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Germany

Report on the situation in e-learning in Germany

Focus: Socio-cultural aspects and e-contents

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ABSTRACT

This report deals with the situation of e-learning in Germany. It describes the background of the educational system in Germany and policies for funding and introducing e-learning in the public as well as in the private sector. One particular focus of this report is the socio-cultural context of e-learning and e-content in Germany, shown by several examples. The report concludes with an outlook on future trends.

Keywords: Cultural aspects, e-Learning, e-content.

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1 Introduction

In the late nineties, there have been significant developments in computer technology. With the increased use of modern computer and communication technologies, e-learning has become a new buzzword in Germany. According to Ross (2004), many implementations of e-learning were found in companies. They were dedicated to providing further on the job training for the company's employees. Also educational institutions, such as schools or universities, were highly optimistic about the potential of this new kind of learning. There was the hope of being able to deliver courses of higher quality to more students at less expense. In short, e-learning was associated with very high expectations. It was considered to be a flexible, efficient and relatively cost-effective style of learning (see also Ertl/Mandl/Winkler 2006).

The expectations of companies regarding e-learning varied and reflected the optimism companies had, when this new technology was launched. The opportunity for flexible learning, which is independent of time and space, was rated the highest in terms of the companies' expectations (Haben 2002; Küpper/Markart 2001). The second priority was the potential for applying e-learning as a time-saving mechanism. E-learning's ability to facilitate self-directed learning ranked third. This ranked even higher than the optimism concerning a reduction in training costs when using e-learning. However, the advantage of a higher quality of learning had the lowest priority in the ranking of the companies' expectations. Besides that, a study disclosed that only a third of the major companies used e-learning (Harhoff/Küpper 2002).

After this initial hyping up for e-learning, there was a time of delusion and reservations. They resulted from problems with the manner, in which this new kind of learning was implemented. Besides underestimating of the expense of e-learning, the lack of employee acceptance was one of the problems (see Bürg/Kronburger/Mandl 2004; Küpper/Markart 2001). A further reason cited by the companies was the lack of high quality e-learning courses offered by external providers. Furthermore, the courses available mainly covered IT applications, specific business topics, the foreign languages and trainings for particular products and did not fulfill the companies' needs (Haben 2002). Many approaches for implementing e-learning were technology driven and had no relevance for the user. A further obstacle to the success of e-learning was the lack of integration within the existing culture of training.

1.1 Cultural background

One reason for this may have been the cultural background in Germany. Germany is proud of its industrial progress. Therefore, also the German educational system discloses such an industrial philosophy in many sectors (industrial culture). Taylorism and its structure of the division of work have influenced many aspects of education in Germany, ranging from educational institutions to curricula. Many current curricula structure similar to 100 years ago. This relates mainly to the style of instruction and formal scenarios of

teaching and learning. The teacher plays an active role and the learner simply acts as a passive recipient of the knowledge presented. This mechanism can be found in many different educational institutions and also reflects the experiences of many learners (see Reinmann-Rothmeier/Mandl 2001). Such scenarios provide a very systematic and controlled kind of learning, which is based on two main assumptions:

- The development of knowledge results from learning facts and routine.
- Knowledge is an entity, which can be transferred from one person (the teacher) to another person (the learner).

This philosophy has consequences for the assessment of learning outcomes as well. They are rather focused on economical presets, e.g. orientation towards output and possessing knowledge.

1.2 The educational system in the Federal Republic of Germany

A further issue is the structure of the educational system in Germany. Historically, education is primarily a responsibility of the states (Länder), and the educational system may vary from federal state to federal state. However, it is generally divided into five different main stages (Lohmar/Eckhardt 2007:34):

- pre-school education,
- primary education,
- secondary education,
- tertiary education and
- continuing education.

Figure 1 illustrates the characteristics of the German school system. Compulsory education begins between the ages of six and seven and ends when the pupil reaches 18 years of age. Included in the figure are also the voluntary pre-school (Kindergarten) and further education years. As the German educational system is federal and therefore varies from state to state (Länder), the description given here expounds the most common system, and the annotations deal with the states' specifics.

