

Blended Learning in the European 3rd Sector

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Evaluation report developed in the framework of the project:

eL3

eLearning Project Cluster for Third System

Organisations in Europe

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1. Introduction

In the years 2004 and 2005 the project eL3 was developed in the European health-care, social, environmental and educational sector.

The aim of the project was to collect information and practice examples from hospitals to grass-root institutions to contribute to the actual discussion about “blended learning”.

Project partners from 4 European countries, from educational institutes and from 3rd sector organisations collaborated to get a common ground and basic information about the situation as far as blended learning in the 3rd sector is concerned.

The project aimed to give an information base and practical support to those stakeholders dealing with learning and blended learning in their institutions.

Due to the far reaching, unmanageable variety of different approaches, target groups, objectives, contents, methodologies and delivery modalities on the European level the project concentrated rather on practical aspects than on standardisation issues.

The project developed a series of multilingual instruments (EN, FR, DE, IT) that can be applied now with a verified terminology.

The evaluation focused on the major stakeholders, on the demands both of learners and their superiors concerning blended learning offers as well as on the knowledge and didactic competences of the learning personnel.

The evaluation is the basis for acting recommendations, especially for blended learning instructors. A blended learning planning tool-box is annexed to this evaluation report giving practical guidance for pre-assessment and for the design of blended learning offers.

The present evaluation in the framework of eL3 is one important part of the project's strategy to develop and sustain the practice network for blended learning organisations, the blended learning institutions' cooperative (“blinc”), a mutual networking organisation for the exchange of proven practice on blended learning in Europe.

The developed assessment and evaluation instruments are available as online or offline tools for blended learning practitioners and have already been introduced in several other European projects and courses after the eL3 project lifetime.

2. Evaluation Strategy

Intention of the evaluation

The purpose of the evaluation in the framework of the European project eL3 was the analysis and evaluation of computer-based learning services in the European health and social system (3rd system).

Applied methodological-didactic concepts, learning behaviour and contentment, implications for internal and external teaching staff as well as a use-of-potential (demand) analysis for the institutions were focal points of the evaluation.

Setting

The original eL3 approach included two evaluation lines, one concerning the evaluation dealing with the collection and valuation within the projects of nine European partners, and the second concerning the elaboration of specific criteria regarding the particular character of blended learning, leading to a catalogue of findings, experience and acting recommendations concerning decisive elements in blended learning. The evaluation concept was adapted during the project lifetime to the available information and the comparability of existing learning offers.

On the basis of case studies (profiles) elaborated by the partners we focused on the main stakeholders in blended learning in the 3rd sector, learners, educational personnel and decision makers.

One PhD study has been elaborated in the framework of the project.

Agreements

During the first transnational meeting of the eL3-partners in March 2004 in Goslar a comprehensive evaluation map was presented and harmonised with expectations and wishes of the partners, and first clarifications were tackled regarding further procedures.

In this context it was decided not to realise any developments that would result in a uniform and central collection of data about the target groups (learners), the approaches and requirements of the partners being too different.

Instead, an approach was chosen based on the idea that inventories are collections (pools) of measuring instruments or items, designed or configured according to the respective demands of the partners, and which is a stimulus for self-assessment as well as for mutual evaluation (and motivation).

Here different methods of an inspecting evaluation (evaluation by peering, by observing and dealing with the products, by experts and partners) became necessary. They also agreed not to do any superior data collections regarding the achievements of the learners (tests) but to give incitements by samples of different measuring instruments and to allow the exchange of experience.

3. Methodology

Case studies

Case studies about existing learning offers within the partnership were developed to establish a comparative frame and to identify similarities in the projects or learning offers. This initial step led to a grid of 9 different projects that were compared in the first project year. Central messages were extracted from the grid, forming the background for the application of other evaluation instruments.

Inventories

Being aware that a uniform evaluation of learning offers with a large scope in contents and methodology is not feasible, three inventories were developed for the major stakeholders in blended learning settings.

Due to the differing situations of the project partners the elaboration was very time consuming – but in the end inventories with comprehensive question pools relevant for a wide range of stakeholders were elaborated.

The inventories were pre-tested before applying them in a larger scale.

Blended Learning Matrix

For evaluation purposes a so called blended learning matrix was developed.

The BL-matrix is at the same time evaluation and planning tool – in its reduced form it served as a grid to assign the findings from case studies, and questionnaires in the relevant blended learning categories such as setting, target groups, competencies, demands and learning processes.

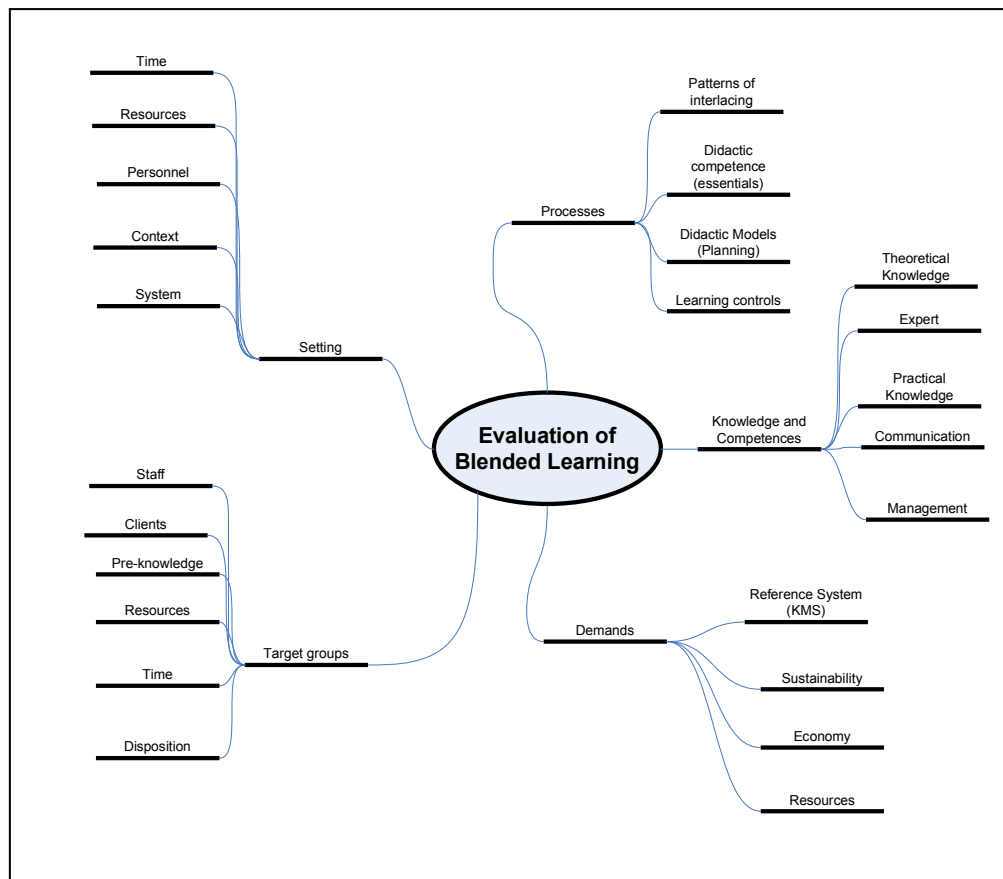


Figure 1 Evaluation of Blended Learning

4. Conclusions, Recommendations and Practical Planning Tools

The matrix has also planning functionality, because major acting recommendations for blended learning designers have been derived.

Based on the matrix and on the modified Göttingen Catalogue of Didactic Models (GKDM)¹ a planning manual for BL-designers was developed including acting recommendations and a planning tool box for instructional designers who intend to work with blended learning methodology. As additional planning tool we pre-tested and transferred an elaborated learning style inventory based on the system of KOLB² in an online version for assessment of learning styles.

All instruments developed in the framework of eL3 are available in electronic versions on the website of the European blended learning institutions' cooperative:

<http://www.blinc-eu.org>

¹ Flechsig, K.H. 1991. Kleines Handbuch Didaktischer Modelle (3rd. ed.). Göttingen: Zentrum für Didaktische Studien.

Haller, H.-D. 1997. Alternative Instructional Models and Knowledge-Organization and Design-Support With CEDID. In: Tennyson, R. / Schott, F./Seel, N.M./Dijkstra, S.(eds.), Instructional Design: International Perspectives, Vol.1: Theory, Research, and Models. Mahwah, New Jersey/London. Lawrence Erlbaum, Associates, 1997, S. 371-379.

² Kolb, D. A. 1985. Learning style inventory. Boston: McBer.

Haller, H.-D. 1992. an die Tür des Geistes klopfen. Lernen und Problemlösen. ManagerSeminare, 7, 42-49.

Haller, H.-D. 2002. E-Learning und didaktische Vielfalt. In: H.-C. Riekhof/H. Schüle (Hrsg.): E-Learning in der Praxis. Wiesbaden: Gabler, 2002, S. 229-252.

3.1 Case studies

Case study analysis of exemplary eLearning and blended learning projects in the social and health care sector

One of the aims in the work package “Analysis and evaluation” was the stocktaking of existing eLearning and blended learning in the European social and health care sector with regard to fields, learning contents and the benefit for the respective organisations. The eL3 group decided to start with the collection of different partner projects to outline differences and similarities in blended learning approaches.

In the framework of the eL3 project single partner projects were explored as a basis for case studies in the field of eLearning and blended learning in the social and health care sector. The case studies aim at gaining a sharpened understanding of single cases and findings about what might become important to look at more extensively in future researches³.

The case studies portray the partners’ experiences regarding single eLearning or blended learning programmes. They do not focus on results that could be generalised but on exploration and description of exemplary eLearning and blended learning projects in the social and health care sector. For this purpose a wide range of information about single partner projects was assessed by a questionnaire. In the following the content of the descriptions was analysed by seeking patterns and themes in the data, and by further analysis through cross-comparison with each other.

The following aspects were assessed:

- Basic data regarding the project
- Institutional training management
- Content of the project
- Background and reasons for the development of the project
- Target group
- Learning place and learning environment
- Methodology and didactics
- Time frame of the project
- Evaluation and experiences so far
- Plans and “visions”

From the results a synopsis of each partner project was created. Afterwards the data was compiled in a table and central aspects were extracted.

³ Flyvbjerg, B. (2006). "Five Misunderstandings About Case Study Research." *Qualitative Inquiry*, vol. 12, no. 2, April 2006, p. 219-245.

Results:

The in-depth analysis and comparison of the cases reveal a couple of interesting issues.

The case studies represent a broad variety of eLearning or blended learning projects in the social and health care sector. The projects differ intensely in terms of their contexts, structure and target groups. A broad variety of different learners is supposed to be taught: different age level, different qualification, different professional experience (see compilation of the data in the annex point 5 and 7).⁴

However, similarities appear in terms of requirements. The main reason for the implementation of blended learning for all partners is to offer innovative ways of learning and to facilitate better qualifications of the staff/students. As effects of blended learning nearly all partners expect time and cost savings (see compilation of the data in the annex attached on CD point 4).⁵

Another similarity is that learners are supposed to study at home and at their working places (see compilation of the data in the annex point 6).

The partners see the implementation of blended learning as future oriented. They would like to build up systems and a knowledge basis for their staff/students, they plan to introduce the different methodologies of eLearning and blended learning gradually into their normal programme of continuous education (see compilation of the data in the annex point 8 and 10).

All in all, central requirements, which arise from the cases, are:

- According to most partners eLearning/blended learning should be cost-saving.
- At the same time eLearning/blended learning should offer innovative ways of learning.
- Important pre-requisites for eLearning are basic computer skills of the learners.
- A central advantage of eLearning is that learning locations can be variable although the availability of functional computer equipment in the learning environment has to be ensured.
- eLearning/blended learning activities should offer different ways of learning and include a good “mixture” of methodology.
- eLearning/blended learning should adapt to the students’ needs.
- If the students needs and pre-requisites (e.g. in terms of computer skills) are not considered there might appear difficulties.
- Assessment and consideration of students’ needs as well as assistance e.g. through tutoring is therefore important.

⁴ In an eLearning survey which was carried out in 2004 (n=697) one of the key findings was the “wide-spread use of eLearning among nonprofit organizations and associations. It was also reported that there is a “wide variety of e-learning uses”. (Isoph 2004. E-Learning in Nonprofits and Associations. http://www.isoph.com/pdfs/2004_Nonprofit_E-learning_Survey.pdf)

⁵ It was also reported that “convenience for learners, access and cost effectiveness are expected as the key benefits of eLearning. (Isoph 2004. E-Learning in Nonprofits and Associations. http://www.isoph.com/pdfs/2004_Nonprofit_E-learning_Survey.pdf)

- Evaluation is so far mostly done either informally or by self-made instruments like questionnaires.

There cannot be drawn general conclusions from these results. However they give some hints on demands with regard to eLearning and blended learning methodology in the social and health care sector on the basis of the experiences in exemplary eLearning or blended learning projects.

3.2 Inventories

3.2.1 Target Groups

Evaluation instruments for eLearning and blended learning were needed for three target groups:

1. **Decision makers** who decide to implement eLearning or blended learning
2. **Authors** or designers of eLearning or blended learning courses
3. **Learners** who participate in eLearning and blended learning

Decision makers

Decision makers are responsible for the organisation and for the training of staff members. They decide what kind of educational opportunities the employees should have. The inventory for decision makers is also meant to give “food for thinking” about demands concerning the learning of staff members and requirements in the organisation.

Authors

Authors are defined as those people who design and provide eLearning and blended learning courses. It is very important that they know the learners because they are not able to adjust the courses later while actually interacting with them. Authors should also look closely at the design of instructional programmes and carefully consider the criteria that may be decisive for the effectiveness of a programme. The inventory is also a self-evaluation instrument for authors.

Learners

Learners are defined as those people who take part in (blended learning) courses. They may be members of institutions (staff), students or clients. They either had first hand experience with eLearning or they were experiencing it for the first time. The inventory should collect relevant data about the learners including computer skills, learning experience and available time.

3.2.2 Development phases

The inventories were developed in several phases. First, drafts were designed for every target group as a basis for discussion. Workgroups were formed followed by a longer period in which materials were collected and discussed. It took several months to design an initial version, which was then translated into the respective languages. Finally, the partners pre-tested the inventories by designing their own individual questionnaires and then using it in their respective institutions. At the end of the project the collective experience of the participants was analysed. The following diagram depicts the main phases of inventory development:

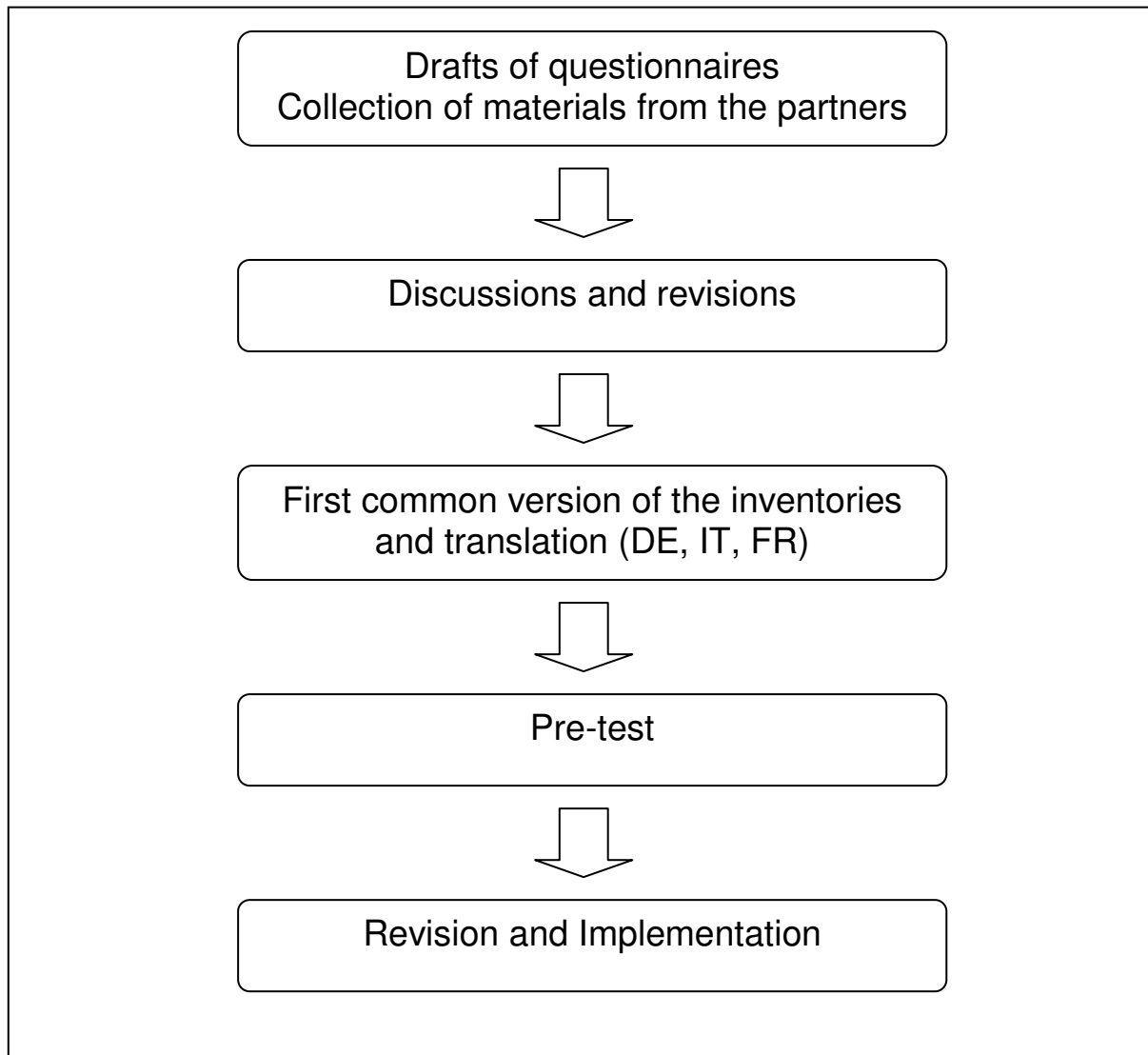


Figure 2 Phases of inventory development

The designing of the inventories was a very complex task. On the one hand, the needs and ideas of the partners were quite varied, cultural aspects and ways of working also seemed to be a stumbling block. On the other hand, common experiences revealed similar needs and so we were able to synergise.

