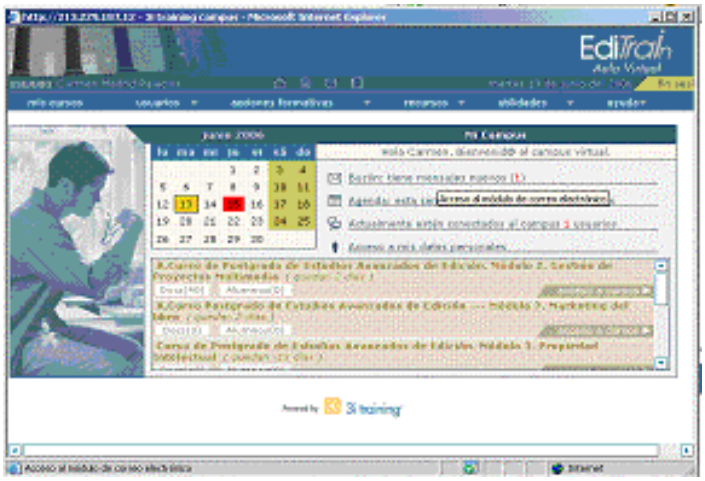

Figure 1. Screenshoot ot the first page of the Editrain *Aula Virtual*

2.4. Course development

The entire course was online, with no face-to-face sessions. To carry out the course, users connect to the Editrain web site and access the Virtual Classroom with the user name and password with which they are provided.

Editrain provided her with a “user’s manual” which described the methods, a quick-start guide and how to access the course for the first time. There was also an immediate-response telephone hotline.

Before starting the course she took an on line “preliminary exam” to determine the level of her training course. The level she was assigned was in accordance with her knowledge.

Each course consists of didactic units. Every didactic unit contents the following activities to be carried out: Introduction, Listening, Speaking, Reading, Writing and Review.

Every didactic unit has to be worked out by using multimedia tools: video, audio, oral role-playing exercises and exercises carried out on the web site which are corrected automatically by the system.

Other complementary exercises are also included that can be downloaded onto the computer. These have a theoretical part, with the remainder applying said theory and the concepts seen on the web site.

Lastly, there are exercises in xls format, making them easily manageable by users, and which comprise the continuous assessment of the student by the teachers. These exercises allow for voice recording and contain pop-up fields for choosing options. Once

carried out, she sent them to the teacher, who returned them within 2 or 3 days with a small commentary.

The lessons were fun and the text understandable, but she feels that this type of training is more useful for reinforcing knowledge, increasing vocabulary and understating of verbs and grammatical structures rather than learning a new subject from scratch.

The course had a total duration of 72 hours and had to be completed in one month and a half. The time indicated for each lesson was 1 hour. If she did them without interruption, she required 45 – 50 minutes. On occasion, she had to interrupt her training to deal with other matters, and then she could take 90 minutes to complete the lesson. The time limit contemplated by the platform was not based on hours, but rather from the start to finish dates.

At the end of each lesson there was a knowledge assessment test and there was a final test at the end of the course (as noted above, in xls format).

She felt that the one month and a half time limit for the course was short. If more time had been made available, she would have revised more and could have done more complementary exercises.

The platform had a forum to connect with other students, but she never used it.

2.5. Course administration

The registration process was very straightforward. They sent her the registration application with information on the documentation required for carrying out the course. With the user name and password they supplied her, she accessed the course without any problem.

3. Effects and outcomes of e-learning activities

3.1. Completion rates

She completed the 2 courses she followed.

3.2. Satisfaction

The course met her expectations. In light of the effort made and the level of knowledge obtained, the course was satisfactory. She does not rule out following other courses.

4. Challenges and barriers

The period established for the fulfilment of the course could turn into a barrier doing difficult the carrying out of the complementary and reinforcement exercises as well as the other training tools of the web.

Using new technologies as an usual tool makes the carrying out of online courses easier. Nevertheless, there are still lots of small trading companies without -or with not many- technological competences.

The participant establishes one's own apprenticeship pace and the teacher / form master does a more individual control of the student.

5. Success factors

This learning method is satisfactory because it can be carried out conveniently, without having to travel and taking advantage of odd moments during the day. Another success

factor was that she had prior knowledge of English and wished to reinforce and broaden this.

Motivation is a key element in course satisfaction: English is a basic tool of the computer retail sector, in that, if there is any technical or commercial issue, they communicate with the manufacturers in English through the manufacturer's web site, e-mail, by phone, etc.

Another positive factor was that the course was completely subsidised.

6. E-learning investments, developmental costs and operational costs

The course was completely subsidised and hence free of charge to the student.

Librería Álvarez

By Javier Coll, Confederació de Comerç de Catalunya

1. Facts about the institution

Name of institution	Librería Álvarez
URL of institution	
Country	Seville - Spain
Number of Employees	4
Revenue in 2005	
Experience with e-learning since	2005
Business sector	Bookshop
Target group/participants in e-learning	Proprietor
Content	Computers
Form	Online web-based
People interviewed	Librería Alvarez: Antonio Alvarez Rey

2. How the institution used e-learning

2.1. The courses

Librería Alvarez is a small retail enterprise selling books. Until last year it had no experience in e-learning. In 2005 they found out that it was possible to carry out e-learning courses subsidised by the *Fundación Tripartita para la Formación en el Empleo* (Foundation for the Vocational Training) (www.fundaciontripartita.org) and *Fondo Social Europeo* (European Social Fund), these organisations promote the Spanish policies on Lifelong learning - through an agreement signed between the Spanish Booksellers' Guild and the company Editrain. This offered him the chance of registering for the course, free of charge, and he took advantage of this opportunity.

He chose a Microsoft Word training course, as he was using the program a great deal and wished to improve his understanding of it. Additionally, he then had the time to follow the course.

The main objectives were:

- To understand the functions of the Word program and its most advanced tools
- To get an in-depth knowledge of the options for integrating between the different Microsoft Office programmes
- To make use of all the opportunities offered by Microsoft Word
- To improve performance and productivity from using Microsoft Office in a working environment

The Microsoft Word e-learning course contents included:

- Basic aspects of the programme
- Advanced tools
- Formats.
- Importing graphics and creating drawings

- Working with tables
- Working with long documents
- Sharing data with other users and other applications
- Working with online documents and the Internet
- Merging documents in combination with correspondence
- Personalising Microsoft Word

He believes that it was a satisfactory experience and would be prepared to repeat it.

The entire course was on-line, with no face-to-face sessions.

2.2. Number of employees involved

One, the proprietor[3]

2.3. E-learning platform and technology issues

To carry out the course, he used the Internet Explorer browser.

The platform is supplied by Editrain, (www.editrain.com) a company specialising in consulting and training, with more than 10 years' experience in the field. Made up of highly-specialised professionals, it carries on its activities in Spain, Latin America and Central and Eastern Europe. It participates in European Commission meetings on "life long learning" and has developed training consultancies in countries such as Russia, Hungary, Latvia, the Ukraine and Brazil. It has participated in numerous European technology and training-related courses. It is a EFQM Quality-certified company.

Face-to-face training provided to more than 2,000 professionals from businesses and institutions has provided it with a know-how which has permitted the development of its own online training platform. The LMS e-learning platform meets the ADL SCORM and AICC e-learning standards.

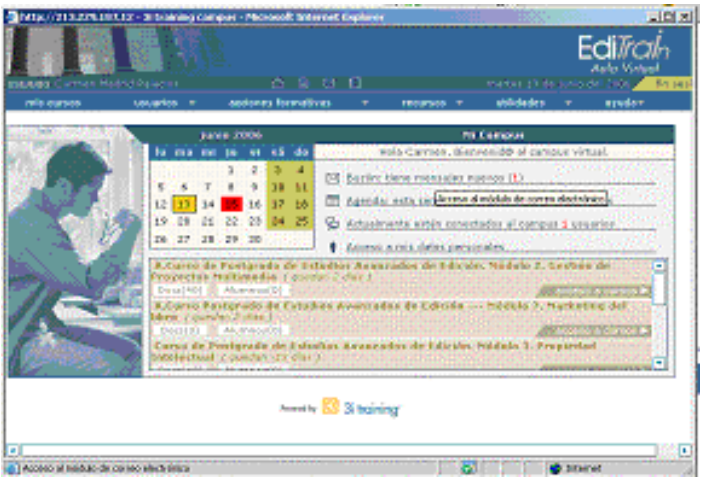

Figure 1 – Screenshot of the first page of the *Aula Virtual*

2.4. Course development

Editrain supplies an *Editrain Virtual Classroom Initiation Manual* with clear, comprehensible explanations on accessing the course, its structure, basic usage principles and study tips.

Editrain provides software for downloading and a user name and password. This information allows users to enter the Virtual Classroom, which in turn allows access to the Virtual Campus and the course itself.

The courses are made up of a series of lessons and a final assessment test. The goals to be achieved are specified at the start of the course. Each lesson consisted of an explanatory text and exercises to be carried out, which were corrected by the tutor within 48 hours. It was very easy to use and presented no problems.

There was a tutor for queries, with both synchronous communication tools (telephone and chat room) and asynchronous ones (internal messaging service). As well as evaluating the exercises and the development of the course, the tutor also sent encouraging messages to strengthen commitment to the course.

He could also contact other students by means of the chat room, to solve problems, discuss incidents, etc. but never used this communication tool with other participants.

2.5. Course administration

The entire process is carried out via the Internet. After registering, he received an e-mail from Editrain informing him that he was accepted on the course and providing him with his user name and password. With this information, he entered the Virtual Classroom.

3. Effects and outcomes of e-learning activities

3.1. Completion rates

He completed the course

3.2. Satisfaction

It was a satisfactory experience. It fully met his expectations. The experience was better than expected.

4. Challenges and barriers

In general, the policy for informing SMEs about e-learning is poor.

SMEs involved in retail, without any previous experience of this form of learning, show a certain resistance towards e-learning.

Online training of employees during working hours is difficult because their job activities prevent them from having a peaceful environment without interruptions in which to follow the course.

Training outside working hours needs a lot of motivation, necessity and/or interest in the subject, as much more commitment is required for e-learning than for face-to-face training sessions.

These obstacles were satisfactorily overcome. Through an organisation representing the sector, A. Álvarez received direct information on e-learning and the courses available to him. His prior knowledge of computers and the Internet made it easier for him to

assimilate this form of learning which meant he did not have to absent himself from the shop and was free to organise his own study time.

His motivation and interest in the course were strengthened by the relevance of the contents to his work and the ease of using the *Aula Virtual* (Virtual Classroom).

5. Success factors

In general, participants on an e-learning course rate the success of the experience in terms of their expectations, the relevance of the contents to their needs, the ease of using the platform, the educational support, the synchronous and asynchronous tutoring system, speed of response, technical assistance where applicable, services, etc. When all these aspects work properly, which was the case here, the experience is very highly rated and there is an increased willingness to continue with this kind of learning.

Another factor in its success is the convenience of the training process: no need to travel and no pre-set times.

For Antonio Alvarez, the motivation of learning new skills in Word, a program which he uses a great deal, as well as its brevity, was also a key factor in this e-learning course.

In addition, we should stress that the option of following a completely subsidised course is very highly rated, and is often an essential factor for owners and employees of SMEs involved in retail for following both virtual and attendance training courses.

6. E-learning investments, developmental costs and operational costs

The course was subsidised.

Kometter-Kasca

Author unknown

Name of institution: Kometter-Kasca
URL of institution: Ingrid.Kometter-Kasca@bitonline.cc
Country: Austria
Number of Employees: 0
Revenue in 2005:
Experiences with e-learning since: 2003
Business sector: IT
Target group/participants in e-learning: Employer
Content: MS-Office; MOS Cert.
Form: Blended learning solution
Interviewed people: Ingrid Kometter-Kasca, employer

2. How the institution used e-learning

2.1. Description of the starting situation

Mrs. Kometter-Kasca was no longer current by establishment of family at „the pulse of the time “and had to acquire and refurbish appropriate knowledge before establishment of her enterprise. Her current enterprise concerns itself with adult education within the IT-range.

To be successful in business it is necessary to develop knowledge and attain certifying. The advantages of e-learning are independence, free timing, flexible organization of the contents of, own rate of learning, individual strengthening of learning contents by repetition of the exercise. As a young nut/mother learning was at home a nearly inevitable must. The operational readiness level phases were accomplished in evening units, which came to meet again the care of children much.

2.2. The courses

5 modules

- Outlook,
- Word,
- Excel,
- Access,
- PowerPoint

The total period was 13 weeks.

The e-learning course is developed majority multimedia and sets a rich medium-mixes (large portion of video, Audios, animated patterns, interactive elements for success in learning controls, Self tests)

- presentation by/the TrainerIn
- single work
- self learning portions
- group work
- specialized spreading work on the project
- single coaching

E-learning

- to each module a eLearning content is offered
- Teletutoring by experienced Tutors
- electronic „black boards "for the exchange of experience and knowledge that participant inside
- electronic panel
- electronic information and organisation tool

Technical requirements

Win XP, Office XP

2.3. Number of employees involved

12

2.4. E-learning platform and technology issues

- Internet: (56K Modem)
- Internet Explorer: 6.0 or higher
- Macromedia Flash 5 plug-in
- Screen resolution: standard

2.5. Course development

Due to the specific target group the training variant with evening units was in operational readiness level form and cared for e-learning at home the most meaningful variant.

As above described for re-entering gutters an optimal variant, since the care of children was problem-free organizable during the training.

By permanent Teletutoring over the learning platform during the entire training period

Before admission into the course measure all had to complete participant inside a classification test, thus large group homogeneity.

PC with Internet connection had to be to learning completion at the disposal, directly over Internet.

Safety device of the continuity, implementation and the protection of the mental property by use one „secured “learning management system.

Use of existing standard products (e.g. ECDL)

Continuous evaluations and adjustments/improvements of the learning platform

2.6. Course administration

- Takes place central from the provider
- Continuously, during the entire training period

3. Effects and outcomes of the e-learning activities

3.1. Completion rates

12 employees,

everything existed, 90% very well

3.2. Satisfaction

Success of the participants was obviously. Immediately after course end 10 participants had been able to achieve their goal.

Medium-sized Enterprises

Medium-sized enterprises have more employees, more resources and probably more e-learning options than small enterprises. However, so far it seems like few medium-sized enterprises have chosen to develop e-learning solutions by themselves. They seem to rely on external support.

Just as small enterprises do, medium-sized enterprises can send groups of employees to standard e-learning courses that are offered on the open market such as the Balti Investeeringute Grupi Pank – BIG has done. However, they may also benefit from more specialized courses offered through a branch association such as The National Pharmacy Association. The third interesting option is that they can conduct e-learning in cooperation with suppliers such as the Interpolis insurance company and Prisma Food Retail and with chain members such as Rabobank intermediaries and Golff supermarkets. The suppliers may create more loyal and competent retailers by giving them access to e-learning. Cooperation through associations or chains makes sense because the enterprises may save money by splitting the costs between the partners.

Balti Investeeringute Grupi Pank – BIG has 101 employees in Estonia. Two study groups with a total number of 22 employees were involved in the blended learning course Credit Management. The first module was about private loans; the second was about business loans. The course is among the standard credit courses offered by the Estonian e-University via its WebCT e-learning platform. The course is based on two printed textbooks and a number of online tools provided by WebCT. Learning groups start four times a year, and the course duration is 6 months.

Associação Nacional de Farmácias, the National Pharmacy Association (ANF) in Portugal, was established in 1975 with the aim of defending the interests of pharmacists. ANF represents almost all the pharmacies in Portugal, although membership in the association is optional. The association provides two e-learning courses. The first course, Gastroesophageal Refluxes and Peptic Ulcer Disease, enrolled 146 trainees. The second course, Vaginal Infections, enrolled 12 participants. The course content is available in HTML, and it includes animations and interactivity in a Flash format and documents that can be printed in pdf format. Communication between trainers and trainees is supported through chat, discussion forums and e-mail.

Interpolis is a large insurance company in the Netherlands that offers an online course for prevention officers in SMEs. According to the EU Framework Directive (89/391/EEG), all businesses in the Netherlands must appoint an employee as prevention officer with the task of protecting against occupational risks. The compulsory training the prevention officers need is a major challenge for many SMEs. They don't want to close their business for one or two days. There is simply no time for it. The online course makes it possible for the SME employees to complete the course without leaving work. The online course takes about two hours to complete, and the participants receive a recognized certificate if they complete the course successfully. So far at least 4000 people have taken part in the training and the introduction to the program appears to have been a success.

Rabobank is a coalition of independent financial intermediaries (that can be viewed as SMEs), which have a total of 4000 employees in the Netherlands. According to the Financial Services Act, the intermediaries may only provide their services if they possess a license and demonstrable expertise. Rabobank is also an important distribution channel for the Interpolis insurance company. Interpolis ensures that the intermediaries fulfill the requirements in the Financial Services Act, and it regards training as a tool for

adding value to its products. Interpolis has accelerated the introduction of a new life insurance policy through an e-learning insurance course developed for its intermediaries. So far, 4100 participants have followed the course and 10000 policies have been sold. The course resulted in additional sales and considerable shorter time to market for the new insurance.

Golff supermarkets are run by independent entrepreneurs. They purchase goods and services from Prisma Food Retail, but they are free to purchase from other providers as well. Most of the entrepreneurs have set up a private company with limited liability. The companies can be labelled as SMEs. In 2005 the entrepreneurs initiated the e-BEAT e-learning initiative that was mediated by Prisma. By mid May 2006, 300 of the 1800 people working in the Golff supermarkets had taken part in the course Introduction to Working at Golff. The introductory course will be followed by two more e-learning courses: Golff Rules and Golff Marketing. The Golff entrepreneurs all have a broadband Internet connection and a separate computer the employees can use to follow the courses. It is expected that each Golff entrepreneur will save about € 1500 per course. The introduction of the program has appeared to be a reasonable success.

Effects and Outcomes

The Balti Investeeringute Grupi Pank – BIG reports that their completion rate was 73 percent. Golff informs that the system generates progress reports. Information about completion rates at ANF, Interpolis and Rabobank is not available.

The case from Balti Investeeringute Grupi Pank – BIG includes the results from a survey on student satisfaction. From the institution's point of view, it benefits a lot from e-learning because the company has employees in several regions in Estonia. Bringing employees together to one classroom would consume a lot of valuable working time.

ANF reports a high level of satisfaction. Information about satisfaction levels at Golff, Interpolis and Rabobank is not available.

Challenges and Barriers

There was a wide range of challenges and barriers mentioned in the case descriptions. Just a few common issues are listed here:

- The training is financed by BIG Ltd and it is free of charge for the employees. If they fail an examination, they have to pay the second attempt themselves.
- Availability of Internet with the correct browser
- Language barriers
- Uncertainty if course content matched the legal requirements
- Management commitment
- Acceptance problems among employees aged 35 to 45

Success Factors

E-learning can reach and connect geographically dispersed groups and hence reduce travel time and cost. Furthermore, schedule flexibility makes it possible to reduce cost related to absence from work. E-learning also has logistic advantages. It is swifter and easier to distribute digital course material than printed material. This may increase its competitive strength because of accelerated time to market.

Certification may be very useful. Both Interpolis and Rabobank emphasise the importance of obtaining a validation from an external certifying body. Golff maintains that it is an advantage to offer electronically printed certificates via HTML.

Support from managers and internal e-learning competency are also mentioned as a success factors.

Finally, successful e-learning should build on practical, in-depth and up-to-date knowledge of the subject area as well as suitable models and technology. This may include initial training to become familiar with the e-learning platform and the people involved with the course.

Costs

The Interpolis, Rabobank and Golff cases all argue that the enterprises experience substantial savings from their e-learning projects.

As BIG Ltd does not develop and implement training courses itself, the course fee is the only investment. The fee was € 226, that is € 37 per ECTS credit point. The company claims that it is cost-effective for small enterprises to purchase courses externally, instead of developing courses themselves. BIG Ltd covers the expenses of the training and correspondingly employees have the obligation to work for the company for next 12 months. If employees choose to quit earlier, they must reimburse the expenses (proportional to time spent in the company). This is an effective restraint, but in reality BIG Ltd has considered every case individually.

Balti Investeeringute Grupi Pank – BIG

By Karin Liikane, University of Tartu

Distance Learning in Credit Management for BIG Ltd at the University of Tartu, ESTONIA

1. Facts about the institution

Name of institution	Balti Investeeringute Grupi Pank AS - BIG (Baltic Investments Group Bank Ltd)
URL of institution	www.big.ee
Country	Estonia
Number of Employees	101
Balance Sheet total in 2005	M EUR 34.3
Experience with e-learning since	2004
Business sector	Finance
Target group/participants in e-learning	Branch Loan officers and Credit managers
Content	Credit Management I-II
Form	Blended Learning
Interviewees	Mr Kaido Saar, Manager of Branches (responsible for Training function), and a former Course participant

2. How the institution used e-learning

2.1. Description of e-learning courses provided

Course name:	Credit Management I-II, www.finance.ut.ee
Duration:	6 months
Target group:	• Bank Loan officers and Credit managers • Corporate Financial managers • (Potential) Bank customers interested in Credit management issues • MBA students in Finance and Banking at Estonian universities
Objectives:	• To determine Loan products and examine Loan conditions • To explain different Interest rate calculation methods • To clarify Credit management process • To define Environment risk aspects in Credit management • To form Bank Credit management policy as a strategic as well as legal matter

Programme:	• Module I - Private Loans: products, conditions, analysing process, repayment, legal issues and policies • Module II - Business Loans: products, conditions, analysing process, repayment, legal issues and policies

2.2. Number of employees involved

The number of the course participants is not limited (usually approx 30 students). Since April 2006, the total number of participants from BIG Ltd is 22 (in two study groups) who are integrated with other participants.

2.3. E-learning platform and technology issues

The courses are designed in WebCT Campus Edition version 4.1 (see http://webct.e-uni.ee) in Estonian e-University server. WebCT Campus Edition gives instructors an easy way to prepare dynamic courses and efficiently manage interactions with students. WebCT Campus Edition includes a complete set of tools that support innovative approaches to teaching and learning. Using the rich feature set of WebCT Campus Edition, instructors can facilitate group-centred learning, personalise content and activities for students, and positively impact learning outcomes.

The Course training tools consist of:

- two hardcopy textbooks (340 pages in total)
- syllabus, calendar, group forums, student homepages, self-tests, cases, glossary, mail, discussions, my progress in course WebCT environment

2.4. Description of the course development process

BIG Ltd as a small company lacks the necessary resources and competences to develop the training courses itself. It is more cost-effective to send the employees to participate in university continuing education courses.

Course development process by the university includes the following steps:

- Clarification of:
  - learning objectives
  - qualifications and background of the students
  - learning principles
- Course content analyses
- Course content development (the texts of textbooks)
- Publication of textbooks
- Learning process planning (pedagogical concepts, teaching methods, timetable, requirements, etc.)

- Development of study guide and instructions (self-tests, glossary, instructions for assignments)
- Course technical design in WebCT

2.5. Description of the course administration process

Learning groups are formed 4 times in the year. The duration of the course is 6 months. The capacity of the course is 8 ECTS (240 hours of student work, including 6h class training + 1h class exam).

Learning process means independent work with Training materials, participation in face-to-face consultations and in the final exam. Course WebCT environment is used for

- communication (e.g., announcements, discussions concerning the course topics)
- supporting and guiding students in the periods between consultations
- exercising (self-tests which help to prepare for examination)
- tracking the students' progress

3. Effects and outcomes of e-learning activities

3.1. Completion rates

Primary initiative for the training comes from the company management. The training course Credit Management I-II is included in Basic Training Package for the positions Loan Officer and Credit Manager. The Credit Management I-II is the only subcontracted training course within this Package.

Other courses within this package (Law, Bank products) are conducted by the training staff of the BIG Ltd. Target group of the course is experienced staff members. It is also planned to include the course in Initial Training Package for new employees once the current rapid growth period of the company subsides.

90 % of the personnel participating in the training course have strong interest in training. For example in 2006, 16 out of 22 participants have completed the training on time and with positive result (positive completion rate 73 %). One employee (Mr Kaido Saar) took the final examination in advance. Two employees completed the training in the second attempt. Two employees will make the second attempt in the nearest future. Only one employee has dropped out the course.

The training course ends with a multiple-choice test. The average examination completion rate for the employees of the BIG Ltd was 78.7% (with minimum positive rate 70%).

3.2. Satisfaction

The statements below are composed to describe the satisfaction with the course (Table 1).

(Task: Please indicate your opinion about the training course. Using a scale from 10 to 1, please rate your preference where 10 indicates your strongest preference and 1 indicates no interest/preference, Columns (2) and (3))

Column (4) in the Table characterizes arithmetic mean indicators of the employees of BIG Ltd (scale from 5 to 1 where 5 indicates the strongest preference and 1 indicates no interest/preference).

Mr Saar has ranked the statements as shown in the Table 1 (Column 2 ranked from the point of view of the BIG Ltd, Column 3 from the point of view of the student).

Table 1. Big Ltd employees' Satisfaction with the Training Course Credit Management 2004- 2006

Statement about the Training Course	Significance of the statement (Scale 10→1)		Mean estimation
	Institution 's point of view:	Student's point of view:	
(1)	(2)	(3)*	(4)**
1. Employee acquires new knowledge from the Course	10	10	4.4
2. Employee can use the acquired knowledge in his/her work	6	4	4.0
3. The course materials are appropriate for independent learning	7	7	4.1
4. Employee studies in a sufficient and organized manner	5	2	3.2
5. Examination test is comprehensible	1	1	3.8
6. Difficulty of the examination test is in accordance with the learning materials and knowledge acquired in consultation	2	6	4.1
7. Employee intends to take more distant learning courses in the future	3	3	3.6
8. Employee recommends the Course to his/her colleagues	4	8	3.8
9. Correlation between cost and quality of the Course is excellent	9	5	3.2
10. Expectations of the company/employee were met	8	9	4.1

* Estimations of Mr Kaido Saar

** Estimations of employees of BIG Ltd (as indicated on participant feedback sheets)

Conclusions:

- The most valuable feature for both company and employees (students) is the acquisition of innovative knowledge (10 points).
- The students tend to favour the emotional aspects of the studies more: whether their expectations were met (9 points) and whether employee is ready to recommend the training course to his/her colleagues (8 points).
- The correlation between cost and quality (9 points) and judgements on expectations and outcomes (8 points) are of importance for the institution.

- The fourth important criterion for both the company and employees is the quality of study-materials (7 points).
- It is interesting to point out that employees' ability to use the acquired knowledge in their daily work is rated only fifth in the order of importance (6 points). The explanation to this might lie in the broader objectives set to particular training course.
- The next indicator for the student is clarity of the examination test (6 points) and only then the cost of the training (5 points).
- Company managers valuated the subject of learning styles of the employees with 5 points. Surprisingly this is almost the least important matter (2 points) for the employees themselves. There might be two possible explanations for that: whether this is not important feature for the 1) particular course or 2) for the particular target group.
- Recommendations from the colleagues indicate possible predisposition of the (future) attendants of a compulsory training. Surprisingly the company opinion shows low interest in positive recommendations (6th position, 4 points).
- The opinions of the students and managers overlap again in their views of the comprehensibility of the examination test, which both see as the least important. The examination was estimated as of low importance even though this is the characteristic that should determine the quality of both materials and performance.
- The highest average assessments (4.4 and 4.1 points) were given to the components valued most by the management and employees of BIG Ltd - i.e., Employee acquired new knowledge from the Course and Expectations were met.
- Regrettably the reason for placing the issue of correlation between cost and quality of the training course to the last position by students (3.2 points) can not be estimated accurately. It is impossible to estimate whether the students find the cost too high or too low (please see Part 6 for details).

3.3. The most valuable outcome

From the Student's point of view:

Mr Saar points out that the most valuable outcome of the current training course lies in acquisition of knowledge in the form of contemplation and ideas. *"I do not particularly like face-to-face training and obligatory personal attendance. Independent work with materials suits me better. I would dislike the obligation to attend the classes regularly during a long period of time."*

From the Institution's point of view:

The most valuable outcome of the training lies in employees' understanding of why they should accomplish one or another business in a certain manner. The premise of the training could not rest on the command "a Loan Officer should be more competent!"

BIG Ltd benefits much from the form of distant training as the company has employees in several regions of Estonia. Bringing employees together to one classroom would consume a lot of valuable working-time. If the opportunity of distant training were not available, most probably only the employees from Tallinn office could attend the training.

4. Challenges and barriers:

4.1. Technical issues

Challenges

Actual training was arranged in a form of paper-based materials. Student could log in to LMS, but they did not get much instruction there. Mr Saar also pointed out that if there were web-based materials available, he most probably would just have printed them out.