German children usually start primary school (Grundschule) in the month of September after their 6th birthday. After 4 classes of primary education, the pupils move on to one of three types of secondary schools, depending on their grades and teachers' recommendations. At the age of 15, a pupil is allowed to leave school (with his parents' permission), but she/he must take some form of vocational training until she/he reaches the age of 18. Figure 1 also shows the various paths open to German children and young adults. The ages given on the right hand side are approximate, as children with low grades can be forced to repeat a year.

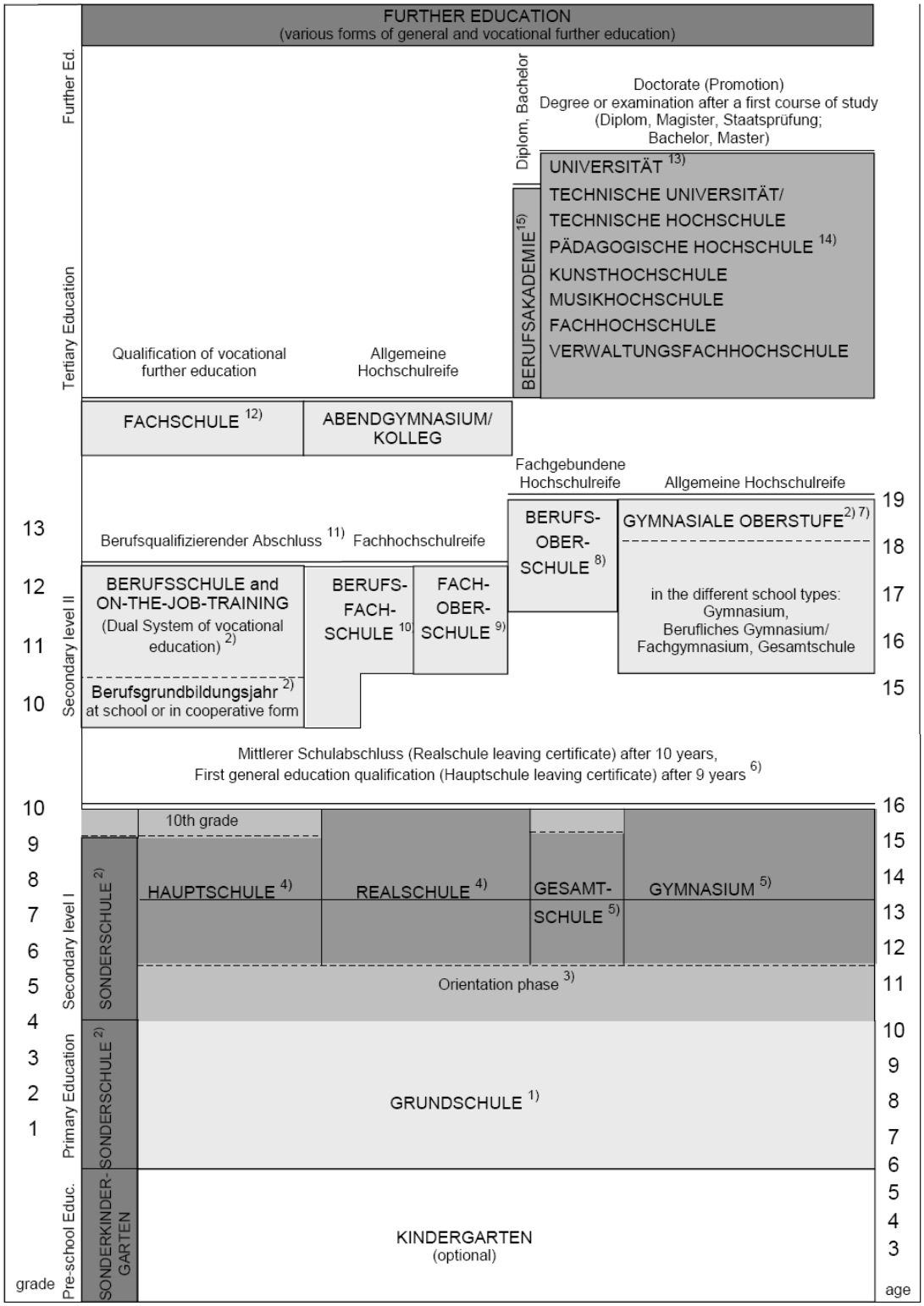

Figure 1: Diagram of the basic structure of the education system in Germany (Lohmann/Eckhardt 2007:38-41). The distribution of the school population in grade 8 as per 2004 taken as a national average is as follows: *Hauptschule* 22.5 per cent, *Realschule* 25.2 per cent, *Gymnasium* 30.4 per cent, *integrierte Gesamtschule* 8.6 per cent, types of school with several courses of education 7.7 per cent, special schools 5.0 per cent. The ability of pupils to transfer between school types and the recognition of school-leaving qualifications is basically guaranteed if the preconditions agreed between the Länder are fulfilled. The duration of full-time compulsory education (compulsory general education) is nine years (10 years in four of the Länder) and the subsequent period of part-time compulsory education (compulsory vocational education) is three years. Figure Annotations:

1 In some Länder special types of transition from pre-school to primary education (*Vorklassen, Schulkindergärten*) exist. In Berlin and Brandenburg the primary school comprises six grades.

2 The disabled attend special forms of general-education and vocational school types (partially integrated with non-handicapped pupils) depending on the type of disability in question. Designation of schools varies according to the law of each Land (*Sonderschule* / *Schule für Behinderte* / *Förderschule* / *Förderzentrum*).

3 Irrespective of school type, grades 5 and 6 constitute a phase of particular promotion, supervision and orientation with regard to the pupil's future educational path and its particular direction. In some Länder, the orientation stage (*Orientierungsstufe* or *Förderstufe*) is organised as a separate school type.