The work during the meetings was relatively easy because all the partners were in one place, had time and could exchange their ideas directly. In the interim periods between such meetings a modus operandi had to be found.

3.3.3 Description of the Instruments

3.3.3.1 Decision makers

A first draft of the evaluation instrument for decision makers was designed and discussed in September 2004.

The inventories were pre-tested with a number of 20 decision makers and then refined. After the pre-test more specifying data concerning the type of the organisation were included that helped to assign the results to sector and size.

The basic descriptive part of the questionnaire (technical data) was increased to 15 questions including questions related to content, context, target groups and IT equipment.

The inventory, originally consisting of 60 questions was reduced to 46 questions in 8 chapters.

After the pre-test 53 decision makers from different entities from the European health and social sector were asked about their demands concerning the mixed methodology of learning offers.

The questions related to the following topics:

1. Intention of the management
2. Description of the target groups
3. Learning environment
4. Learning and qualification demands
5. Expected learning contents
6. Expected outputs in respect to human resource development
7. Organisational issues

We used multiple choice questionnaires with 3 or 4 options.

3.3.3.2 Authors

(Teaching personnel: Trainers, authors, tutors, instructional designers)

A first draft of the evaluation instrument for teaching personnel was designed as a basis for discussion as early as 2004.

For reasons of simplicity we called it “authors’ inventory” well knowing the different roles and functions of the instructional personnel.

The inventory was pre-tested in 2005 with a limited amount of authors and was further developed. Generally we agreed that, following the idea of an inventory, we should select the most relevant questions and reduce the amount of questions.

The general part of the questionnaire, describing basic attributes of the authors, was enlarged to be suitable to correlate answers related to instructional design and to efficacy of the learning offer to basic authors’ characteristics.

The questionnaire consisted of 4 parts:

1. Part 1: Authors attributes
2. Part 2: Analysis of learners' characteristics
3. Part 3: Questions related to the BL-design
4. Part 4: Questions related to the efficiency of the learning offer

The authors' inventory has a double function: Apart from the evaluating purpose it also serves as an instrument that enables teaching personnel, working in blended learning environments, to reflect upon their learners and their learning offers.

Part 2 is consisting of 28 questions related to learners' characteristics, about

- Education and employment background
- Cultural backgrounds and attitudes
- Learning experiences and expectations
- Analysis of learners' contexts

In part 2 we used multiple choice questionnaires with 2 options, the authors could answer questions related to learners' properties with "known" or "unknown".

The questions related to BL-design consist of 64 questions under the following sub-headings:

- Variety: of contents, learner personalities, methods
- Economy: in the sense of efficient use of resources
- Adjustment: to the given/expected situation
- Productivity and utility
- Self motivation
- Development of learners' abilities
- Consistency of the programme

30 questions concerning the efficiency of the learning offers related to:

- Clarity of the programme
- Relevance and reference
- Structure and sequential order
- Clearness of instruction
- Application of knowledge
- Feedback: information on learning process and personal status
- Perspectives

In parts 3 and 4 we used multiple choice questionnaires with 6 options.

The authors' inventory was filled by 67 authors.

3.3.3.3 Learners

The eL3 partners decided that three inventories were needed: The first should be used “before” a course begins, the second “during” a course and the last “after” a course has ended. The use of all three inventories makes it possible to monitor a course from beginning to end. Any necessary changes can be identified and the course can be adjusted to meet the needs of the learners.

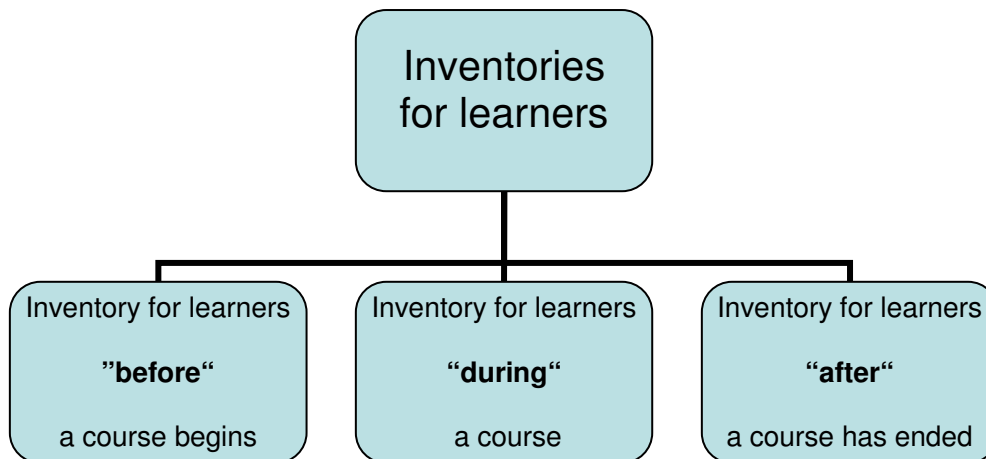


Figure 3 Inventories for learners

The major problem concerning the development of an inventory for learners was the large variability of learning offers, contexts, target groups, methodology and contents. This was the reason why a collaborative developing unit worked on the internal LMS to facilitate the collection of different materials and the discussion of current versions. In an extensive, 1 year lasting procedure consisting of 5 development steps the transnational group completed a multiply revised questionnaire for learners in an English master version.

The partners translated the inventories into their mother languages: French, German and Italian.

This allowed an exact disambiguation in each of the project languages.

Finally a multilingual form of the inventories was compiled which is uniform for all languages. This makes it possible to cross-check the translations and ensures their uniformity. It also facilitates the addition of any further languages in the future.

The inventories were introduced in 5 different projects in 4 countries with a number of 205 learners.

In one project the learners' assessment was supported by a group interview.

4. Results

The following chapter presents the results of the quantitative and qualitative analysis carried out in the framework of eL3.

Starting with a descriptive part of case studies based on profiles of 10 partner organisations we will concentrate on the major stakeholders in blended learning in 3rd sector organisations:

- Decision makers
- Educational personnel (authors, trainers)
- Learners

4.1 Decision makers

In the framework of the project 53 decision makers from the European 3rd sector were asked about their demands concerning learning and blended learning in their organisations.

Decision makers are for instance (hospital) directors, human resource managers, group leaders, leading nurses, managing personnel from private and public, profit and non-profit organisations.

We asked managing personnel from 9 European countries, from healthcare and the social sector, cultural organisations and kindergartens, homes for aged persons, women's organisations, rehabilitation centres, confessional bodies and community services as well as university departments and educational organisations and networks.

Part A: Basic Information on the Researched Persons and Their Entities

More than half of the respondents referred to the health-care sector. We regard the other entities as rather similar and put educational services and other sectors (e.g. culture, other care related sectors and community services) together in the comparison group.

Concerning the size of the organisations one can differentiate 2 groups:

Entities with more than 250 staff members (we will call them large enterprises) and small and medium enterprises (SME) with personnel of less than 250 people.

More than half of the respondents are from large institutions. The larger institutions are almost all from the hospital sector

Institutions with a high turnover are almost all hospitals.

As a consequence of the facts stated above we will also compare large enterprises (which are all hospitals) (n= 28) and other entities (n= 25).

Concerning the content that shall be delivered the researched decision makers mostly (67%) opt for various contents which indicates the diversity of learners. In the following they put a stress on healthcare issues (medical and care related themes) and communicative topics.

The researched decision makers were mainly targeting assistants, workers, clerks and team leaders as learners' groups. According to their opinions middle management and operative staff have highest demands for further training. Leading management and supporting personnel are minor target groups (between average and

often). Leading management has a higher value in hospitals (1,83 vs. 1,06) whereas team leaders have a higher value in non-hospitals (2,8 vs. 2,28).

More than 40% of the respondents report a high IT-standard in their organisations, whereas about a quarter report a low IT-standard (3 choices: low, average, high).

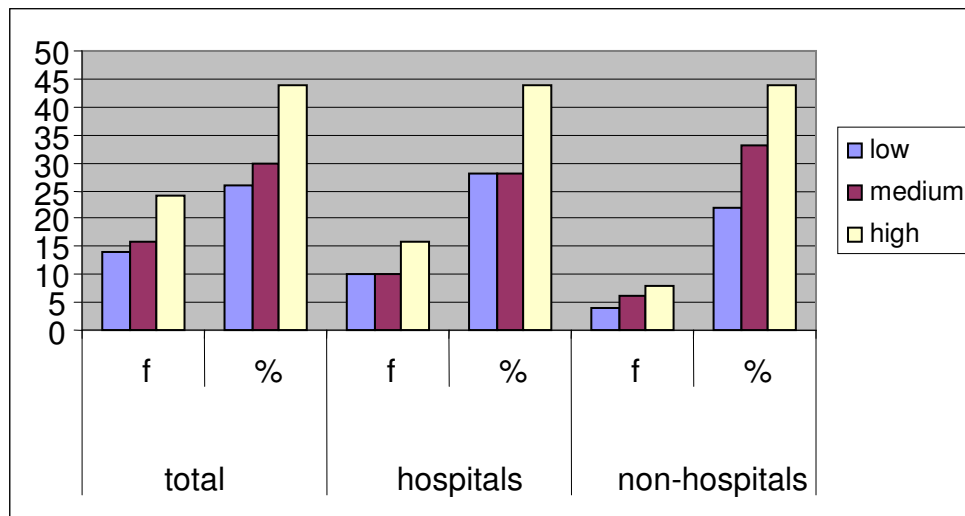


Figure 4 DM Status of IT-equipment in the enterprise (Saturation)

Interestingly enough, there is nearly no difference between hospitals and other institutions on this topic. We can state that nearly 75% of the decision makers report an average or high IT-saturation in their enterprise.

Part B: Questions Related to Demands and Learning Environment and Context:

The questions can be classified as follows:

1. Intention of the management
2. Description of the target groups
3. Learning environment
4. Learning and qualification demands
5. Expected learning contents
6. Expected outputs in respect to human resource development
7. Organisational issues

General remark:

The respondents had a multiple choice matrix with three options (not important (1), rather important (2), very important (3)):

Intention of the Management (7 questions)

The intentions stated by the decision makers differ to a large extent between the respondents:

- *Reducing costs for absence of learners from workplace* (AM=2,54) is the most important criterion followed by
- *Better through-put/turnover of learning inside the enterprise* (AM=2,33) and
- *Reducing costs for education/training activities* (AM=2,32).

Following in this ranking of all respondents with also a high stress in importance are:

- *Customer care* (AM=2,26) and
- *Improving the quality (results) of learning* (AM=2,04).

The least important with a high variance are “*Improving the learning environment*”, “*Different working places and improvement of communication*” and “*Standardised training results (comparability)*”.

There are interesting differences between hospitals and other organisations: Respondents from hospitals clearly put a stronger value on economic reasons, shown in the exemplary diagram:

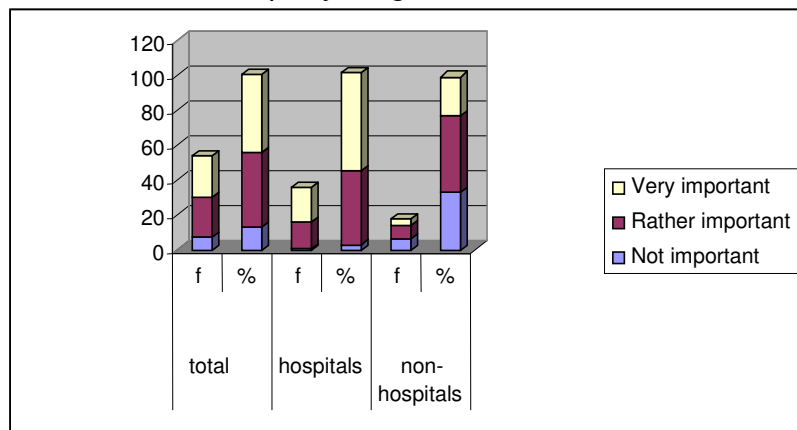


Figure 5 DM Item 16: Reducing costs for education/training activities
(AM=2,32, $\sigma=0,70$)

This tendency is even more obvious in the item: *Reducing costs for absence of learners from workplace*:

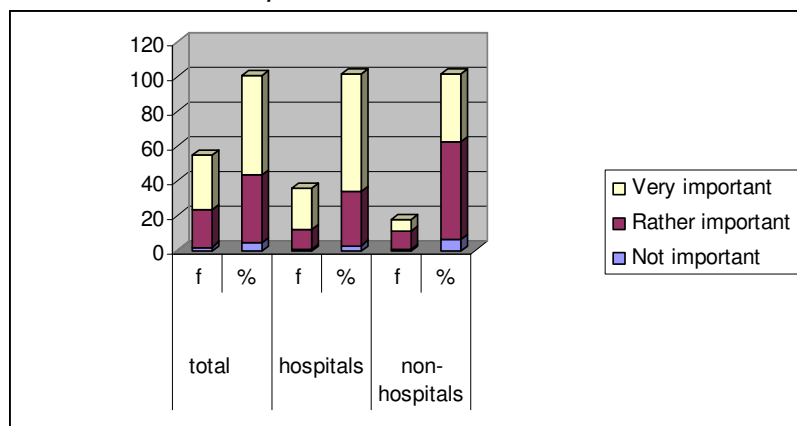


Figure 6 DM Item 17: Reducing costs for absence of learners from workplace
(AM=2,54, $\sigma=0,57$)

Staff related costs are the decisive factor for hospital decision makers.

In hospitals standardised training results are rather important or very important (53/28%) whereas this item is not important for 70% of other entities.

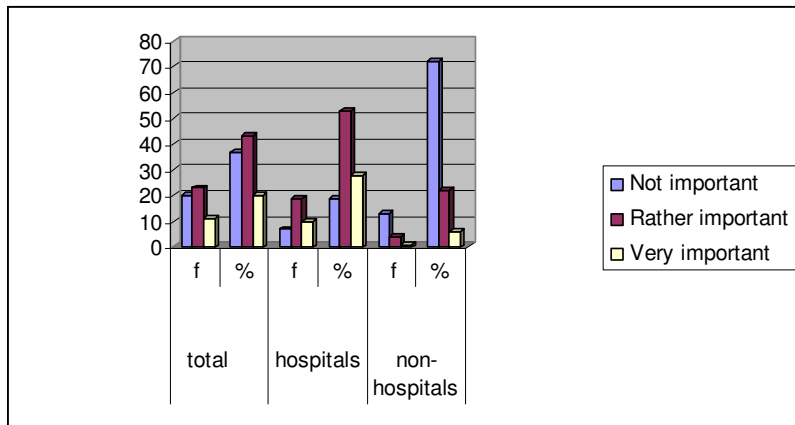


Figure 7 DM Item 17: Standardised training results (comparability)
(AM=1,83, σ =0,75)

Description of the Target Groups

We asked 9 questions related to the staff of the entities

- 2 referring to homogeneity of the learners (gender and structure)
- Relation of working and learning time
- Motivation
- Job security
- Other possible learner groups, e.g. clients
- Estimation of self learning ability
- IT competencies
- Motivation to learn off-side the enterprise

In nearly half of the cases it is female learners dominating the number of learners. This may be due to the staff situation in hospitals.

Many of the respondents omitted the question of relation of working and learning time, either because they do not know yet the relation between working and learning time or they denied any importance of this question.

Nearly half of the respondents gave no answer concerning their staff members' motivation to learn – they do not seem to know the motivational situation; from those who know it, the answer is mostly "average" whereas "high" is rather seldom.

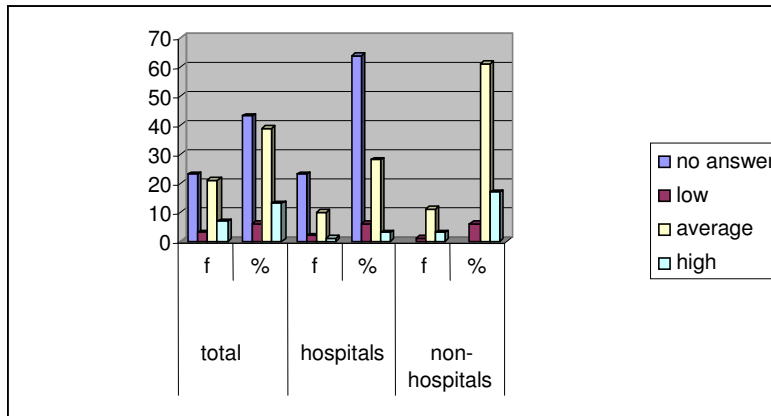


Figure 8 DM Item 28: Motivation

There is a clear distinction between hospitals and other organisations: decision makers in hospitals do not know the motivation of their learners (maybe due to the size and heterogeneity) whereas 78% of the decision makers of other (small) enterprises opt for average and higher motivation.

In respect to other target groups (e.g. clients) we asked: “How many other target groups do you have for eLearning or blended-learning approaches?” There is also a very interesting differentiation between the two groups:

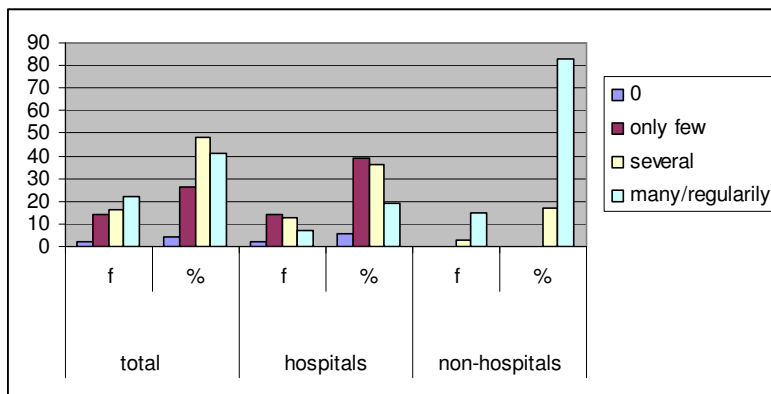


Figure 9 DM Item 30: Other target groups

In non-hospital entities the amount of other target groups is, according to their decision makers, much higher than in hospitals. Vice versa, through the eyes of many hospital decision makers, there is no demand of learning in hospitals for other target groups, e.g. for patients. This is a very astonishing result in respect to customer care in hospitals.