Barriers

No actual performance was carried out in web environment.

4.2.1. Organizational issues from the institution's point of view

Challenges

There is not much competitive training available in the field of Credit management and not every training program is worth purchasing. Low cost does not ensure quality. BIG Ltd would not replace the training course even if the Program offered by the University of Tartu would change its vendor, because BIG Ltd is convinced of the quality of the Course. In the case of new training courses offered by other training institutions, BIG Ltd would certainly run a background search and investigate the former clients' satisfaction.

4.2.2. Organizational issues from the student's point of view

Challenges

Opportunity to get and transfer credit points. This motivates the group not only to finish the training but also to synchronise the training with one's Degree Studies.

Barriers

The students are under-motivated as the only form of supervision is the final examination.

4.3. Financial issues

Challenges

The training is financed by BIG Ltd and it is free of charge for the employees. In the case of negative examination attempt, the employee has to reimburse the fee of the second attempt. This and as well as the discredit resulting from failure are excellent motivating factors for employees.

5. Success factors

Premises for the successful cooperation between the Distance learning project at the University of Tartu and BIG Ltd:

- Distance learning project at the University of Tartu is practically the only high-grade training in its field that uses practitioners as lecturers. There are more training programs available in Estonia, but their content is mostly theoretical.
- Learning materials of the course are up-to-date. The company cannot afford lectures about methods stemming back 20 years.

- Distance Learning can integrate geographically dispersed target groups and this permits BIG Ltd to give instruction to employees from different regions of Estonia.

5.1. Identification of Pitfalls

The mistakes that should be avoided by Course provider are the following:

- As long as the University of Tartu conducts high-quality training and avoids low-cost popularity, Mr Saar does not foresee any serious competitors to it.
- The content of the training is very good, but more effort should be put into marketing. Distance Learning courses could offer personalised schemas to the companies and motivate companies to increase the numbers of employees attending the training. Offering discounts to the company would also increase the number of participants! Mr Saar suggests the messages "we are the biggest and best-quality trainers", "we have excellent feedback from our clients", "Ten years of experience" for attracting new clients.
- Focus should be kept on distance learning. Replacing the distance learning with face-to-face learning would reduce the target groups. More emphasis should be placed on stimuli instead of bringing people to lecture hall.
- However, fully web-based training is also not favourable. The printed learning materials can be re-used and the materials also serve to promote the university brand.

6. E-learning investments, developmental costs and operational costs

As BIG Ltd does not develop and implement training courses itself, their only investment is payment of the course fees. Course fee per one participant is 226 EUR, i.e. 37 EUR per ECTS and this fee includes:

- Paper- and web-based Training materials
- Class and web Mentoring and Tutoring
- Course Administration charge
- Program development investment
- VAT (18%) since Jan 2006

The Course fee has not risen since the opening of the course in year 2000. To compare: average monthly gross salary in Estonia in Dec 2005 was EUR 593.9. It is cost-effective for small enterprises to purchase training courses from outside, not to develop courses themselves.

BIG Ltd covers the expenses of the training and, correspondingly, the employee has the obligation to work for the company for the next 12 months. If the employee chooses to quit earlier, he/she is required to reimburse the expenses (proportional to the time spent in the company). This is an effective restraint, but in reality, BIG Ltd has considered every case individually.

BIG Ltd does not allow employees to take study-leave to complete the training. The main reason for that is the fact that it is difficult to evaluate the quantity of time spent on the Course. In the case of study-leave, the company should also finance the salary and the cost of work not completed. This would only be possible if the employee paid for the

training himself/herself. Until now, BIG Ltd and its employees have managed completing the training courses without serious backlashes.

7. What else could University of Tartu offer to BIG Ltd?

BIG Ltd is in a serious need for skilled graduates who would start their careers at BIG Ldt. Only recently, there were many unemployed people looking for a job. At present, there is a considerable labour force shortage; the best students are recruited already during their first year of studies.

The completion of the training is a sign of quality and credibility of the employee. BIG Ltd plans to include the course Credit Management I-II to the Initial training package for new employees. BIG Ltd also intends to start purchasing training from Distant Training Programme for the company's IT-staff.

Associação Nacional de Farmácias

By Vanda Vieira, CECOA

1. Facts about the institution

Name of institution	Associação Nacional de Farmácias
URL of institution	www.anf.pt
Country	Portugal
Number of Employees	140
Revenue in 2005	Not applicable
Experiences with e-learning since	Since 2004
Business sector	Entrepreneurs Association
Target group/participants in e-learning	Pharmacists
Content	Continuing Vocational Training
Form	e-Learning (asynchronous learning sessions)
Interviewed people	Ana Mendes Sofia Silva, responsible for the e-Learning Courses of ANF (Associação Nacional de Farmácias) – National Pharmacy Association

2. How the institution has used e-learning

2.1. Description of the entity

The National Pharmacy Association (ANF) was born in 1975 with the purpose of defending the legitimate interests of the pharmacy owners, as public interest service providers.

Although the membership in ANF is optional, this Association represents almost all the pharmacies in Portugal.

Among ANF objectives, there is the pharmacists' and pharmacist assistant's continuing vocational training. Since 2004, ANF has been investing in e-learning as a way to facilitate the access to continuing vocational training to a larger number of professionals, using the possibilities offered by the information and communication technologies.

2.2. The courses

- The courses provided by ANF have a self-directed, individual and autonomous workload in the training process;
- Pedagogic contents are available through multimedia material, glossaries and support texts;
- Practical case-studies and exercises solving provide learning through discovery;
- Trainees can clear-up their doubts through individual and constant tutoring support;
- Trainees can access to online assessments tests to measure their level of performance and their learning progresses;
- The courses final assessments (at distance and at presence) give credits for the revalidation of the pharmacist's professional certificate.

2.3. Number of employees involved

“Gastroesophageal Reflux and Peptic Ulcer Disease: physiopathology, clinic and therapeutic” course with 146 trainees enrolled and “Vaginal Infections: hygiene and therapeutic” course with 12 trainees enrolled.

2.4. E-learning platform and technology issues

The ANF e-learning platform is a technologic support that gathers the required ICT tools to promote education and learning.

The contents are available in HTML format and can integrate flash animations, interactive simulations and scenario-based activities; documents are available to be printed out in PDF format.

The interactivity and the communication between trainer-trainees and trainees-trainees can be synchronous (through a chat) or asynchronous (through e-mail and forum).

Trainees can have access to the platform through the web site www.anfonline.pt or through the Internet Explorer web browser http://e-formacao.anf.pt; no other software is needed.

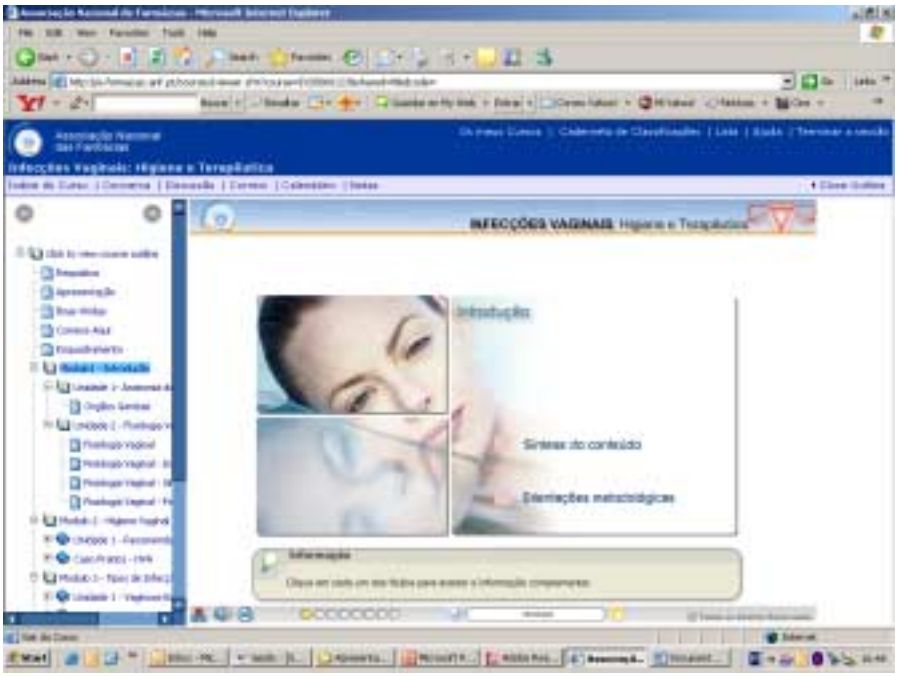

Fig. 1 – Screenshot - Intralearn Portal - access to the course.

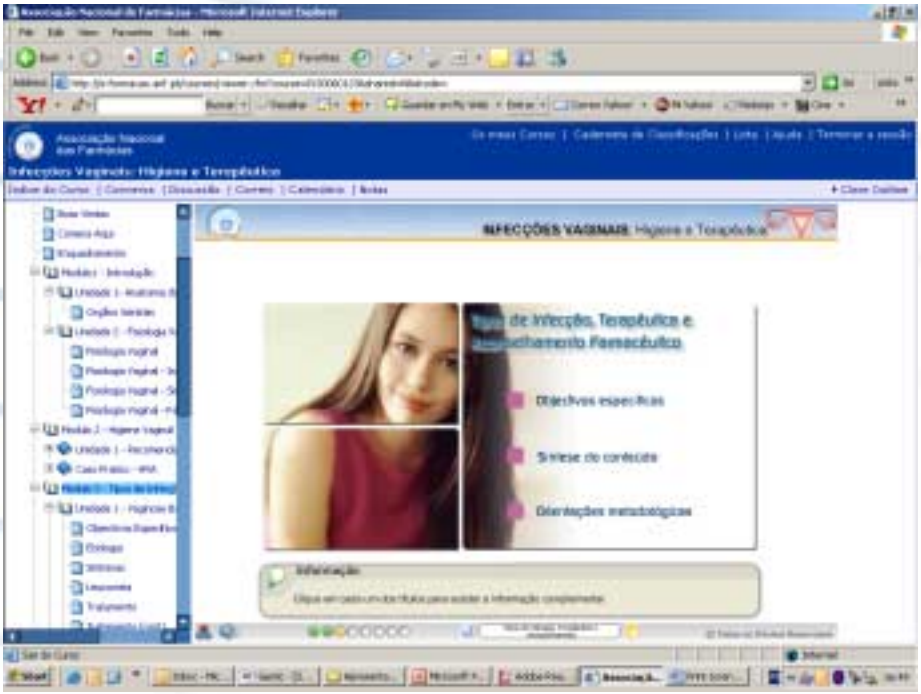

Fig. 2 – Screenshot - course's first page.

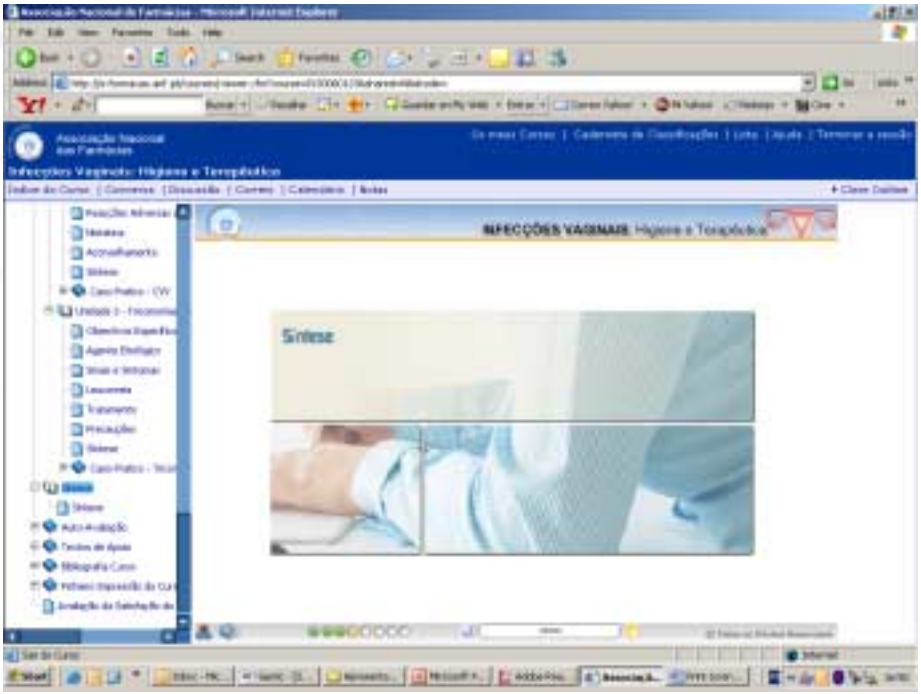

Fig. 3 – Screenshot of the course (self-study).

2.5. Course development

The courses were developed as an integrated continuing vocational training programme targeted to pharmacists.

2.6. Course administration

- The courses have a self-study, individual and autonomous component supported by multimedia materials, glossary and written materials.
- Learning through individual discovery is fostered using case studies and resolution of practical exercises.
- Existence of an active tutorial system aiming to solve eventual constrains and doubts.
- The self-assessment tests allow learning progresses measurement.

3. Effects and outcome of the e-learning activities

3.1. Completion rates

- Course "Gastroesophageal Reflux and Peptic Ulcer Disease: physiopathology, clinic and therapeutic" had 146 trainees enrolled and all students completed all modules (100% completion rate);
- Course "Vaginal Infections: hygiene and therapeutic" had 12 trainees enrolled and is still on going (no completion rates available yet).

3.2. Satisfaction

The average level of satisfaction was approximately 3,5 (in a 4-point scale). Through individual interviews, the trainees confirmed a high level of satisfaction with e-learning, as a training methodology.

The following benefits were presented:

- Remote access to training contents;
- Possibility to learn according to their own rhythm, time and priorities.

4. Challenges and barriers

The ANF distance learning main objective is to take the continuing vocational training to a larger number of health professionals, using the possibilities offered by the ICTs. ANF training policy aims to assure:

- Equal access to information and standard training contents to all ANF members;
- Fast access to a significant number of individuals geographically diffuse;
- Constant updating of the training contents.

ANF training provision of e-learning courses is organised in order to overcome the above mention challenges.

5. Success factors

According to ANF perception the success factors are:

- Training planning according to strategic objectives and end-users needs;
- Training models lined up with training objectives;
- Quality of the pedagogic material;
- High level team (trainers and other training staff receive specific training to improve the skills and the competences required on their daily work);
- Usage of the most suitable technologies adjusted to the end-users needs and to the course contents;
- Existence of classroom training sessions, at the beginning of the training courses is seen as a very relevant measure to promote socialisation among trainees and trainer and to get familiar with the platform.

6. E-learning investments, developmental costs and operational costs

Not available.

Interpolis

By Rene van Leeuwen, N.V. Interpolis and Diederick Stoel, ProfitWise

1. Facts about the institution

Name of institution	Clients: various / Interpolis N.V.
URL of institution	Clients: various / www.interpolis.nl
Country	Netherlands
Number of employees	1<#<100
Revenue in 2005	< 50 million
Experience with e-learning since	Often first experience / 2003
Business sector	Trade, finance, retail, construction
Target group/participants in e-learning	Employers and employees who are appointed as prevention officers
Content	Prevention officer course
Form	Online web-based
People interviewed	S.C.J. Adriaansen, Programme Manager

In 1989, the European Union issued a framework Directive (89/391/EEG), with the aim of improving the protection of European employees at work. The vision of the Directive was better working conditions for every employee. Occupational accidents and illnesses can be prevented by information, consultation, balanced participation and education, according to the European Council.

To ensure the safety, health and welfare of employees, every organisation in the Netherlands was, until 1 July 2005, obliged to become a member of a Safety, Health and Welfare Service. In this regard, the Dutch government brought together tasks aimed at prevention under the responsibility of a specialised and certified external body (the Safety, Health and Welfare Service). However, the European Court has determined that the Netherlands has not correctly implemented the 1989 Directive. According to Directive 89/391/EEG, the task of ensuring good working conditions must be carried out by an internal facility. In the Netherlands, this admonition has had particularly far-reaching consequences for small and medium-sized businesses.

Since 1 July 2005 businesses, including small and medium-sized businesses, must appoint 'internal' specialists who have the task of protecting against occupational risks: a prevention officer. If a business has fewer than 15 employees, then the operator of the business may carry out this task himself (or herself).

But what does a prevention officer have to know and be able to do? What demands are placed upon his expertise? The compulsory appointment of a prevention officer has brought about a considerable demand for training in the Netherlands. Since 1 July 2005, there are also various training courses which can be followed. The training courses for prevention officers last for two or more days, depending on the occupational risks and the size of the business in question.

For business operators in small and medium-sized businesses, this compulsory investment of time is a major problem. No small or medium-sized business operator wishes to close his business for one or two days. There is simply no time for it. And for many business operators, suspending the production process for two days is equivalent to two days' loss of income. The financial consequences of the European Court's admonition are considerable.

A large insurance company has recognised this problem. As a provider of, among other services, solutions regarding absence from work, the insurance company has, in cooperation with the 'Commit' Safety, Health and Welfare Service, developed an electronic web-based training course. With this 'WerkAttent' programme, a business operator – or one of his employees – can follow a training module online. This takes approximately two hours. If the module is successfully completed, then the business operator receives a recognised certificate at its end. With this, business operators have enough to comply with the legal obligation to have a prevention officer in service.

In this business case study you will learn about how the programme was developed, and what the factors have been which have determined the programme's success.

2. How the institution used e-learning

2.1. The courses

The 'WerkAttent' prevention officer training course is made up of five modules:

a) organisation of prevention within the organisation;

b) advice on, and drawing up, a Risk Inventory and Evaluation (RI&E);

c) advice to, and collaboration with, interested and involved parties;

d) working together on the implementation of measures;

e) 'encyclopaedia' function for employers and employees.

The training complies with the legal requirements. It is possible to complete the module in two hours. The exact duration of the training is dependent on the student and the business-specific situation.

2.2. Number of employees involved

At least 4,000 students are taking part in the training (25% of the total target group).

2.3. E-learning platform and technology issues

The platform on which the training is hosted and followed complies with the following criteria: (a) Windows 2000 with IIS 5.0, (b) .NET framework version 1.1, (c) SQL Server 2000, and (d) server side mail component, for example JMail. The business operator of a small to medium-sized business must have at his disposal: (a) an internet connection (56K modem or faster), (b) a personal e-mail address, (c) Internet Explorer 6.0 or higher, (d) the Macromedia Flash 5 plug-in, and (e) a screen resolution of at least 1024 x 768 pixels, or higher.

2.4. Course development

Eight phases can be distinguished in the development of the 'WerkAttent' programme: (a) formulating the proposal, (b) determining the required intervention, (c) specifying the concept and form, (d) specifying the content of the programme, (e) technical implementation, (f) ensuring continuity, implementation and protection of intellectual property, g) development, and (h) evaluating results.

a. Formulating the proposal: Appointing or training a prevention officer takes time: valuable time which can only be made use of once. The operators of small or medium-sized businesses would rather spend their time on their core business. As a provider of

an e-learning application you have a strong proposal if you can help business operators to solve their dilemma: spending time on secondary processes (such as the work of the prevention officer) or spending time on core business. Helping operators of small and medium-sized businesses to comply with the legal obligation to have a prevention officer in service, in the shortest possible time: that is the proposal of the 'WerkAttent' programme.

b. Determining the required intervention: What is the best way in which the operator of a small or medium-sized business can be helped? What is most **effective**? Business operators are legally obliged to show that they have a prevention officer with sufficient knowledge in service. In addition, they must be able to show that they have made an inventory of any risks in the areas of the safety, health and welfare of their employees. Knowledge, expertise and a risk analysis: these must be the results of the intervention. The risk analysis is also a government requirement. All business operators must draw up a Risk Inventory and Evaluation (RI&E) for their businesses. A Plan of Action has to be included within the RI&E, containing measures to reduce the risks. Outsourcing (to a Safety, Health and Welfare Service) is not permitted: 'do-it-yourself is the watchword. Learning and innovation is therefore the most obvious solution.

c. Specifying the concept and form: What is the most *efficient* way of giving form to the intervention? One way of establishing this at to examine the requirements which the solution must fulfil, and the preconditions within which the solution must be implemented.

When we look at the requirements we can see indications of two issues. There must be (a) demonstrable knowledge and insight concerning the work of the prevention officer, (b) demonstrable risk-awareness in the form of a worked-out RI&E. It is also important that (c) the results of the learning are formally tested. Further, because it concerns a legal regulation, the testing must also be (d) validated by a certified institution.

The preconditions: from the business operator's point of view, the process must take place within a minimum of time, at a time chosen by the business operator himself.

The solution to this quickly becomes apparent: independent learning. An electronic variant, in which data can be collected, transferred and checked, means that the development requirements (c) and (d) can be fulfilled.

On the basis of the above arguments, a web-based e-learning programme has been decided on.

d. Specifying the content of the programme: In this phase, precisely what a prevention officer must know, be able to do and be willing to do is analysed. Within the programme, the business operator must show that he possesses the necessary competencies. With this, he successfully completes the training. The necessary knowledge is gathered with the help of the 'Commit' Safety, Health and Welfare Service. A panel of external experts has tested the validity of the programme. This so-called content analysis and content evaluation has steered the technical implementation of the programme. Finally, the programme is built up of the five modules described earlier.

e. Technical implementation: The decision was made not to construct the e-learning application in-house. An external partner has carried out the technical work.

f. Ensuring continuity, implementation and protection of intellectual property: The specification of a number of formal issues has been an important phase in the development of the programme. Four thousand operators of small and medium-sized will make use of the programme. The legal consequences of any errors, or the cancellation of the programme, would be significant. Three crucial questions therefore have to be given a clear and unequivocal answer: who guarantees the continuity of the programme,

who is responsible for its operation, and with whom do the intellectual property rights rest? Through detailed functional design, action plans and contracts, these are formally dealt with and recorded.

g. Development: The construction of the application took 12 weeks. This is the period agreed in the quotation, up to and including the installation of the application on the insurance company's servers. A User Acceptance Test (UAT) and a Product Acceptance Test (PAT) were then carried out within a period of three weeks. The user-friendliness of the application was tested during the UAT. During the PAT the load of the application on the servers, and possible conflicts with other applications, were tested.

h. Evaluation of results: Within the 'WerkAttent' programme, it is examined on four levels whether the e-learning module delivers the expected results. In this business case study, we categorise the evaluation levels on the basis of the Kirkpatrick's Evaluation Framework (1985): (a) level 1: reaction, (b) level 2: learning, (c) level 3: behaviour, and (d) level 4: results.

With the use of a questionnaire, it is examined whether the programme has provided the small or medium-sized business operator what was promised in advance. With this, the so-called reaction level (level 1) is measured.

A validated knowledge test is taken within the application. The test is made up of multiple choice questions, and tests the business operator on the necessary learning (level 2, learning).

The business operator must draw up a risk inventory and evaluation of his own business, and then translate these into concrete measures: measures which ensure that the risks are reduced. The action points must be sent to, and agreed by, an institution authorised for this purpose. This test examines whether we can conclude that the business operator also changes his behaviour on the work floor (level 3, behaviour).

The reasoning behind this is that, by implementing the action points, the risk of occupational accidents is reduced. Everyone benefits from this. The business operator has lower costs, less absence through illness, fewer occupational accidents. In addition, the insurance company has a clear financial interest. The burden of costs must be reduced as a result of having a professional prevention officer in service. Both the saving for the business operator and the reduced burden of costs are important indicators which say something about the effect of the e-learning programme. We view this test as a level 4 evaluation, including a calculation of the return on investment.

2.5. Course administration

The programme keeps a record of who has taken part in the programme. In addition, some other important details are: (a) the extent to which the participant has advanced in the application, (b) how long he has taken over it, (c) what scores he has achieved in the tests and (d) how the participant evaluates programme. The screenshots below (figures 1 and 2) illustrate how this occurs. We will classify the details mentioned as management information.

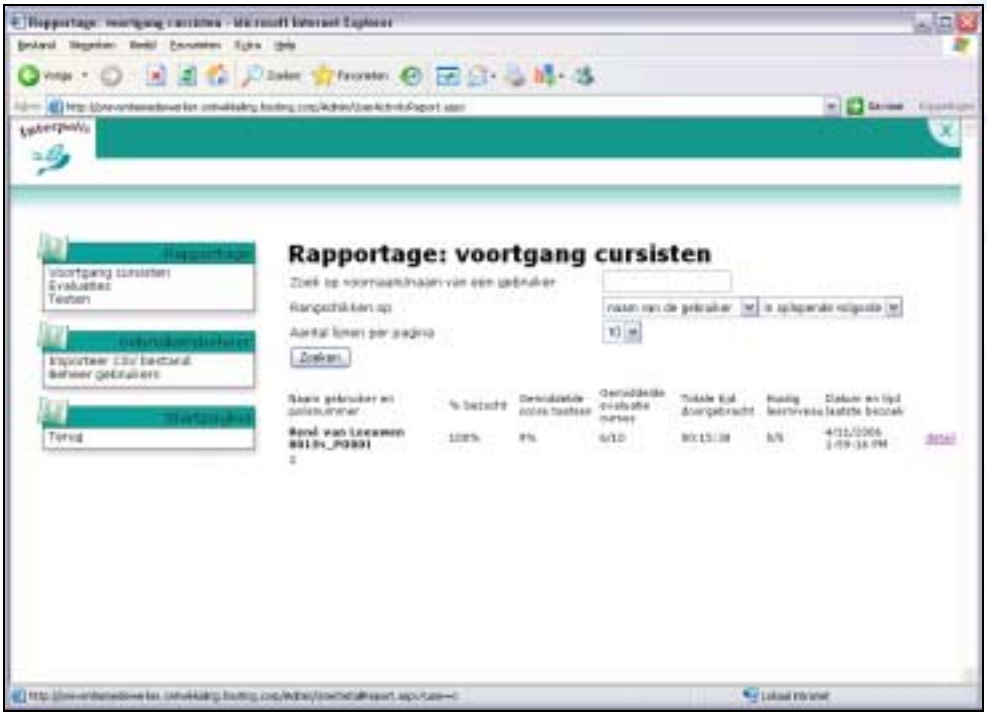

Figure 1 – Registration of the students' progress

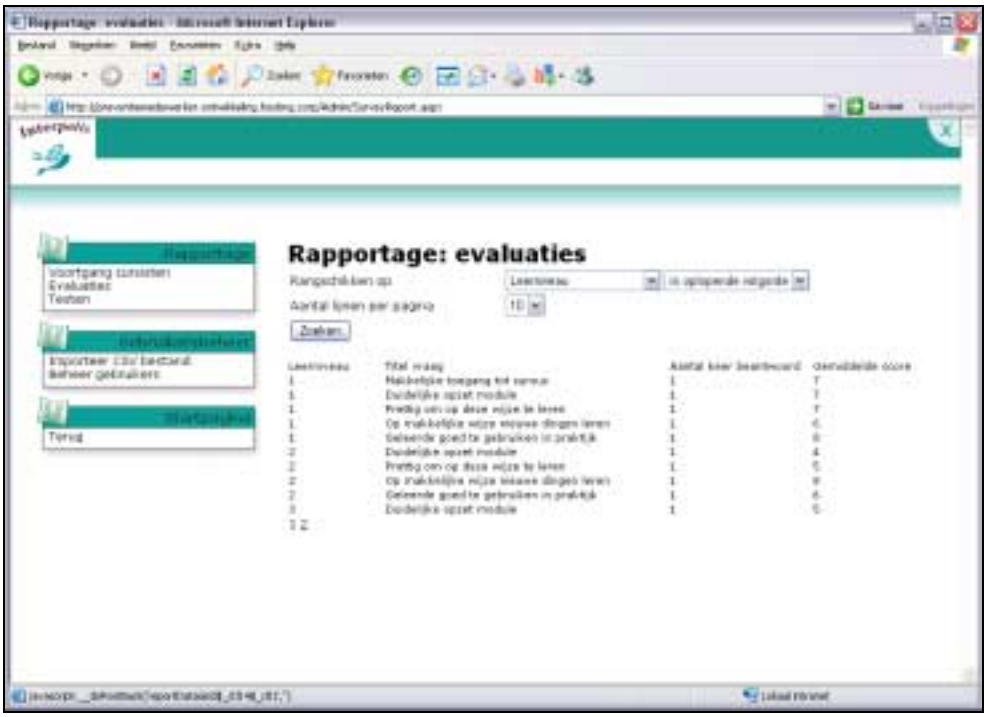

Figure 2 – Report on the evaluations

3. Effects and outcomes of the e-learning activities

The management information clearly shows the students' progress. Student satisfaction is seen in this programme as an important direct effect. It is an indication of the successful completion of the five modules. Student satisfaction is measured five times

during the study process (at the end of the five modules which the student follows). The results are collated, and ultimately it can be seen how the individual student has evaluated the course and its separate modules. In particular, the correlation between the satisfaction and the test results is seen as valuable information to be used in possibly making improvements to components of the programme.