4 The *Hauptschule* and *Realschule* courses of education are also offered at schools with several courses of education, for which the names differ from one Land to another. The *Mittelschule* (Sachsen), *Regelschule* (Thüringen), *Sekundarschule* (Bremen, Sachsen-Anhalt), *Erweiterte Realschule* (Saarland), *Integrierte Haupt- und Realschule* (Hamburg), *Oberschule* (Brandenburg), *Verbundene* or *Zusammengefasste Haupt- und Realschule* (Berlin, Hessen, Mecklenburg-Vorpommern, Niedersachsen) and *Regionale Schule* (Rheinland-Pfalz, Mecklenburg-Vorpommern), as well as comprehensive schools (*Gesamtschulen*) fall under this category.

5 The *Gymnasium* course of education is also offered at comprehensive schools (*Gesamtschule*). In the cooperative comprehensive schools, the three courses of education (*Hauptschule, Realschule* and *Gymnasium*) are brought under one educational and organisational umbrella; these form an educational and organisational whole at the integrated *Gesamtschule*. The provision of comprehensive schools (*Gesamtschulen*) varies in accordance with the respective educational laws of the Länder.

6 The general education qualifications that may be obtained after grades 9 and 10 carry particular designations in some Länder. These certificates can also be obtained in evening classes and at vocational schools.

7 Admission to the *gymnasiale Oberstufe* requires a formal entrance qualification which can generally be obtained after grade 10. At present, in the majority of Länder the *Allgemeine Hochschulreife* can be obtained after the successful completion of 13 consecutive school years (nine years at the *Gymnasium*). Yet in almost all Länder the gradual conversion to eight years at the *Gymnasium* is currently under way, where the *Allgemeine Hochschulreife* can be obtained after a 12-year course of education.

8 The *Berufsoberschule* has so far only existed in a few Länder and offers school-leavers with the *Mittlerer Schulabschluss* who have completed vocational training or five years' working experience the opportunity to obtain the *Fachgebundene Hochschulreife*. Pupils can obtain the *Allgemeine Hochschulreife* by proving their proficiency in a second foreign language.

9 The *Fachoberschule* is a school type lasting for two years (grades 11 and 12) which admits pupils who have completed the *Mittlerer Schulabschluss* and qualifies them to study at a *Fachhochschule*. Pupils who have successfully completed the *Mittlerer Schulabschluss* and have been through initial vocational training can also enter the *Fachoberschule* directly in grade 12.