Concerning the self learning abilities one third of the rating is “low”, only one fifth is “high”. This seems to be a reality which is to be considered very much in decisions for eLearning.

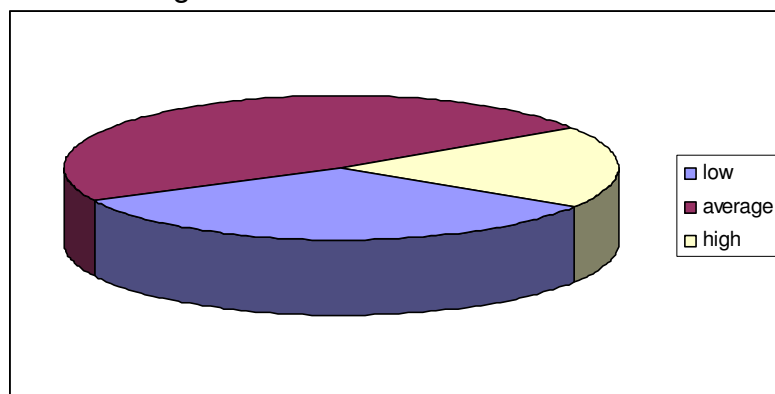


Figure 10 DM Item 31: Self learning abilities

One fourth of the respondents consider having learners with low IT-competencies – most (70%) of the decision makers answer “average skills”.

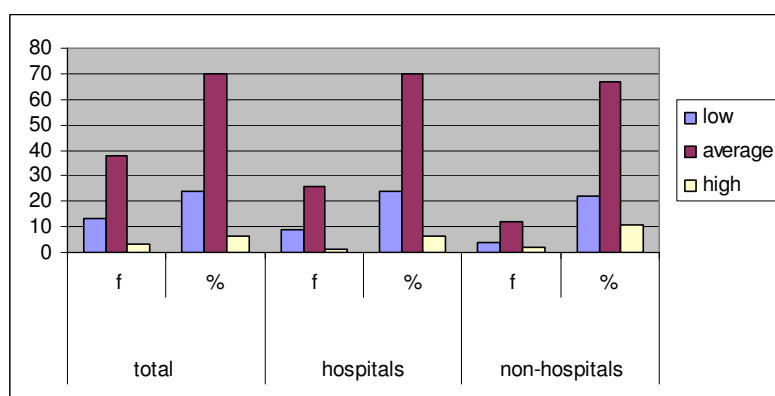


Figure 11 DM Item 32: IT-competencies

There is no difference in the distribution in hospitals and other institutions.

Learning Environment

Questions under this topic referred to learning culture, IT-equipment, learning at special locations, availability of learning materials and media and vision of the enterprise in respect to learning issues.

A specially equipped training location (“school”) is very rare in non-hospitals, whereas the hospitals have much more opportunities of that kind. More than 50% of the entities offer regular trainings.

Computer equipment internet availability

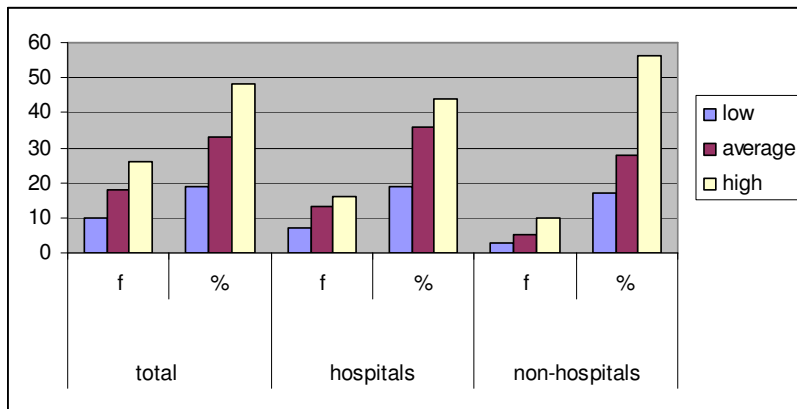


Figure 12 DM Item 36: Computer equipment availability

Despite a high availability of IT there was a low IT competence by the staff (item 32). The logical consequence would be IT-trainings, otherwise the good IT equipment cannot be utilised efficiently.

Learning at the work place

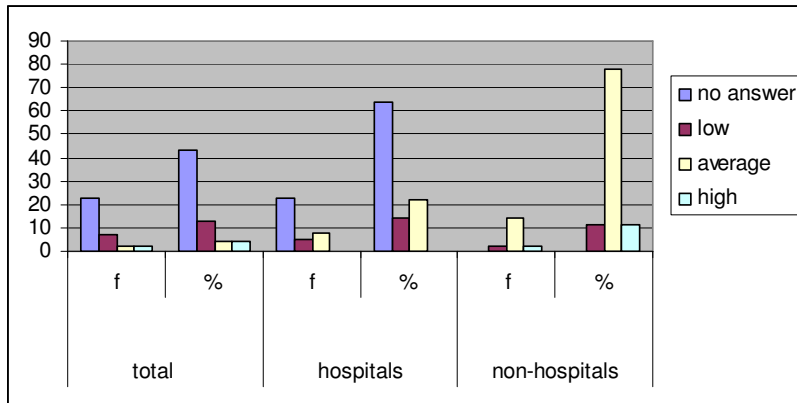


Figure 13 DM Item 38: Learning at the work place

Decision makers in hospitals do not consider learning at the work place whereas for other organisations nearly 90% of the decision makers opt for average or and even 10% for high potential at that point.

One must confess that despite the strong focus on economic assignment of the staff the decision makers do not consider the necessity of further qualification of personnel. Maybe the economic pressure is too high and the personnel situation is too tense.

In contrast 75% of the enterprises have a rather clear or very clear vision as learning organisations according to the decision makers.

Learning and Qualification Demands

The decision makers had to answer 3 questions concerning learning demands. In 96% of the cases learning objectives are rather clear or clearly defined and 80% of the enterprises report regular staff training (fairly often to very often). It is obvious that there is not yet a "credit point culture" in the responding 3rd sector organisations.

Expected Learning Contents

This chapter included most of the questions. We asked for demands and preferences for:

- Expert/scientific/technical knowledge
- Communicative competences
- IT-skills
- Management competences
- Theoretical knowledge
- Practical knowledge
- Internal knowledge management systems
- Web based learning management systems
- eLearning courses
- Blended learning courses
- Digital learning materials
- Tutoring
- Training of internal trainers
- Adaptability of contents
- Integration in quality management systems
- Internal dissemination opportunities

In the following we will highlight some of the major findings:

In hospitals there is a high demand (67%) of expert knowledge whereas in other enterprises the demand of expert knowledge is average.

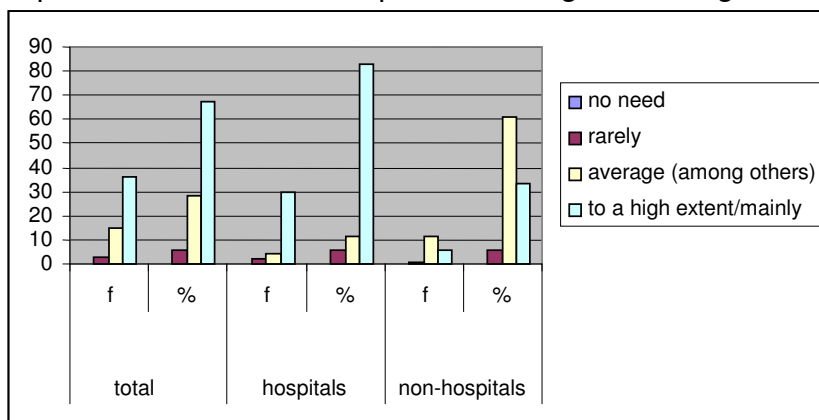


Figure 14 DM Item 45: Demand of expert knowledge

In contrast to expert knowledge the demands of hospital decision makers concerning communicative competences is only average. We received comparable data concerning managerial competencies.

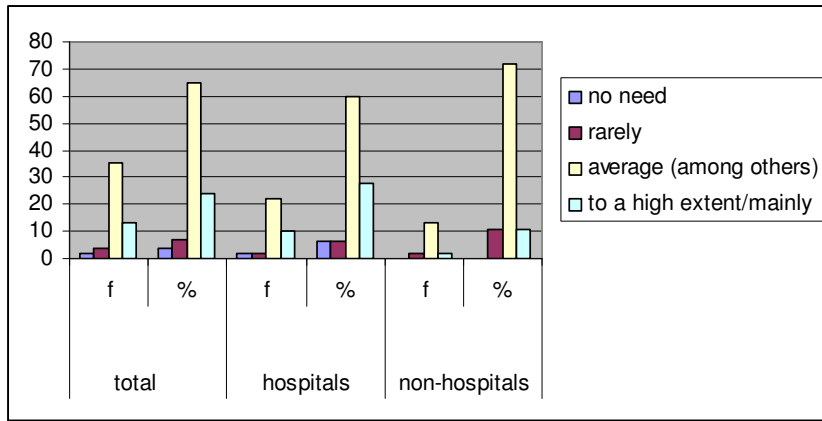


Figure 15 DM Item 46: Demand of communicative competencies (similar: management c.)

IT-skills:

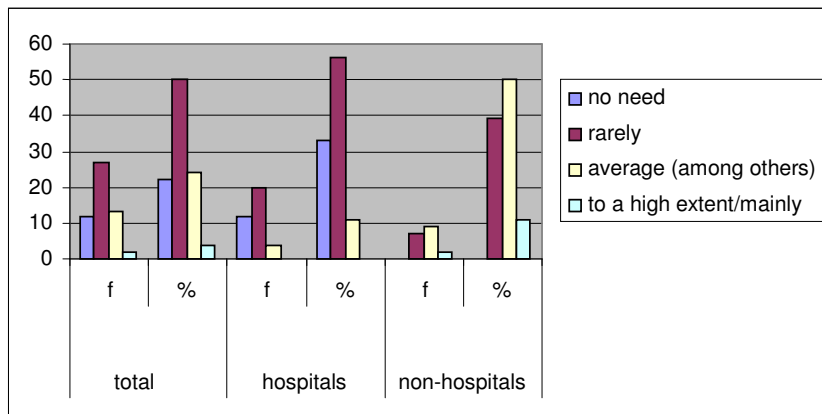


Figure 16 DM Item 47: IT-skills

Surprisingly, despite considered poor IT-competencies of staff members and a good or very good IT-equipment there is only a low demand (56%) or even no need (30%!) for IT contents from the side of the hospital decision makers. There are significantly higher values (average and high extend) from the other stakeholders.

It must be considered that in hospitals the managers do not consider IT-competencies as being important for the work of their staff members. This is a crucial point for any kind of computer based or computer aided learning.

Theoretical knowledge and practical knowledge

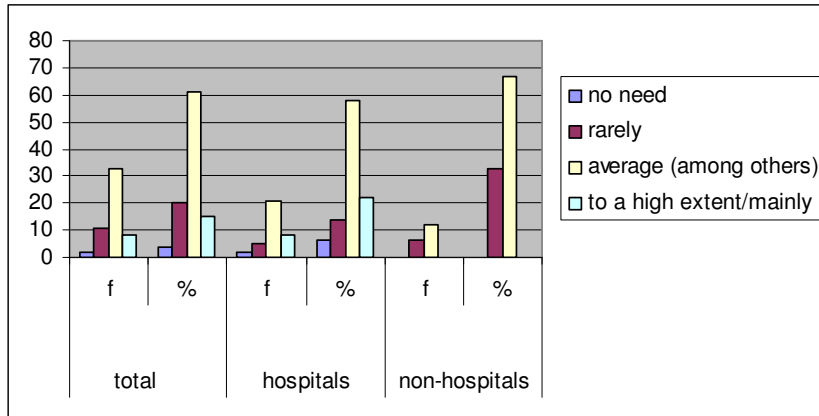


Figure 17 DM Item 49: Theoretical knowledge

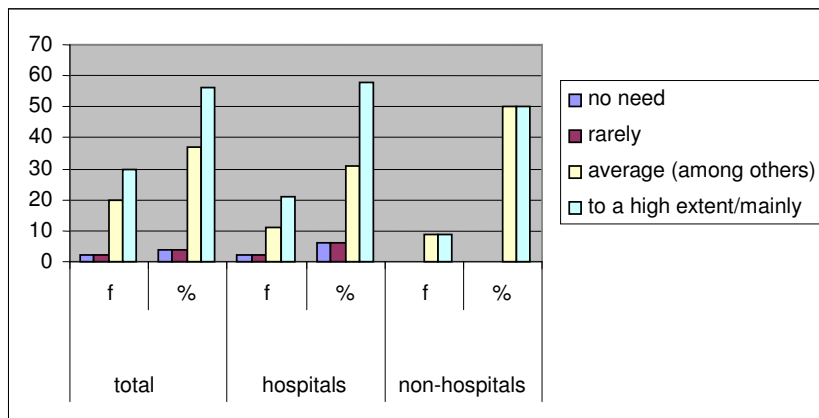


Figure 18 DM Item 50: Practical knowledge

66-76% of decision makers consider theoretical knowledge as mean important or very important.

92-100% rate the conveyance of practical skills average or highly important.

There is a significantly higher value of theoretical knowledge in hospitals than in other entities.

The following questions refer to computer or web-related learning and to the topic: learning in the organisation

Knowledge management systems (KMS)

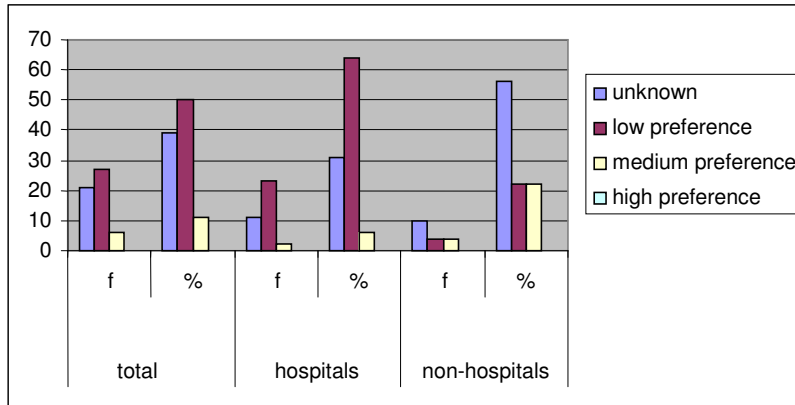


Figure 19 DM Item 51: Knowledge management systems

40% of the leading management members do not know knowledge management systems or they only show a low preference of 31-55%. Obviously KMS are unknown or unattractive territory for most 3rd sector organisations. For smaller enterprises there is at least 20% medium preference but the low demand of large healthcare enterprises (hospitals) is a surprise.

Regarding learning management systems (LMS) the situation is different:

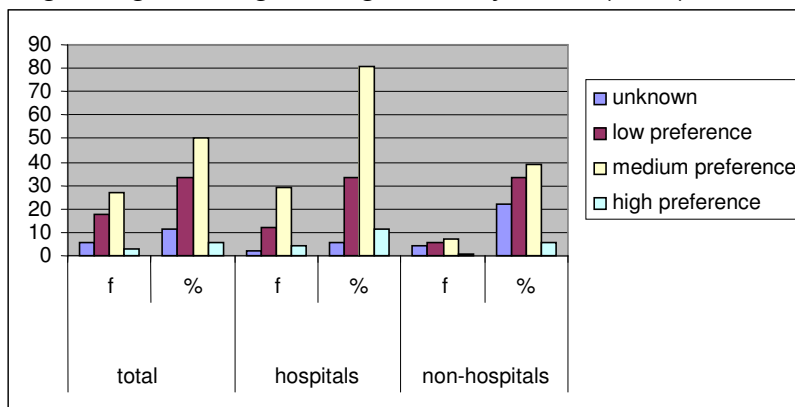


Figure 20 DM Item 52: Learning management systems

Still, 10% of decision makers (22% in non-hospitals) do not know LMS. There is a low preference of more than 30% of decision makers but at least 56% responded medium preference or high preference.