4. Challenges and barriers

Below you will find a point-by-point description of a number of challenges and barriers which came to light during the development and implementation of the programme.

4.1. Technical issues

- availability of internet with the correct browser to the small or medium-sized business operator
- linking of files
- language barriers

4.2. Organisational issues

- composition of the membership of the project group
- obtaining full support

4.3. Other issues

- the need for early escalation to ensure the continuity of the process
- addressing functionality
- human behaviour factor.

5. Success factors

The introduction of the programme appears to have been a great success. An important factor which explains this success is the fact that Interpolis has been the first provider of electronic training. Nobody else has dared to take the step of solving the issue of the prevention officer in small and medium-sized businesses with an e-learning application.

The developer has closely examined the exact requirements which are imposed by the government on the prevention officer. The requirements (a) demonstrable knowledge, (b) a clear risk analysis and (c) an action plan can be tested and validated very effectively in writing.

This insight, and a thorough knowledge of the possibilities and limitations of electronic learning environments, explain the success of the programme.

The distribution of small and medium-sized business operators around the country, and the logistical challenges, lead almost as a matter of course to the use of the internet. The sore point of ‘time’, and the need of the small or medium-sized business operator to be able to invest any hour of the day in study made the decision more simple.

A very important factor which explains the success of the programme is the financial advantage which the programme brings with it. Regular training would take two days and bring time costs with it.

In addition, the external validation of the programme is a decisive factor. Alongside the testing methodology, the validation itself is also validated by Det Norske Veritas. The

logo shown below, and the associated disclaimer, are printed on the certificates, which are generated electronically using HTML.

Disclaimer

This E-learning 'Prevention Officer' course and examinations have been evaluated by DNV for their relevance to the final terms and testing matrix specified by the Prevention Officer Certification Commission, and meet the requirements set by DNV regarding design, implementation and completion. The certificate is issued to the prevention officer on the basis of the personal details provided by the certificate holder.

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6. E-learning investments, developmental costs and operational costs

This paragraph contains information on cost and (expected) benefit elements.

Total investment (including hosting): € 120,000

The total investment includes:

- Advice during the quotation phase;
- Project leadership during construction;
- Training expertise in the development of the application;
- Graphic design of the visuals;
- Technical construction of the application;
- Operation of the application.

Saving in costs: 10% - € 1,600,000

If business operators draw up and implement their own RI&E and PVA, it is expected that the total costs of the 'WerkAttent' absenteeism insurance product (the training forms a component of the 'WerkAttent' proposal) will fall by 10%. This represents an amount of € 1,600,000.

Generation of leads for the Safety, Health and Welfare Service: € 150,000

The supplied RI&Es and Action Plans can be a lead-in to advising business operators in the field of safety, health and welfare. The expectation is that this will yield a minimum of € 150,000 in consultancy fees for the 'Commit' Safety, Health and Welfare Service.

Saving for the business operator: € 1,500 (target group: 4000 business operators) - total saving - € 6,000,000

Regular training lasting two days costs around 18 hours at an hourly tariff of € 100.

This equals € 1,800. By following the training in two to three hours, the time costs to the business operator are around 200 to 300 hours. Per account, this provides the business operator with a saving of around € 1,500.

Return On Investment for client (insurance company) – 1,233%

{[Yield (1,600,000) – costs (120,000)] / costs (120,000)} x 100% = 1,233%

Rabobank

By Rene van Leeuwen, N.V. Interpolis and Diederick Stoel, ProfitWise

1. Facts about the institution

Name of institution	Clients: local branches of Rabobank / Supplier: N.V. Interpolis
URL of institution	www.rabobank.nl / www.interpolis.nl
Country	Netherlands
Number of Employees	1<#< 300 per bank
Revenue in 2005	Not relevant. Financial institutions in the Netherlands operate under the direct supervision of De Nederlandsche Bank, and have to meet solvency requirements.
Experience with e-learning since	Advanced users
Business sector	Banking / Insurance
Target group / participants in e-learning	Financial advisors to individuals – life insurance
Content	Characteristics, qualities and advantages of Partner & Child Insurance (PCI) as life insurance.
Form	Online web-based
People interviewed	Mr M. de Klerk, N.V. Interpolis distribution manager. Various end users.

In the Netherlands, the Financial Services Act (FSA), in force since 1 January 2006, has placed all financial intermediaries under the supervision of the Financial Markets Authority. This follows on from European initiatives such as the Financial Services Act in the UK. Intermediaries may only provide their services if they possess a license and demonstrable expertise. The expertise requirements which are formulated in the Act have brought about a high level of demand for training among insurance, mortgage and financial advisors and intermediaries. These mediators must show each year that their level of knowledge is up to the required standard. Taking part in training is one way of fulfilling this requirement.

For the insurance company Interpolis, the introduction of a new life insurance product was a reason to arrange for the marketing of the new product to coincide with the launch of an e-learning application. The e-learning application is to form the beginning of a broader training initiative. Interpolis regards training as a specific tool to increase the added value of its products. Interpolis does not only provide insurance to its intermediaries, but also ensures that the intermediaries fulfil the legal requirements set by the FSA.

The Rabobank, a coalition of independent cooperatives, is an important distribution channel for Interpolis. Some 4,000 financial intermediaries work at Rabobank in the Netherlands. These intermediaries work as groups of small independent cooperatives. In this sense they can be seen as small and medium-sized businesses. They derive their income from the commission they receive on the sale of, among other products, mortgages and insurance. This business case study describes how the introduction of a new life insurance policy, the so-called Partner & Child Insurance, has been accelerated by implementing e-learning in the small and medium-sized businesses.

2. How the institution used e-learning

The e-learning programme operates on two levels: a generic element concerning life insurance in general, and a specific element on the above-mentioned Partner & Child Insurance. We will refer to the first training by the term **Life A (generic)**, and to the training on the Partner & Child Insurance with the term **Life E (policy-specific)**. In the following paragraphs you can learn about how the programme was designed and developed.

2.1. The courses

The central element of the e-learning programme is the events which can occur in the life of a customer: the policyholder. These could include the death of a family member, the retirement of a family member, a child who starts at college, or a family member who takes a sabbatical. The intermediary, the student, is presented in the programme with a variety of related occurrences. He has to react to these. The task: to make a link between the situation of the virtual customer and the possible solutions which the insurer can offer. If the student makes an incorrect decision, then he receives feedback. Only when he shows that he can apply this feedback, and offer the customer the correct (i.e. optimal) solution, can the student proceed to the following module.

Various customer situations or case studies are incorporated into the programme. All case studies cover the essential knowledge and skills which are needed to provide the correct advice. The manner in which the case studies are followed can vary. The student determines how he follows the programme. There are two possibilities: linear and adaptive. These two possibilities are briefly explained and illustrated below.

In the **linear case study** the user is kept on the right path. The user follows the programme in a fixed sequence of customer situations. When an action is selected in a given situation which is not optimal, the user receives immediate feedback. He is given an explanation of why his action is not optimal, and of which action would be correct. The student can possibly be referred to generic learning materials about life insurance. The student is then moved on to the next situation. This is the situation that would arise if the correct solution was implemented. When all the situations have been covered, the user has completed the training.

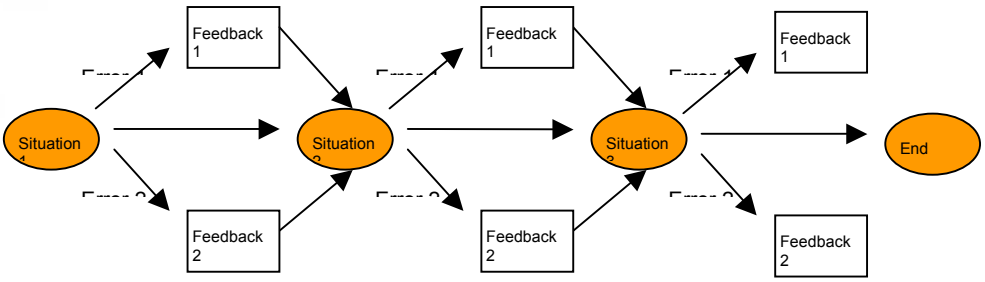


Figure 1 Linear case study

In the **adaptive case study** the user selects his or her own path. Only a few paths lead to the end point. At a certain moment, some paths turn into dead ends.

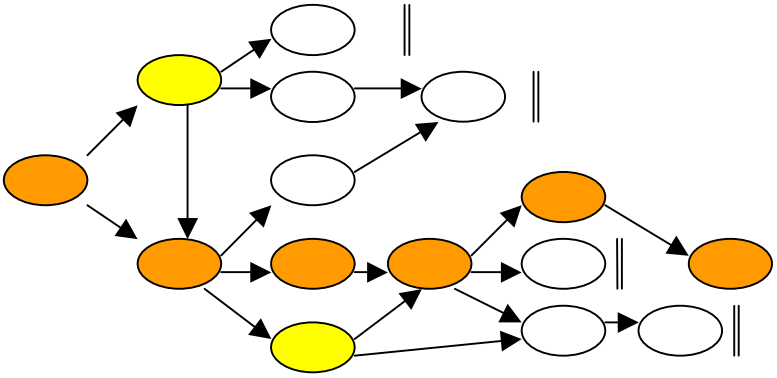


Figure 2 Adaptive case study (orange: correct path, yellow: permitted diversion)

In the adaptive variant, the user does not receive any content-based feedback on his choices. Whether he has made the right choice only become apparent later. However, the student does receive feedback in another, non-content-based manner. This takes place as follows.

For each issue which is presented, a countdown begins. This represents a waiting customer. If the user takes too long to make a decision, the customer 'walks away' (for example, after 30 seconds complaints begin, and after 45 seconds the customer is gone). At that moment the case study ends, and the student must start again. Incorrect decisions can therefore ultimately lead to a customer who 'walks away', a customer who does not buy the product, or the sale of an incorrect product. With this, a dead end is reached and the case study is over.

In the adaptive variant, the student only receives an explanation of what has gone wrong at the end of the case study. After this he begins again, and continues for as long as it takes to successfully reach the end of the case study. When the case study has been successfully completed, the next knowledge block becomes available.

2.2. Number of employees involved

The Life E (policy-specific) module has been followed by 4,100 participants. The full life assurance programme, including Life A (generic), has been followed by 1,032 participants since its introduction at the end of January 2006.

2.3. E-learning platform and technology issues

The platform on which the training is hosted and followed must comply with the following criteria: (a) Windows 2000 with IIS 5.0, (b) .NET framework version 1.1, (c) SQL Server 2000, and (d) a server side mail component, for example JMail. The student must have available: (a) an internet connection (56K modem or faster), (b) a personal e-mail address, (c) Internet Explorer 6.0 or higher, and (d) a screen resolution of at least 1024 x 768 pixels, or higher.

2.4. Course development

In order to arrive at the final electronic content, the process describe below was followed:

- Establishment of the learning aims;
- Consulting content experts in view of the learning aims;
- Composing training units;

- Translating the learning aims into events, and setting them out in storyboards;
- Presenting the storyboards for review by the project team;
- Adapting storyboards;
- Agreeing on storyboards;
- Start of technical implementation;
- Review of the technically implemented storyboards;
- Construction of interface.

2.5. Course administration

The student can enrol in the training via the 'planning' screen. After he has enrolled, the training is automatically made available. The progress of the student is registered via the 'administrator function'. The details are stored centrally at Rabobank Netherlands. Here, all possible relevant management information is available. For each student, it is possible to find out which modules have been successfully completed, how long the student has taken, and from which IP address the modules were followed.

3. Effects and outcomes of e-learning activities

An important tangible effect of the programme is that the time-to-market of the Partner & Child Insurance is considerably reduced. Large groups of intermediaries, and thus hundreds of participants, can quickly and simultaneously learn the situations in which, and the customers for whom the Partner & Child Insurance is suitable. The relatively short duration of the training (an e-learning programme of only 2 hours, which is available for large target groups) additionally gave a head start to the Rabobank in sales of life insurance. While its competitors were still in training programmes, the Rabobank was already busy selling.

A particularly important factor in the programme's success was the applied assignment. In order to actually complete the training, the participants must close a deal on at least one Partner & Child life insurance policy. Every first Partner & Child life insurance policy sold is rewarded with an extra incentive. Since the introduction of the Partner & Child Insurance, almost 10,000 policies have currently been sold. Around 4,000 of these policies were earmarked as applied assignments for the e-learning programme. For each intermediary, every first Partner & Child life insurance policy sold was ascribed to the following of the training.

4. Challenges and barriers

During the development of the Partner & Child Insurance training, the ultimate requirements of the FSA regarding the training level of intermediaries were not yet fully clear. In fact, in this regard it could not be guaranteed with certainty that the content of the programme matched the legal requirements. Only a market introduction for the new product was planned. The new product had to be launched inclusive of an e-learning application.

One the one hand, the training had to meet the (as yet unknown) requirements of the FSA. On the other hand, a whole range of measures were in readiness for bringing the new product to the market (marketing, communication, television commercials, a distribution network and an over-full promotions calendar).

With these conflicting interests, the project came under pressure. The project team members were emphatically given the task from their line management to serve the interests of the line. But the training also had to be FSA-proof, and the Financial Markets Authority was keeping a sharp eye on things.

The greatest challenge which this project brought with it was that Interpolis wished to be the first financial services provider to successfully offer FSA-proof training to its distribution channel: an enormous challenge for an organisation which feels very strongly about innovation.

5. Success factors

In the programme, generic knowledge about life insurance, and also knowledge which is necessary in order to offer a specific insurance policy to a specific customer with a specific demand, can be acquired. That is the major added value of the programme.

The great breakthrough for the programme came when the training was awarded the FSA quality mark. An intermediary who successfully completes the training has fulfilled his obligations. With this fact, the road to the market was opened up. The product could be given an accelerated launch, and from that moment onwards enrolments on the course flooded in.

The relatively short duration of the training (an e-learning programme of only 2 hours, which is available for large target groups) additionally gave a head start to the Rabobank in sales of life insurance. While its competitors were still in training programmes, the Rabobank was already busy selling. The accelerated time-to-market also gave great possibilities for cross-selling to other products.

6. E-learning investments, developmental costs and operational costs

The cost-benefit analysis of this e-learning case study can be viewed from various perspectives. In this case, different interested parties can be identified: (a) the supplier, Interpolis, (b) the purchasing market organisation, the Rabobank, and (c) the end user, the financial intermediary. For each of these, a separate Return On Investment can be calculated. In this chapter you will find a description of the Returns On Investment for the various parties. You will see that the initial investment in e-learning of € 419,750 was recouped by the supplier within two years. In theory, its investment in learning has protected the Rabobank from a loss of sales amounting to millions of Euros. Finally, you will see that an intermediary can earn back his investment by selling just two extra Partner & Child policies.

6.1. Costs and benefits for the supplier, Interpolis

1,000 project hours were budgeted for in total for the design of the application. That represents an investment of € 125,000. The construction of the policy-specific component of the application, Life E, cost € 126,000. The generic element, known as Life A, was developed at a cost of € 168,750. These last two amounts are out-of-pocket costs. This makes for an investment per balance of € 419,750.

If the total investment is viewed in the light of the possible sales by the Rabobank, this results in the following picture. Over 3,000 intermediaries work at the Rabobank. Because the supplier, Interpolis, has no profit motive in the development of training, the sale price of the product can be established by a simple formula. The investment for the design, € 125,000, and Life E, € 126,000, is simply divided by the size of the intended target group. That is to say: € 251,000 divided by 3,000 participants. That is € 83.66 per participant, which can be rounded off to € 85. The policy-specific application is offered for

a fee of € 85. The Life A component was not developed specifically for the Rabobank, and is brought to the market for € 125.

The supplier was satisfied in advance with a neutral Return On Investment within the specified debit period of three years. This means that the aim was to achieve 1,000 sales per year. Since its introduction in January 2006, 1,846 students have registered for the course in 4 months. Per balance, that is already a yield of € 156,910 in less than six months. On the basis of this information, a conservative estimate is that the initial investment will be recouped within two years. The investment will probably be exceeded by a large amount. Every year a large number of new intermediaries join the Rabobank, and these are required by the Rabobank to follow the course. A total of 4,800 participants are expected in three years.

6.2. Costs and benefits for the purchaser, the Rabobank

The interests of the purchaser, the Rabobank, are in this instance exceptional. And these interests are not particularly expressed in monetary terms in the first instance. Although the Rabobank hopes that, as a result of training and education, the intermediaries will sell more Partner & Child Insurance policies, the Rabobank also has another, much more urgent motive.

As mentioned in the introduction, the financial services sector in the Netherlands has to comply with the Financial Services Act (FSA). It is in the Rabobank's interest that its intermediaries meet with the requirements of the law. The training offered by Interpolis is FSA-proof, and validated by the Financial Markets Authority. In this way the interests of the Rabobank have been provided for practically. Every intermediary who does not meet with the legal requirements represents a threat to the continuity of business operations. If we balance the risk of the loss of a significant portion of the bank's profits against a one-off investment of € 85 plus some employee time costs, then the decision to purchase the programme is easily made.

Of course, the Rabobank has evaluated the costs of the training. A comparison of 'classical' training and e-learning reveals the following purchase advantage. The cost of a 'classical' training with a duration of one day is around € 400. The employee time cost of an intermediary averages around € 545 per day, including travel costs. The total costs for a 'classical' training therefore amount to a minimum of € 945, and that is excluding lost opportunity costs. The purchase advantage for the Rabobank is therefore a minimum of € 860 per participant. A major problem, of course, is that we cannot simply assume that the yields of both interventions would be equal. But the purchase advantage and the effect on the budget of the department responsible for the purchase of training is considerable.

6.3. Costs and benefits for the end user, the intermediary

To arrive at the financial yield for the intermediary, we have to examine the commission which he receives on the sale of a Partner & Child policy. For every policy sold by an intermediary, he receives a percentage of the premium. In addition, he receives an annual percentage if the customer extends his policy. In the calculation below, you can see how the investment costs of the e-learning programme relate to the yield for the intermediary. In the calculation, average values which are applicable to life insurance are used. To be on the safe side, the average values have been estimated at the lowest possible level.

The average premium of the Partner & Child policy is € 25 per month. The duration of the policy is, on average, 300 months. With the taking out of one policy, a nominal amount of

€ 7,500 is therefore involved. The commission for the intermediary on a premium of € 7,500 is approximately € 126. In addition, he receives an annual continuation commission of 5% of the premium. In this calculation example, this is € 12 per year: per balance an average annual source of income per policy of € 138 during the first 5 years.

If we examine the costs of the investment in the training, we can see the following. The intermediary is offered the programme by the Rabobank branch with which he is associated. That therefore costs him nothing. This is not to say that he does not have to pay the € 85. His costs are made up of the time he spends in studying: the so-called employee time costs. From the data, we know that a student invests an average of three hours in the programme. If we set the employee time costs at € 65 per hour, than the investment for the intermediary is € 195.

Of course we could now calculate a classic Return On Investment. But the relevant question for the intermediary is, however: 'How many extra policies do I need to sell if the training is to be profitable for me?'. The answer is simple. On selling one extra Partner & Child policy as a result of the training, the intermediary earns € 630 in extra sales commission. That is € 138 per year. Balanced against the investment which we had budgeted at € 195, the intermediary has to sell 2 extra policies in order to recoup his investment within one year. Every extra policy sold after this represents pure profit: an excellent argument to encourage the intermediary to follow the e-learning programme!

Golff Supermarkets

By Tom Verdam, Golff and Diederick Stoel, ProfitWise

1. Facts about the institution

Name of institution	Clients: Golff / Prisma Food Retail
URL of institution	Clients divers / www.e-beat.nl
Country	Netherlands
Number of Employees	1<#<1800
Revenue in 2006	< 50 mln
Experience with e-learning since	First experience
Business sector	Retail, food supermarkets
Target group/participants in e-learning	Primary group: new employers and employees
Content	Course introduction Golff
Form	Online web-based
People interviewed	

Golff supermarkets are run by independent entrepreneurs. They purchase goods and services from Prisma Food Retail, but are also free to purchase from other providers. Most of the entrepreneurs have set up a private company with limited liability [BV]. The companies can be labelled as SME. Personnel management is carried out by the entrepreneurs independently, with Prisma Food Retail acting as mediator or advisor.

In recent years, the companies have been subject to exceptional pressure. The price war combined with the reduced willingness of consumers to spend money on food has led to a negative pressure on yields. The demand for qualitatively good personnel is considerable, whereas the possibilities for wages in accordance with the market are limited. Supermarket entrepreneurs are well aware of the necessity of training personnel, but due to the pressure on productivity, training has made way for 'learning by doing'. In other words, staff are expected to learn on the job. 270,000 people are employed in the branch.

Per person, an annual sum of approximately € 275 is spent on training and courses. Approximately 1800 people are employed at all independent Golff branches. Each year, approximately € 25 per employee is spent on training and courses. The courses are held outside the branches, at fixed times, during opening hours. The training of employees has a negative effect on productivity. Training is perceived as being qualitatively mediocre. Enterpreneurs generally experience them as being fun, social events, where not much is learnt; a day out'. These negatively-coloured experiences have contributed to a situation in which little to nothing is undertaken in the way of training. This has served to increase the extent to which Golff has fallen behind other chain stores (Ahold). The training needs are evident, but the point of departure is 'faster / more effective / cheaper'.

In 2005, the representatives of the entrepreneurs defined an initial training request for e-BEAT. The request was mediated by Prisma Food Retail, which besides Golff, three other chain stores are affiliated with. This is a total of 450 supermarkets. If the acceptance of the e-BEAT method is positive, the system will also be offered to the other shops. The Golff entrepreneurs all have a 'separate' computer at their disposal that employees can use to follow lessons. The shops all have a broadband internet connection. The entrepreneurs are unfamiliar with e-learning programmes, some of them

are also not very familiar with working with a computer. This business case informs you how the programme has been developed and the factors that have determined the success of the programme.

2. How the institution used e-learning

2.1. The courses

The Golff introductory course consists of 3 lessons supplemented with 4 readers.

- Introduction on working at Golff;
- Golff House rules, absentee rules, study costs and loan agreement;
- Golff marketing.

The course complies with the organisation's requirements. Each lesson takes approximately 30 minutes, including the self-test together with the lesson. The precise duration of the course depends on the participant and the specific business or personal situation.

2.2. Number of employees involved

In mid May 2006, three hundred people took part in the introductory course. (15% of the total target group).

2.3. E-learning platform and technology issues

The platform on which the training is hosted and followed complies with the following criteria:

(a) Apache server, (b) PHP. SME entrepreneurs must have at their disposal at the minimum (a) an internet connection (modem 56K or faster), (b) a personal e-mail address, (c) Internet Explorer 6.0 or higher, and (e) a screen resolution of a minimum of 800 x 600 pixels or higher.

2.4. Course development

On developing the Golff introductory course programme, eight phases can be distinguished:

(a) determining the proposition, (b) determining the desired intervention, (c) establishing concept and form, (d) establishing the content of the programme, (e) technical realisation, (f) guarantee of continuity, realisation and protection of intellectual property, (g) development, and (h) accounting of the result.

Ad a. Determining the proposition: Training employees takes time, valuable time that can only be spent once. SME entrepreneurs generally opt to spend their time on their *core-businesses*. As the supplier of an e-learning application, a powerful proposition can be developed by helping entrepreneurs solve their dilemmas: spending time on what seems to him to be derivative processes or spending time on their *core-business*. The proposition of Golff's introductory course programme is to help SME entrepreneurs have new employees become operational in the shortest possible period of time.

Ad b. Determining the desired intervention: How can SME entrepreneurs best be helped? What is the most **effective and efficient**? The intervention must aim to realise the development of knowledge of supermarket businesses, specific knowledge of Golff, knowledge of the house rules and insight into skills in the shortest possible period of

time. The intervention must be especially motivated by the desire to learn at a time that suits you and at a place you can choose yourself.

Ad c. Establishing concept and form: What is the most *efficient* manner of shaping the intervention? One way of determining this is to examine which requirements the solution must meet and the preconditions upon which the solution must be realised.

With regard to the requirements, two things are evident.

(a) there must be demonstrable knowledge and insight into the supermarket and the work.

(b) the house rules are demonstrably known.

It is also important that (c) the result of the learning is tested.

What are the preconditions? From the point of view of the entrepreneur, the management time for the course must be minimal. Loss of productivity and the additional costs must be as low as possible. The employees must be able to choose when to follow the course themselves.

The solution would therefore seem to be independent learning. An electronic variant in which data can be collected, sent and checked ensures that the design requirement (c) can be met.

On the grounds of the above-mentioned arguments, a choice has been made for a *web-based e-learning* programme.

Ad d. Laying down the content of the programme: In this phase, an analysis was made of precisely what an employee should know. The knowledge must be tested and after the successful completion of the test, the introductory course should also be successfully concluded. The knowledge required was collected by Prisma Food Retail. The collected content is didactically processed according to the lesson package. The programme was eventually compiled from the previous 3 lessons set out.

Ad e. Technical realisation: A choice was made partially to have the *e-learning* application built and partially to buy it. There are two parties involved with the building. An external partner provided the technology.

Ad f. Guarantee of continuity, realisation and protection of intellectual property: The laying down of a number of formal matters was an important phase in the development of the programme. 450 entrepreneurs and the personnel (9000 persons) *may* make use of the programme. Three questions require a clear and univocal answer.

The continuity of the programme /availability, the management and the learning follow-up system? This has been brought about and completed by functional detailed designs and plans of approach.

Ad g. Development: The building of the application took 5 months. This was the period from approving the offer up to the time when h the application is placed on the servers, setting up the database and providing personified access. The Users Application Test was set up with a test group. During this test, the user-friendliness was tested. The product application test assessed the taxing of the application on the servers and possible conflicts with other applications.

Ad h. Accounting of the result: The Golff introductory course programme examines whether the e-learning module realises the expected results at four levels. In this business case, we have categorised the levels of evaluation on the basis of the evaluation framework of Kirkpatrick (1985): (a) level 1, reaction, (b) level 2, learning, (c) level 3, behaviour, and (d) level 4, results. Using a question list, we reviewed whether the

programme provided SME entrepreneurs with what they had been promised. The so-called reaction level (level 1) was hereby measured.

In the application, validated knowledge tests and an exam are held. The knowledge test consists of multiple choice questions and gives feedback per question. Employees learn while performing the knowledge test. The exam is a discriminating test, with multiples choice questions to be completed within a specific timeframe. This tests whether the material given has actually been absorbed by the course participant. (learning)

The entrepreneur discusses the result with the employees and coaches them in practice. (level 3, behaviour).

Everyone benefits from this form of training. Entrepreneurs are left with more time, employees have more of a positive attitude, there is a reduced training period at work. A clear financial interest also plays a role. The training costs are significantly lower than for live training. The programme can be used flexibly, there is no travel time required, no external location, and half an hour can be spared from own working hours etc. Both the saving for entrepreneurs and the positive attitude of the personnel are indicators that express the effect of the e-learning programme. We consider this testing as a level 4 evaluation.

2.5. Course administration

The programme keeps a note who is participating. Important factors are furthermore (a) has the participant started the lesson, (b) how often has he/she opened a lesson. (c) which scores has he/she realised in the tests and (d) how often did the participant do the self-test before passing. The screens below (figure 1 and 2) illustrate how this takes place. We will further designate the data referred to as management information.

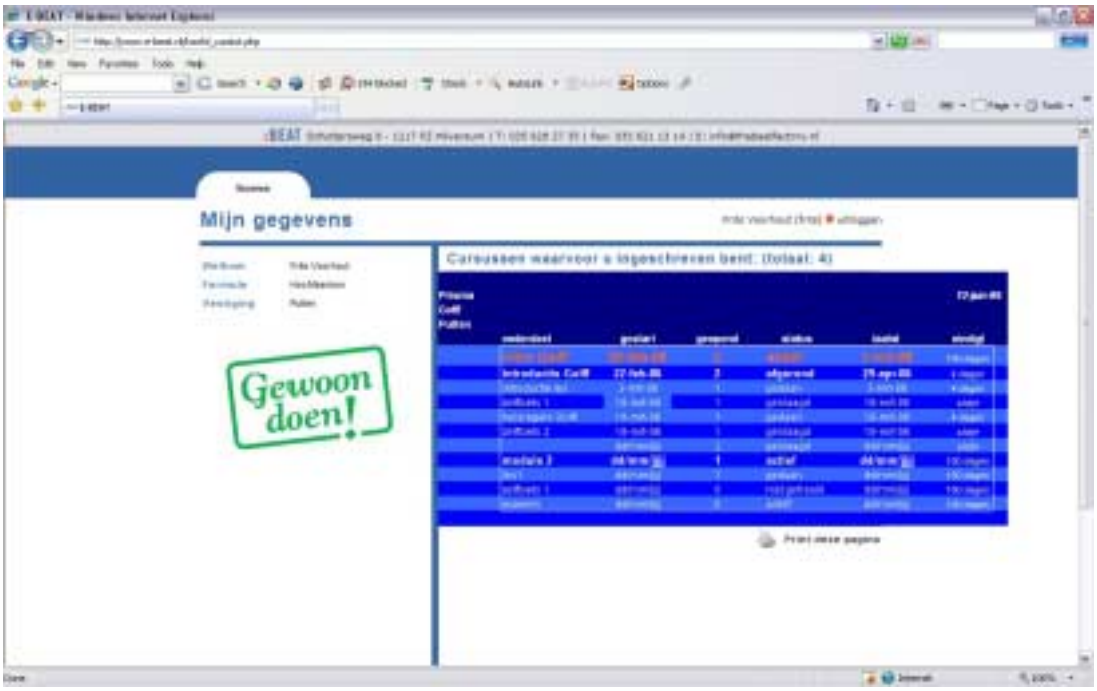


Figure 1 – Registration progress course participant

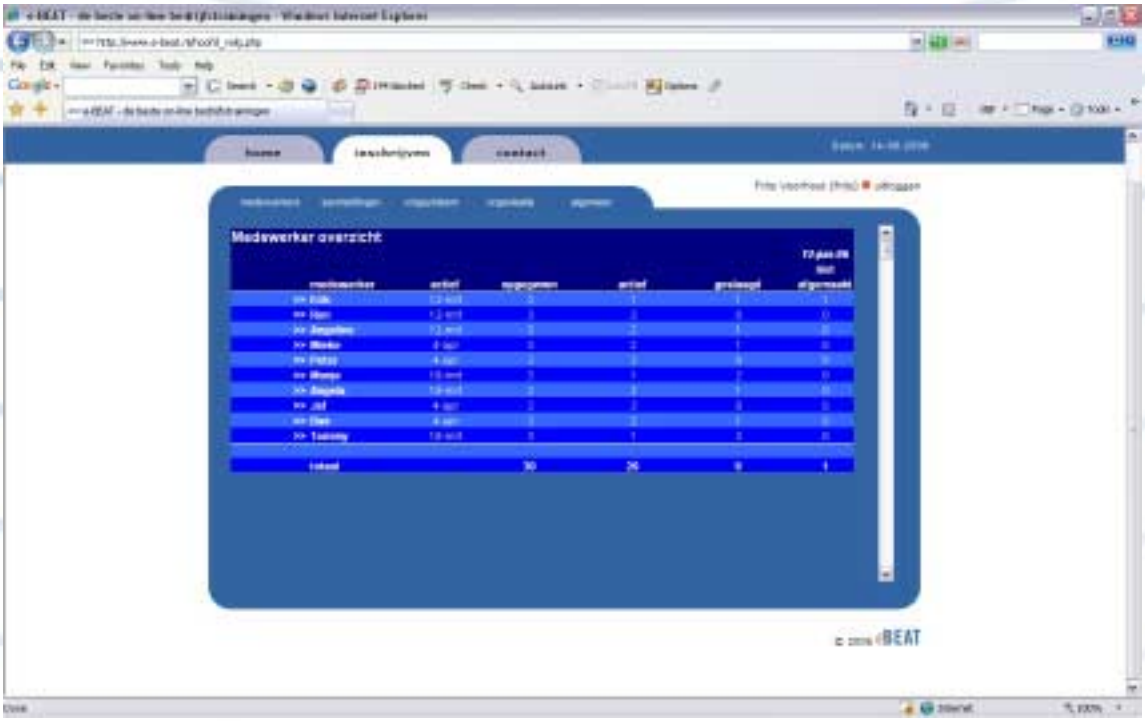


Figure 2 – Rapport of the evaluations

3. Effects and outcomes of e-learning activities

Via de management information, the progress of the trainees can be clearly seen.

4. Challenges and barriers

Listed in points below are a number of *challenges* and *barriers* that came to light during the development and implementation of the programme.

4.1. Technical issues

- Availability of internet with the right *browser* with the SME entrepreneur
- availability of a 'lesson – computer' with the SME entrepreneur

4.2. Organisational issues

- commitment of second management layer at Prisma Food Retail
- acceptance problems with employees from 35 to approximately 45 years
- acquiring full support

4.3. Other issues

- supermarket owners 'misused' the information
- unschooled personnel were stimulated by certification
- enthusiasm of suppliers, willingness to participate

5. Success factors

The introduction of the programme has appeared to be a reasonable success. The manager of the organisation fully supports the initiative and urges supermarket entrepreneurs to take part. The organisation acknowledges the importance of high quality personnel. Good personnel are acquired by investing in training. E-learning by means of e-BEAT is a fast, effective and efficient training method. In this way, Prisma Food Retail is able to create a distinctive character.

This insight and a thorough knowledge of the possibilities and impossibilities of electronic learning environments shed light on the support for the programme.

The spread of the SME entrepreneurs in the country and the logistic challenges almost self-evidently lead to the use of the internet. The pain points 'time' and 'costs' and SMEs need to invest in training at any given moment have made the decision simpler.

A very important factor which explains the success is the financial profit obtained by following the programme. Standard training would entail a productivity loss of one-and-a-half days.

Certificates electronically printed via HTML.

6. E-learning investments, developmental costs and operational costs

This paragraph contains information on cost and (expected) benefit elements.

Investment per branch: € 1,500.-

The total investment includes:

- Advice in the offer phase;
- Development of the application within the framework of a training course;
- Management of the application.

Saving in productivity

Entrepreneurs save 9 hours per employee. On the basis of staff absenteeism of 50 % among the part-timers and an average of 10 part-timers per branch, this is 45 hours savings. The employee is trained to work faster, generating a profit of 7 hours, approximately 35 hours per branch. The savings are 45 hours per entrepreneur, approximately € 4,500.-

Increase in productivity

Productivity in terms of turnover per worked hour is € 140.-. The 7 extra productive hours generate 35x140 = € 4,900.- extra turnover.

Savings for entrepreneur: € 1,500.- (target group 4000 entrepreneurs) - total savings - € 6,000,000.-

A standard two-day training session takes approximately 18 hours for an hourly fee of € 100. This is € 1800. By completing the training in two to three hours, total time costs for the entrepreneur are approximately 200 to 300 hours. On balance, this generates entrepreneurs savings of approximately € 1500.

Large Enterprises

The enterprises in the large enterprise category are too large to qualify as SMEs. But large SMEs can benefit from the experiences made by KPMG Norway, York Refrigeration in Denmark, and Roche Diagnostics in Austria. All three enterprises have enough resources to develop most of their e-learning content internally. They may have some external help with development of graphics, video and web adaptation, but the internal employees are the content experts since the course topics focus on expert knowledge related to the companies' core products and services. The e-learning platform is not a part of the companies' core business, so the companies buy these services from external hosts that provide LMS services.

KPMG Norway is a separate and independent legal entity in the global KPMG network of professional firms providing audit, tax and advisory services. The firm has about 400 employees throughout Norway. KPMG's first online course, Bookkeeping Legislation, enrolled 280 employees of which 219 passed the final online test. The course comprised four modules and each module consisted of a set of online readings and multiple choice and fill-in assignments. The second online course, Flotation and Capital Increase, enrolled 155 employees of which 102 passed the final online test. The courses were developed especially for KPMG employees by KPMG in collaboration with NKI Distance Education. The online courses were based on the SCORM e-learning standard and offered through SESAM, an LMS system developed and hosted by NKI. KPMG had no direct investment costs related to e-learning since the courses were hosted by NKI, but KPMG used some internal resources to develop the course content. KPMG employees saved time and travel since the courses were offered as e-learning instead of face-to-face seminars.

York Refrigeration is a Danish subsidiary of York International Corporation, a global concern within heating, ventilation and refrigeration. The company has 220 employees in Denmark. It uses web-based e-learning in conjunction with classroom and workshop training as individual learning and as manuals and documentation. Altogether 300-400 employees and customers have used one or more of the about 15 e-learning modules that have been developed. Most of the course development is done internally, but some video and graphics are made externally. The course administration is minimal since all e-learning is available to all employees all the time. This means that the courses require no enrollment procedures, tuition fees, examination procedures etc. The course content is hosted externally in the content management system Media Builder from Arkena (www.arkena.com). York perceives the e-learning initiative as very inexpensive.

Roche Diagnostics has 250 employees in Austria. It is affiliated with Roche, which is a large international healthcare company. Roche's Diagnostics Division, which claims to be the world leader in in-vitro diagnostics, offers a wide range of products and services in all fields of medical testing. The company uses in-house e-learning to certify and document that the employees fulfill the quality requirements for producing diagnostic devices. The course content is primarily developed in-house and offered through the SITOS e-learning platform. The courses consist of a number of learning objects, which have an average machine time of 30 minutes. Typical course duration is twelve hours. About 200 of the employees have experience with e-learning activities.

Effects and Outcomes

Completion rates

KPMG reported that 219 out of 280 employees completed all modules and passed the final online test in the first course. In the second course, 102 out of 155 employees completed all modules and passed the final online test.

Roche reported that 150 employees have completed. Completion rates for York are not applicable since the courses are available all the time and often used as documentation. There are no tests.

Satisfaction

The feedback from Roche employees is predominantly positive. At York there has not been any systematic evaluation of measurable effects. KPMG has received limited feedback from employees.

Challenges and Barriers

At Roche, there were some initial technical problems, and there should have been better information before the introduction of the system.

The major challenge at KPMG was to get the organization to see all the opportunities that lie in distance learning.

York reports that availability of technology is still a central barrier. Further, there still is a challenge to find acceptance for e-learning in the organization.

Success Factors

KPMG focuses on the necessity to find the right balance between e-learning and other training activities. The company argues that e-learning is flexible time- and location-wise and that it is efficient regarding travel cost and time. Further, the courses are nearly compulsory since the knowledge of the course content is essential to the employees, and they are required to spend a certain number of hours on training to maintain their licence.

At York, multimedia content is successful because it supports a more visual learning style efficiently. E-learning has resulted in better internal communication and broader understanding of York offerings. The company has further experienced that e-learning content can have high importance in sales negotiations and that it has had a positive effect by giving the employees a common experience to build on.

At Roche, e-learning has made it possible to confine co-operation between clients and contractor. It is recommended that the introduction of e-learning should be well planned. The case study finally maintains that e-learning must be obligatory to become a success.

Costs

KPMG has not had direct e-learning investment since the entire system and e-learning courses are hosted, converted to web and maintained by NKI. Some costs related to the development of the course material may exist. In the early stages of negotiations the partners agreed on a fixed price for the NKI course development based on one sample course representative for the KPMG course portfolio. In addition a student fee and a start-up fee were set.

At York, the e-learning initiative is perceived as very inexpensive. The aim has been to minimize the development cost, and the interviewees consider the investments to be minor compared to the outcome.

Roche reports that licence costs of the learning platform were about € 20 000, hardware costs were about € 2000 and development costs were about € 30 000.

KPMG

By Truls Fagerberg and Morten Flate Paulsen, NKI Distance Education

1. Facts about the institution

Name of institution	KPMG Norge
URL of institution	www.kpmg.no
Country	Norway
Number of Employees	
Revenue in 2005	
Experience with e-learning since	
Business sector	KPMG is a leading provider of audit, tax and advisory services
Target group/participants in e-learning	Employees working with audit, tax and advisory services on all organizational levels
Content	2 courses: Bookkeeping legislation; Flotation and capital increase
Form	Online web-based education
People interviewed	Anette Moulin, Kristin Løvvik, Human Relations Department / Learning & Development (HR/L&D)

2. How the institution used e-learning

2.1. The courses

KPMG is a knowledge-based company with specialized expertise in the field of audit, tax and advisory services. The employees' skills and expertise is KPMG's intellectual capital and its major competitive advantage. As a result of rising demand, KPMG clearly saw the need for increasing their employee's competence. This is to be achieved through training, personal development, enhanced leadership, new work tasks, participation in project work and gradually more responsibility in the employees' position.

KPMG has mainly trained employees via face-to-face seminars, branch-specific arrangements, on-the-job training and self-tuition. KPMG wanted to add another dimension to the process of gaining new knowledge.

KPMG and NKI Distance Education started to work together in the spring 2005 to develop systems and routines to support web-based online training, and the first KPMG student was enrolled in June 2005. KPMG's intention was to provide online training in situations where it is suitable regarding quality of learning, time available and costs. KPMG saw several advantages with web-based online training, including the flexibility for each student to study when and where it suits them and cost efficiency of conducting employee training.

KPMG has provided two courses at the time of writing, both provided as online web-based courses without teacher support. The first course provided was a course in "Bookkeeping legislation" and was divided into four modules. Each module consisted of a set of required readings and online assignments. These assignments were multiple-choice and "fill-in-the –blank" assignments with automatic feedback to the students. After completing all assignments they got access to a final test to complete the course.

The second course was “Flotation and capital increase” and was divided into two modules. Each module consisted of a set of required readings plus additional resources such as external links to “Body of laws” etc. This course was less comprehensive than the first; so all assignments were put into the final test. One had to answer 80% correctly to pass the test.

2.2. Number of employees involved

The first course enrolled 280 students, and 219 passed the course. The second course enrolled 155 students, and 102 passed the course. In total there were 4 staff members from KPMG directly involved in the course development and 2-3 staff members from KPMG participated in parts of the development process.

2.3. E-learning platform and technology issues

Both courses were hosted by NKI Distance Education using the internally developed LMS (Learning Management System) *SESAM (Scalable Educational System for Administration and Management).* This system integrates the web-based LMS with NKI’s overall student administration system and a number of other applications for efficient operation and administration of the logistics and student support measures in online distance education. Both courses are developed and presented using the Sharable Content Object Reference Model (SCORM) Version 1.2. (www.adlnet.org/). SCORM enables one to create learning content that can be delivered and tracked by different SCORM-compliant learning management systems such as SESAM. In the KPMG cases this was used to include additional course structure capabilities and provide different assignments and tracking of progress and results.

In addition, NKI has developed KPMG’s own “look and feel” on their enrollment web page and on the course page available after log in. The course page consists of different services specially adapted for KPMG such as personal preferences, e-mail and password changes, resources and course links. In addition, the KPMG administrator has access to two detailed reports showing student progress and the number of students that have completed the courses.

Both courses are available through the Internet Explorer web browser used by KPMG with no other software needed.

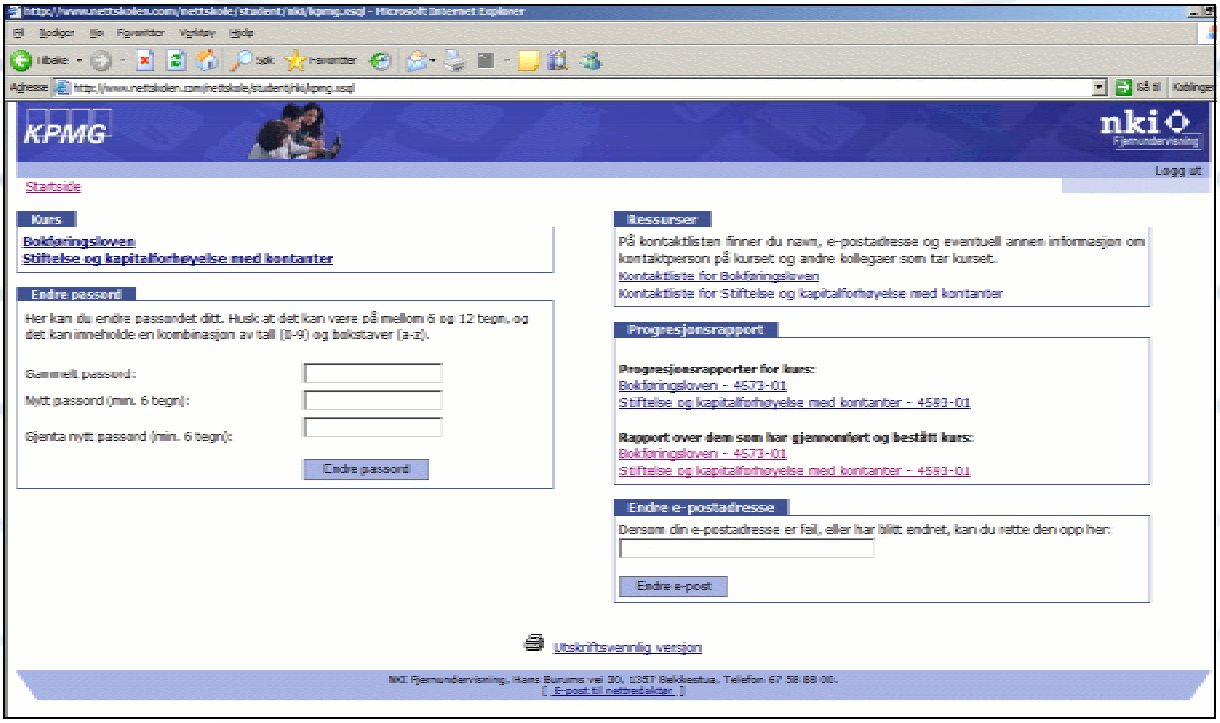


Figure 1. Screen shot of the administrator's webpage

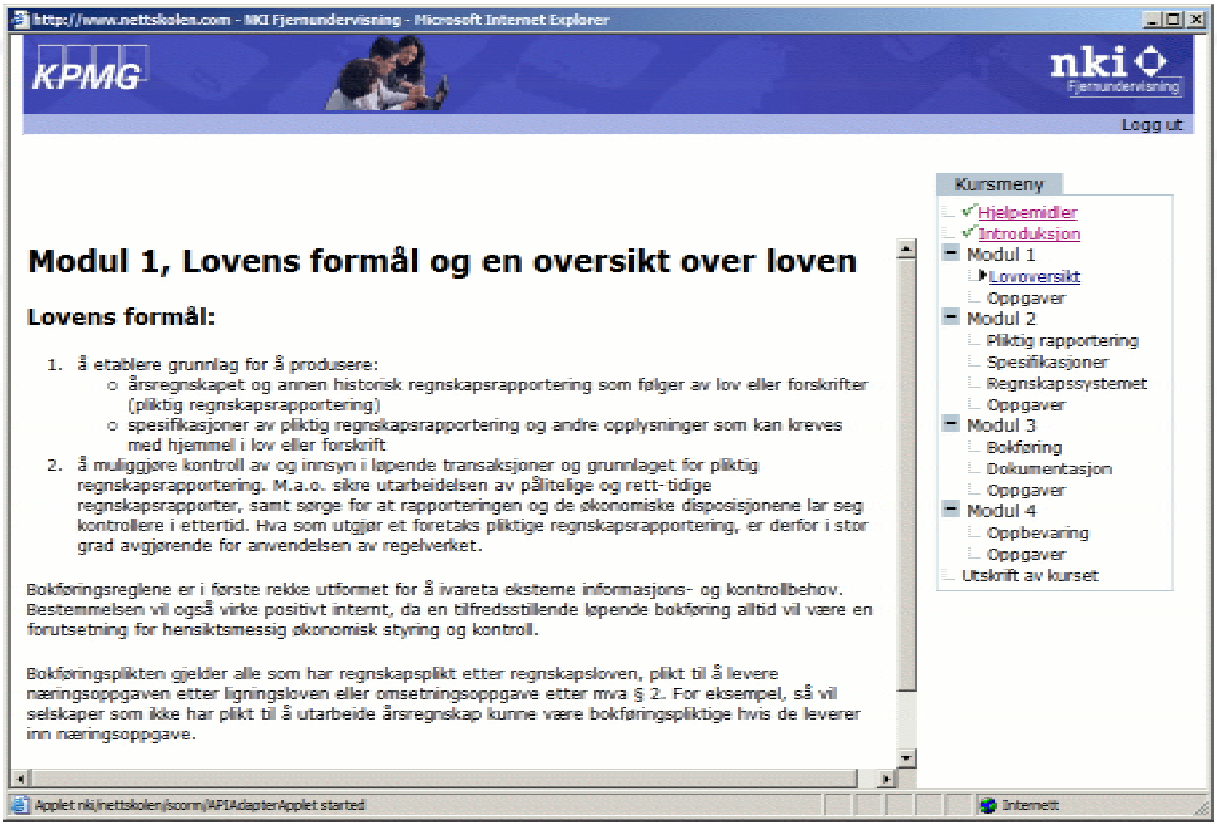


Figure 2. Screen shot of a student's course page

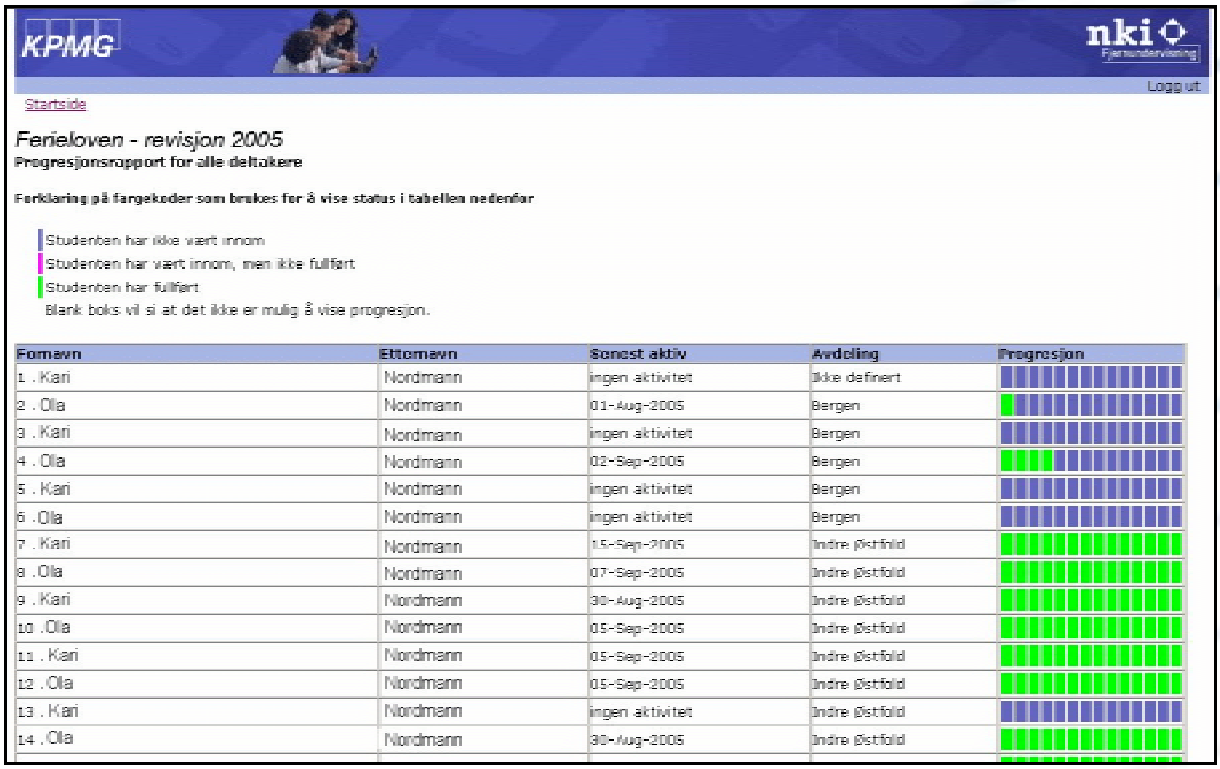


Figure 3. Screen shot of the administrator's progression report

2.4. Course development

Anette Moulin, HR Coordinator and Kristin Løvvik, Senior Manager HR, at KPMG, state that the process of implementing the introduction to distance education was instigated by the Human Relations/Learning & Development Department (HR/L&D). HR/L&D was the promoter for cooperation with NKI and therefore also the driving force behind getting distance learning introduced at KPMG. HR/L&D has been responsible for the practical adaptation of distance education at KPMG including getting the management of the company to alter its decision. In addition HR/L&D has been responsible for involving different specialist departments/groups in order to develop specific e-learning training.

KPMG operates within industries with constant changes in external conditions and rules and regulations. Due to these changes, KPMG has to make sure their employees get continuous technical updates within their field. The materials used to prepare the technical updates have mostly been produced externally. The basis for the distance learning at KPMG has been PowerPoint-presentations, which have been converted and adapted for e-learning.

Within KPMG, the specialists within each field responsible for technical training have been in charge of considering various topics and have decided which are suitable for distance learning.

KPMG provided the entire course content, most of it as PowerPoint presentations. These presentations were developed by KPMG staff and handed over to NKI for further adaptation for use on the Internet. The presentations provided by KPMG were both readings and all questions and answers to the assignments. All presentations were converted to HTML format and structured according to instruction from, and in dialog with, the KPMG staff. The web development tool Dreamweaver (www.macromedia.com)

was used in the process of turning the Microsoft Power Point presentations into HTML files.

All assignments were made using the “Test builder” software provided from ”e-Learning Consulting” (www.e-learningconsulting.com/products/testbuilder.html). This software enables one to create and edit SCORM-based tests and quizzes delivered through NKI’s LMS. Dreamweaver was used to convert all course material into a SCORM course using a Dreamweaver extension called the “L5 SCORM Producer” produced by Digitalthink (www.digitalthink.com). Finally the finished SCORM course was published through SESAM’s publishing system by the NKI development staff and made available on the Internet for KPMG students.

Both courses will be evaluated using an online questionnaire developed by KPMG and NKI. This questionnaire will be published on the KPMG web site after log in. KPMG has also given their opinion on the results and outcome of these courses.

2.5. Course administration

NKI and KPMG have, in close dialogue, developed systems and routines that cope with issues like enrollment, course access, reports, invoicing and other general information issues. The whole process of enrolling students starts within the KPMG system when they send out information about a new course. This information was sent out via e-mail by KPMG HR department to groups of employees chosen by KPMG and consisted of the following information:

- Course name, deadline date for enrollment and completion
- General information about KPMG and methods of training and the collaboration with NKI Distance Education.
- Enrollment information:
- URL to enrollment web page and information about the enrollment process
- Information about username/password and log-in routines, both for new and existing students
- URL to log-in web page
- Information about support services with name of contact person(s) and e-mail address(es)
- Internal KPMG information about the accreditation values according to KPMG’s system for in-house training and post-qualifying education
- Contact information both for KPMG and NKI staff

After the employees receive the information from KPMG HR department, they access the enrollment page and sign up for the course. This enrollment application sends an e-mail to the NKI staff who register the enrollment information into NKI’s student administrative system. This system communicates closely with SESAM, which receives all student and course information on a daily basis. When SESAM receives the information about new students, SESAM automatically sends out a welcome e-mail with all necessary information for accessing the course web page. This e-mail has the following information:

- Welcome message
- Username and password
- URL to login page
- Information about support services
- Contact information

An important administration issue is invoicing and in this case all students are paying one yearly fee with access to “all” available courses. This means courses they have enrolled in. A joint invoice is sent to KPMG based upon agreements between NKI and KPMG four times per year.

3. Effects and outcomes of the e-learning activities

3.1. Completion rates

Course 1, “Bookkeeping legislation” had 280 students enrolled, 219 of whom completed all modules and passed the final test. Additional students may have completed all modules but not within the decided time frame for accomplishment.

Course 2, “Flotation and capital increase” had 155 students enrolled, 102 of whom completed all modules and passed the final test. Additional students may have completed all modules but not within the decided time frame for accomplishment.

3.2. Satisfaction

Anette Moulin states that due to the low entry level to e-learning training, HR/L&D has received very little response regarding the practical side of distance learning.

In total, KPMG has received limited feedback, which they feel is due to the fact that most users have been satisfied with the e-learning training both in terms of technical outcome and practical issues. Through some of the more specific responses KPMG has received, they have the impression that the “student’s” time has been spent usefully.

4. Challenges and barriers

Anette Moulin states that the biggest challenge is getting the organisation to see all the opportunities that lie in distance learning. HR/L&D has put a lot of effort into getting their specialist environments to see all the possibilities in the technology being used and also for them to see the advantages as a whole for the organisation.