We can state that computer aided, organised learning is a rather interesting topic but only for 6% of the respondents it is of high preference. In hospitals the topic is slightly more interesting: we found 81% medium preference and 11% high preference.

eLearning and blended learning

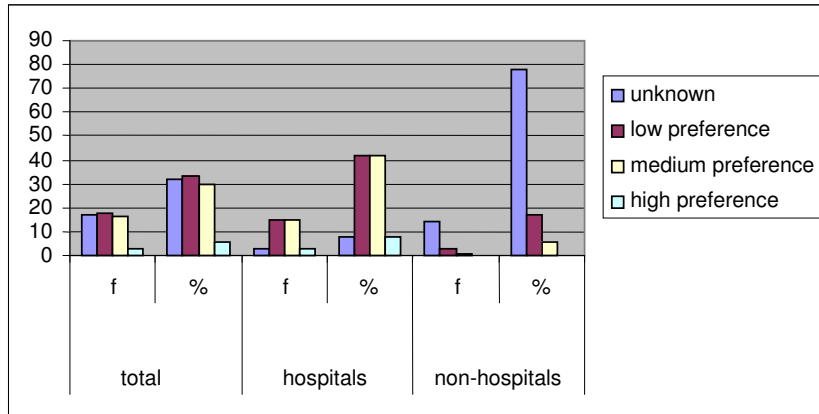


Figure 21 DM Item 53: eLearning

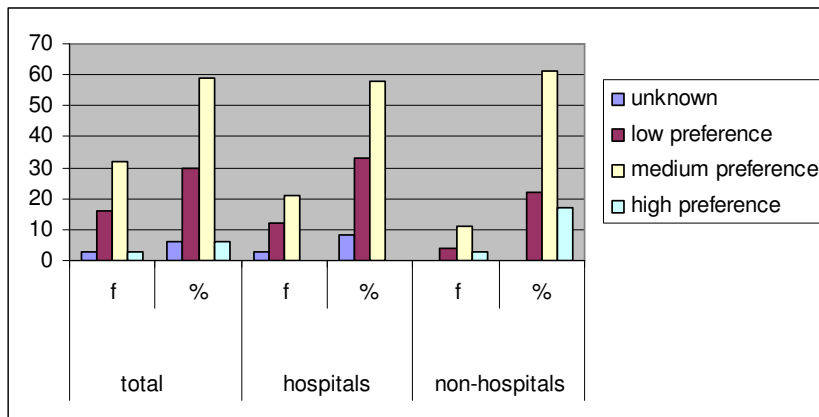


Figure 22 DM Item 54: Blended learning

Pure eLearning has mainly low and average preference in hospitals (40%). It is unknown to 80% of decision makers in other organisations.

Pure eLearning does not seem to be feasible, being very unattractive in the 3rd sector. We found at least 40% average demand in hospitals. Nearly one third does not know what it is.

Blended learning shows a significantly higher value (feasibility?) than eLearning.

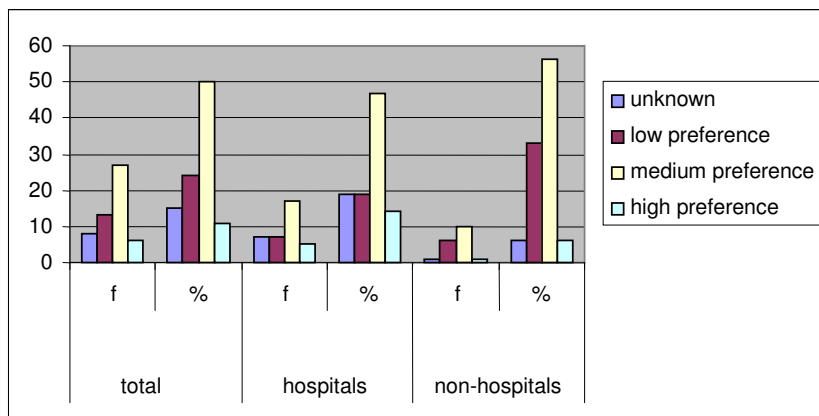


Figure 23 DM Item 55: Digital learning material

There is a medium preference concerning digital learning material. Still nearly 20% of decision makers in hospitals have no opinion about the issue.

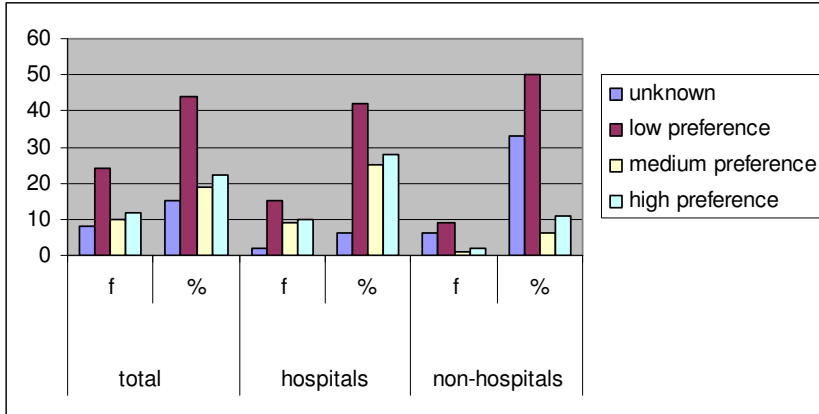


Figure 24 DM Item 57: Tutoring

Concerning tutoring there is a low preference of more than 40% of the respondents, whereas 30% of decision makers in hospitals stated a high preference. This may be a hint that internal training structures shall be build up. This hypothesis can be supported by highlighting the mean and high demand for training internal trainers in hospitals in the following figure.

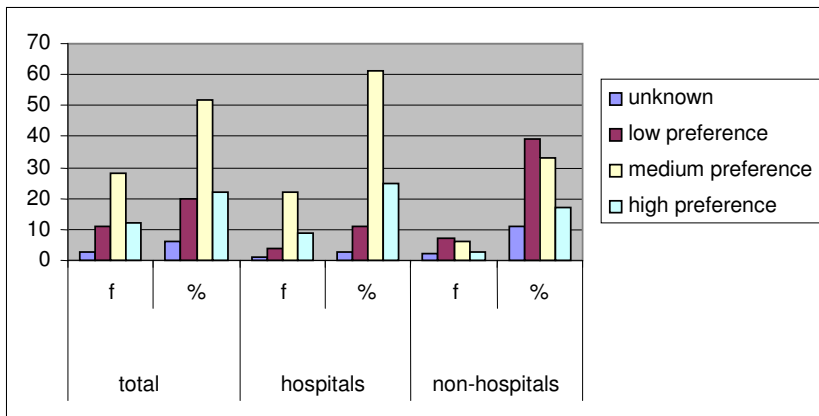


Figure 25 DM Item 58: Training of trainers

Organisational aspects of learning

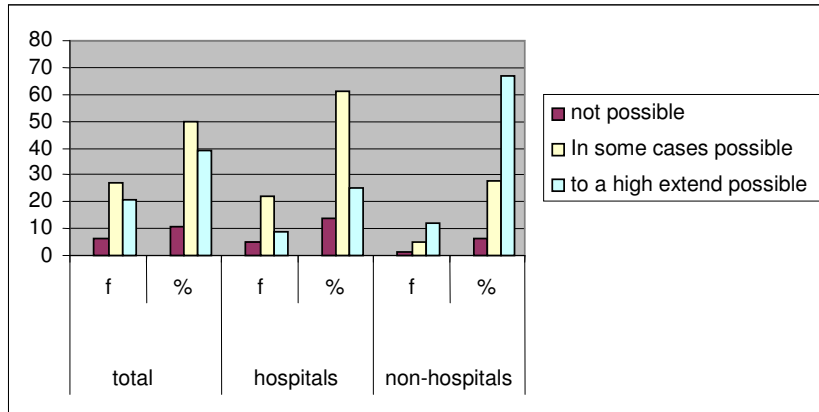


Figure 26 DM Item 59: Adaptability of contents

Generally it seems possible in most of the cases (90%) to adapt learning offers in the organisations.

It is interesting that, despite of the size of hospitals and the amount of staff members, 60% of the hospital decision makers think that only *in some cases* offers could be adapted and transferred.

This could also be one of the reasons for the low acceptance of knowledge management.

This finding is a slight contradiction to item 61: QM-systems.

Learning contents can only be integrated in a QM-system if standardised or adaptable.

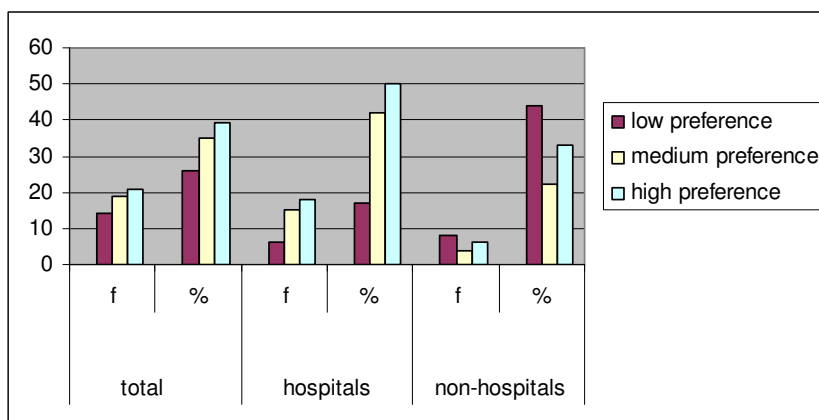


Figure 27 DM Item 61: Integration in a QM-System

Previous projects clearly showed (IEM in hospitals) that it is possible to integrate blended learning contents in QM-systems and that there is a lot of transferable contents in hospitals.

For 50% of hospital stakeholders and 34% of other entities the integration in QM-systems is highly valuable.

We can conclude that for managerial staff in hospitals economic and organisational aspects come to the fore and content and competency related questions are of minor importance.

We will discuss this problem related to learning organisation in the discussion chapter.

4.2 Authors

In the framework of the project 67 blended learning developers and teachers (authors in a wider sense) from the European 3rd sector were asked about their demands concerning learning and blended learning in their organisations.

Blended learning developers are course designers responsible for long term blended learning projects, as well as for limited blended learning seminars or for complete course programmes in their entities. Among the respondents are authors who mainly deliver contents and teach singular f2f lessons. Most of the teaching personnel is acting in multiple functions, being responsible for their topic in f2f and for the preparation of web-based contents.

There are some tutors who accompany the learners in IT or language related courses, seminars or parts of learning projects.

We asked teaching staff from 9 European countries who deliver courses in health-care and the social sector, cultural organisations and kindergartens, homes for aged persons, women's organisations, rehabilitation centres, confessional bodies and community services as well as university departments and educational organisations and networks.

Some of the authors/designers/trainers offer their courses in several countries and also on a European level or deliver limited course sequences via eLearning or blended learning.

The questionnaire consisted of 4 parts:

- Part 1: Authors attributes
- Part 2: Analysis of learners' characteristics
- Part 3: Questions related to the BL-design
- Part 4: Questions related to the efficiency of the learning offer

Basic information on the researched persons and their concern with blended learning:

Nearly all respondents (=88%) have been or are enacting the designer's role, followed by 81% as author (in a narrower sense), 73% as teacher/trainer and 72% as tutor.

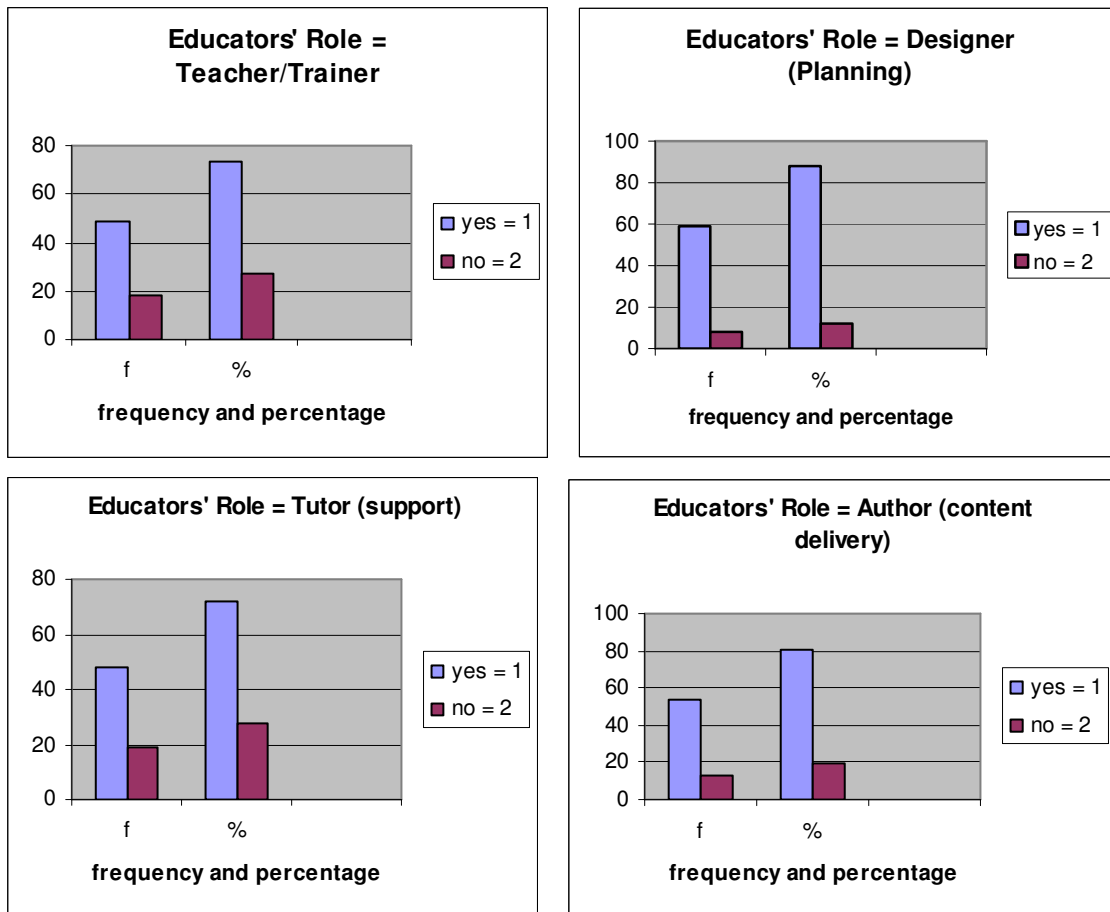


Figure 28 A Items 4-7 Educators Role

Remarkable is the high amount of respondents with two or even more of these functions or roles. 33 of the 67 respondents are or have been enacting in all 4 roles, 16 are or were doing eLearning work in three, 12 in two and 6 in only one role.

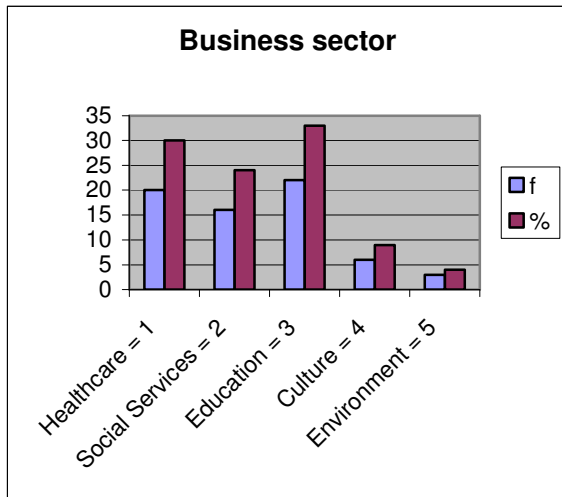


Figure 29 A Item 13 Business sector

One third of the respondents are coming from education as business sector, nearly a second third from healthcare, a quarter from social services. Culture and environment are rather seldom.

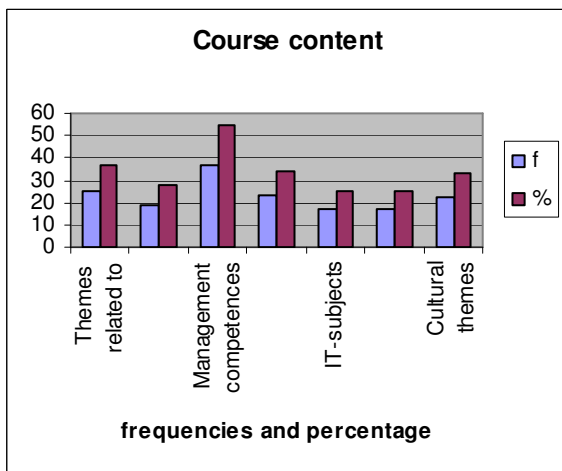


Figure 30 A Item 14-20 Course Content

Remarkable is the fact, that the respondents are mostly engaged in more than one or two content domains for their work. More than half of them are engaged in working on management competencies (=55%). No domain is reported by less than a quarter of the population.

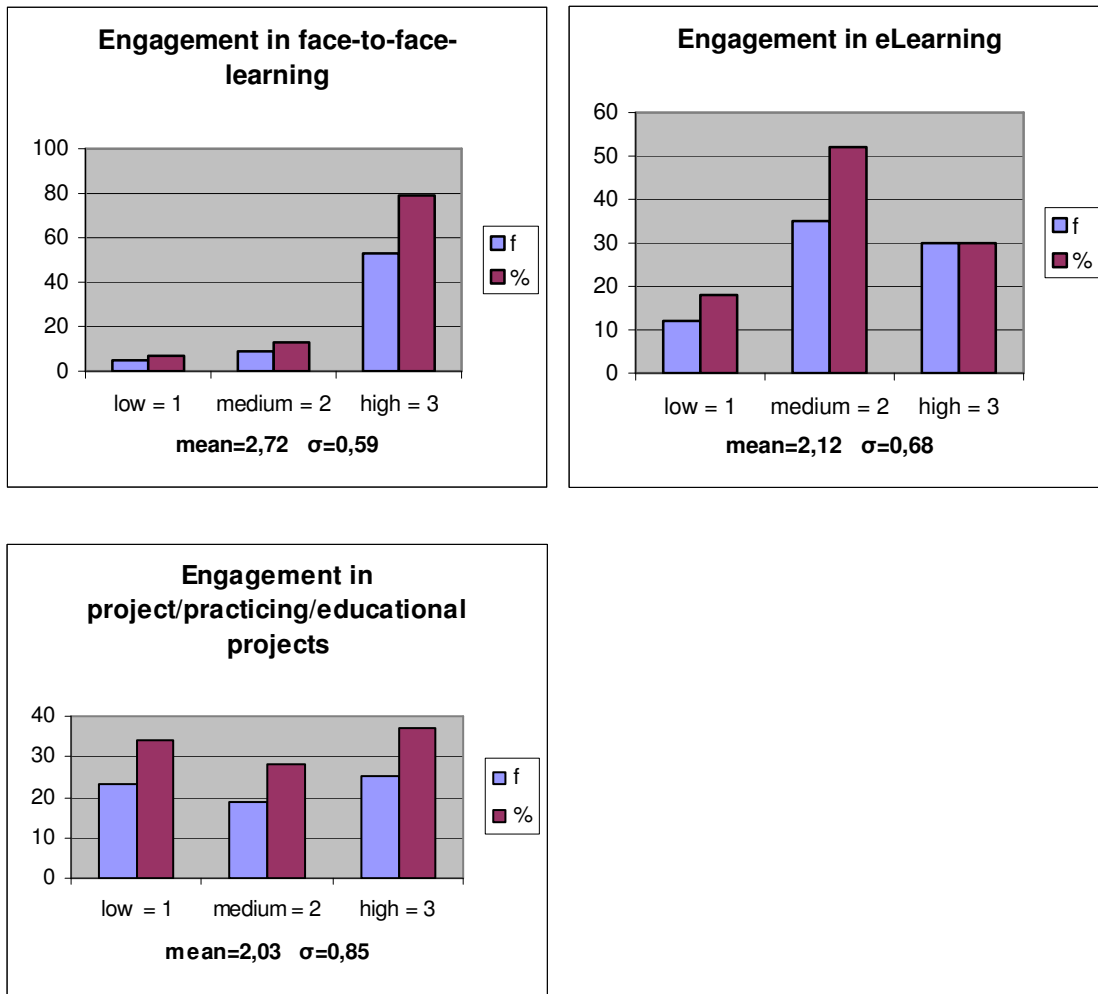


Figure 31 A Item 8-10 Engagement in different methods

The time pattern clearly is middle or long term oriented; only 12% are events up to one day.