From NKI’s point of view, one big challenge was creating the learning environment with the services KPMG wanted based upon NKI’s Learning Management System (LMS). We developed a special version of the learning environment with new graphical user interface and with only those student services needed and required by KPMG.

5. Success factors

KPMG is engaged in finding the right balance between more traditional training through physical presence and other training forms, like distance learning. Kristin Løvvik states that the combination of different training forms is important to KPMG, as one form does not exclude the other. KPMG’s intention is to introduce a diversity of training forms which complement each other. She believes it is important to have a balance between more traditional training and distance learning. The users should be left with the impression

that e-learning is efficient as regards travel costs, time spent travelling and full flexibility in connection to when and where to complete the course and last but not least the learning outcome. KPMG believes they have to do a thorough evaluation in order to decide whether a specific topic is suitable for distance learning or not.

Further more, the courses are nearly compulsory since the knowledge of the course content is essential to the employees, and they are required to spend a certain number of hours on training to maintain their licence.

6. E-learning investments, developmental costs and operational costs

KPMG has not had any direct e-learning investment because the entire system and e-learning courses are hosted, converted to web and maintained by NKI. Some costs related to the development of the course material may exist. In the early stages of negotiations, the partners agreed on a fixed price for NKI course development based on one sample course representative of the KPMG course portfolio. In addition, a student fee and a start-up fee were set.

Thoughts on ROI

Kristin Løvvik states that in collaborating with NKI, KPMG expected to be able to save money on behalf of employees in relation to time and travel costs. Norway is an extensive country and KPMG has offices stretching from north to south. They benefit from being able to offer distance learning because it is easier for them to reach their users. Another important argument in relation to introducing e-learning is the fact that the users can do the training where and when it suits them best. Another opportunity is the sale of e-learning courses KPMG develops to some of KPMG's customers.

Within the technology NKI offers, KPMG sees opportunities to establish, for example, discussion groups and FAQ (frequently asked questions). The technology is already available and our challenge is to get the different specialist environments to see the advantages to users in establishing these added services. KPMG also sees the opportunity to use distance learning within other specialist areas in addition to what has been developed so far.

With a basis in more traditional training, KPMG sees an opportunity to use e-learning in a follow-up process. An e-learning follow-up could be made available to users for a period of time after the traditional training has been completed. The idea of such training is to make the user conscious about what he/she should have learned during the initial course and also as a refresh on the course content.

York Refrigeration

By Morten Flate Paulsen, NKI Distance Education

This case description is based on a report from August 2005 on "Impacts of E-learning – Five Business Cases" produced by Ramboll Management A/S (Denmark) and commissioned by the Danish Ministry of Science, Technology and Innovation. The full report is available (in Danish) at www.vtu.dk/fsk/ITC/EffekterafelaeringFembusinesscases2005.pdf

The case is also based on further telephone and e-mail communication with Per Schou-Nielsen.

1. Facts about the institution

Name of institution	York Denmark, a subsidiary of York Refrigeration, which is a Johnson Controls company.
URL of institution	www.yorkref.dk/index.asp?Site_Id=49
Country	The training initiative is located in Denmark. The company has training centers in the United Kingdom, France and Germany.
Number of Employees	220 in Denmark
Revenue in 2005	Revenue for York Denmark not available
Experience with e-learning since	Since the 1990s
Business sector	York Refrigeration is a subsidiary of York International Corporation, a global concern within heating, ventilation and refrigeration.
Target group/participants in e-learning	The primary target group is the company's 2000 service technicians. The secondary target group is the company's 100 customers.
Content	Training installation of cooling systems and reparation of cooling system components.
Form	Web-based e-learning used in conjunction with classroom and workshop training as individual learning and as manuals and documentation.
People interviewed	Per Schou-Nielsen, Director, Training and development Palle Martin, Vice President, HR EMEA Kurt C. Hilbrecht, Tutor Paul Homsy, Head of Refrigeration and Air Handling at Nestlé (Customer of York Refrigeration)

2. How the institution used e-learning

2.1. The courses

The training initiative at York Refrigeration in Europe, the Middle East and Africa (EMEA) is situated in Denmark. There are training centers in Århus (DK), Manchester (UK), Nantes (FR) and Mannheim (D).

The primary target group for York Refrigeration's e-learning initiative is the company's 2000 service technicians throughout EMEA. The service technicians need both a general overview of complete systems and more detailed knowledge of how the components function and can be repaired.

The secondary target group is the company's customers, who need basic knowledge about the products they have bought and how they should be maintained.

As a part of the training initiative, York Refrigeration developed instructional VHS-videos in the 1990s. These are now digitized and available on web and CD ROM. In 2003, new e-learning content for system training was developed. It deals with system circulation and components with focus on known challenges and maintenance issues. There is for example a video from the Brabrand Dairy, which demonstrates the circulation in a water-cooling system. (Figure 1). The e-learning modules include video clips, narration, drawings, text and access to further documentation. It is possible to navigate freely between the topics.

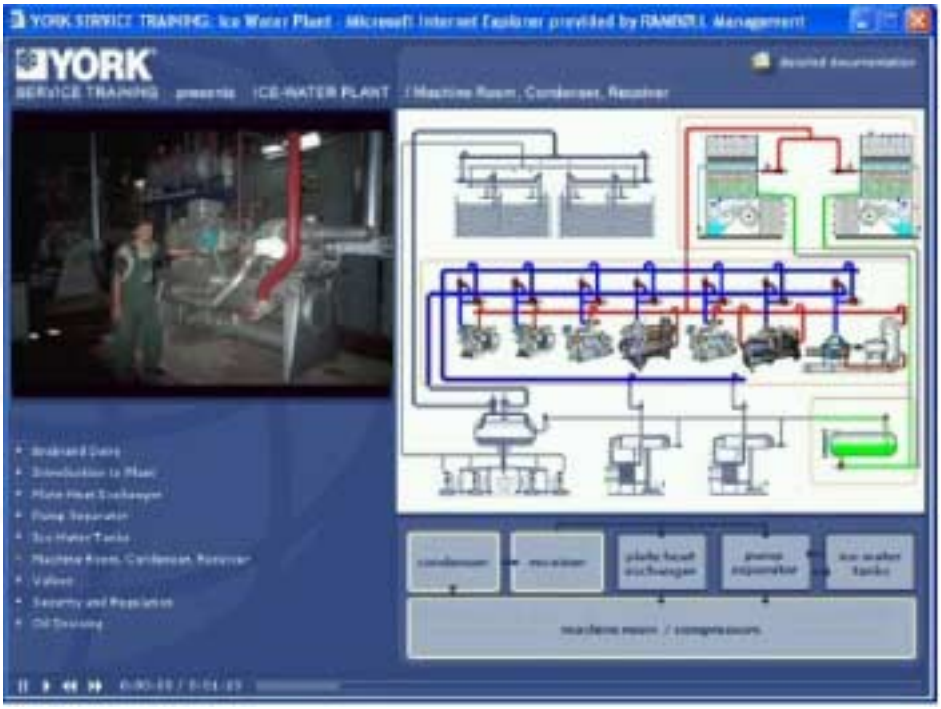


Figure 1. E-learning module showing the water-cooling system at Brabrand Dairy

The video "York Icewater Plant" is available via www.arkena.com.

The e-learning modules are used individually by the employees, as self-instructional training material, as introduction for new personnel, and as technical reference material and documentation. All modules are also available on CD ROM, and a list of revisions is frequently distributed.

The e-learning modules are used in the same way for customer training, and the customers may access the e-learning material after the training sessions. Nestlé, one of their customers, also provides the e-learning modules on its intranet.

2.2. Number of employees who have used each of the courses

There are no statistics available since all course modules are available to all employees, so there are no course enrolment or completion requirements. However, Per Schou-Nielsen estimates that more than 100 employees have used the BraBrand e-learning module. Altogether about 300-400 employees have used one or more of the about 15 e-learning modules that have been developed.

2.3. E-learning platform and technology issues

York does not use a Learning Management System, but a Content Management system named Media Builder from Arkena (www.arkena.com). Per Schou-Nielsen is very satisfied with the system. He states that they use Adobe Premiere Pro for video editing, PowerPoint and Paint Shop Pro for graphics and slides, and Visio - for technical illustrations. They also use Question Mark to develop online tests.

The video content is handled by Arkena's Media Station Express (about € 5000) (www.mediastationexpress.dk) and a video camera (about € 1000). Per Schou-Nielsen explains how York uses these tools in a Danish video interview, which is available via (www.mediastationexpress.dk).

2.4. Course development

Per Schou-Nielsen states that there are three basic models in York's course development process:

1. We provide the manuscript and the technical illustrations and Arkena develops video and graphics. This is a very collaborative process in which Arkena also contributes ideas for audio and narration.

2. We develop the script and storyboard and engage an external video producer who also does the final video editing. We upload the video and publish it in Media Builder.

3. We develop the complete module in-house, especially when it is crucial to develop a module in a short time.

2.5. Course administration

The course administration is minimal since all e-learning modules are available to all employees all the time. This model requires no enrollment procedures, tuition fees, examination procedures etc.

3. Effects and outcomes of e-learning activities

3.1. Completion rates

Not applicable

3.2. Satisfaction

York Refrigeration has not made systematic evaluations of measurable effects, but the interviewed representatives report a positive response to the use of e-learning.

Better, deeper and broader competence development

E-learning is often used for ICT-training. This is however not the case at York Refrigeration. There, the e-learning focuses on training related to the company's

products. The training is intended to be hands-on and instructive. Still, e-learning is perceived as an important supplement to other training.

At York Refrigeration, e-learning is not viewed as an alternative to courses, but as an important supplement for further development and improvement of courses and competence development in general.

The tutor, Director of Training and Development, and Vice President of HR, maintain that the use of multimedia material is a strong point in e-learning. The use of video, not only text and graphics, makes the content more comprehensible for the target group. Tutor Kurt C. Hilbrecht emphasizes that: „It is important to apply several senses. Mechanics should not only read text, pictures provide a better view of the content.“ As a tutor, he emphasizes that e-learning provides more comprehensive knowledge and also supports a deeper comprehension of the composition and functionality of the individual components.

The e-learning is not only used during a course. It is also an important tool after the course when employees may access the modules to look up and reinforce the course topics. Experience shows that the printed service manuals are not frequently used because they are very comprehensive and complex. The video and graphics presented in the e-learning modules are more manageable. The tutor, Kurt C. Hilbrecht, points out for example that service technicians in the Caucasus, who only know a little English, still may benefit greatly from the videos and graphics. Further, months may go between times the service technicians encounter related reparations. It is then crucial that they swiftly and easily find relevant documentation. Director of Training and Development, Per Schou-Nielsen, considers though that e-learning as documentation is used less than desired, but that they still want to focus on the combination of e-learning and online documentation – in accordance with the company's further development of a web-based infrastructure.

Vice President of HR Palle Martin also points out the time- and volume-related optimizations e-learning may provide. More employees may be trained in less time, and the potential target group increases considerably. Hence, the courses are not only available for participants at the course location, but also for remote employees that are not formally enrolled in the course. Palle Martin states that e-learning has made it possible to increase the training volume within the mentioned target group (2000 service technicians) by a factor of ten.

E-learning consolidates customer loyalty

When e-learning was introduced, the customers were included as a secondary target group. For them, the value of the e-learning initiative has a much larger potential and a much better effect than expected.

Through improved customer training, relations and sales have improved, explains Vice President of HR Palle Martin. Better customer training has also resulted in improved customer competence and therefore better utilization of products and purchase of additional services, since the customers better understand product potential.

Nestlé, a large customer, has utilized the e-learning offer. Mr. Paul Homsy, Nestlé's Head of Refrigeration and Air Handling, considers York Refrigeration's e-learning as some of the best e-learning he has seen. He also perceives it as valuable public relations for York Refrigeration. He views the e-learning offer as an important factor when choosing a provider: " It is a must for a modern company to offer e-learning to its customers and its employees".

4. Challenges and barriers

4.1. Technical issues

The availability of technology is still a central barrier and challenge. One tutor remarks that it is primarily in Western Europe that employees have access to portable computers, so that they easily can access the material when they visit customers. In Eastern Europe, for example, this is not the case.

To have full advantage of the material, all technicians should have access to computers, broadband Internet connections and basic ICT skills. This is still not the case throughout the organization.

4.2. Organizational issues

Increasing need for competence is an important impetus for e-learning

York Refrigeration's installations have a life span of 30 years. Over the years, many component suppliers have become part of the company. Therefore, the product spectrum the employees need to know about has become very wide. This requires a lot of the employees regarding professionalism and competence development.

Vice President of HR Palle Martin expects that this will accelerate in the future. He comments that the requirements for entering the cooling trade used to be very low, but he expects them to increase. He wants more focus on competence development and regards this as a pivotal competitive issue for York Refrigeration in the future – both to meet external demands and to acquire the best possible employees. By offering employees good and continuous competence development, York Refrigeration may come through as a more attractive employer than smaller enterprises. Through e-learning, it is possible to secure faster and better competence development for more employees. Therefore e-learning is included in York Refrigeration's strategic plan for training and development.

Barriers and special challenges

The executives at York Refrigeration have supported the e-learning initiative. Per Schou-Nielsen, Director of Training and Development, still considers that it has been a challenge to acquire acceptance for e-learning in the organization. He regards internal marketing of e-learning as an important challenge. Even with support from top management, there is a need for internal marketing.

4.3. Other issues

E-learning integrated in future strategy for training and development

York Refrigeration has just started to develop a strategic 5-year plan for training and development, in which e-learning will be included as an integrated part. Experience has improved the organization's comprehension of the opportunities and challenges e-learning offers. Therefore, the kind of competence development to be offered and the methods to be used, will clearly emerge. It is expected that the use of e-learning will increase during the next few years.

Digital tests have already been piloted and further application is planned. The aim is that employees in the future may be certified by passing tests in various relevant topics. This is included in a strategy for improved professionalism for employees.

5. Success factors

Per Schou-Nielsen points out the following seven success factors:

1. E-learning is expressing a new way of delivering competence development, including product knowledge, system understanding and a potential for discussing business needs and challenges. Whenever a user remarks that the module is an eye-opener and enables him/her to connect to one of the larger parts of our business, it's a success.

2. We have seen that the combination of online delivery, video, narration and illustrations supports a more visual learning style efficiently. Our audience - the service people - is hands-on and visually oriented: reading is not their preferred style. The e-learning module addresses one of their key learning styles and many of them say: Please do more. That's part of our success.

3. People from other branches in our organization, from the back office, administration etc, have told us that they suddenly understood what this kind of YORK offerings was all about. Internal communication that results in a broader understanding = success.

4. A customer (Paul Homsy) tells us how great this module is and that such material can have high importance in sales negotiations. A satisfied customer is always a success factor.

5. The use of training for improving business and retaining customers adds a new angle to the organizational understanding of Training and development.

6. The module expands mind-sets. It helps us reduce the mental barriers in our organization: Training (and the expected outcome: Learning) is not restricted to a classroom session. Using online tools to enable your ability to reflect on certain issues will improve our competence and create better solutions for our customers.

7. Having a common experience, having a concrete example is worth its weight in gold. We do not start new discussions from scratch but use this module and others created in the meantime to build upon. I see a future where we (Training and development) support our organization through "online educational TV".

6. E-learning investments, developmental costs and operational costs.

The e-learning initiative is perceived as very inexpensive.

The institution has not conducted an overall calculation of developmental costs. However, Palle Martin, Vice President of HR, estimates the total developmental cost, including video productions, to be about € 125 000. For the module presented in figure 1, the developmental cost related to external assistance was about € 13 000.

The aim has been to minimize the developmental costs. However, the productions include both high-end productions that are presentable for customers and low-end productions in which swift production time is decisive. An authoring tool was chosen, which makes in-house development easy and inexpensive.

Palle Martin, Vice President HR, and Per Schou-Nielsen, Director for Training and Development, consider the investment to be minor compared with the outcome. Palle Martin states: “The e-learning investments have been peanuts compared to the outcome”.

York Refrigeration has a very distributed workforce, which means that e-learning can reduce the training costs. Air fairs and hotel costs are major costs when service technicians from for example Italy and Spain attend courses in Denmark. Loss of work hours during travel and course attendance is a large additional cost.

Developmental costs

In total, about € 120 000 have been invested in e-learning. The latest production amounted to € 12 500 plus use of internal resources.

Operational costs

Operation costs about € 600 per month for media and the web hotel. The product is also distributed on CD ROM to locations with no or poor access to the web.

Direct effect/outcome

Not calculated. Estimated to include savings related to travel costs and loss of work hours.

Indirect effects/outcome

- Improved development of competence and customer loyalty.
- Increase of sales of other services.
- Preparation for handling increased need for competence.

Roche Diagnostics

Author Unknown

Name of institution: Roche Diagnostics
URL of institution: www.roche.at
Country: Austria
Number of Employees: 250
Revenue in 2005:
Experiences with e-learning since: 2002
Business sector: Medical Technology
Target group/participants in e-learning: Technical employees in production
Content : Qualification in the production engineering (specific technologies)
Form: Blended learning solution
Interviewed people: Roland Milla, project manager bit media

2. How the institution used e-learning

2.1. Description of the starting situation

Why e-learning? - Starting situation Administration expense within the range of the qualification proofs (square meter system) should be reduced saliently. Beyond that urgently a Controlling system was needed for internal measures for further education taken place.

Employees need (provable) in-house certified knowledge, in order to be able to fulfill in the production of high-sensitive diagnostics devices high claims of quality. Technologies change sequentially, in this industry are give it in particular a rapid technological progress. That means employees in production must be trained locally and just in time in new technologies and procedures. These training courses as well as training course success must have documented clearly demonstrably.

Automatic documentation of learning processes, training conditions, simplification of the administration of these processes and data, making learning and methodology flexible. (Cost saving only within the range of the administration, not in the training - because cost-intensive individual learning contents must be produced)

That participant inside is an activity or a situation out in these phases to think and to realize independently or in the team, thus if possible all jurisdictions (self authority, specialized authority, social authority) to be promoted be able. At the end of learning units as concrete results and/or a products as possible are to stand, which can be presented and kept of participant inside (on-line or in operational readiness level phases)

2.2. The courses

With the learning platform SITOS® administrators have the possibility of placing participant inside and Tutors and courses to an on-line training course together. The level of the courses (e.g. the action fields of a certain occupational group) as the second

level in SITOS® one administers. Within this range with several content resources a course is generated, i.e. learning contents/programs are arranged for a partial training course. The third level of on-line training courses is the level of the learning modules (e.g. the action situations), whereby several learning modules are usually merged into a course. All sections and/or subsections of a learning module are selectable from the user to each time. It besides context-referred between the sections “is linked”, whereby the automatic adjustment of the navigation functions a mad in the knowledge net prevents.

This e-learning course (content) was provided predominantly in-house and assigned to the appropriate employees. The e-learning system is until today in use and for most different topics is consulted. However courses form the emphasis to the production engineering of diagnostics devices.

Each e-learning consists of a certain number so-called „Learning Objects “, which have an average machining time of 30 minutes. The total period of an individual course depends on the number of Learning Objects as well as on the necessity of additional operational readiness level trainings. On average for each topic however a learning time is spent by approx. 12 hours.

The e-learning course is developed majority multimedia and sets a rich medium-mixes (large portion of video, Audios, animated patterns, interactive elements for success in learning controls, Self tests)

Learning statistics

A learning object under SITOS (e.g. a lesson, a document of etc.) „Tracking so mentioned can be deposited “. Tracking means that certain data - like the number of calls, the date first and the latter the call, which reached points within a lesson - to be stored. With each call of a course and/or lessons these data are up-to-date indicated. Thus you are as users able to judge separately which portion „course “you already settled one and/or which contents of it very often and which it not to have regarded still at all. The learning statistics (if available) is indicated directly under the name of the respective learning object.

Panels

The panels are comparable with black boards and are divided into groups of courses. They serve in order to exchange with others participant inside information for general topics.

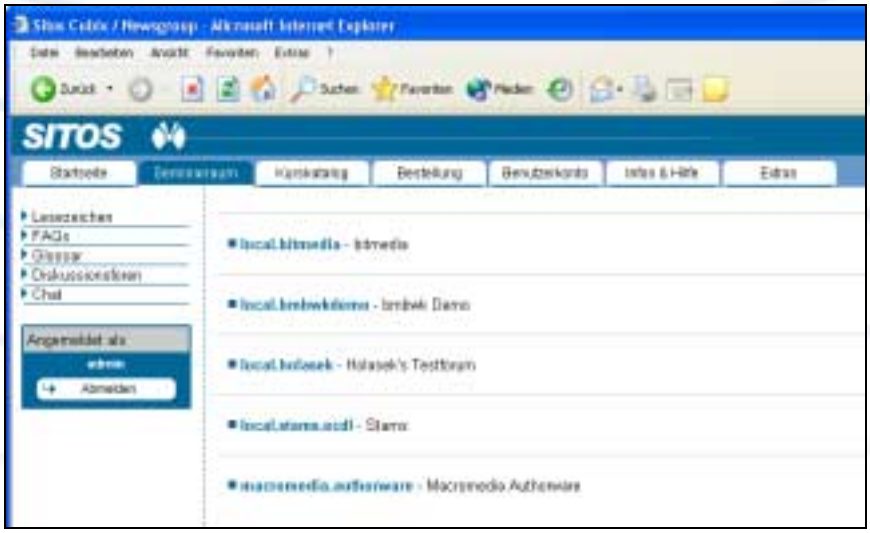


Abbildung: Diskussionsforen – Übersicht

Abbildung: Diskussionsforum – Inhalt

E-Mail at Tutor

A Tutor is a person, who supports and accompanies someone in a e-Learning training course. With the Teletutoring this happens now not in personal contact, but with use of the new telecommunications technologies and here mainly by E-Mail and forum. As soon as concerning a problem learning contents or administrative affairs emerge, which you cannot solve, write a message your Teletutor and ask a question to the concrete problem. Indicate the more exactly you in your message, where the difficulties lie - in which course, with which lesson, in which section, with which exercise - these arose, the more exactly can the answer of your Tutors fail.

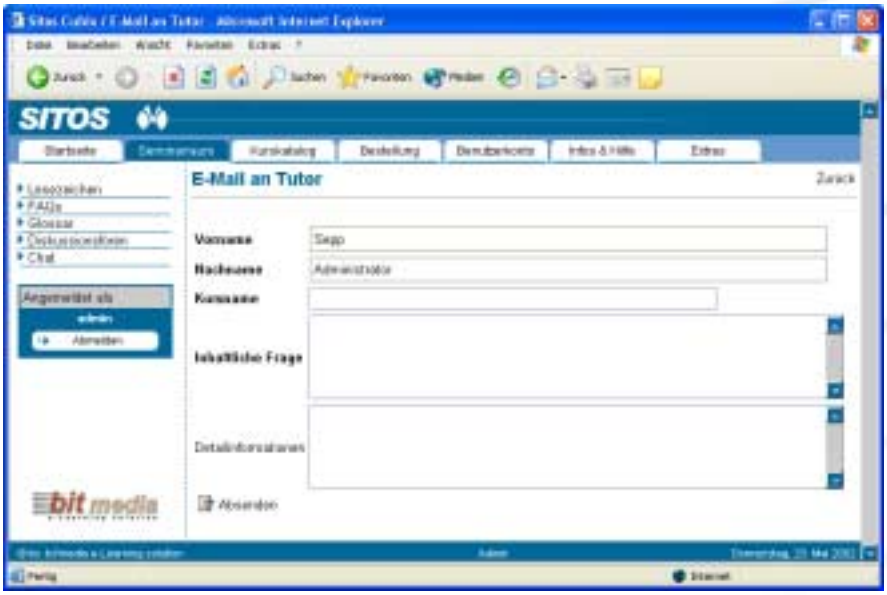


Abbildung: Nachricht an den Tutor

Chat

The learning platform SITOS offers also the possibility, with others participant inside and/or with the Tutor to chat.

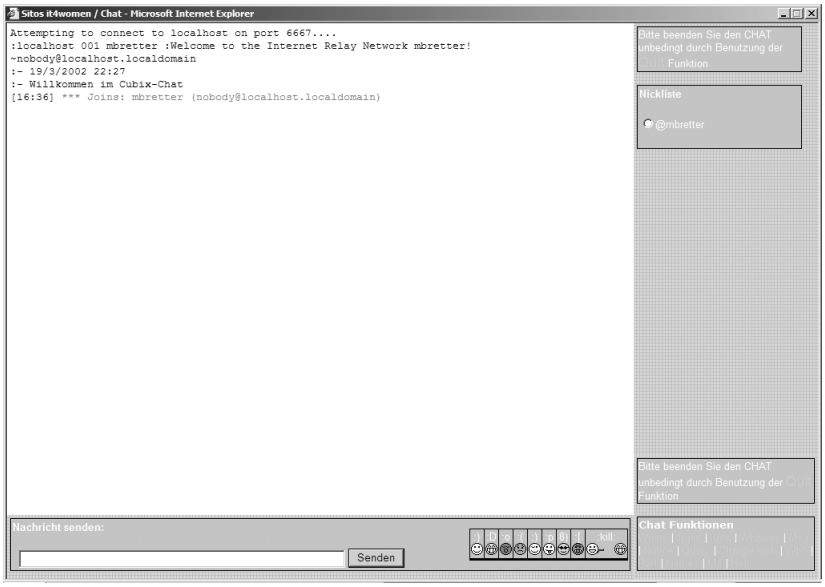


Abbildung: Das Chatfenster

Technical requirements

Windows Client, Intranet (>256 KBit/S), Internet Explorer with Shockwave + Flash, audio.

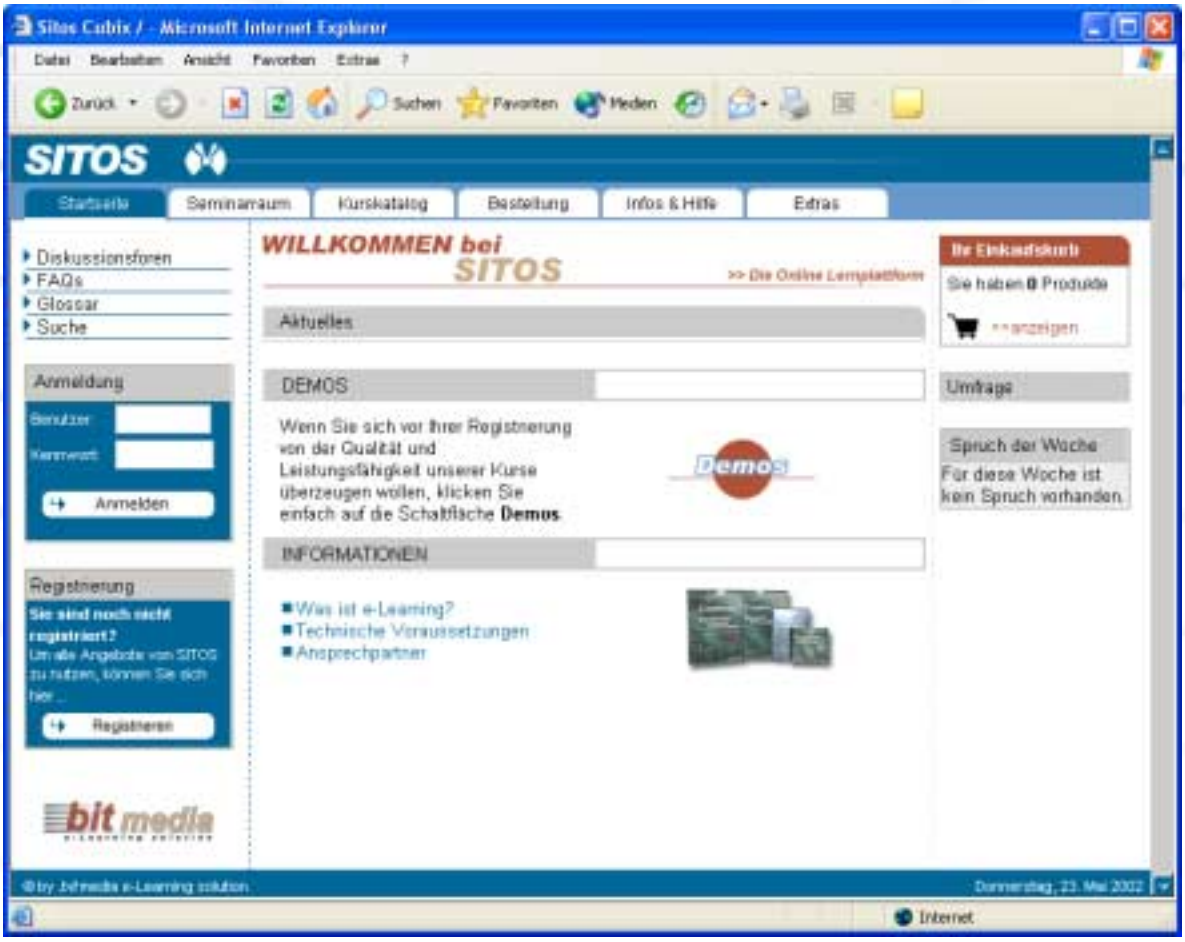
2.3. Number of employees involved

200

2.4. E-learning platform and technology issues

Used learning platform: SITOS 3.5

That participant inside is an activity or a situation out in these phases to think and to realize independently or in the team, thus if possible all jurisdictions (self authority, specialized authority, social authority) to be promoted be able. At the end of learning units as concrete results and/or a products as possible are to stand, which can be presented and kept of participant inside (on-line or in operational readiness level phases)



Provider: bit media e-Learning solution.

Technical requirements of the LMS:

- Server operating system Linux or Windows (here: Windows of 2003 servers)
- Data base: Oracle, MySQL or ms SQL server (here: MS-SQL)

2.5. Course development

1. Common analysis of the starting situation with the customer
    - Actual situation
    - Determination of the critical success factors
    - Determination of the improvement potential

2. Development of an approach

- Rough conception training system
- Fine concept
- Work statement
- Technical product requirement specifications

3. Development prototype - exemplary conversion of the learning environment with functionality already adapted

4. Evaluation prototype

- Internal evaluation prototypes in the project team
- External evaluation prototypes with representative target group

5. Technical realization of the overall system

- Development with milestones
- Regular reviews

6. Implementation of the system

- Installation
- Training of all involved ones

7. Project conclusion

- Deliveries & acceptance
- Agreement over further maintenance & support

2.6. The administration process

- registration, entrance, report nature, accounting.

Which employees come into the benefit of the e-Learning of offer? Course dispatching by training responsible person (=Administrators in different ranges and smoothing).

Employee gets report of reservation (inclusive entrance data to the training system) via E-Mail sent. Report of reservation contains additionally date data. Employee logs in training system and finds booked courses in the learning area. Open, editors of the e-Learning courses by the system are along-logged - likewise success in learning and/or results integrated tests. Employee can call even his learning status up and/or also jew. The training responsible person Most diverse inquiries/report are at any time callable. The system has besides a calendar function for the administration of operational readiness level training courses.

Reservation of additional course offers by employees. No administrative supervision. Employees booked course and gets this de-energised.

3. Description of direct and indirect effects and outcomes of the e-learning activities

3.1. Completion rates

150 employees

3.2. Satisfaction

Through in the training system integrated feedback elbows and questionnaires one raises and/or by recurring Meetings with the contractor. The feedback is predominantly positive.

3.3. Success of the participants

is guaranteed (demonstrability of the knowledge given)

4. Challenges and barriers

Technical problems

At the beginning of bad performance with certain more complex evaluations.

Organizational problems

None

Other problems

Introduction of the system would have better Information before

5. Success factors

- Confine co-operation between clients and contractor (regular tuning) Employment of a solution already tested
- E-learning system must be obligating for employees in the training (if only voluntarily, then to small use and acceptance)
- Well planned introduction of the system (sensitization of the employees, training of the administrators, sufficiently time for test phase before genuine enterprise in the enterprise)

6. E-learning investments, developmental costs and operational costs

License costs of learning platform approx. 20.000 EUR

Hardware: approx. 2.000, - EUR

Development costs (adjustment): approx. 30.000 EUR

Enterprise: 1 half tag strength internally

E-learning Providers

Many European providers of education and training are SMEs that offer e-learning courses and services. These institutions may be increasingly dependent on e-learning to survive. They may also be specially interesting as examples of how other enterprises may use e-learning in the future. The providers of e-learning are probably more prone to use e-learning than other enterprises since they are specially aware of the opportunities and since they have modest additional costs for internal use of existing e-learning courses and services. The analysis includes case descriptions of the three e-learning providers. The ETraining OÜ and NKI cases focus on using their generic courses for training their own employees. The CINEL case primarily describes the company's experience with external students.

NKI is a major provider of distance and online education in Norway. The institution claims that it was the first European online college and it has offered online education since 1986. Since then, NKI has registered more than 60 000 enrollments in online courses. About 60 percent of NKI Distance Education students are online students. NKI has more than 450 online courses, 7000 online students and 150 part-time online teachers. The company has 145 full-time employees. Over a period of 20 years, about 145 NKI employees have enrolled in various online courses provided by NKI. The employees have primarily enrolled in three categories of e-learning courses. About 100 NKI tutors have completed the course Tutor in Distance Education, which is obligatory for all NKI tutors. A number of employees have made about 50 enrollments in various competence-development courses at the initiative of the NKI management. Finally, about 15 employees have made about 50 course enrollments on their own initiative in a broad spectrum of courses. The cost of providing the courses to NKI employees has been minimal, since the institution also provides and sells all the courses on the open market. The courses are offered via an e-learning platform developed by NKI.

ETraining OÜ is a commercial provider of online education services and courses in Estonia. The course topics are primarily related to ICT. The online education services are related to online tests and the WebTrainer e-learning platform, which is developed by ETraining OÜ. The company has 20 employees. For two years it has used its own courses and solutions for training and testing. All eTraining employees must go through certain courses and pass all related tests before they are allowed to start service or sales. The costs are relatively small since the institution uses its own content and services for training.

CINEL is a vocational training centre for the electricity industry in Portugal. The center has 60 employees. It offers online courses that are open to the general public but with a focus on employees in the electricity industry. The center has offered an English Online Multimedia course for six years, and during these years 720 trainees have graduated from the course. CINEL paid for internal and young students. The price for external students is € 100 per level and € 250 for students with electronic technician level/profile. In addition the center has received grants from the European Equal program to offer three courses in domotic[4] issues, computer science and business start-up courses as blended learning. These three courses have been attended by 32 trainees, eleven of whom were either blind or had other special needs. The courses are offered via an e-learning platform developed by CINEL collaborators.

[4] www.domotics.com/ix_domo.htm

Effects and Outcomes

Completion rates

NKI reports that completion rates vary between the three different categories of courses. The course Tutor in distance education seems to have the highest completion rate since it is a prerequisite to become an online tutor at NKI. The courses that the students enrolled in on their own initiative also have rather high completion rates. The courses initiated by the management seem on the average to have a lower completion rate. Differences in completion rates relate mainly to differences in motivation of the participants.

At ETraining OÜ, 55% of the participants passed the test on their first attempt, 93% on their second attempt. CINEL reports that 720 have graduated from the English course in the past 6 years. Only 12 dropped out, and 10 didn't finish on their first attempt.

Satisfaction

NKI has not conducted systematic evaluation among its employees, but provides positive testimonials from individuals. ETraining OÜ states that it has not discovered negative feedback. Employees like the simplicity of the learning cycle. CINEL claims that there is total satisfaction.

Challenges and Barriers

NKI reports that technical barriers are quit low, but employees need to negotiate with their supervisors if they want to study during work hours. But there is pressure on personnel resources, so it is often difficult for many to find time, even when time for study is agreed upon.

ETraining OÜ states that the company is too small to have sufficient resources to produce interactive training content for internal use. CINEL claims that people don't take e-learning seriously.

Success Factors

Among the success factors mentioned by the e-learning providers are:

- Motivated employees and management support.
- Opportunities to study during work hours.
- Courses relevant to their daily work or personal interests.
- Courses will result in promotions or better payment.

Costs

NKI claims that the cost of e-learning is minimal since the institution itself offers the courses on the open market. The CINEL costs are exclusively related to course creation. ETraining OÜ states that information about investments and production costs is not public. The operational cost is about € 30 for web hosting and 5 hours of work per month.

NKI AS

By Morten Flate Paulsen and Torstein Rekkedal, NKI Distance Education

1. Facts about the institution

Name of institution	NKI AS
URL of institution	www.nki.no
Country	Norway
Number of Employees	145
Revenue in 2005	NOK 193 M
Experience with e-learning since	1986
Business sector	Education
Target group/participants in e-learning	Prospective tutors in distance education, All full-time employees
Content	About 100 tutors have completed the course Tutor in distance education since 1996. About 30 employees have enrolled in one or more courses on the initiative of the management. About 15 employees have enrolled in one or more courses or study programmes because they wanted to learn more about the subject.
Form	Online distance education
People interviewed	Svein Qvist-Eriksen Gerd Børresen Bjørg Firing Truls Fagerberg Einar Gaarder

NKI AS comprises NKI Distance Education, The Norwegian School of Information Technology (NITH), and NKI Publishing House. In 2005, the NKI Group had 145 full-time employees. NKI's headquarters are situated in Bærum, a suburb of Oslo.

The Norwegian School of Information Technology, NITH, was originally founded in 1964 as NKI College of Engineering, but has since specialized in information technology. NITH is the only Norwegian university college that specializes in information technology. NITH is also the country's largest provider of bachelor's degrees in the field of Computer Engineering and Information Systems. Currently around 650 students are studying full time at NITH. NITH has three campuses, one in Oslo, and two in the western part of Norway, in Bergen and Stavanger.

NKI Publishing House develops learning material for upper secondary schools and colleges of higher education, with special emphasis on vocational subjects and learning materials for the traffic and transportation sectors.

NKI Distance Education is a non-profit organization aiming to support Norway's educational policy as a reputable complement to the public education system. The overall business idea is "to cover needs for competence development by offering courses and programs for adult learning adapted to the participants' previous knowledge and skills, place of residence and socio-economic conditions." As a non-governmental institution, NKI is largely dependent on student fees for its operation. As a fee-charging institution, NKI has been devoted to the beliefs and values of the service industry,

considering students as customers who have the right to demand high-quality services. State accreditation has also required the institution to develop and update a formal system for quality assurance.

NKI is recognized by the Ministry of Education and receives government grants covering less than 10% of operating costs. NKI Distance Education employs some 65 full-time and 400 part-time employees. The number of active students has typically been around 12,000, but varies from month to month as shown in Figure 1. Enrollments in online courses have increased substantially since 1996. In 2006 more than 50% of the active distance students are taking their courses online. During the last two decades NKI Distance Education has developed from a correspondence school to an institution applying the Internet for delivery of a large number of courses.

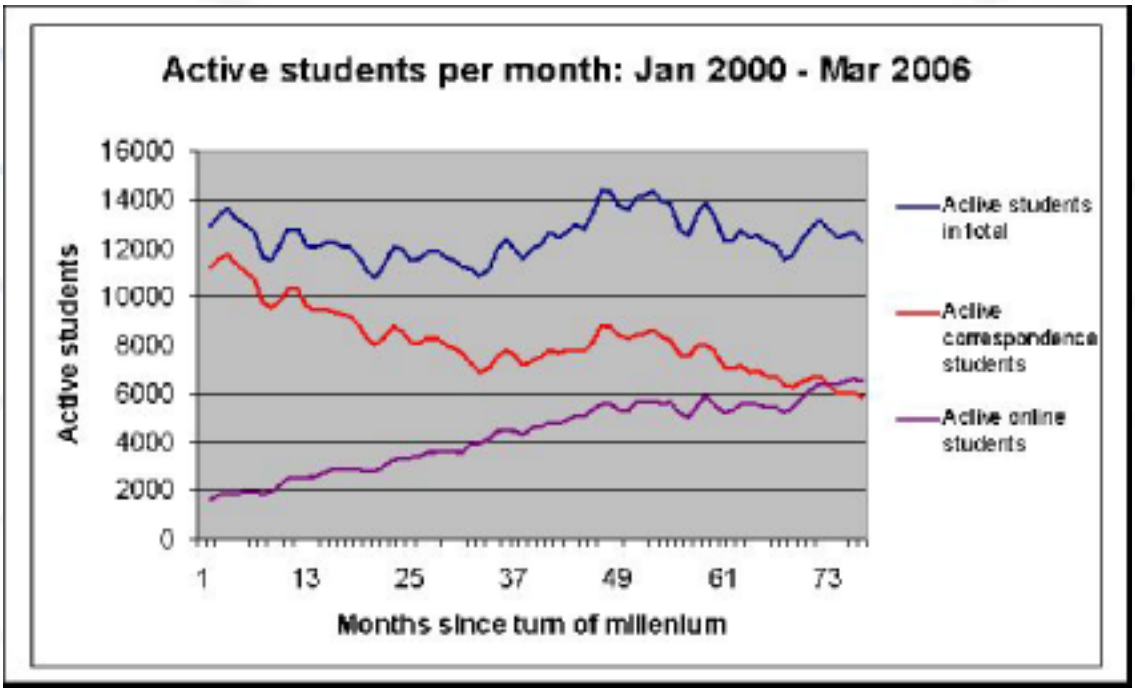


Figure 1. Monthly variation in active NKI students

In 2005, the revenue of NKI Distance Education was about € 14 million, 52% of which came from online education. Still, there is a substantial demand for traditional distance education courses in the market.

NKI was one of the very first European online colleges, and it has offered online, distance education every day since 1987. Few, if any, online colleges in the world have been in longer continuous operation.

The increase in online enrollments from 1997 to 2006 is shown in Figure 2. During the summer of 2006 the accumulated number of online course enrollments reached 60,000, with the NKI Internet College having about 150 tutors and 7,000 registered students. Most of the students live in Norway, and almost all courses are taught in Norwegian. But there are students registered with addresses in about 35 countries around the world. Women constitute about 70% of the online students.

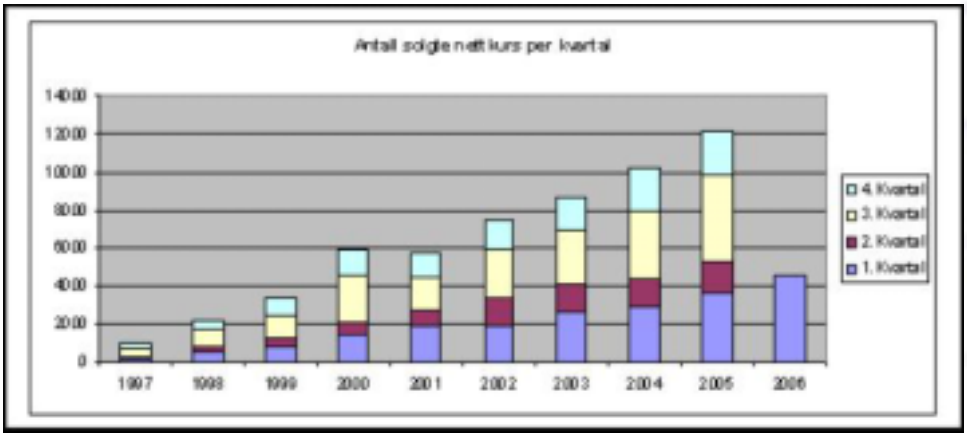


Figure 2. Number of course enrollments per year in NKI online courses since 1997

NKI Policy for competence development

Competence is defined as the totality of *knowledge, skills, abilities and attitudes*, which are *required to carry out the functions and assignments in accordance with defined standards and objectives*. The *competence policy* of NKI concerns the *aims, plans, directions and actions to manage and develop competence in accordance with the goals of the institution.*

Competence and competence-development is emphasized as a core factor in line with strategic personnel management, i.e. personnel management integrated with strategy development, systematic planning of needs of personnel, supply and reduction, monitoring and improving internal culture and planned competence development.

NKI views *human capital* as the most important input factor to achieving the institution's aims in the basic areas: *profile, quality, development and cost-benefit*.

NKI accepts that the learning of relevant work competence is most effective in connection with work. Day-to-day management includes competence development, and learning takes place through meetings, internal seminars, coaching/guidance, team-work, job rotation, external presentations, project work, time for personal reading and PC training.

The institution shall also stimulate participation in formal training courses of shorter or longer duration. Employees who participate in external training programmes shall as far as possible bring new learning back to the workplace using presentations for colleagues.

Managers on all levels are responsible for planning and implementing job training and competence-development of their staff. External courses and training programmes should be used when suitable. When training activities are decided upon, it shall always be first considered whether or not there are courses or programmes within NKI's own portfolio that are suitable for the purpose.

Specifically for NKI Distance Education: As most employees in some way are involved in course development, administration or support, e-learning courses also supply the experience of being a customer and thus experiencing possible positive and negative aspects of the course as a background for quality development.

2. How the institution used e-learning

2.1. The courses

Since the start in 1986, NKI has registered about 60,000 enrollments in online courses. As NKI has online learning as one of its core businesses, the management naturally considers this form of learning as an effective and efficient means for competence-development of its staff. During this 20-year period, NKI employees have been allowed to enroll in any of the online courses offered by NKI free of charge. Over the years the number of course enrollments made by NKI employees is estimated at about 300.

NKI Distance Education's Strategic Plan from 2005 to 2007 states that all employees should be encouraged to enroll in NKI's e-learning courses. The goal is both competence-development in the chosen subject area, but also competence-development in online learning through experience as students.

2.2. Number of employees involved

All full-time employees may enroll in any of the courses provided by NKI Distance Education. NKI covers all fees related to the courses.

The employees have primarily enrolled in three categories of e-learning courses:

1. Tutor in Distance education is a course that is obligatory for all prospective NKI tutors. It is estimated that about 100 NKI tutors have completed this course since it was first offered online in 1996.
2. Competence-development of staff at the initiative of NKI management by actively motivating employees to take courses that involves training in the chosen subject area related to the individual employee's need and at the same time enhances the employee's awareness and knowledge about NKI's online services and pedagogy. Examples of these initiatives are three courses on *Wine knowledge* (about 15 employees), *PowerPoint* (about 10 employees), *Communication* (about 10 employees), and *Mobile learning* (about 15 employees).
3. Courses taken at the initiative of the individual employees to learn more about a chosen topic or academic area. Available statistics indicate that in total about 15 full-time employees have enrolled in about 50 courses with a broad spectrum of different subject areas.

2.3. E-learning platform and technology issues

NKI has a number of self-developed and commercial applications that together make up a comprehensive system for student support services. Integration of these applications is extremely important for the total functionality, efficiency, and quality of student support services.

The backbone of an efficient large-scale distance teaching institution is the computer system for administering students. STAS, NKI's self-developed student management system has been developed over many years to satisfy the needs of a large-scale institution, including registration of assignments, monitoring student progress, distributing new learning materials, and paying tutors.

STAS was initially developed for correspondence courses and bar code registration of assignments. Initially it was not suited to serving online students, as there was no connection between the Internet systems and the administrative systems. It was

necessary to develop STAS further to handle online students efficiently. The integrated development of STAS and the LMS system for online learning, SESAM (Scalable Educational System for Administration and Maintenance), is continuously ongoing.

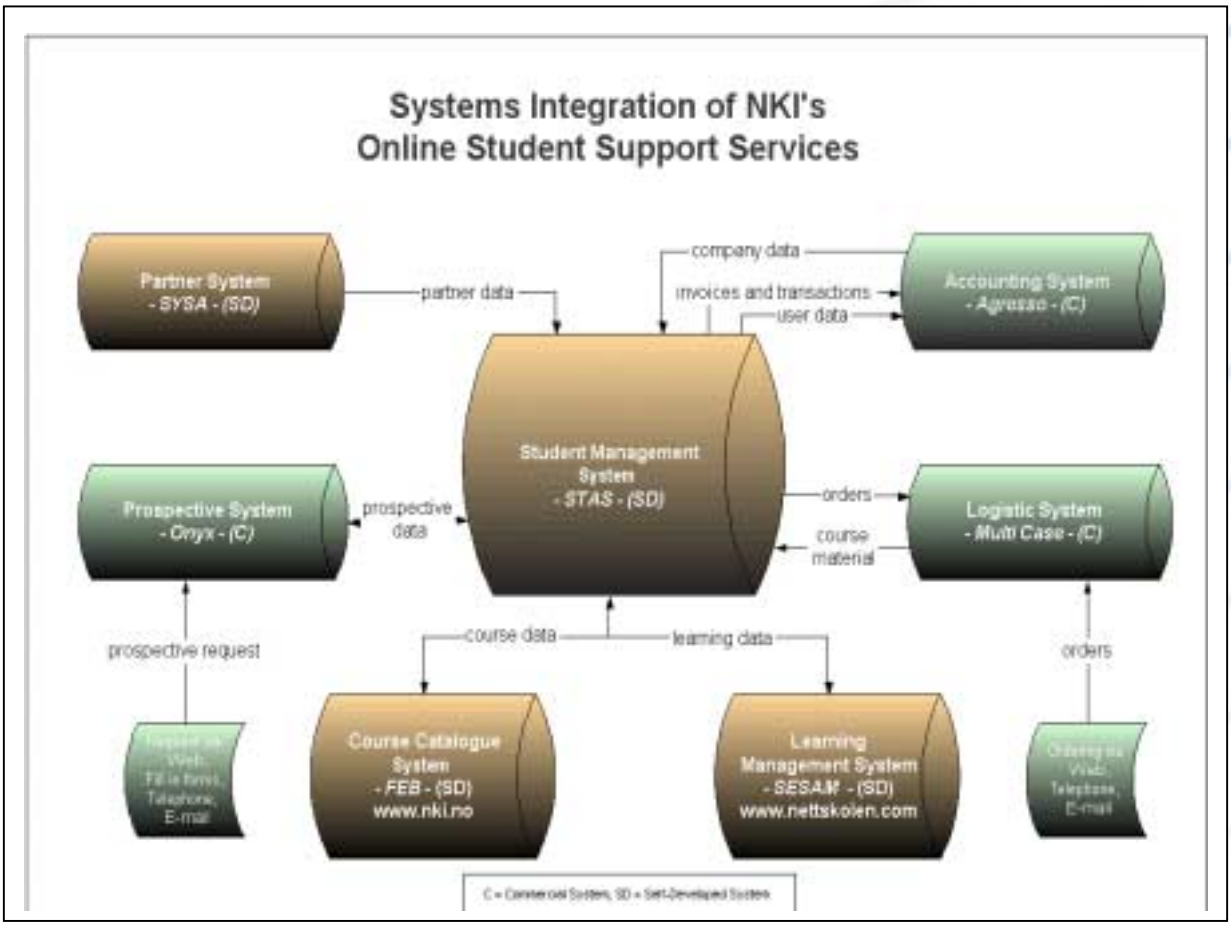


Figure 3. NKI's integrated systems for online student support

One of the greatest advantages with STAS is that it was developed to handle students with individual starting-times and progression. It also provides excellent tools for generating various reports and statistics. STAS is NKI's master system and it is integrated with all other essential systems such as accounting, logistic, prospective and partner systems.

SESAM is self-developed to support the services that are important to NKI. As such, it is specifically well adapted to NKI's needs. SESAM is developed for large-scale online education and it applies state-of-the-art Web technologies including Java, XML, XSL, Oracle 9i databases and Apache Web servers. SESAM is excellent for handling continuous student enrollment 365 days a year. The major additional advantages it has, compared to commercial LMS systems, is its focus on cost-effectiveness and the necessary integration of all the critical student support systems. SESAM provides a number of services for students. Among them are:

- Access control
- Personalization of user-interfaces and services
- Access to course content and assignments

- Discussion forums
- Class lists
- Student presentations
- Information on exams and grades
- Course evaluation

The teachers have access to additional services such as:

- Online registration of grades
- Tutor support services
- Wage and payment data

Agresso (www.agresso.com) is a commercial accounting system that handles tuition fees, invoices, wages, etc. When a course enrolment is registered in STAS, the corresponding student account is debited in Agresso. When tutors register grades in SESAM, they are transferred to STAS and the remuneration is added to their accounts in Agresso.

SYSA is a system for presentation of information about local business partners that organize face-to-face classes as support for NKI's distance education courses, providing contact information and information about classes being offered.

Onyx and Multi-Case are commercial systems. Onyx handles marketing activities and requests from prospective students, while Multi-Case is a commercial logistics system for administration and shipment of textbooks and miscellaneous learning materials. When course enrollments are registered in STAS, Multi-Case automatically initiates shipment of the corresponding course materials.

FEB is a self-developed business portal. It is the main portal for the NKI online course catalogue (www.nki.no). It presents all courses and programmes offered by NKI. This includes information on course content, necessary prerequisites, credits, exams, tuition fees, etc. Prospective students may register or apply for courses directly via FEB. The introduction of FEB has had a very positive effect on the increase of unique users and prospective students. The number of unique users that visited www.nki.no increased from 37,372 in January 2002 to 60,166 in January 2003. Similarly, the number of registered prospective students increased from 5,305 in January 2002 to 6,531 in January 2003.

In addition to course information, FEB also includes a comprehensive database of articles with news, frequently asked questions, and more general information on distance and online education. A number of research articles and reports are also available in FEB. It also provides a search engine covering the course catalog, www.nki.no and www.nettskolen.com. FEB is built on current Web technologies including Java, XML, XSL, Oracle 9i database and Apache Web server.

2.4. Course development

Courses have primarily been developed with the intention of selling them to individual students on the open market. The decision to develop a course is primarily made on the

basis of a market analysis. A project team usually consists of a project manager, an editor, an author and a web-designer who develop all courses.

2.5. Course administration

NKI has a comprehensive set of student support services. Each course has a tutor and an administrative contact person that can be contacted via e-mail or telephone. In addition there is a support service for ICT support.

3. Effects and outcomes of e-learning activities

3.1. Completion rates

Experience over the years shows that completion rates vary between the three different categories of courses. The course *Tutor in distance education* seems to have the highest completion rate since it is a prerequisite to becoming an online tutor at NKI. The courses that employees enrolled in at their own initiative also have a rather high completion rate. The courses initiated by the management seem on the average to have a lower completion rate. Differences in completion rates relate mainly to differences in motivation levels of participants.

3.2. Satisfaction

NKI has not conducted any systematic overall survey to evaluate the satisfaction or outcome of the e-learning among the employees. However, individual students have clearly expressed their satisfaction.

Course for tutors

For instance, nearly 100 percent of those who completed the course for tutors express that the course was interesting and resulted in new insights and a good background for their tutoring work. Comments from a random student:

"Today I completed the Course for Tutors. I must say that I am very satisfied – both with the course itself – and not least a very active tutor. Concerning the course and learning materials, I find that it, in an easy-to-understand way, gives insights into the subject, specifically the emphasis on the important aspects of the work of the tutor. Now the challenge is to remember and to put theory into practice. Concerning the course Forum, it should be stressed that all students have the responsibility of using the Forum for the benefit of all, and to take the opportunity to use it when one has a need for support or feedback. Thanks for the course – I look forward to starting my work as a distance tutor – and I hope I will be the kind of tutor that I have read and learned about".

Another comment:

"Today I have completed the final assignment in the Course for tutors. I have learned a lot. I have worked as teacher for many years – but not in distance education. My learning has gone through a curve from deep "despair" when in the first study unit I read about all the demanding challenges of the distance tutor, through the growing understanding of the important task of the tutor in cooperation with high quality learning materials in the second unit to enthusiasm for the task after completing the third unit. Much of my inspiration and enthusiasm has come because of the excellent comments from my very good tutor and the deep insight in the subject his comments gave to me. I have also received helpful and quick answers to my questions – thanks. I feel that I now have a

good understanding of the work and really look forward to taking on the work and seeing how it works in practice."

E-learning course taken on the employee's personal initiative

Below is a comment from an employee who has taken the complete *"The Specialization Programme in International Online Education"*. This employee is a young person who worked as systems developer but had personal plans for competence-development in organisation and pedagogy. The internal NKI e-learning programme was completed as the first half of a master's degree in *Educational Information Technology.* The second half of the master's degree was completed as a part-time student at a foreign university.

Comment:

"It was quite demanding to take such a comprehensive programme as online education being employed full-time. However, during part of the study I was given free time to study one day a week, and this helped a lot with completing within a reasonable time-frame. Coming from a background mainly in information technology and systems development, pedagogy was a rather new world, but according to my personal plans and types of work that I like, the change was just in line with my needs. The personal learning and development through the e-learning programme has given me new interests, new insights and also motivation and possibilities for changes of work, job types and promotion. Completion of the programme has already given me new work opportunities and changed the content and responsibilities in my old job. I have also gotten a promotion and been employed in a new job with more emphasis in pedagogy than technology, more in accordance with my personal career plans."

E-learning course taken at the initiative of the management

In 2005 it was decided that all members of the management group should enroll in the course *Powerpoint*. The course constitutes the presentation module of the ECDL (European Computer Driver Licence). The management group enrolled on a voluntary basis. Eight participants took the course online with a few face-to-face seminars. The objective of taking the course was both learning better presentation techniques using power point and experiencing the functionality and quality of the institution's online courses. Below are comments on the course from one of the participants.