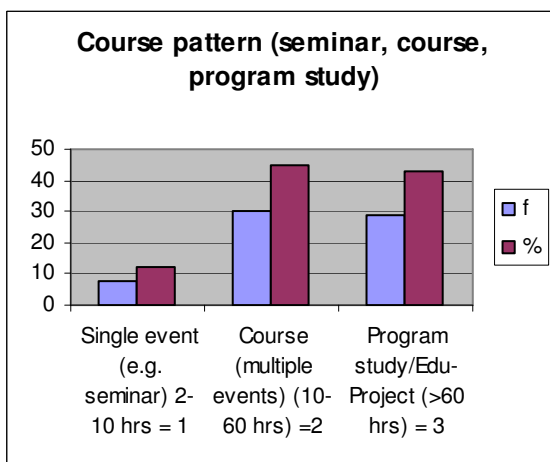


Figure 32 A Item 11 Course pattern

The orientation for repeatability is very high, 79% will be repeated more than 5 times.

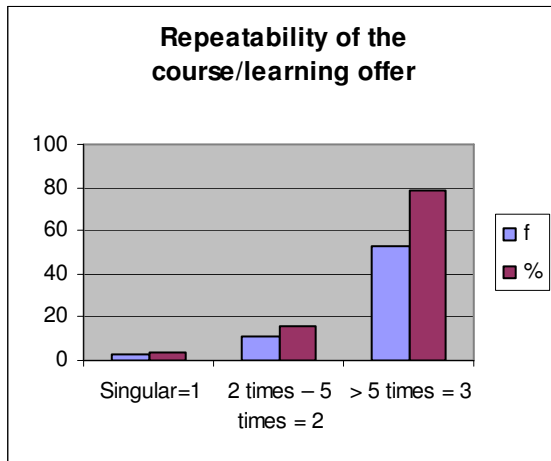


Figure 33 A Item12 Repeatability of the course

Questions related to knowledge about the learners and their context:

What knowledge or assumptions do the authors and producers of blended learning courses have about the learners and their context?

The questions were given a “yes” or “no” as possible answers. They were classified and rated as follows:

General features like age, gender etc. are known to 67%.

Quite a difference exists between gender (85%) and physical or mental characteristics with relevance (49%).

Education and employment background is known to 59,4%.

The highest value (96%) is for occupation/employment (which seems quite plausible), the lowest are for interests (40%) and level of skill in handling words, numbers, diagrams, equipment (33%).

Cultural background and attitudes, esp. to learning, is known for 52,5%.

The highest value is for *language and place of origin* (88%), the lowest are for *willingness for innovations* (37) and *learning methods with which they are familiar* (34%).

Learning experiences and expectations are known for 45,8%.

The highest value is for *expected results* (97%), also the value for *motives for learning* (74%). The lowest values are for *prerequisites in knowledge (previous knowledge/qualification)* (34%), *individual learning styles and learning strategies* (22%) and *preferences in special learning arrangements* (19%).

Analysis of learners’ contexts

The average value for respondents’ knowledge on their learners’ contexts is 49,5%.

The highest values are for the question on *training to get started with the technology* and *What kind of support will the learners have?* (both 94%).

The lowest values are for time to spend for learning and time of day for their learning (both 33%), and on *difficulties the learners may experience* (22%) and *family circumstances* (12%).

High knowledge:

The respondents declared to have knowledge about their learners especially and with a consent of 66% and more on:

- Age
- Gender
- Occupation/employment
- Language/place of origin
- Motives for learning
- Expected results
- Whether the learners get special training in technology and support for learning difficulties.

Low knowledge:

Low knowledge (with consent of 34% and less) referred to knowledge on learners':

- Level of general skills
- Preferred learning methods
- Learning styles and strategies
- Prerequisites on knowledge
- Preferences in learning arrangements
- Available time to spend for learning
- Time of day for their learning
- Family circumstances
- Difficulties.

Distribution of amount of known characteristics per person:

The following diagram shows the amount of knowledge about the learners and the context of their learning which the respondents had answered in the affirmative: There had been 28 items, and two respondents declared a knowledge on all of them. The least knowledge was on 3 items. The median is on 13, and the variance is very high ($\sigma=6,42$).

There is no clear evidence what might be a profile of respondents with low or high knowledge on their learners and the learning context of these. But there are some tendencies, as can be proved by data on both subgroups (18 persons with low and 18 with high knowledge) in the below diagram.

Respondents with affirmation of less knowledge are coming from the health sector (50 vs. 11%), and there is a lower representation for the teacher and tutor role (each 61 vs. 89), and these contents: education (11 vs. 56%), IT (17 vs. 50%), cultural themes (11 vs. 44%).

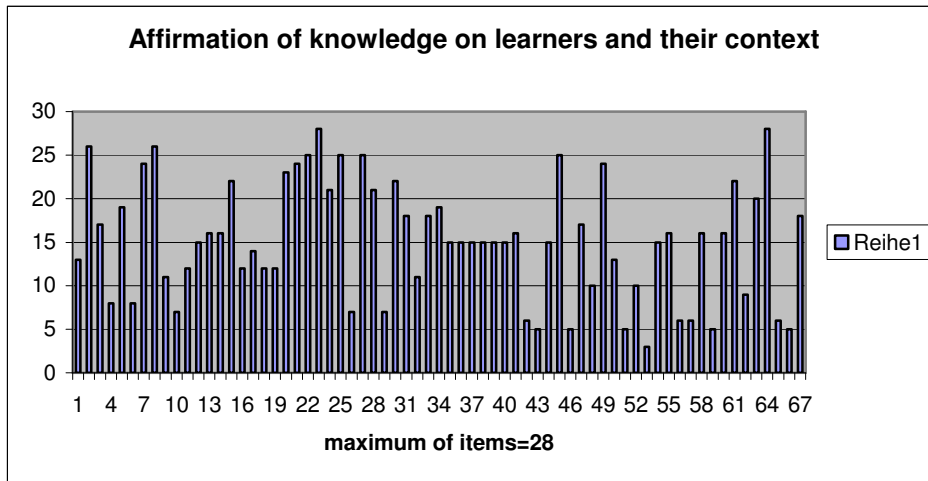


Figure 34 A Affirmation of knowledge on learners and their context

Conclusion:

It is not possible to take a decision on the real standard of knowledge of this population. The authors were asked for self-rating, and perhaps the internal criteria of a person for affirming or denying such questions are very different.

But there is a very remarkable negative supposition coming out of this investigation: There may be a considerable amount of persons engaged in eLearning programmes, who neglect the necessity of important practical as well as theoretical information on their work. “Practical” is understood in the sense of consideration of these information for arrangements of learning (when a trainer does not know anything about prerequisite knowledge of the learners he might teach mathematics to dogs, e.g.). “Theoretical” is understood in the sense that a teaching person should have relevant didactical or psychological knowledge (insight) on the importance of prerequisite knowledge and other factors that have been proven by science to be relevant for success or failure in learning.

Questions related to self-evaluation of the quality of the didactic design:

How do the authors, designers, teachers and tutors of blended learning courses judge the quality of the didactic design or plans and of the material used, in the sense of an inspection evaluation?

The questions were put in the typical form of a Likert scale, that means every time there was given a statement and the respondents marked their answers on a scale with 6 ratings:

not at all=1
just a little=2
quite a bit=3
rather much=4
much=5
very much=6

Table 1 A Rating (Likert scale)

So the theoretical average value can be seen on 3,5; means of 5,0 and more are seen as high, those of 2,0 and less as low.

A standard deviation of 1,0 means that about two thirds of the population are 1 grade below and 1 grade above the mean.

Results on variety

The means are mostly between “rather much” and “much”; one is only on “quite a bit” (several senses).

The differences between the respondents are very high.

The minimum/maximum-values are not extreme.

Variety	My Programme...	4,13	0,79
49	addresses to several senses (vision, hearing, touch, smelling, equilibrium).	3,1	1,49
50	uses several didactic methods/models.	4,36	1,03
51	includes individual and collaborative activities.	4,75	1,29
52	changes between guided and self-directed learning	4,11	1,08
53	allows for different learning locations.	4,37	1,13

Table 2 A Item 49-53 Variety

Results on economy

The means are about „rather much”.

The values for the different respondents are closer.

Economy	My Programme...	4,08	0,57
54	avoids counterproductive effects like a negative attitude towards learning.	3,69	1,04
55	uses as far as possible simple and cheap means and media which are little susceptible and that are available anyway.	4	0,9
56	converts much “teaching time” into effective learning time	4,37	0,71
57	leads to learning outcomes that are close to the aims	4,83	0,77
58	uses means which are trouble-free	3,64	0,97
59	builds up on the given knowledge and abilities of the learners	3,96	1,33

Table 3 A Item 54-59 Economy

Results on adjustment

The means are about the category „rather much“, the variances for items 60 and 64 are high, as well as the differences between the respondents:

Adjustment	My Programme is adjusted...	4,11	0,88
60	to the language habits of the learners.	3,87	1,43
61	to the environment and the way of living (life styles) of the learners.	3,67	1,2
62	to the resilience of the learners.	3,81	1,11
63	to those tasks which result from the framework, that are asked in practice.	4,78	0,99
64	to those ways of communication which are preferred of the learners.	4,09	1,36
65	to the interests of the learners and excites motivation.	4,43	0,92

Table 4 A Item 60-65 Adjustment

Results for productivity/utility

The means mostly are about „rather much“, for items 67 and 70 about the category “much”.

Productivity	My Programme...	4,71	0,61
66	helps the learners to gain more routine with the tools/instruments.	4,7	1,13
67	offers a line of orientation.	5,11	0,8
68	imparts key qualifications.	4,49	1,15
69	creates and improves contacts (e.g. to other learners, practitioners).	4,28	1,56
70	is goal oriented	4,93	0,82

Table 5 A Item 66-70 Productivity

Results on self motivation:

The means are about „rather much“ with a high variance for items 74 and 72. The differences between the respondents are very high.

Self-motivation	My Programme...	4,16	0,86
71	shows the learner especially the positive effects of what he/she has already learnt	4,06	1,02
72	offers also learning in a playful way	3,6	1,49
73	means also learning in a social way	4,34	1,1
74	is carried out without glancing too much at a certification.	3,91	1,63
75	promotes the learning rather in competition with oneself and not to others.	4,87	1,16

Table 6 A Item 71-75 Self-motivation

Results on development of learners' ability:
 The means are about "rather much" with a high variance for item 78. Again, there are high differences between the respondents:

Development	My Programme...	4,1	0,97
76	promotes the creativity of the learners.	4,18	1,11
77	helps to diminish fears of the learners.	4,13	0,98
78	strengthens the conflict abilities of the learners.	3,63	1,48
79	increases the communication abilities of the learners.	4,11	1,32
80	gives the learners a better self-esteem (self confidence).	4,12	1,37
81	promotes the decision-making ability of the learners.	4,4	1,12

Table 7 A Item 76-81 Development

Results on consistency:
 The means are between „rather much“ and „much“, higher than in the other categories. A low variance together with a rather high mean is for item 84.

Consistency	My Programme...	4,76	0,58
82	shows a close distinction/distribution between the various modi of blended learning on the basis of their different functionalities and possibilities.	4,4	1,09
83	takes care that the teaching people themselves are experienced in handling the electronic devices.	4,57	1,07
84	has no serious discrepancies between what is said and what is done.	4,94	0,69
85	takes care that the teaching people "live" what they are imparting.	5,05	0,91
86	has a high quality of verbal/audiovisual material.	4,39	1,06
87	delivers tasks which agree with the practical requirements.	5,08	0,97
88	gives learners as much room for manoeuvre as in professional practice	4,9	1,12

Table 8 A Item 82-88 Consistency

The overall mean for this inventory is 4,29, which is more than one standard deviation above the theoretical mean of the scale.
 One can observe that 2 sectors are quite above (half a standard deviation) this empirical mean, namely consistency and productivity, whereas all the others are around

one half of the standard deviation below this empirical mean. Compared to the theoretical mean the highest ones are about two standard deviations above, and the other ones about one standard deviation above as well.

There is evidence that the respondents are very different in the results of the self-rating, the means between them vary from a minimum of 2,67 to a maximum of 5,55.

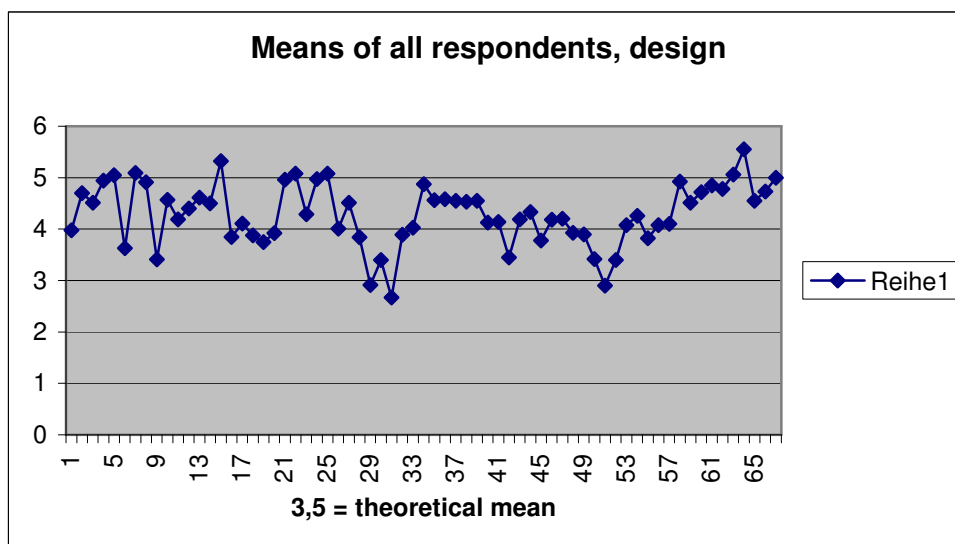


Figure 35 A Means of all respondents, design

Factor analysis on self-evaluation of quality of the didactic design:

A factor analysis (principal components analysis) of this part of the inventory was done. As can be seen in the table on explained variance, a component was found that was explaining 30,4% of the total variance:

Component	Total	% of variance	Cumulated %
1	12,163	30,409	30,409
2	4,233	10,583	40,992
3	2,570	6,426	47,418
4	2,433	6,083	53,501
5	2,156	5,389	58,891
6	1,907	4,768	63,658
7	1,368	3,419	67,078
8	1,280	3,199	70,277
9	1,122	2,804	73,081

Table 9 A Explained total variance concerning self-evaluation of didactic quality

As can be seen in the second table (matrix of components), this component had a leading item (N80, "My design gives the learners a better self-esteem (self confidence)") with which it correlated by 0,828. We interpreted this component with a name as a factor and called this "Orientation on learners' personality". This was continued and led to a second and third factor:

In the following the principal components⁶ are listed in columns in correlation with items

	components								
	1	2	3	4	5	6	7	8	9
N49	,725	-,270	-,031	-,129	-,096	,088	-,044	,067	,221
N50	,694	,286	,346	,037	,015	-,102	-,079	-,094	-,065
N51	,633	,061	,175	,005	,204	-,219	-,285	-,197	-,013
N52	,209	,569	-,032	-,378	,396	,063	-,192	-,041	-,162
N53	,261	,326	,375	,325	-,008	,230	-,163	-,126	-,158
N54	,604	-,269	-,193	-,016	-,002	,348	-,024	-,227	,276
N55	,269	-,196	-,176	,472	,196	-,345	-,342	,115	,113
N56	,140	,689	-,132	,267	-,272	,189	,283	-,082	,062
N57	,336	,578	,090	,233	-,198	,304	,276	,027	,054
N58	,125	-,340	-,302	,598	-,341	,286	-,133	,114	,126
N59	,620	,199	-,055	,448	-,129	-,007	,162	,014	-,163
N60	,603	-,148	,051	,330	-,167	-,466	,143	,031	,053
N61	,547	-,225	-,239	,006	,151	-,218	,273	-,339	-,080
N62	,767	-,332	-,213	,008	-,048	,090	,130	,007	,056
N63	,643	,285	-,148	-,007	,071	,148	-,110	-,173	,014
N64	,716	-,224	,208	,298	-,086	-,347	-,029	-,132	-,021
N65	,671	-,351	-,018	,243	,044	,162	-,019	,052	-,049
N66	,324	,143	,668	-,253	,082	,247	,278	-,010	,121
N67	,076	,664	-,033	,097	-,074	-,296	,023	-,026	,454
N68	,288	,459	-,467	-,535	-,129	-,016	-,044	,020	-,089
N69	,701	-,164	,188	-,078	-,241	,062	-,104	,214	,017
N70	-,039	,739	,069	,295	-,068	,203	,012	,184	-,134
N71	,686	,110	-,152	-,111	-,110	-,114	-,040	-,155	,021
N72	,702	-,227	,197	-,063	-,200	,353	-,027	-,128	-,057
N73	,796	-,041	,057	-,191	-,072	,053	-,163	-,085	-,177
N74	,170	-,220	-,021	,230	,519	,108	-,002	-,062	-,455
N75	,604	-,221	-,073	-,308	,128	-,087	,386	-,081	,098
N76	,695	-,131	,279	,038	-,022	,140	,054	-,131	-,127
N77	,631	,027	-,066	-,040	-,333	-,069	,206	,235	-,195
N78	,784	,202	-,156	-,217	-,196	-,157	-,146	,108	-,040
N79	,753	-,063	-,069	-,271	-,231	-,007	-,161	,174	-,258
N80	,828	,072	-,014	-,124	-,130	-,120	-,003	,241	-,053
N81	,500	,377	-,579	-,163	,084	,017	-,147	,119	,158
N82	,358	,397	,520	,002	,139	-,211	-,101	-,283	,229
N83	,299	,068	,474	-,076	,189	-,315	,108	,613	,015
N84	,460	-,033	-,284	,040	,390	-,216	,545	-,079	-,039
N85	,507	-,034	-,009	,156	,478	,055	-,035	,268	,213
N86	,333	-,453	,191	-,237	,255	,450	,036	,202	,296
N87	,288	,345	-,274	,281	,602	,249	,083	,226	-,075
N88	,701	,166	-,097	,126	,269	,129	-,249	-,093	,150

Table 10 A Factor analysis: Matrix of components

⁶ Only the components with a value more than 1 are listed in the matrix

First factor: can be called “Orientation on learners’ personality”

- *gives the learners a better self-esteem (self confidence)*
- *means also learning in a social way*
- *strengthens the conflict abilities of the learners*
- *resilience of the learners*
- *increases the communication abilities of the learners*

Second factor: can be called “Orientation on subject matter”

- *is goal oriented*
- *converts much “teaching time” into effective learning time*
- *offers a line of orientation*
- *leads to learning outcomes that are close to the aims*

Third factor: can be called “Handling of eLearning”

- *helps the learners to gain more routine with the tools/instruments*
- *negative: promotes the decision-making ability of the learners*
- *shows a close distinction/distribution between the various modi of blended learning on the basis of their different functionalities and possibilities*

Two orientations become visible:

- On the one side, factors 1 and 3 are orientations **to the learners** (their personality and how they learn),
- On the other side, factor 2 is an orientation **towards the results and efficiency** of the education.