Comment:

I took the course more to experience being a student in the course than actually learning to use Powerpoint as I had previous experience. Concerning my learning of the subject, I experienced that I learned to use the tools more systematically and efficiently and got a better overview of functionalities and tools. Feedback from the tutor was quick and helpful. Concerning course structure and content, I found that it is easy to overlook important information. This means that important information must be presented with graphical effects and in ways that it becomes nearly impossible not to notice. I also found that assignments must be worded in ways that are clear to the student, as misunderstandings are difficult to clear up. All in all I found the course efficient for learning how to use Powerpoint as a presentation tool.

4. Challenges and barriers

4.1. Technical issues

The technical barriers are quite low. All employees have access to the necessary ICT equipment at work. They also have easy access to all kind of in-house support services.

4.2. Organizational issues

The employees have to negotiate with their supervisors if they want to study during work hours. Study time during work hours is usually permitted, specifically concerning courses that are part of the planned institutional competence development of the employee.

4.3. Other issues

There is no doubt that due to pressure on personnel resources, it is often difficult for many employees to find time, even when time for study is agreed.

5. Success factors

Opportunities to study during work hours.

Courses relevant to their daily work or personal interests.

Courses will result in promotions or better payment.

Courses taken are part of the competence development plan of the management and at the same time of prime interest to the learner, i.e. management support and personal motivation.

6. E-learning investments, developmental costs and operational costs

The cost of e-learning is minimal since the institution itself provides and sells the courses on the open market. For a competence-based business, human capital is seen as the most valuable input variable for success. Taking e-learning courses from an internal portfolio gives a double effect of learning the subject and learning about important aspects of the business itself.

ETraining OÜ

By Arved Liivrand, ETraining OÜ

1. Facts about the institution

Name of institution	eTraining OÜ
URL of institution	www.etraining.ee
Country	Estonia
Number of employees	20
Revenue in 2005	2,500,000 EEK
Experience with e-learning since	2003
Business sector	Consulting & training
Target group/participants in e-learning	Small and medium size organizations
Content	Sales management and product knowledge content
Form	Web based learning and testing
People interviewed	Arved Liivrand, CEO

2. How the institution used e-learning

2.1. The courses

The mission of eTraining OÜ is to offer for organizations time- and cost-effective web based training solutions. These solutions can be divided into two groups: computer-related training courses and tests and managerial training solutions. The computer-related interactive training courses (www.etraining.ee/demo/writer/Oo.org.Writer.html) and tests (www.etraining.ee/htm/tooted/test.html) are made according to European Computer Driving Licence Syllabus Version 4.0 requirements. The managerial training solution is a web-based LMS called WebTrainer (www.etraining.ee/htm/pood/wt.htm) for small to medium size organizations and businesses. It is used to test and certify employees. The LMS tests an employee's qualifications and knowledge and then saves these results. An employer can monitor an individual's progress relative to the group – his/her results are presented side by side with the group scores. The test results are saved as an evidence of the employee's qualifications. The system also allows employees to take responsibility for their own professional development; each employee can view their results and then, if they feel it may be necessary, put him/herself forward for further training.

2.2. Number of employees involved

Both training solutions (interactive PC Training Courses and Tests and LMS) are used for on-job employee training as well. Every employee of eTraining should pass all content and tests before he/she is allowed to start service or sales process. It means that an employee should take 6 PC related product test and 3-4 sales technique tests as a minimum. In addition, the managers create 1-2 short tests in each month. The purpose of these tests is to verify the competence of the employees with the latest market trends, product and sales information.

2.3. E-learning platform and technology issues

PC Training Courses and Tests – eTraining develops interactive courses on daily basis using Macromedia Captivate and Macromedia MX. A course combines animation, audio talk-through instructions and realistic simulation. If the training solution needs a database, we use a combination of Flash content and PHP/MySQL programming power.

LMS – PHP4.0 programming language and MySQL database server were used for the technical solution. Linux operating system and Apache web server were also used. Where servers support these systems, LMS can be used without any compatibility issues whatsoever. However, PHP version 4.0 or higher is required for the system to work properly. To use the system, the end user needs a computer with an Internet connection and a well-known web browser. Microsoft Internet Explorer ® 4.0 or better is recommended for the best user experience but other browsers (with JavaScript support) are compatible as well.

Students (employees) can communicate with tutors online, using PHP based e-mail system. Student(s) cannot communicate with other students.

The communication of student and tutor has following options:

a. general information messages (student asks something from tutor or visa versa)

b. information about training possibilities (student asks for additional training/learning opportunities)

c. student feedback (after the test is completed, student can evaluate the course)

All messages (a ,b, c) are stored separately for better info management.

In the case of eTraining, the employees use the company main products also as a training tool.

2.4. Course development

LMS has two user levels: Level I – Employee(s) and Level II – Manager or Trainer.

Level I includes the employees who read and understand their training materials, take tests and answer polls. It is possible to divide the employees into groups, e.g., sales, services, technical, accounting, etc. The created groups can be associated with specific training materials and tests. All employees receive a unique username and password.

Level II includes the trainers/managers who can use the following functions:

- Manage Level I users,
- Add and change original learning content,
- Create tests and polls,
- Make detailed queues (reports),
- All trainers receive a unique username and password,
- Monitor the LMS usage by Level I users

LMS has a content module. This module creates files (web link, presentation fail, text document or PDF file) that list the company's required training documents. This information can be shared with the employees. All file types and web links can be used

as training materials. The employees have group-specific access to training materials. The general manager or sales managers of the company are constantly updating the content module.

Figure 1. LMS content module view (main folders)

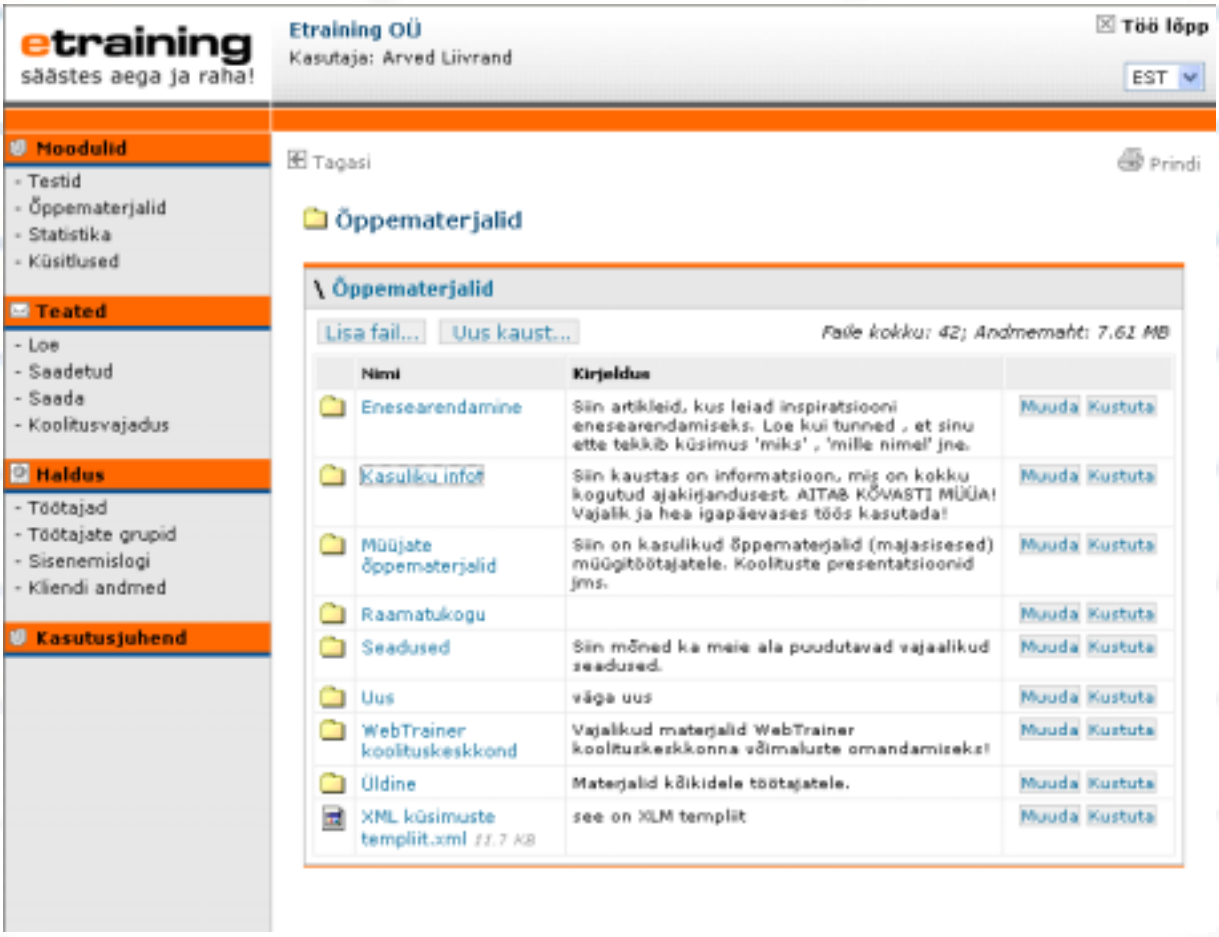
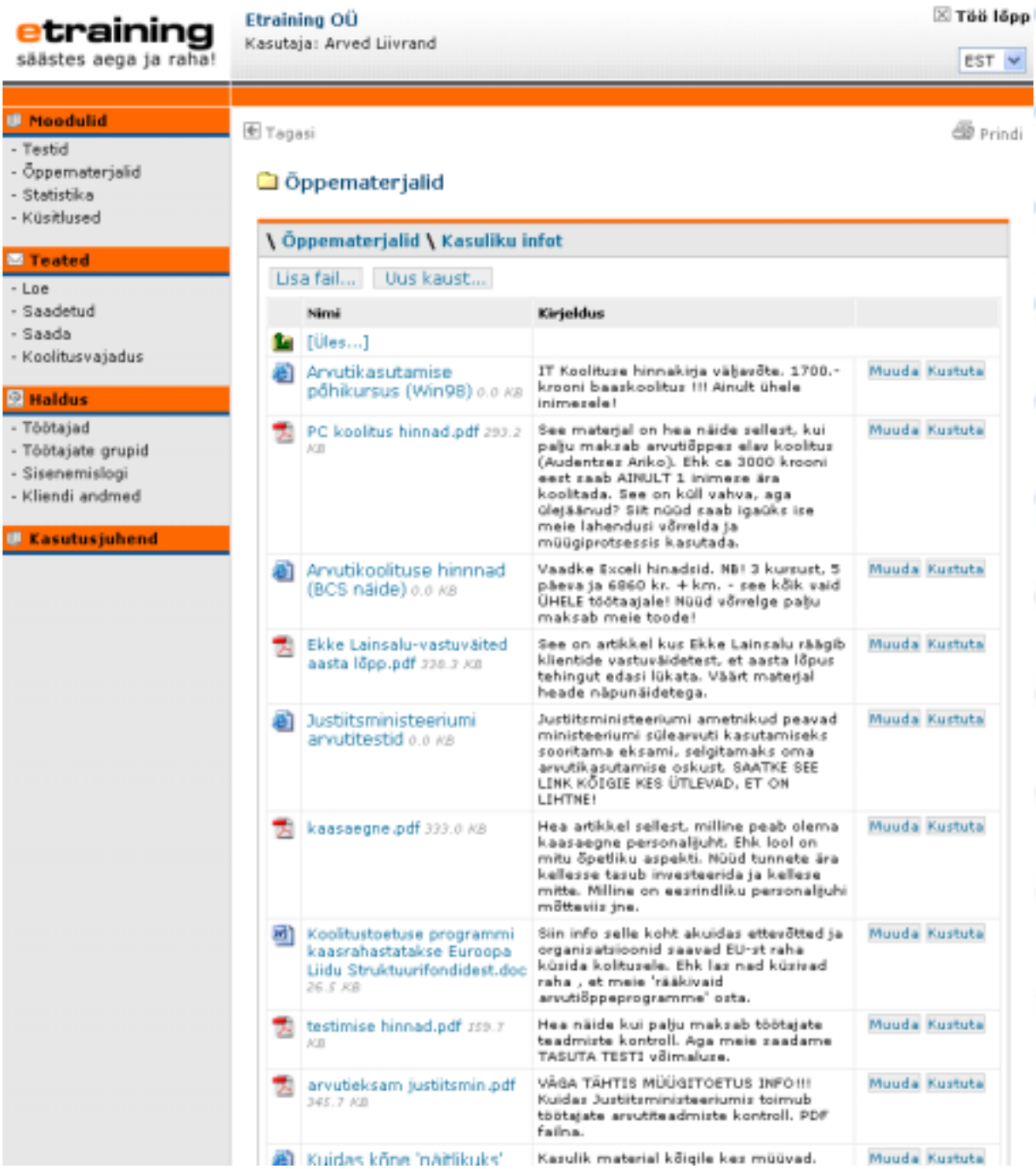


Figure 2. LMS content module view (folder “Kasuliku infot”)



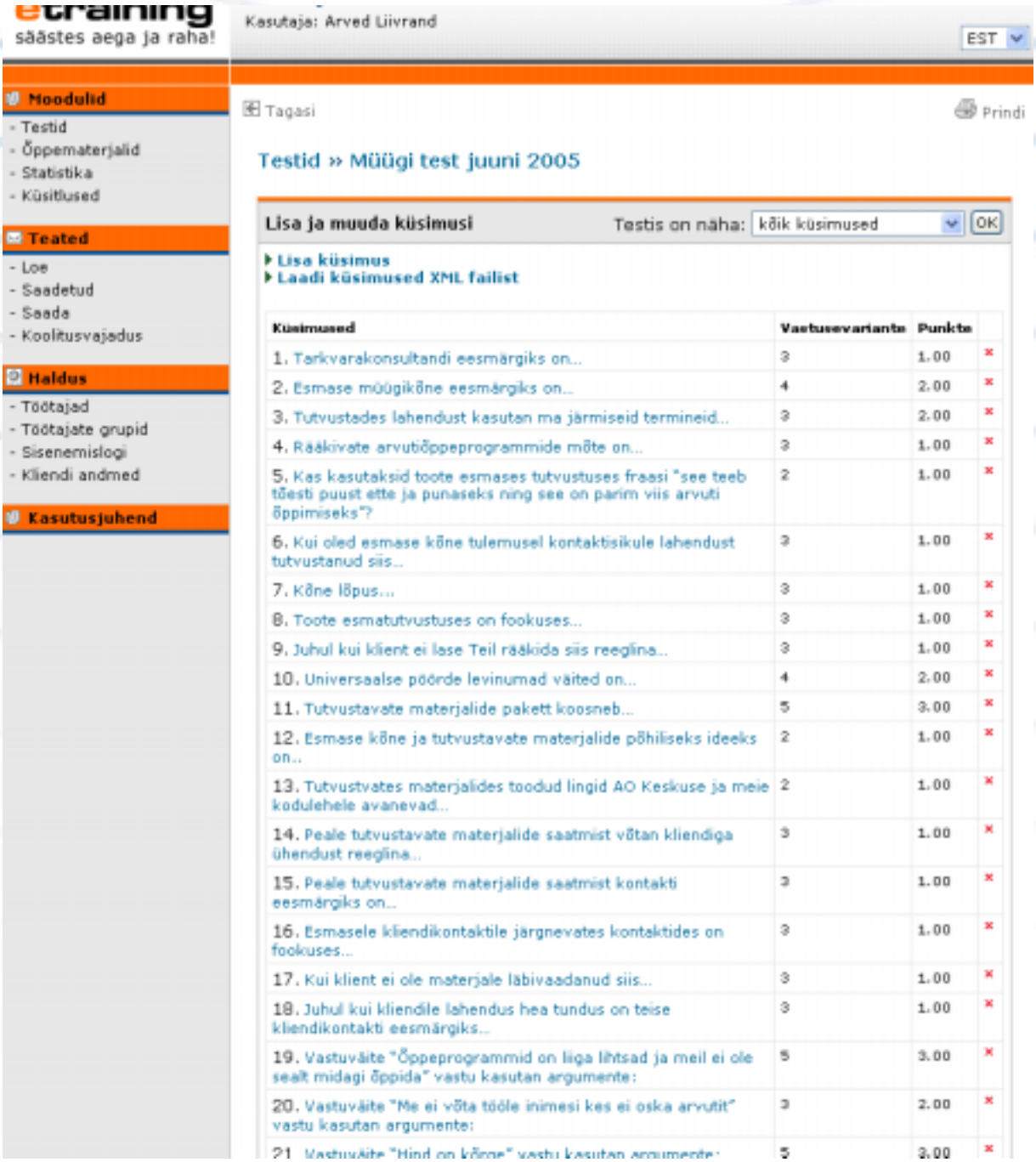
2.5. Course administration

The managers are responsible for creating the tests as well. The tests can be assigned separately to each individual employee, group of employees, or to all employees. The time for taking the test can be scheduled by date, month, year and time.

After the test, the employee will receive his/her score and an emotional feedback, which is predefined by the author of the test. The test taker may compare his/her results with others. After the tests have been completed, the managers can use the Report module to see detailed statistics concerning all Level I users who have taken the tests. These are presented as separate statistics for each test as well as summarized statistics. Test

results can be saved in a database or as XLS/HTM files or printed out. Reports can be saved as XLS files or printed out.

Figure 3. Example of test ("Müügi test juuni 2005") questions



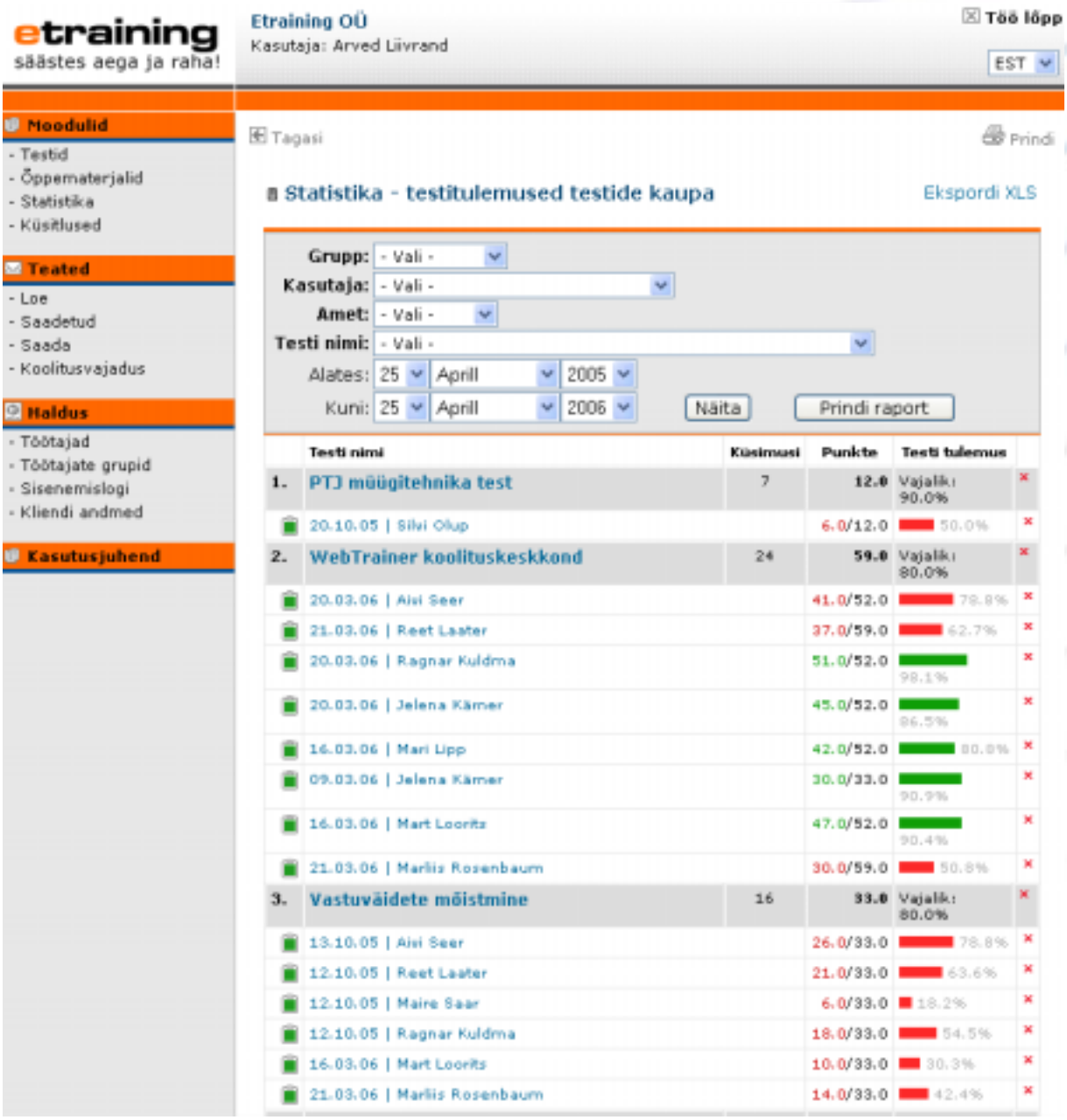
3. Effects and outcomes of e-learning activities

3.1. Completion rates

eTraining has used its own product for employee testing for two years (2003-2006). The positive completion rate is usually near 55 %. This means that every second employee does not pass the test at the first attempt. The second attempt ends with a positive result

in 93 % of the cases. The personal motivation program is not directly related to test results. The idea behind testing is that one could not serve or sell the product without having passed the test.

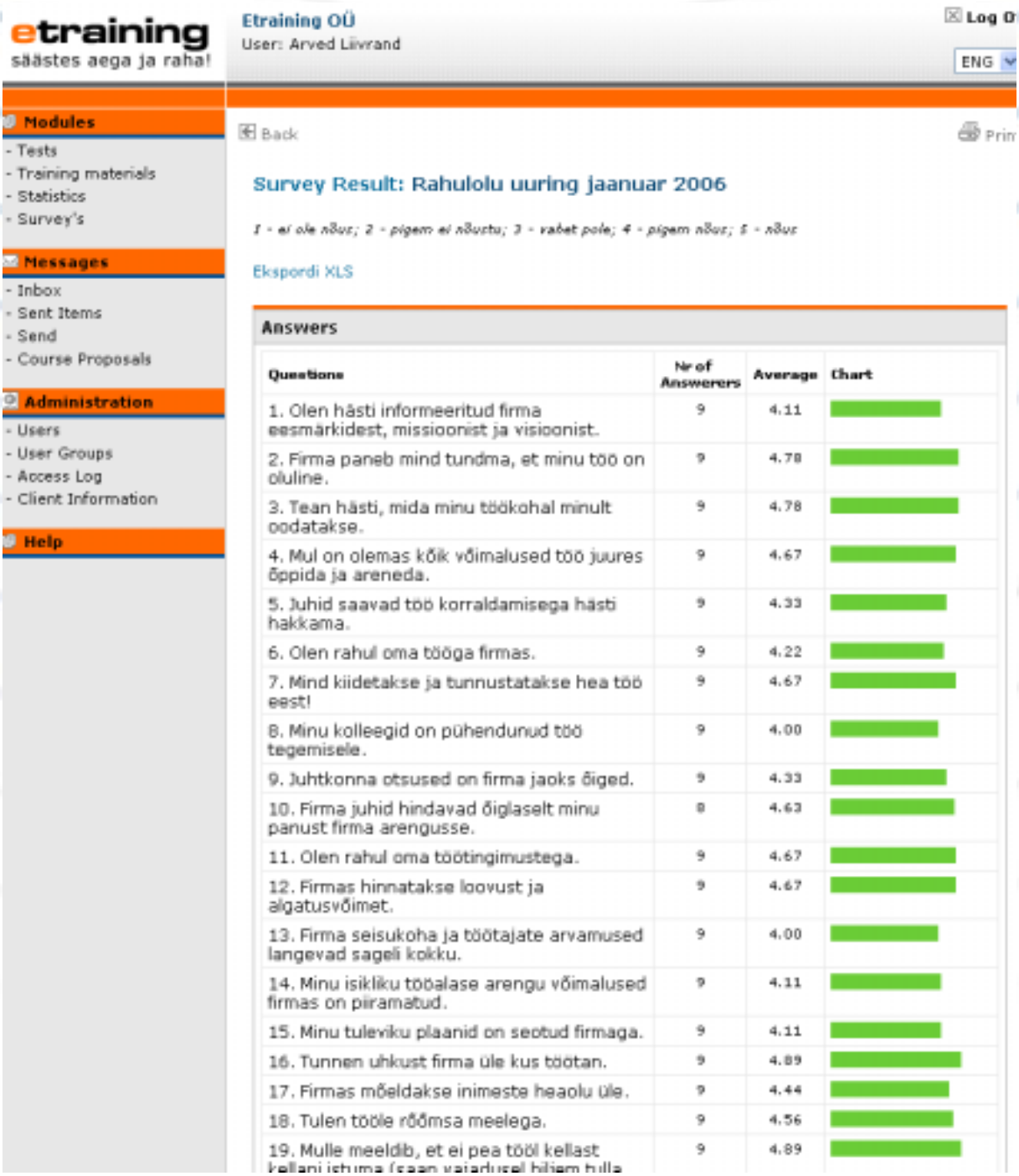
Figure 4. Statistics by tests results



3.2. Satisfaction

We have not received any negative feedback associated with the use of e-learning solution in employee training. Employees like the simplicity of the learning cycle. They can “upgrade” themselves to higher level by using the same products they offer to the clients.

Figure 5. Employee job satisfaction survey January 2006



4. Challenges and barriers

4.1. Technical issues

A small company like eTarining lacks sufficient resources to produce interactive training content for internal use (on-job training). All the learning content in LMS still comprises only old-fashioned presentations or text files. The advanced part is related with testing and surveys. Experience with interactive PC training content show that employees love interactive multimedia solutions. All managerial training content should be presented in multimedia formats.

4.2. Organizational issues

We have not seen any reluctance, as it is a small organization with employee-friendly organizational culture.

5. Success factors

The main success factors are motivated employees and management support.

6. E-learning investments, developmental costs and operational costs

As mentions earlier, all the e-learning content and tests were developed as a main product of the company. Therefore, information on the investments and production costs is not public.

Operational costs

Running costs amount to about 500 EEK per month for web hosting + 4-5 hours of manager input.

CINEL

By Vanda Vieira, CECOA

1. Facts about the institution

Name of institution	CINEL
URL of institution	www.cinel.pt
Country	Lisbon, Portugal
Number of Employees	60
Revenue in 2005	
Experiences with e-learning since	Since 2001
Business sector	Vocational Training Centre for the Electronics Industry
Target group/participants in b-learning	CINEL employees CINEL trainees from initial vocational education and training CINEL trainers Public in general
Content	English, ICT, domotic, business start-ups In 2006, the english course is the only one available
Form	B-learning
Interviewed people	Helena Passos, distance learning trainer and training coordinator

2. How the institution used e-learning

2.1. The courses

The ICT, domotic and business start-ups distance learning courses promoted by CINEL were developed in the framework of an EQUAL project. The English course was developed with CINEL own resources.

The ICT, the domotic and the business start-ups courses are available through the Internet (online). These courses are b-learning courses that lasts 100 hours each one, divided in 70% traditional training and 30% online training (asynchronous and synchronous sessions).

The English course is an e-learning course (synchronous and asynchronous sessions) organised in 6 levels: 1 initial level, 2 intermediary levels and 1 advanced level with 150 hours each one (100 hours of asynchronous sessions and 50 hours of synchronous sessions); 1 business English level and 1 electronics and telecommunications level with 250 hours, each one (200 hours of asynchronous sessions and 50 hours of synchronous sessions).

2.2. Number of employees involved

32 trainees took part in the ICT, domotic and business start-ups courses; the same trainees took part in the 3 courses; 11 of them had special needs (they were either blind or had some physical disability).

During the last 6 years, 720 trainees attended the English course.

2.3. E-learning platform and technology issues

The ICT, domotic and business start-ups courses are available through a platform designed by CINEL in the framework of the EQUAL project Domotic@online.

The English course contents are available through CINEL web site (access via username and password); the online synchronous sessions are available through the MSN virtual community, once a week, every Friday night, between 20 and 22 p.m.