Evaluation of the efficiency of blended learning courses:

How do the authors and producers of blended learning courses, but also other groups of persons, judge the effects of the didactic design, in the sense of an inspection evaluation.

Clarity: reliable and comprehensible performances
relatively high mean, low variance

Clarity	My programme shows clarity...	4,69	0,73
89	of learning steps/processes	5	0,67
90	of classification	4,27	1,46
91	of questions and assignments to the learners	4,79	0,91

Table 11 A Item 89-91 Clarity

Relevance and reference: imparting valid knowledge
mean above average, rather low variance

Relevance	My programme is relevant to	4,08	0,79
92	the subject/profession.	4,97	1,27
93	the further learning process.	3,7	0,96
94	the forthcoming examinations.	2,78	1,99
95	the learners’ situations	4,31	1,22
96	the learners’ future.	4,61	1,33

Table 12 A Item 92-96 Relevance

Structure and sequential order: imparting knowledge “in measured doses”
rather high mean, low variance

Structure	My programme...	4,11	0,74
97	resumes what is already known	3,18	1,25
98	gives accentuation of main points	4,7	0,93
99	gives time management.	3,99	1,06
100	gives space management (learning environment)	3,84	1,45
101	gives continuity	4,84	0,97

Table 13 A Item 97-101 Structure

Representational forms of instruction: using aids for learning and thinking
mean quite high, variance average

Representativeness	My programme uses	4,62	0,9
102	visualisation (images, transparencies e.g.).	4,82	1,04
103	examples.	4,96	1,1
104	analogies.	3,51	1,86
105	concrete experiences for learners.	4,81	1,32
106	reflection by the learners.	5	1,07

Table 14 A Item 102-106 Representativeness

Practising: application of knowledge
very high mean, quite low variance

Practising	My programme...	5,03	0,9
107	is providing knowledge in practice	4,96	1,05
108	has well defined assignments	4,64	1,05
109	has opportunities for practicing	5,25	1,16
110	offers insight into the practical application and usefulness	5,25	1,14

Table 15 A Item 107-110 Practising

Feedback: information about the learning process and one's personal status
quite high mean, low variance

Feedback	My programme feeds back	4,5	0,88
111	through praise and reproach	2,85	1,47
112	by products	3,34	1,75
113	by certifications	2,79	1,98
114	by the natural environment ("natura docet")	4,52	1,71

Table 16 A Item 111-114 Feedback

Further stimulus: perspectives for more than mere knowledge
mean above average, variance average

Further stimuli	My programme stimulates learners...	4,04	0,9
115	by consideration of learners' interests and needs	4,6	1,26
116	by teachers' enthusiasm.	4,64	1,09
117	with a certain irony and self-criticism	2,88	1,39

Table 17 A Item 115-117 Further stimuli

The overall mean for this inventory is 4,44, which is more than one and a half standard deviation above the theoretical mean of the scale. This mean is half of the standard deviation higher than it is in the self-evaluation of the design. One can observe that 1 sector (practising) is high and about one standard deviation even above this empirical mean, that 3 sectors are above the empirical mean (clarity, representativeness, feedback), whereas the others are nearly or around one standard deviation below this empirical mean. Compared to the theoretical mean the highest sector is about three standard deviations above, and most of the other ones about one to two standard deviation above as well.

Some items have a low mean and on the other side a high variance. This can be interpreted in such a way that mostly the respondents are denying, but some are also positive to this item. This is an indicator for improvement of the inventories: a formulation like

Feedback through praise and reproach	2,85	1,47
--------------------------------------	------	------

is perhaps not convenient in the context of further education of professionals.

There is evidence that the respondents are different in the results of the self-rating, but not so much to low rating like it was in the other domain (self-evaluating of design); their average means for the different sectors are between 3,18 and 5,34.

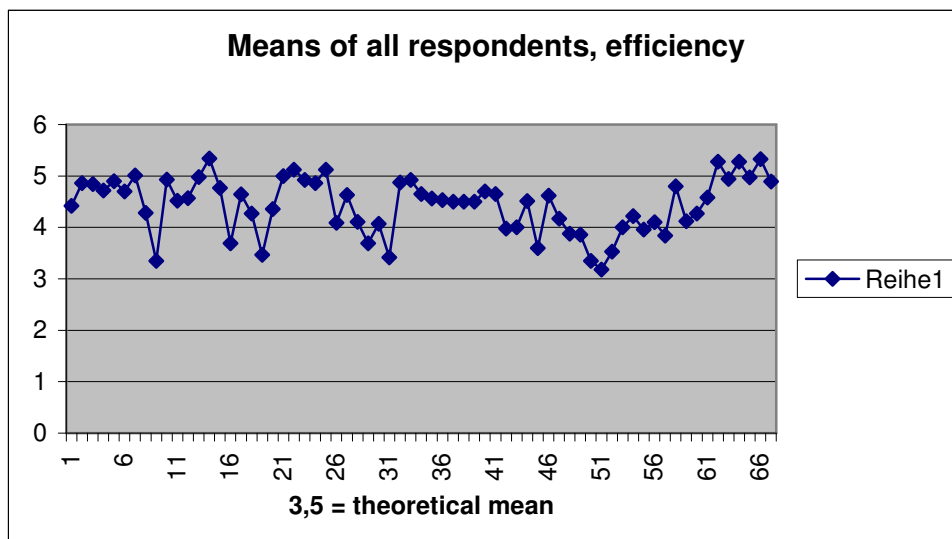


Figure 36 A Means of all respondents, efficiency

Factor Analysis on efficiency of the programme

The factor analysis of this part of the inventory has not a similar dominating principal component as the previous one. The first factor is explaining 24,8, the next 11,8, the third 8,0% of the variance

Components	Total	% of Variance	Cumulated %
1	7,198	24,821	24,821
2	3,431	11,830	36,652
3	2,316	7,986	44,637
4	2,068	7,132	51,770
5	1,941	6,692	58,462
6	1,636	5,641	64,102
7	1,401	4,829	68,931
8	1,209	4,169	73,100
9	1,099	3,789	76,889

Table 18 A Explained total variance concerning self-evaluation of efficiency of the programme

	Components								
	1	2	3	4	5	6	7	8	9
N89	,110	,489	-,304	-,239	,359	-,313	,015	-,247	,277
N90	,494	,284	,014	-,454	,148	-,339	,193	,098	,154
N91	,605	,086	-,232	,140	-,111	-,023	,303	-,209	-,200
N92	,583	,074	,501	,320	-,054	,084	-,056	-,202	,029
N93	,086	,232	-,018	-,451	-,168	,289	,616	,034	-,268
N94	-,022	,801	,353	-,166	,125	-,022	-,162	,106	,056
N95	,632	-,212	,086	-,365	-,214	-,036	-,092	,208	-,046
N96	,336	,157	,262	-,557	-,411	,137	-,188	-,088	-,171
N97	,185	,249	-,073	,488	-,320	,043	,319	,222	,038
N98	,243	,499	,173	,488	-,228	-,072	-,046	-,050	,039
N99	,288	,354	,540	,110	,117	,540	-,053	-,011	-,012
N100	,410	,221	-,526	,148	,037	,365	,007	-,080	-,345
N101	,654	,311	,076	,099	,215	,160	-,174	-,273	,133
N102	,511	-,183	-,124	-,346	,340	,229	,006	-,094	,220
N103	,382	,167	-,273	,308	-,063	-,262	-,045	,579	,133
N104	,690	,244	-,363	,104	-,078	-,228	-,095	,247	-,157
N105	,726	-,048	-,086	,035	-,063	,067	-,374	-,110	,020
N106	,718	-,057	,050	-,004	-,342	-,034	-,154	-,212	,039
N107	,593	-,158	,527	-,014	,191	-,065	-,049	,143	-,352
N108	,467	,379	,194	,151	,395	-,101	,444	-,192	,072
N109	,580	-,290	-,011	-,038	,484	,343	-,029	,204	-,055
N110	,653	-,178	,512	,131	,217	-,082	,147	,168	-,234
N111	-,213	,102	,394	,043	-,104	,670	,103	,242	,328
N112	-,377	-,115	,123	,253	,677	,121	-,175	,137	-,087
N113	,041	,901	,162	-,068	,093	-,050	-,184	,059	-,159
N114	,598	-,530	-,267	-,036	,215	-,217	,011	,013	-,121
N115	,770	-,193	-,036	,008	-,221	,134	-,271	,030	,247
N116	,647	-,127	-,002	-,152	-,039	,028	,273	,256	,440
N117	,356	-,411	,171	,355	-,074	-,073	,252	-,348	,150

Table 19 A Factor analysis: Matrix of components

First factor: Orientation to learners' understanding

- by consideration of learners' interests and needs
- concrete experiences for learners
- reflection by the learners
- analogies
- the learners' situations

Second factor: Challenges for learners

- by certifications
- the forthcoming examinations
- negative: by the natural environment („natura docet“)
- gives accentuation of main points

Third factor: Practical orientation

- negative: gives time management
- is providing knowledge in practice
- negative: gives space management (learning environment)
- offers insight into the practical application and usefulness

We see again a dualism between these factors and will come back to this in the context of the discussion.

Conclusion

It is remarkable that a rather clear correlation ($r=0,50$) exists between the knowledge of the respondents on their learners and learners context on the one side and the self-evaluation of the design on the other. Nearly the same result can be observed between this knowledge and self-evaluation of the effectiveness of the eLearning programme ($r=0,43$).

Both parts of the self-evaluation in this inventory (design and efficiency) show a very high correlation of $r=0,86$ to each other when the means of the categories (sectors) are compared.

A considerable amount of persons engaged in eLearning programmes (authors, designers, teachers und tutors) most likely do not have enough knowledge on their learners and the learning contexts of these. In the population of this study this was about one third. Another third we found to affirm much and very much knowledge on their learners and the learning contexts of these, the third part is in the middle of the range. Those who neglect enough knowledge have a clear tendency to give lower ratings to their designs and programmes.

A remarkable proportion of this population seems to judge their designs and programmes critically. Very high ratings are rather seldom. The typical rating is 4 on the scale of 6: “rather much”.

4.3 Learners

The “Inventories for Learners“ as the Basis for Individual Surveys

Based on the earlier developed “inventories for learners” the eL3 partners were supposed to realise their own studies in their respective blended learning courses. They were to choose questions from the inventories, which they judged relevant for the context of their courses. In 2005 and 2006 interviews took place in different blended learning courses. In some courses there were several interviews, in one course there was realised a group interview in addition to the questionnaires. The aim of the evaluation was to find out more about the learners’ behaviour in blended learning courses.

By means of the “inventories for learners“ the following central fields were analysed:

1. Context of the course
2. Personal characteristics of learners
3. Learning experiences in the course, benefit of methods
4. Resources for eLearning, computer skills and experiences
5. Personal motivation for doing the course, expectations and aims

In the first part, the title of the course, the location of the course as well as the dates of the survey were recorded.

In the second part, the demographic data of the learners were inquired (age, sex, education level, profession). Furthermore the individual preconditions for eLearning and presence learning were examined in relation to the “time for learning” and possible “restrictions”.

The third part mainly dealt with the evaluation of the different methods (face-to-face lessons, distance teaching, eLearning, practical projects and blended learning in general). The learners’ questionnaire which can be used before a course, especially was about the experience with different methods; the questionnaire after the course mainly inquired how the learners experienced and valued each method. The course participants were asked what they thought was helpful and supporting for learning and what caused problems.

The fourth part inquired computer knowledge and skills. The learners had to state how much experience they have with the different programmes or functions (word processing, calculation software, presentation software, internet, e-mail, web design, web publishing). Furthermore the personal preconditions or resources for eLearning were inquired (internet access, time planning for eLearning, support facilities in case of technical problems).

The fifth part inquired motives for the participation in the course as well as for expectations and targets. The questionnaire after the course collected the reasons regarding the reaching of targets and the fulfilment of expectations. Furthermore the satisfaction with the course in general was picked up. The participants were asked what they liked best, what they thought helpful and what they didn’t like or what caused problems. Eventually they were asked about future improvement opportunities.

Use of the “Inventories for Learners“

The eL3 partners were left the choice whether they would use the “inventories for the learners”, as they had jointly been developed in the network, to elaborate and apply questionnaires, or if they would use the inventories to add to existing instruments or even to use other collecting methods. All cases were chosen.

Some partners used questionnaires, which were merely arranged on the basis of the inventories, others only used parts or single questions from the inventories and thus extended their existing instruments (like about the tutorial guidance in e-learning). One partner used the inventories as the basis for a group interview, at which central fields of questions could be used as the basis for the guidelines for interviews.

The learners' inventories were used as:

- **Independent evaluation instruments**
(all or a selection of questions of the inventories were used)
- **Stimulus and additional material**
(single questions were integrated into existing instruments)
- **Basis for further collecting methods**
(content was used for the elaboration of interview guidelines)

The eL3 partners could either make available their data to the network, or report central results.

Results

This presentation of the results is based on interviews of different courses in Germany, France and Italy. In the framework of eL3 questionnaires of 205 learners from Germany, Italy and France were evaluated and repeatedly presented. The inventories are continuously used in further projects in different blended learning contexts.

Based on the results of the interviews in the different courses five central fields of subjects were identified, which, independent of course content, target group and course location, are typical for the learner behaviour in blended learning courses:

1. Place and time management for eLearning
2. Evaluation of single methods and interlocking of the methods
3. Monitoring by tutors and material
4. Technical equipment at home and at work
5. Computer skills and familiarity with computers

Context, background of the learners, of the course – the different evaluation phases and objectives

For the survey done with the data about the learners' behaviour in blended learning courses there were three different examination contexts, the main results of which are presented in the following:

Examination context/part population A:

In Germany, France and Italy learners were questioned at the end of their courses in different courses. The data of a total of 61 learners was collected and evaluated. This aimed at a comparison of learners' behaviour independent of any course content. The evaluation of these data can be found in the annex and represents the basis for the result tables in the following part of the report.

Examination context/part population B:

In France 80 learners' questionnaires were evaluated. The results were made available as a report. The courses were a matter of blended learning offers for unemployed and for employees of SMEs.

Examination context/part population C:

In a project in Germany dealing with renewable primary products interviews based on the "inventories for learners" were done in different blended learning courses. The central outcomes of these studies were taken into this report in order to describe the learners' behaviour in blended learning courses. A total of 64 learners were questioned here.

Place and time management for eLearning

When compiling the data from different courses, it became apparent that learners mainly do eLearning at home and during their private time. Most stated to have "little" or "no" time for eLearning. For different reasons it seems to be difficult for many learners to manage the time for eLearning and to stick to these times. eLearning happens some way "in between", whenever working hours and recreational activities allow it.

At home the learners have "little time" (41%) or "some time" (31%) for eLearning. Only 11% of those questioned stated that they have "a lot of time" for eLearning and after all 10% of the group said they had "no time at all" for eLearning.

Item 11	Situation at home concerning the time for eLearning	A lot of time available at home for eLearning = 11% Some time available at home for eLearning = 31% Little time available at home for eLearning = 41% No time available at home for eLearning = 10% No answer = 7%
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Table 20 L Item 11 Time for eLearning at home

54% of those questioned stated that there are obstacles regarding eLearning at home. Comments listed the following aspects: bad technical equipment, no internet access or utilisation of the computer by numerous family members. 43% of the learners stated to have no restrictions at home.