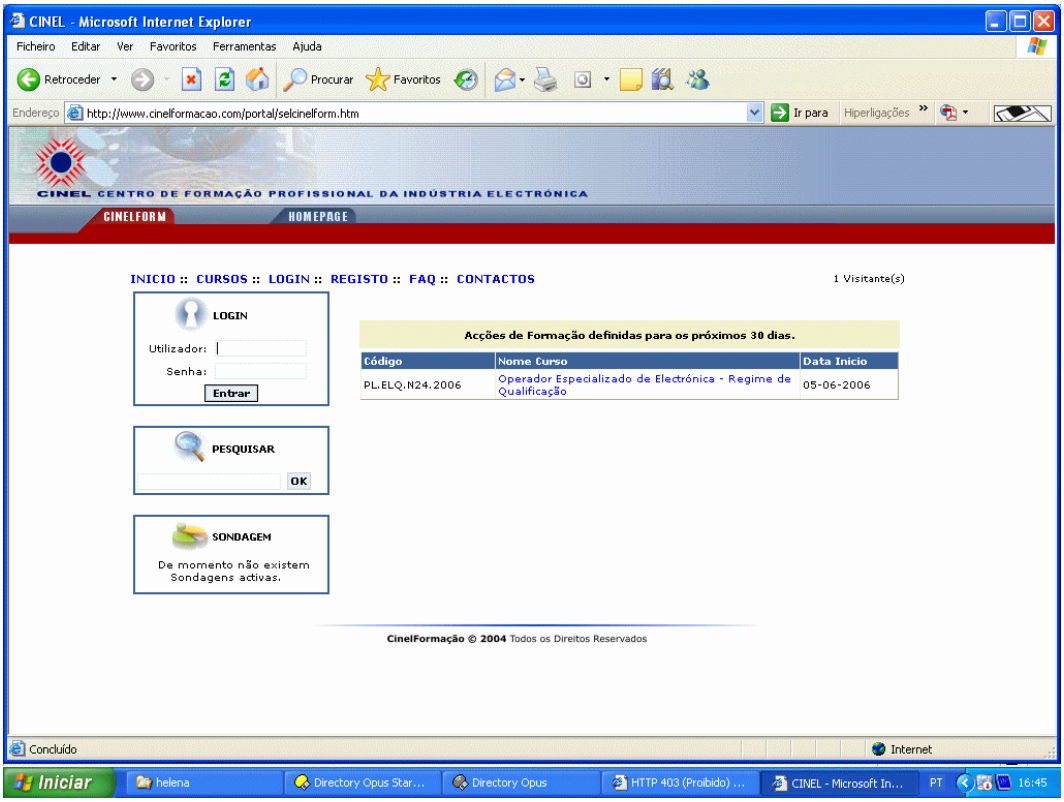


Fig. 1 – Screenshot – entrance page (CINEL platform).

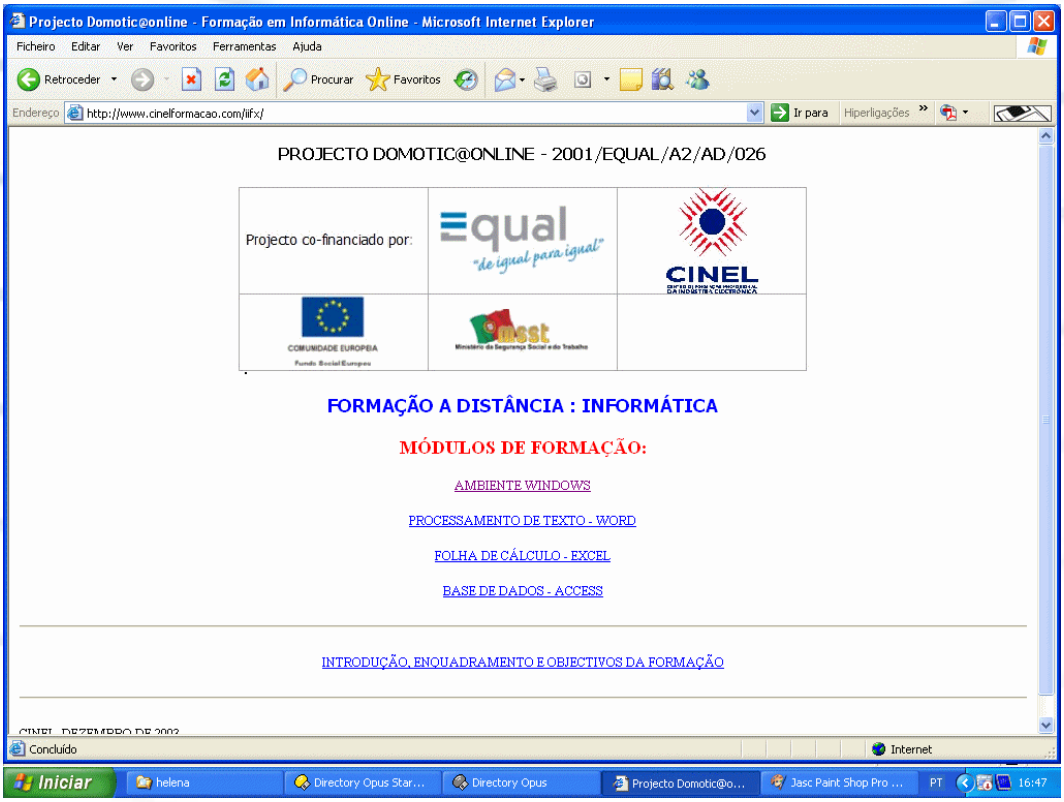


Fig. 2 – Screenshot - entrance page of the ICT course (CINEL platform).

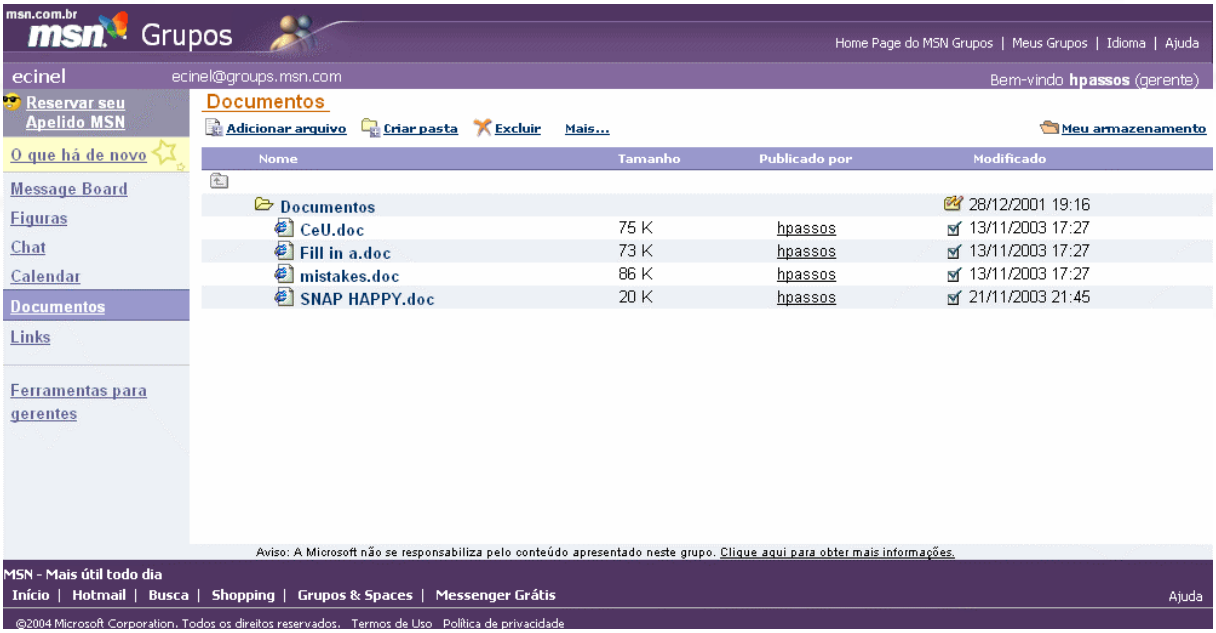


Fig. 3 – Screenshot - English course online virtual community.

2.4. Course development

The ICT, the domotic and the business start-ups courses were developed by CINEL staff members and like other EQUAL projects, have passed through the following phases:

- Training needs assessment and characterization
- LMS conception and development

- Testing
- Improvement activities resulting from the test phase
- Dissemination of results and good practices

The English course was developed by Helena Passos (CINEL trainer) to answer to CINEL employees, trainees and trainers' specific needs. The low level of knowledge of the trainees from other CINEL technical courses combined with their need to read and understand technical books and documents in English, were the two fundamental reasons to develop the English course. The course is under improvement changes over the last 6 years to keep up with trainee's requirements.

Advantages of the platform:

As long as the data are inserted, the learning management system is easy to handle.

Desadvantages of the platform:

- A very formal/rigid system concerning management and course conception;
- The chat and the forum are very formal and very little stimulating;
- There is no possibility of sending "smiles" or other kind of motivation/inducing items for the reinforcement of the trainees' performance.

2.5. Course administration

To access to the online training courses, trainers have to register themselves on the platform. The contents and the entrance assessment test are available online. The platform possesses a virtual secretary to support learning process. Trainers can use e-mail to send assignments or, for example, a digital grammar to trainees

3. Effects and outcomes of the e-learning activities

3.1. Completion rates

In the English course, over the last 6 years, 12 dropouts have occurred and 10 trainees didn't finish the course on their first attempt.

According to the trainer responsible for the contents conception and also by the course coordination, this is a very good completion rate, especially taking into consideration that dropouts are due more to the trainees' schedule incompatibilities with the synchronous training than to other reasons or motivations.

3.2. Satisfaction

According to the trainer' perception, the trainee's level of satisfaction with the English courses is total.

In the first 3 years, the trainees' marks raised from 1.5 to 3.2. According to the English trainer' perception, the English course gave a good contribution to achieve these results.

At this point, it's important to stress out that the English course was conceived to help CINEL trainees to improve their performance in other courses.

4. Challenges and barriers

Barriers:

“People don’t take e-Learning serious”.

Challenges:

In general, young people accept e-Learning in a much easier way then others, and they are also more open-minded to synchronous activities. On the other hand, adults are much more responsible when it comes to tasks like exploring contents, and they are much more organized and self-disciplined then young people. To find the most suitable teaching approach to answer to these different learning processes is an important challenge to overcome.

The need of constant improvements, either on the contents level or on the ways of interacting with the trainees is, also, a very defying challenge.

5. Success factors

The identified success factors are:

- Trainer’s dynamism and ability to establish a good relationship with trainees;
- Trainer’s good preparation to answer to the different levels of trainee’s knowledge and exigency;
- Existence of interactive and rich contents.

6. E-learning investments, developmental costs and operational costs

The costs reported are exclusively related to the contents conception and development (around 1.500 €).

The true benefit is the added-value that the trainees got through this training, helping them in their professional life.

Conclusions: Success and Quality in E-learning for SMEs

By Morten Flate Paulsen, NKI Distance Education and Vanda Vieira, CECOA

The research and analysis presented in this book suggests that SMEs could use e-learning successfully based on three different types of courses:

1. *Generic courses* offered on the open market. This model should be suitable for all SMEs because it does not incur any internal costs related to course development or investments in e-learning systems. One pitfall however is that employees who study generic courses could use the course qualifications to apply for a job in another company. Addressing this challenge, BIG employees have the obligation to work for the company for 12 months after finishing the course.
2. *Sector courses* developed by associations or cooperating partners. This model should be suitable for all SMEs because the developmental and operational costs could be divided among a number of SMEs. The model may also result in improved relations between the enterprises in associations, branches or value chains.
3. *Internal courses* developed by the SME with some help from external providers of e-learning services. This model is primarily suitable for large SMEs that have the necessary competence and resources internally. The employees are usually the content experts since the course topics often focus on expert knowledge related to the companies' core products and services. The e-learning platform is not a part of the companies' core business, so the companies often buy these services from external hosts.

Indicators of Quality

According to Rekkedal's introductory article, Distance Learning and E-learning Quality for SMEs, important criteria for judging the quality of e-learning programmes are:

- Credibility of the institution offering e-learning
- Quality assurance or quality management systems
- Pre-enrolment information and guidance
- Course costs
- Support for the e-learner
- Individual preferences

These criteria are obviously useful for SMEs that judge the quality of generic courses on the open market. But the criteria should also apply to sector courses and internal courses. One may question however, whether SMEs are likely to set the same standards for themselves as they do for external providers of e-learning.

Indicators of Success

The analyses in this book suggest that the following factors are central to successful e-learning in SMEs:

1. Flexibility in time and place. For small enterprises it is important that e-learning is flexible with regard to time and place since there are few colleagues to take over the work for those who are absent. Also larger companies argue that e-learning is flexible in time and place and that it is efficient regarding travel cost and time. E-learning may be especially interesting for enterprises with individual or small groups of employees scattered over a large geographical area since they may have considerable costs travelling to a training center.

2. Cost reduction. The analysis indicates that e-learning can reach and connect geographically dispersed groups and hence reduce costs related to travel and accommodation that is common in face-to-face training. Furthermore, the flexibility of time makes it possible to reduce costs related to absence from work.

3. Logistical advantages. E-learning also has logistical advantages. It is swifter and easier to distribute digital course material than printed material. The Golff case argues that the spread of Golff entrepreneurs throughout the country and the logistical challenges almost self-evidently lead to the use of the Internet.

4. Reduced time to market. E-learning may increase the competitive strength because of accelerated time to market. E-learning could be accessed by a large number of employees as soon as it is available online. For example, the Rabobank case study describes how the introduction of a new life insurance policy was accelerated by e-learning.

5. Increased sales. York and Interpolis experienced that e-learning content can have great importance in sales negotiations. E-learning could be perceived as a value added service that costumers appreciate. Interpolis, for example, regards training as a specific tool to increase the added value of its products.

6. Improved ties between enterprises. E-learning may result in improved relations between the enterprises in a value chain. For example, Interpolis developed courses for their intermediaries. At Roche, e-learning has made it possible to confine [mfp4]co-operation between clients and the contractor.

7. Management support. Support from managers and internal e-learning competency are also mentioned as success factors. Important indicators of support from managers may include opportunities to study during work hours and clear indications that e-learning courses will result in promotions or better payment.

8. Completion rates. The NKI case argues that completion rates vary between three different categories of courses. The course *Tutor in distance education* seems to have the highest completion rate since it is a prerequisite to becoming an online tutor at NKI. The courses that the students enrolled in at their own initiative also have a rather high completion rate. The courses initiated by the management seem on the average to have a lower completion rate. Differences in completion rates relate mainly to differences in motivation levels among participants.

9. Motivation. Motivated employees are crucial for successful e-learning. The employees' motivation increases when courses are relevant to their daily work or personal interests. To be successful, e-learning must be motivating as well as relevant and useful to the

daily work and tasks in the company. Motivation may be improved by use of multimedia, occasional face-to-face meetings, certificates and external financing.

10. Certification. Certification may be a very useful motivational element, and many SMEs are dependent on some sort of legal competence requirements. Both Interpolis and Rabobank emphasise the importance of obtaining a validation from an external certifying body. Golff maintains that it is an advantage to offer electronically printed certificates via HTML.

11. Compulsory courses. Several of the courses in these case studies are to some extent compulsory. The KPMG courses are nearly compulsory since the knowledge of the course content is essential for the employees, and they are required to spend a certain number of hours on training to maintain their licence. Interpolis benefit from the fact that all SMEs must have a protection officer who has completed a course for protection officers. The Roche case also maintains that e-learning must be obligatory to become a success.

12. Positive organizational effects. At York, e-learning has resulted in better internal communication and broader understanding of York offerings. It has also had a positive effect by giving employees a common experience to build on. A better understanding of the organization is also the intention of the three courses developed for Golff: Introduction to working at Golff, Golff Rules and Golff Marketing.

13. Content and course design. The cases imply that successful e-learning should build on practical, in-depth and up-to-date knowledge of the subject area as well as suitable models and technology. This may include initial training to get familiar with the e-learning platform and the people involved with the course. At York, multimedia content is successful because it efficiently supports a more visual learning style. Roche recommended that the introduction of e-learning should be well-planned.

14. Blended learning. About half of the institutions in this book used blended learning. Meeting face-to-face seems to have positive effects, but it reduces flexibility and adds costs. This is illustrated in the A-punkt case that stated: “Sometimes it was not so easy to take part in the in-person venues as the fixed dates were not freely changeable. But nevertheless the face-to-face days were also a motivation to continue the further training”. Therefore it could be wise to do as KPMG does, focusing on the necessity to find the right balance between e-learning and other training activities.

Indicators of Return on Investment

A common aspect of the case studies is the fact that e-learning is perceived as a very good alternative to meet the organizations’ needs on lifelong acquisition of skills improvements.

Lifelong learning is each day a more essential mean to deal with the demanding organizational and technological changes and e-learning is perceived as a flexible training methodology, tailored to each person’s exact needs or prepared to solve organizational gaps, designed according to different learning styles and time available to learn and to transfer.

However, to reach this stage of positive acceptance and ongoing development through e-learning, SMEs require previous contact with good examples involving guidance and mentoring approaches and require as well that e-learning solutions provide a sustainable alternative in terms of quality increase and return on investment evidences.

SMEs need numbers of growing results and performance improvement. E-learning can provide various learning scenarios; nevertheless, e-learning it’s effective when people

get what they want when they need it! One way to contribute to the promotion of innovation and the development of use of ICT in vocational training is through the development and dissemination of e-learning as a cost-effective solution: to solve the learning needs of a specific sector, of a specific organization, or even, from a single perspective. Independently of the organization size, every strategy of change will be easier implemented when business success and human resources performance are effectively related. The challenge will be to communicate the value of e-learning, to present evidences of the e-learning advantages, to provide continuing feedback, to prevent errors and to continuing improve the e-learning quality systems.

Epilogue

By Anders I. Mørch, InterMedia, University of Oslo

This book has presented an impressive array of cases documenting the multiple dimensions of e-learning quality in European SMEs. When comparing across the cases, certain characteristics stand out in more than one way. Providing new forms of flexibility, cost reduction in terms of better integrating working and learning, variable completion rates, and importance of motivation are key factors. These finding relate to previous work reported in the research literature on computer-supported work and computer-supported learning. For example the literature that studied introducing new information systems into organisations and the work advocating integration of working and learning are relevant in this regards (see references in the end).

To make a comparison with the related research it is useful to start by making a distinction between primary work and secondary work. Primary work is the work accomplished by an employee on a day-to day basis. It is manifest in a company's mission statement and in the work description employees sign when they start in the job. On the other hand, secondary work is "work about work." It is of a different kind and demands new attention. Roughly speaking one can say primary work aims at achieving optimal work, whereas secondary work is the multiple ways to support primary work. The support ranges from coordinating complex and often ill-defined work teams to the teaching and learning that goes on in an organisation. The need for secondary work has exploded in the recent years as a result of meeting the demands of the knowledge society (work is complex: involving many actors, moving targets. and distributed in time and space). Many organisations find that they have to redefine mission statements and (primary) work descriptions in order to cater to these needs. Secondary work will play an important role to ease the transition into the knowledge society for many organisations.

In the past secondary work was considered "invisible work" or work that was done when there was nothing else to do. In some of the organisation I have studied, as well as many of the SMEs reported in this book, secondary work has been taken seriously and on its own merits. An advantage of this is that it can help to adapt primary work when the situation demands it. In order to reap the benefits of secondary work, primary work and secondary should be well integrated.

E-learning technology is meant to achieve this, but it has to be approached in two steps. First to recognize that e-learning technology supports aspects of secondary work (teaching and learning of primary work tasks). Second, for this to be efficient e-learning, technology needs to be properly integrated with primary work tools, so that the switch from primary to secondary work can be accomplished with minimal disruption and annoyance. I see this as one of the biggest challenges to be overcome in order to achieve successful e-learning initiatives in addition to the factors that were listed in the last section. Here are some of the additional factors that should be taken into account, which may contribute to success (or failure) when attempting to integrate secondary work tools into an organisation:

- *Mandated use* during the initial phases of adoption to assure sustained use of the system. This is particularly critical in large organizations, because there are many different users, not all of who may benefit or like the system. Secondary work systems that will be tightly integrated with primary work often need to be mandated;

- *Critical mass* is the stage a newly introduced system reaches when it has enough mandated users to sustain use without further mandate. At this stage peer pressure takes over, which means non-adopters feel a pressure from the early adopters to also start using the system;
- *Pleasure and fun* are powerful factors associated with a system when it needs no mandate to inseminate use because using it is a reward in itself. Such systems are often not directly related to work (e.g. computer games, chat rooms and Internet surfing), but there is no intrinsic reason why they cannot support work related tasks as well;
- *Appropriateness of functionality*. A frequent cause of secondary work system failure is providing new functionality as an alternative to previous functionality and requiring one to learn something new without providing perceived benefits for the users. Unless such systems are mandated or fun to use, they will not succeed.

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Appendix 1. Case Description Template

The authors should use this template as a reminder of the information they should look for and as a suggested outline for the case descriptions. It is not necessary to include all issues in the template if it is hard to find or not relevant for the case. The cases could include additional issues of interest that is not covered in the template. A case description should be 4-6 pages.

The two draft cases distributed by NKI (York Refrigeration and KPMG) are developed according to this template and could be used as examples of how the template could be used.

Methodological approach

It has been agreed that each partner must make local decisions in their choice of SMEs. However, we must primarily look for SMEs in the trade and services sector.

Definition of SME

We refer to the definition of SMEs used by EU in the publication: http://europa.eu.int/comm/enterprise/enterprise_policy/sme_definition/index_en.htm

It states that SME: "…is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro…."

All partners agreed on using the definition, but some concerns were expressed regarding problems with locating enterprises that meet the definition. Therefore we accept a pragmatic approach that, if necessary, will allow a partner to pick a larger (but still small) enterprise or a subsidiary or branch of enterprise that meet the definition.

Sources for information

The case descriptions should be based on interviews (face-to-face, telephone, or e-mail) with two or more key people with in-depth knowledge about the case. The final version of the case description should be approved by the key persons. In addition the case description should seek to refer to reports, articles, websites etc. that are available.

1. Facts about the institution

Name of institution	
URL of institution	
Country	
Number of Employees	
Revenue in 2005	
Experience with e-learning since	
Business sector	
Target group/participants in e-learning	
Content	
Form	
People interviewed	

2. Description of how the institution has used e-learning

2.1. Description of e-learning courses provided

2.2. Number of employees involved in each of the courses

2.3. Description of e-learning platform and other relevant technology issues

2.4. Description of the course development process

2.5. Description of the course administration process

3. Description of direct and indirect effects and outcomes of e-learning activities

3.1. Completion rates

3.2. Satisfaction

4. Description of challenges and barriers

4.1. Technical issues

4.2. Organizational issues

4.3. Other issues

5. Identification of success factors

6. Description of e-learning investments, developmental costs and operational costs

If the information is easily obtainable, one may consider including some information on cost elements.

About the Editors, Authors and Evaluators

Editors

Morten Flate Paulsen is Professor of Online Education and Director of Development at NKI Distance Education in Norway. He has worked with online education since 1986 and published many books, reports and articles about the topic. Many of his publications and presentations are available at his personal homepage at http://home.nettskolen.com/~morten/. His book *Online Education and Learning Management Systems* is available via www.studymentor.com.

Vanda Vieira is project manager at CECOA Studies and Projects Department. She works in European Projects since 1998. She has consulted projects on training needs assessment, training impact and roi evaluation. She is a member of ReferNet, the Portuguese cell of the European Network of Reference and Expertise of CEDEFOP and she was a member of ASTD ROI Advisory Committee. She has a BA in Psychology from the University of Lisbon, a specialization on Human Resources Management and a MBA in Educational Technology by the Institute of Education Sciences of the Portuguese Catholic University.

Authors

Alexandra Costa Artur is the director of CECOA since 1997. Between 1995 and 1997, she was coordinator of the vocational training department in the Portuguese Confederation of Trade and Services. Between 1987 and 1989, she has been representative of the Portuguese Confederation of Trade and Services in Brussels. She has a BA in Law from the University of Lisbon and a post-graduation in European Studies from the Portuguese Catholic University.

Javier Coll is the Manager of the Technical Department of Confederació de Comerç de Catalunya. This Department develops projects related to commerce as mobility, environment, wastes, commercial city planning, new technologies, training, etc. Javier Coll is responsible of projects developed in the framework of the European Union within the programmes EUROFORME, FORCE, EUMEDIS and Leonardo da Vinci. He's also responsible of the Project Department of Confederación Española de Comercio and he has lectured a lot of conferences and seminars. He's industrial engineer by Escuela Técnica Superior de Ingenieros Industriales de Barcelona and Master of Company Management IESE by Universidad de Navarra.

Truls Fagerberg works as an Educational Teacher Supervisor at NKI Distance Education. He is responsible for providing training and technical assistance to help the teachers increase their knowledge and skills, planning and directing teacher activities and evaluate their educational performance and standards. He has until July 2006 worked in the Department of Research and Development as a System Developer and Research Assistant. He worked with technical development of NKI's Learning Management System (LMS), SESAM, course development and design and support services to students and teachers.

Rene van Leeuwen works for N.V. Interpolis. This company is a part of the largest insurance company in the Netherlands. He is responsible for the department that provides training and educational interventions for distribution partners of the company. He has a bachelor degree in Business Economics and a master degree in strategic corporate education.

Karin Liikane is Distance Learning Project Leader at the University of Tartu. She has been lecturer, researcher and consultant at Economics and BA Faculties in Estonian Business School, Tallinn Technical University and University of Tartu. For the last ten years, she has been engaged as a Project Leader in the Distance Learning Program in Finance, Banking, Insurance, Real Estate and Project Work.

Arved Liivrand is Creative Director for eTraining OÜ. He has a mechanical engineering diploma from University of Technology in Tallinn in 1983. Between 1992 and 1994 he was in graduate school in EBS studying business administration followed by an internship in San Jose State University (California, USA). In 1996 he received a master's degree in EBS for "Developing Matrix Management in Organization". He has been a lecturer on subjects related to service and quality management during various conferences.

Natalie Morawietz has a Masters Degree in Social Sciences from the University of Erlangen-Nürnberg in Germany with a focal point in HR and Sociology. She works for Forschungsinstitut Betriebliche Bildung (Research Institute for Vocational Educational Training) since 2003 in European Projects. Her main research interests are in the fields of internationalisation of vocational and educational training and distance learning.

Torstein Rekkedal is professor of distance education and Director of R & D at NKI Distance Education, Norway. He has worked in distance education research since 1970. He has produced a stream of research publications in the field of distance education and online learning. He has chaired the research committees of the European Association for Distance Learning (EADL) and the International Council for Open and Distance Education (ICDE). In 2003 he was conferred honorary doctor of the British Open University for his research work in the field. He is presently chair of the standing committee for quality of the Norwegian Association for Distance and Flexible Education. Home page: http://home.nettskolen.com/~torstein/

Jörg Spath currently works for bfi Steiermark as a head of the department business service, with responsibility for national and international projects. bfi Steiermark is the largest adult training provider in Styria, Austria. Under the title "Business Service" bfi develops and offers solutions with regard to educational policy to companies. By integrating man/woman, machine and working environment, education and training measures are developed for companies according to demand on the basis of both short-term and long-term business objectives. Jörg Spath is also a consulting partner in many education and training projects across Europe.

Diederick Stoel is president and CEO of ProfitWise, an international consulting and research corporation. He has consulted many companies throughout Europe in strategic planning, organizational analysis, and bringing about clear and measurable investments in human resource management programs. Diederick is an elected member of the ASTD ROI Network Advisory Council. As a frequent conference presenter on investing in human capital, he is certified in ROI evaluation and has written several articles. He serves as a guest lecturer with both the University of Twente in the Netherlands and Purdue University in West Lafayette, Indiana. Diederick Stoel earned his master degree in educational science and technology from the University of Twente, the Netherlands.

Tom Verdam is the CEO of The BEAT Factory, an international consulting and training corporation. He has been a consultant for many companies throughout The Netherlands and Europe in business development (e.g. retail marketing) and human resource development. He developed eBEAT an unique e-learning tool. The Learner Management System is similar with the accountancy within retail changes. With this tool trainings programs become business value.

Evaluators

Anders I. Mørch, InterMedia

Isabel Rucabado is coordinator of Projects and Research of the Technical Department of Confederació de Comerç de Catalunya. She has collaborated in the development of projects and studies addressed to SME's commerce sector about training necessities, sectorial dynamism, environment, mobility, new technologies, etc. From 1993, she's participating in European projects in the framework of programmes FORCE, EUMEDIS and Leonardo da Vinci. She's graduate in psychology and pedagogy by Universidad de Barcelona.

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www.ut.ee

Confederació de Comerē de Calalunya (Spain)
www.confecomercat.es

ProfitWise (Netherlands)
www.profitwise.info

NKI Distance Education (Norway)
www.nki.no

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