13	Restrictions at home	No = 43% Yes = 54% No answer = 3%
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Table 21 L Item 13 Restrictions at home

Compared to the situation at home (see item 11) there seems to be considerably less time for eLearning at work.

Item 16	Situation at work place concerning the time for eLearning	A lot of time available at work place for eLearning = 0% Some time available at work place for eLearning = 7% Little time available at work place for eLearning = 23% No time available at work place for eLearning = 62% No answer = 8%
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Table 22 L Item 16 Time for eLearning at work place

About half of those questioned (52%) stated to have restrictions regarding eLearning at work. The comments mainly list the aspects that several colleagues have to use one computer and there is little time for eLearning. But after all 33% of the learners state that there are no restrictions regarding eLearning at work.

Item 18	Restrictions at work place	No = 33% Yes = 52% No answer = 15%
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Table 23 L Item 18 Restrictions at work place

Learners mainly do eLearning in the evening after work (69%). Some find the time during the day (34%) and 25% learn at night. They give “shift work” as reason. ELearning mainly takes place before or after work during free time (multiple nominations were possible).

Item 54	Time for eLearning	Daytime = 34% Evening = 69% Night = 25%
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Table 24 L Item 54 Time for eLearning

To summarise it can be said that flexibility at eLearning is highly estimated by the learners, but at the same time it represents the biggest challenge. One main reason for the negative valuation is that most learners lack the time for learning.

It was reported in other contexts (France), that eLearning also takes place at work in cases of working persons. But all the same it is also difficult to allow oneself room for eLearning at work. Often it is the colleagues that are disturbing factors: In France a correlation of rhythm and working place was reported. They noticed that it's more difficult for people working in small units to respect the rhythm and the online meeting with their tutor because very often it's difficult to refuse to interrupt you when your colleagues can physically see you on your job place. Those frequent aspects interfere in the learning process and it occurs some derivations on the duration

of period planned for it. To prevent this, for example, we propose to professionals to send their planning of learning times to their colleagues, to tape the planning on their desk door, to alert the reception in the morning if they have a learning time during their working day.

Evaluation of single methods and interlocking of the methods

For most of the respondents face to face lessons are the central element of a blended learning course.

The questioned learners rated face to face lessons as very positive: 39% said that they liked face to face lessons “very much” and 46% liked the lessons.

Item 20	Positive about f2f	<u>Central aspects:</u> Contact to other people Exchanges in the group Interaction Communication Presence of the Teacher Questions can be answered immediately
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Table 25 L Item 20 Positive about f2f

eLearning

20% of the questioned learners liked the method eLearning “very much “ and about half liked eLearning (46%). But 15% of the respondents said they “didn’t like” and one “didn’t like it at all”. Compared to face to face lessons it is striking that eLearning is valued considerably worse than face to face lessons (compare. item 19).

Item 25	eLearning	I liked it very much = 20% I liked it = 46% It was OK for me = 10% I did not like it = 15% I did not like it at all = 2% No answer = 8%
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Table 26 L Item 25 Valuation of eLearning

The learners particularly like about eLearning that they are free as to the time and place of learning, that material is available any time and they can individually decide when to learn. Some experienced eLearning as a stimulating new method of learning and they enjoyed it.

Item 26	Positive about eLearning	<u>Central aspects:</u> Flexibility Always available Individual time management Ambitious/fun
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Table 27 L Item 26 Positive about eLearning

As negative aspects of eLearning it was particularly one group of respondents (course A) that stated a lacking use of the internet. Others criticised the cost caused by the use of the internet. Many stated not to have enough time for learning and that they missed the exchange with the group.

Item 27	Negative about eLearning	<u>Central aspects:</u> No internet access Costs for internet access Not enough time for learning No exchange/contact to the group
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Table 28 L Item Negative about eLearning

Practical projects

The method “practical projects” i.e. learning by one’s own projects, that are being tested in practice, was only done in the questionnaires by the German group. The practical projects are positively valued by the majority (67%). Some course participants stated that the method was “ok” for them.

Item 34	Project learning	I liked it very much = 8% I liked it = 67% It was OK for me = 25% I did not like it = 0% I did not like it at all = 0%
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Table 29 L Item Valuation of project learning

The combination of different methods is experienced and appreciated as diversified. Particularly in groups where the learners are familiar with computers, eLearning is valued as a good supplement to face to face lessons. Learners attach special importance to the fact that the methods are not isolated but well coordinated.

Blended learning

As to blended learning learners mainly judge the diversity of methods as positive. The respondents liked the combination and particularly the interlocking of the methods (one is building on the other).

Item 38	Positive about blended learning	<u>Central aspects:</u> Variety of methods, mixture Changes of methods (interplay of methods)
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Table 30 L Item 38 Positive about blended learning

Item 62	Reasons for satisfaction	<u>Central aspects:</u> a) Methods Good combination of methods Support from tutors b) Content Knowledge Input New ideas c) Atmosphere Good group of participants
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Table 31 L Item 62 Reasons for satisfaction

According to the respondents the exercises on the learning platform as well as the learning material were particularly helpful for learning. Besides the support by the tutors was essential for most of the learners. Many experienced the exchange with colleagues as enriching.

Item 64	The most beneficial	<u>Central aspects:</u> Exercise on the platform Materials/script Support of tutors Colleagues (exchange, working together)
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Table 32 L Item 64 The most beneficial

In France face to face preparation courses were organised when people needed the acquisition of basic computer skills before entering the course. All certifications are made in face to face mode. Project modality is optional and often proposed to professionals to improve the acquisition of those new abilities. Project learning is seldom applied by other partners.

Due to the experience of course managements, courses which mainly offer eLearning have to keep in mind that tutors or contact persons are available for those learners who don't feel comfortable with distance learning.

On the part of the teachers and trainers they have to pay attention that the methods complement one another and make a harmonic total concept.

Monitoring by tutors and material

The guidance by tutors and the availability of material for one's own studies is very important to the respondents. The tutorial guidance seems a central factor of success in eLearning. A large part of the learners gets into contact with the tutor once a week.

The learners got into contact with the tutor mainly by e-mails (77%), phone (21%) and via the forum on the respective learning platform.

Item 29	Favourite way to contact the tutor	Electronic Mail = 77% Phone = 21% Internet phone = 0% Chat = 3% Forum = 20%
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Table 33 L Item 29 Favourite way to contact the tutor

Item 30	Frequency contact to tutor	Once a week = 62% Twice a week = 3% Three times a week = 0% Others = 28% No answer = 7%
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Table 34 L Item 30 Frequency contact to tutor

Throughout the learners valued their tutors as very open-minded, cooperative and supportive.

Item 31	Tutor	Very receptive = 69% Receptive = 28% Quite receptive = 0% Not very receptive = 0% Others = 0% No answer = 3%
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Table 35 L Item 31 Valuation of tutors

The central role of the tutors was also confirmed in courses in France (n = 80). Interaction between learners and tutors is vital according to the experience of the project management. Tutors support the learning process and also help with technical problems. Tutors do the first steps with the learners to discover the LMS in those courses which mainly work with eLearning later. During the entire course learners are contacted regularly, even if they don't ask for help themselves.

Material that was handed out for self-studies was important for many, especially if there were tests to be done. Learners liked the plenitude of material and training possibilities which they could use with eLearning, but they also attached importance to printed scripts and learning material.

Technical equipment at home and at work

85% of the respondents do have an internet access at home. Anyhow 10% don't have internet at home.

Item 50	Internet access at home	Yes = 85% No = 10% Don't know = 0% No answer = 5%
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Table 36 L Item 50 Internet access at home

At work 59% of the respondents are able to use internet. But 34% don't have any opportunity for the use of internet at work.

Item 51	Internet access at work place	Yes = 59% No = 34% Don't know = 0% No answer = 7%
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Table 37 L Item 51 Internet access at work place

Most of the learners can use fast internet connections (74%). A percentage of 23% only has a slow internet connection (modem).

Item 53	Kind of internet access	High speed = 74% Low speed = 23% Don't know = 0% No answer = 3%
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Table 38 L Item 53 Kind of internet access

The interview in France shows (n = 80) that the technological equipment in SMEs has improved a lot compared to five years ago. The learners of these courses didn't suffer any technological restrictions as far as eLearning was concerned.

Computer skills and familiarity with computers

According to the learners' own thinking they have little or even much experience with computers.

According to the learners more than half of them has "much experience" with computers and a smaller part of 41% thinks to have "little experience". Only 3% state to have "no experience" with computers.

Item 40	Previous PC experience	Yes, a lot = 54% Yes, a little = 41% No = 3% No answer = 2%
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Table 39 L Item 40 Previous PC experience

It is text processing, internet and e-mailing that learners have least problems with. In some target groups of the health and social sector there seems to be the case that there is very little experience with computers. Then this is a fundamental obstacle to eLearning. In groups, that use computers for their daily work and during free time, eLearning is used much more straightforward. The degree of familiarity in dealing with computers seems to be a vital precondition for the acceptance and use of eLearning services.

The interviews in the environmental courses confirmed the tendency, that many participants are only little experienced with computers. The learners are familiar with some programmes but are not used to work with computers for eLearning. In this group it seemed particularly important that learners get a thorough introduction into the LMS and that there is a continuous guidance.

In France like in Germany the level of abilities for using basic computer possibilities is increasing.

All French learners have used a computer in a professional context or at home, with friends – download/upload, use of mouse, keyboard, headphone are familiar to those who intend to enter in our course. Few learners ask for the face to face phase (less than 10%) where they can be helped in case of basic computer skills insufficiencies. Because the modalities are more flexible about localisation, duration, rhythm they make the effort to increase the level of their computer skills to have a better benefit in a more convenient way. For those who were less comfortable with ICT, the eLearning phase has the double effect to train on the contents defined and on the computer skills.

5. Discussion and Recommendations

Preliminary remark

In this chapter we will discuss the results of the assessments of the stakeholders, draw conclusions in respect to blended learning and combine them to elaborate acting recommendations.

For evaluation purposes we used a specially designed grid, the so called “Blended Learning Matrix” to localise results and interpretations concerning different process factors relevant to blended learning.

We combined the findings in reference to four major and four sub-factors:

1. Setting
 - 1.1 Time
 - 1.2 Resources
 - 1.3 Personnel
 - 1.4 Target groups
2. Demands of stakeholders (including transfer)
3. Knowledge and competencies
4. Processes

The BL-matrix has a double function: it serves as evaluation grid and as planning instrument.

Based on the matrix and the central blended learning components we developed a comprehensive toolbox for self-evaluation and planning purposes for guidance and support for blended learning designers.

The toolbox is annexed to this report.

In the following the results will be discussed referring to the decisive factors and to the three stakeholder groups.

1. Setting

1.1 Time

Decision makers:

Reducing costs for the absence of learners from their workplace is the most important criterion for the introduction of blended learning.

This is a very strong cause for blended learning because it is a genuine method for avoiding too much absence from work.

On the other hand many of the decision makers do not consider the working place as a learning place as well, which is highly contradictory to the first statement and is the major source of conflict with learners.

Authors:

Unfortunately only 33% of the authors know how much time the learners will be able to spend (item 41) and 67% did not know when the learners would have time to learn. Of course a lack of available time from the side of the learners may cause severe disturbances in the delivery of an eLearning course, especially in synchronous modality.

Learners:

Learners are reported to suffer from a lack of learning time at their work place and disturbances while learning at home. 69% were learning in the evening and 25% during night time. In a group interview carried out in a German blended learning course nearly 25% of the participants felt excessive demands due to insufficient learning time parallel to their job.

At their workplace the respondents usually have hardly any time for eLearning, thus learning has to be shifted to free time. This result was also found out by West et al (2006)⁷ in their research: For the learners of the study it was very difficult to spare the time for learning during working hours. For the successful termination of a learning programme participants have to spend a lot of their own time, what means quite some discipline.

Very often, the instructional professionals, either authors, designers, teachers or tutors, are situated in this area of conflict.

Recommendations:

Clear decisions should be taken to avoid a situation where further education is seen as a matter of private time investment.

As active learning time is one of the most important process variables in learning and teaching it should be regarded as a key question in blended learning design.

Be aware that it is clear how the components of BL synchronise the different time needs.

There could be a mutual compensation, mostly in the mode of eLearning, because there often is much variety and there are lower costs: whether a learner is studying one or three hours in the EL environment is less important for the delivery system (only much costs concerning his/her working time, if he/she does it during that).

Learners should be supported when organising their time for eLearning.

It showed that most learners are doing eLearning at home during their free time. Here they have to face a couple of difficulties. The course management as well as the tutors are able to help the learners organise their learning times.

Working people also do eLearning at their workplaces as long as their daily routine allows. Tutors and instructors can also give aid in this matter by recommending their learners for example to inform their colleagues about individual learning times which would allow certain periods of undisturbed learning.

⁷ West, B.J.M.; Macduff, C.; McBain, M. & Gass, J. (2006). Evaluation of a national educational programme for healthcare workers on prevention and control of healthcare associated infections Journal of Research in Nursing.

1.2 Resources

Decision makers:

As far as decision makers are concerned, more than half of the respondents report on a high IT standard, whereas about a quarter of respondents report on a low IT standard. In this quarter an investment into better IT equipment should be considered in case of a decision for eLearning.

In other cases there are severe doubts about the availability of IT equipment for learning purposes in reality. As already stated above, the working place is not considered to be the learning place as well, which is the “natural setting” of at least some blended learning offers that try to combine working and learning.

Authors:

Many authors are to a high degree convinced to deliver high class visualised learning materials which is highly appreciated in enterprises. Very often it is reported that the enterprises (also big hospitals) do not have appropriate means to administrate these materials and deliver them to their learners (LMS and KMS).

As far as knowledge management is concerned only few (and large scale) organisations are ready to adopt innovative systems. Not even LMS are well known or popular in large scale hospitals. Consequently there must be a larger dissemination and a clear valorisation strategy showing the added value for the organisations. This can only be achieved by creating awareness and by educating the respective stakeholders, namely decision makers and (potential) internal and external training personnel.

Learners:

IT equipment at home is not available for 25% of the respondents. Only 60% report about a computer at the work place.

52% of learners reported restrictions while using a computer for learning purposes because they had to share it with other colleagues.

This is why we must look critically on the statement of decision makers about good IT equipment – priority 1 is the working context. Very often learning with computers is not acknowledged as being important.

West & McDuff (2004)⁸ also found out in their study, that a considerable part of the learners aren't able to use any internet access at work for learning.

As a consequence a well designed blended learning offer may be threatened by banal operational availability of internet based computer equipment.

For educational personnel it is evident to have information before the course to be able to adapt design, sequencing and timing to the learners' demands.

It cannot be taken for granted that all learners are equipped with an internet access. At home as well as at work the case arises that learners can't use the internet. Evidently this means a significant restriction for eLearning.

⁸ West, B.J.M. & Macduff, C.N. (2004). Evaluation of Family Health Nursing in Education and Practice. HMSO Edinburgh.

Recommendations:

Blended learning requires a good technological equipment

Particularly for eLearning at home as well as at work learners need good technological equipment, i.e. a computer with a fast internet connection. Despite the fact that the advancing technological development makes it more and more self-evident, that private homes, SMEs and larger enterprises are well equipped technologically, instructors and tutors should make sure whether all learners really have sufficient possibilities.

When introducing web-based information, knowledge or learning systems in an enterprise, a situation of doubling should be avoided, i.e. having two parallel systems. Better would be a gradual innovation and shifting from traditional ways step-by-step. There have been numerous reports on the success in reducing training costs by starting an eLearning environment, if the number of learners is large enough. But in normal practice it is a very tricky thing to calculate training costs exactly. With the concept of a blended learning environment it is not possible to divide in an instructor-led situation vs. a technology-led one; with blended learning you need some amount of both, for ex. in addition to media the tutors who overtake the pedagogical functions (motivating, correcting etc.) which are of more importance when you have inexperienced learners⁹.

1.3 Personnel

Decision makers did not refer much to the questions related to teaching personnel but it is obvious that there is a strong demand for the internal training of personnel (item 58). Nearly 75% of the DM think that trainers' training is useful or highly desirable in their institutions.

Authors:

Unfortunately a relevant part of training personnel showed uncertainties concerning relevant properties of their learners, their resources, demands and needs.

There is a rather strong correlation between knowledge about the learners and their context of learning (the degree of information about the target group and its learning situation on the one side and on the other side positive references related to course design ($r=0.5$) and judgement of the efficiency of the programme ($r=0,43$)).

The researched instructors did not differentiate much between the educators' roles. 33 of the 67 respondents were acting in all 4 roles, 16 are or were doing eLearning work in three, 12 in two roles and 6 in only one role.

Obviously training professionals still see themselves being "all-rounder", covering all tasks from content production, design, delivery and also learners' attendance.

Both observations are indicators for a demand of special skills and competencies in relation to blended learning.

Annexed to this evaluation report and additional to the enclosed acting recommendations we provide didactical guidelines in a manual which is published on the blinc platform.

Teachers' training is also a strong point for blended learning. Internal teachers could be appointed to act as tutors or helpers and developers for content of internal materi-

⁹ http://www.e-learningguru.com/articles/art5_1.htm for further general information
http://www.e-learningguru.com/articles/art5_2.htm for a very concrete calculation.

als and media. Internal trainers could care for organisation matters, for an economic use and better quality of learning materials, introduction and monitoring of internal training programmes and also act as contact points in vocational blended learning programmes.

Learners:

Blended learning success is dependent on the availability and competence of the educational personnel. Interaction, also in eLearning phases, is vital for the course. ELearning lessons must be accompanied in a comfortable way, with a fitting sequence of online sessions and with suitable and available contact options. These are the major results from the reported learners' assessments based on a large variety of different asynchronous and synchronous blended learning offers.

In all evaluated courses an appropriate tutoring is one of the major factors for the satisfaction in blended learning courses from the learners' point of view.

The coordinating personnel (designers, planners) must care for a smooth coordination and for a well planned sequencing of f2f and remote sessions. Apart from technical problems most of the complaints of the learners referred to missing contact/exchange and problems with timing, either available learning time or sequencing (rhythm of online sessions). This is why the educators must have a clear picture of each of their learners.

Recommendations:

The guidance of the learners is the key to success

The different courses have shown that learners much appreciate the support by tutors or other training staff. Learners feel encouraged and motivated to do eLearning if they have learning attendance and contact persons. It is important for learners to be able to reach their tutors/instructors via familiar communication channels like e-mail and phone.

One should pay much attention to a conscientious allocation of responsibilities of the teaching and supporting personnel on the one side, and good matching between these persons on the other side. There is much danger that work might be done repeatedly or that one group impedes the intentions of another one; e.g. instructors and tutors should convert the products of the authors.

Generally spoken, the skills and qualifications of teachers, designers and tutors concerning didactic competencies in blended learning programmes have to be improved and they should be more transparent and comprehensible.

1.4. Target groups

Decision makers:

From the side of decision makers, it can be stated that the strongest demand for training can be expected to be on the core personnel, i.e. staff from the operational level, e.g. doctors and nurses. Due to structural changes in the health sector there is also a strong demand for further qualification in medium positions (e.g. nurses to department leaders).

The question is: Do decision makers know their learners and how do they value their abilities crucial to blended learning?

As far as the motivation of the learners is concerned half of the respondents give no answer, they do not know the motivational situation; from those who seem to know it, the answer is mostly “average” whereas “high” is rather seldom.

Concerning the learners’ ability for self-learning one third of the answers is “low”, only one fifth is “high”. This seems to be a reality which is to be considered very much in decisions for eLearning.

Authors:

59% of the educational personnel affirmed to know the educational and employment backgrounds of their learners, even 73% the motives for learning, still 53% the cultural backgrounds and attitudes, but only 22% knew about learning styles and 19% the preferences in learning arrangements.

This might not be critical in pure f2f lessons with experienced teachers but it is definitely a threat to eLearning and blended learning offers. According to our findings one of the reasons why learners were unsatisfied in blended learning courses was that learning offers did not fit in their personal learning styles and their favourite learning method. eLearning affords high self-learning abilities – and these are only known to around 20% of the respondents.

Again, this points at a special qualification for blended learning instructors with a reasonable pre-assessment of the learners’ community, for trainers, tutors as well as for designers who should care for multiple learning pathways for different learners.

Learners:

The evaluation referred to learners’ groups that varied to a large extent in technical pre-knowledge. It must be considered that learners with only little experience with IT need more time to get to know the necessary software and for accessing the contents. Not all potential learners are immediately ready for this new methodology, that’s why it may be necessary to have an accurate preparation before the real delivery of courses.

In small and medium enterprises and public administrations there still are many employees with little competencies as to computers. But computer based learning calls for basic knowledge particularly in this area. A low affinity towards technology combined with the “compulsion” to learn at the computer evokes additional causes of friction outside the proper learning arrangement. The concept of blended learning relativises the tendency to technical aversion. Those learners who less like to use the computer, who learn independently with printouts, or prefer face to face phases at least partly get their type of learner promoted.¹⁰

¹⁰ Baume, M.; Hummel, S.; Krcmar, H. (2004). Factors for Success for Blended Learning – Concepts. Experiences gained in the evaluation of Webtrain. (p. 9).

[http://www.winfobase.de/lehrstuhl/publikat.nsf/intern01/7E2D04A6544CE5D0C1256F5500497087/\\$FILE/04-17.pdf](http://www.winfobase.de/lehrstuhl/publikat.nsf/intern01/7E2D04A6544CE5D0C1256F5500497087/$FILE/04-17.pdf)

Recommendations

Presence phases cannot completely be replaced by eLearning.

Mainly at the beginning of a blended learning course it is important to give a thorough introduction into the LMS to the learners. Interaction with instructors and tutors is indispensable and can best be realised by meeting in person at the beginning. During a course the learners particularly appreciate to learn with a group. The exchange with colleagues and social aspects of face to face lessons are important and indispensable to learners. Blended learning offers the advantage of combining different learning methods.

If learners prefer a systematic, guided, “secure” learning (“serialistic”¹¹ learners), they will learn better with well prepared and structured programmes, maybe with an instructor in presence, maybe with eLearning with tutors to offer guidance and help. If they are open-minded to the methods how to learn and have much independency (“holistic learners” try to build up their own structure) one must give them an alternative to narrow guidance. In a BL-situation one can offer opportunities for both types (for ex. open material (background information) for discovery learning for holistic learners and CBT-type programmed material for serialistic learners).

Learners play the most important role in education programmes; their habits, motivations, intentions, capabilities are more deciding for the success of a programme than technical devices. So let them take part in planning and decision-making whenever possible and give them a realistic feeling that the programme is made for them and their convenience.

Blended learning and especially eLearning require a certain self-directedness of the learners; if this is not given, it might be improved by more parts with tutors and/or presence learning.

As far as the transfer into practice is concerned educational projects may play an important role in 3rd sector courses. But also in these projects, the course designers must put a strong emphasis on support and (dependent on the learners’ types) on the guidance of the learners in their projects.

¹¹ Pask, G. 1976. Styles and strategies of learning. British Journal of Educational Psychology, 46, 128-148.

2. Demands of stakeholders including transfer

Decision makers:

Reducing costs for the absence of learners from workplace is the major motivation for the introduction of computer aided learning, thus creating a systematic conflict with the demands of the learners.

There is a tendency to reduce (paid) learning time by eLearning because of economic reasons.

As far as contents is concerned a high quantity of tailor made learning offers for scientific/expert knowledge is required in the healthcare sector, especially in hospitals. According to the managing personnel staff members only have comparatively low competencies concerning IT skills (72% rarely or less). Nevertheless, they merely state a minor demand of IT-courses.

40% of decision makers are not informed about knowledge management systems. For most of the respondents from small organisations in the 3rd sector pure eLearning is unknown territory. 10% of decision makers (22% in non-hospitals) do not know learning management systems.

As stated in chapter 3 this lack of knowledge is contradictory to their demand of integrating learning in the organisation, for instance by introducing it into the enterprise's quality management.

As previous projects have shown there is a high potential in interconnecting management structures and learning offers. For blended learning providers the combination of BL with QM-systems is an attractive option as far as decision makers are concerned¹². Apart from that it is also interesting to transport rather "difficult" issues like gender mainstreaming with QM¹³.

Adaptability of contents is possible, say 90% of decision makers. The transferability speaks for eLearning, blended learning and knowledge management. Obviously, a reasonable part of the decision makers should have a deeper insight in these topics.

It is also very astonishing that decision makers from hospitals don't consider clients as learning groups in their enterprises.

There could be new potentials for customer care and for additional offers from the side of the healthcare companies.

Authors:

In this research there had not been a direct question to the authors concerning their demands, but two indications are observed.

One is the assumption that the category in the inventory's parts which has been rated with the highest scores may be interpreted not only in the sense of the self-judgement (what they meant as best of their works) but also in the sense of their **wishes and aspirations** (what they wanted as best of their works).

¹² Scholze, T., Kruse, S. 2004, Layman Report on the Project IEM in hospitals, 2004, http://www.blinc-eu.org/uploads/media/Layman_ iem.pdf

¹³ <http://www.oasis-europa.org> for further information
<http://prokonsens.q21.de/> for further information

The sector “Practising and application of knowledge“ clearly had the highest ratings: a mean of 5,25 (in a scale from 1 to 6) was observed for these two items: ”Opportunities for practising“ and ”Insight into the practical application and usefulness“.

According to the interpretation mentioned above, orientation towards practice would be the most important demand of the respondents.

Another indication which supports this interpretation comes from the results of factor analyses in the parts “Self-evaluation of design“ and “Self-evaluation of efficiency“.

In the second analysis a factor was found which was called: “Practical orientation“.

Learners:

Motives and demands differ to a large extent.

According to our observations those learners who are sent by their employers or who are heading for a formal certification need more learning support. This may be due to their extrinsic motivation situation because in contrast other learners, who opted voluntarily (without external pressure) for a blended learning course, learned in a more creative and self directed way (statement based on a group interview in the course of a blended learning project offering optional certification at the German Chamber of Commerce that was mainly prepared via eLearning modality¹⁴).

Recommendations:

There is much probability that demands are conflicting - to avoid severe conflicts or to have a chance to solve them, make provisions for an insight into the situation, needs, interests and potentials of all participating groups and institutions as well as an analysis on the standards of science and professions and the legal and administrative norms and regularities. Then it will be easier to try a matching between these. Meanwhile, in the form of supervision and mediation, there exist usable and helpful methodological approaches which can be utilised in a more or less professionalised way. And, by now a large amount of instruments¹⁵ exist with which one is able to assess such demands from the various groups

¹⁴ Project of reference: Fit for Change 2004-2005, <http://fitforchange.q21.de>

¹⁵ see for ex. <http://www.trainingplace.com/building.htm>

3. Knowledge and Competencies

Decision makers:

As far as content is concerned there is a large variety of different subjects which favour modular learning offers. Most of the decision makers ask for both theoretical and practical knowledge, for scientific/expert knowledge but also to a high degree for communicative and managerial contents.

Especially the latter require f2f and practical instructions and can be easily completed with eLearning components that correspond to the training demands of the target groups in the healthcare and social sector.

IT is of minor importance in the 3rd sector. It is remarkable that, despite the obvious lack of IT skills of the personnel, there isn't a strong wish for training in this area.

This is again a conflicting point related to the learners' needs in respect to the handling of IT-equipment, being especially important for blended learning.

An explanation would be the shortage of available time and the prevalence of other, more urgent trainings especially in the healthcare sector¹⁶.

A high quantity of tailor made learning offers for scientific/expert knowledge is required in the healthcare sector, especially in hospitals.

As 85-91% of the decision makers consider communicative skills as average or highly important blended methodology seems especially appropriate for both hospitals and other 3rd sector enterprises, especially in combination with project learning.

Authors:

Knowledge and competencies had not been a genuine part of the interrogation of authors. But from the responses to the inventory parts on self-evaluations of design and programme there may be some clues to their own preferences. We suggest that the criteria for self-evaluation, we found in the factor analyses, may also be seen as a concept of the authors on key qualifications ("soft skills"): "Orientation on learners' personality", "Handling of eLearning", "Orientation to learners' understanding". These are similar factors in the sense that they reveal a strong learner orientation of the authors. But we see similarities between other factors, namely "Orientation on subject matter", "Challenges for learners" and "Practical orientation", which are aligned to the objective demands, determined by the system.

These two sources for orientation reveal an old discussion in theories on educational professions: the antagonism between learner and society (or dominant forces in the society) which educators feel. Christian Caselmann called these conflicting orientations „paidotroph“ and „logothroph“¹⁷.

It is not astonishing to find this pattern again in a study on modern educational settings. We think it should be regarded and discussed, to get a clearer insight into the authors' interpretation of knowledge and competencies which they have or try to convey.

Learners:

Most of the learners have previous experiences with computers and they have basic competencies in using several programmes and software. Nevertheless, there are learners who are not familiar with using the computer for studying which is a barrier for eLearning.

¹⁶ Eichhorst, M. 2006. Blended Learning im Gesundheitswesen. <http://www.blinc-eu.org/1160/>

¹⁷ Caselmann, C. 1949. Wesensformen des Lehrers. Versuch einer Typenlehre. Stuttgart .

The tendency that learners who are little familiar with computers hardly use eLearning offers, also shows in the study of Baume, Hummel & Krcmar (2004)¹⁸. Learners had little competencies for computers and therefore eLearning was badly received. Participants mainly printed out material, apart from that the computers were hardly used for learning.

In the study of Beutner (2004)¹⁹ it was confirmed that certain target groups not necessarily have the required competencies for working with the computer. Talks with doctors and physician assistants showed that one can expect higher barriers in the training fields of health care than in commercial areas and affiliated jobs that require training, because it is rather social and medical aspects being in the focus.

Competencies for eLearning cannot be taken for granted, as was also shown in the study by Woywode and Dittler (2006)²⁰. The students questioned were basically open-minded towards eLearning, but the majority (68%) is inexperienced with eLearning applications in general as well as with learning platforms (75%) specifically.

Recommendations

Familiarity with computers facilitates eLearning.

According to the results of the studies the acceptance of eLearning highly depends on how familiar the learners are with computers. ELearning can only be successful if the learners accept the medium computer or internet. As a consequence it is important for instructors, teachers as well as for decision makers to clarify in advance which competencies the learners have regarding the handling of computers and how familiar they are with information search and learning by computers. Thus a thorough introduction into how to work with information technologies can also lead groups with little computer skills to enjoy learning with computers and to acquire new competencies²¹.

Knowledge always exists per se. But in education programmes it has to be vitalised in such a form that it is useful for developing competencies. The differentiation between the various kinds of knowledge also helps to decide whether a really profound theoretical knowledge will be necessary and perhaps an orientation might be enough, or whether acting knowledge might be more important than a theoretical one.

If there are mostly cognitive functions to be trained, eLearning might have an advantage, provided there are good materials and designs; a high amount of affective and

¹⁸ Baume, M.; Hummel, S.; Krcmar, H. (2004). Factors for Success for Blended Learning – Concepts. Experiences gained in the evaluation of Webtrain.
[http://www.winfobase.de/lehrstuhl/publikat.nsf/intern01/7E2D04A6544CE5D0C1256F5500497087/\\$FILE/04-17.pdf](http://www.winfobase.de/lehrstuhl/publikat.nsf/intern01/7E2D04A6544CE5D0C1256F5500497087/$FILE/04-17.pdf)

¹⁹ Beutner, M. (2004). LearnART – Multimedia Learning Units for an Active and Reactive Use in the Training of Physician Assistants. A Project Overview. In: Kölner Zeitschrift für Wirtschaft und Pädagogik. 19. Jg. 2004, Heft 37, p.15-38.

²⁰ Woywode, M. & Dittler, U. (2006). Evaluation of the University-wide Learning Platform FELIX at the FH Furtwangen.
<http://www.fh-furtwangen.de/export/system/galleries/download/msc/FELIX-Evaluation.pdf>

²¹ Scholze, T. (2005) The Role of e-Learning for Training in Institutions of The Third Sector,
http://www.elearningeuropa.info/directory/index.php?page=doc&doc_id=5992&doclng=6

motoric/pragmatic functions at least requires blended learning with special persons (tutors) and training parts (exercises).

This differentiation helps to decide upon the level of attaining certain competencies and to see whether there might be transfer effects.

Learners with a low IT competence may have a lower self-reliance when studying in an IT environment. In this case it is important to secure better IT competencies at first.

4. Processes

Decision makers:

From the side of decision makers there are different preferences for a blended approach. For instance there is a high preference for theoretical and practical knowledge. As far as organisational processes are concerned there is an “undiscovered potential” of KMS and LMS, also in big hospitals.

BUT: Decision makers in hospitals do not consider learning at the work place whereas for other organisations nearly 90% of the decision makers opt for average or high potential.

One of the first results of empirical research on eLearning was that many learners missed the social environment of training courses, mainly when they had to carry out learning activities on their own in their leisure time. This interest can be a motive for blended learning if one sees the positive aspects of it and is trying to develop learning situations with a good atmosphere.

According to the results of the studies it is important, particularly at the beginning of a blended learning course, to provide a thorough introduction (into the LMS) for the learners. Interaction with the teachers and instructors is indispensable and can be managed by meeting in person right at the beginning. During a course the learners particularly appreciate learning in a group. The exchange with colleagues and social aspects of face to face lessons are important and irreplaceable to the learners.

Blended learning offers the advantage to combine different learning methods. This is all the more successful the more the three groups of stakeholders are intertwined and harmonise their needs:

Learners are supposed to learn and to work in different learning modalities, the decision makers have to care for a suitable learning environment and the educational staffs have to get utmost information on learners and learning circumstances.

Learners:

For most of the learners the guidance by tutors during the learning process is very important. Generally the tutors were contacted once a week, whereat they mainly chose familiar channels of communication like e-mail and phone. One reason often mentioned for the satisfaction with a course was “dialogue with the tutors” or “support by tutors”. Especially for eLearning it seems to be a fundamental factor for the learning success to have a contact person.

Janet MacDonald (2006)²² reports of her experiences in Universities and how important it is to support students, who do eLearning or distance learning tutorially. Based on 50 case studies she identified different strategies for the guidance of learners in their learning process.

Authors:

One of the most essential results from the authors' inventories was the unexpectedly high correlation between the knowledge of the respondents about their learners and the learning situations of those on the one hand and the self-appraisal of design and programme on the other hand.

What might be the reason that those questioned with little knowledge were the ones to state little quality data?

It seems logical that lesser knowledge determine lesser qualities.

But it might also be more self-critical judgements or more demanding standards that lead to a more negative interpretation of quality.

If the latter be the case, this would also be quite remarkable because it would mean that these views of the respondents arouse in the course of the interviews.

The confession not to have enough competencies would have led to a more critical dealing with one's own offers (according to the principle: "Unfortunately I do know too little about my learners, thus my product cannot have been too good.(").

So maybe there might have been reflections and learning effects when answering the questions caused by the chronology or the succession, which wouldn't have occurred if the succession had been vice versa (I first valuate my products and do the knowledge questions accordingly). In any case this probably is a sign for the sincerity and truthfulness of the respondents, that they didn't produce an internal contradiction.

And the question arouses, whether those authors who show little knowledge on their learners and the context of these, may perhaps also have little knowledge and competencies for their educational work

This concluding thoughts support our approach, to use the inventories not exclusively in the sense of an analytical and assumption checking research, but as cause for self reflection and self evaluation.

Following this pattern, the evaluation and auto-evaluation instruments as developed in eL3 have been applied in different projects since 2006, they can be found in the annex of this report. Based on this a European further training course for blended learning designers will be realised for the first time in 2007.

²² MacDonald, J. (2006). Blended Learning and Online Tutoring. A Good Practice Guide. Gower Publishing Company.

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This study will be continued – incoming data in the blinc online questionnaires will be continuously assessed and flow into a future evaluation part 2.

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