10 *Berufsfachschulen* are full-time vocational schools differing in terms of entrance requirements, duration and leaving certificates. Basic vocational training can be obtained during one- or two-year courses at *Berufsfachschulen* and a vocational qualification is available at the end of two- or three-year courses. Under certain conditions the *Fachhochschulreife* can be acquired on completion of a course lasting a minimum of two years.

11 Extension courses are offered to enable pupils to acquire qualifications equivalent to the *Hauptschule* and *Realschule* leaving certificates.

12 *Fachschulen* cater for vocational continuing education (1-3 year duration) and as a rule require the completion of relevant vocational training in a recognised occupation and subsequent employment. In addition, the *Fachhochschulreife* can be acquired under certain conditions.

13 Including institutions of higher education offering courses in particular disciplines at university level (e.g. theology, philosophy, medicine, administrative sciences, sport).

14 *Pädagogische Hochschulen* (only in Baden-Württemberg) offer training courses for teachers at various types of schools. In specific cases, study courses leading to professions in the area of education and pedagogy outside the school sector are offered as well.

15 The *Berufsakademie* is a tertiary sector institution in some Länder offering academic training at a *Studienakademie* (study institution) combined with practical in-company professional training in keeping with the principle of the dual system.

1.3 German efforts for a culture of lifelong learning

In July 2004, the Federation and the Länder adopted a joint strategy for lifelong learning in Germany. (…) Development focuses of this strategy are (Lohmann/Eckhardt 2007:181):

- inclusion of informal learning
- self-guidance
- development of competences
- networking
- modularisation
- learning counselling
- new learning culture / popularisation of learning
- fairness of access

Figure 2 depicts the diverse educational-policy impulses and programs, which are to result in new cultures of learning.

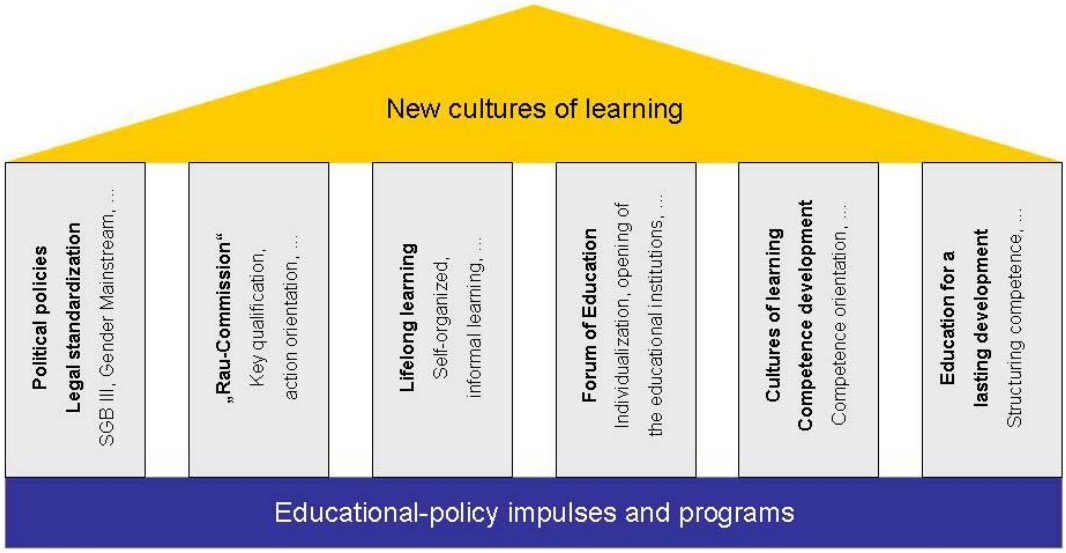

Figure 2: Educational-policy impulses and programs for new cultures of learning

1.4 Didactical consequences

A value change occurred in Germany during the last years, which could be considers as a “reflexive turning point”. This had also implications to didactics, which oriented more and more towards course participants. Consequently, also the denominations changed: Nowadays, one would talk more of a didactic of enabling than of a didactic of activation. Table 1 shows the main differences between both (Arnold 2002):

From a didactic of activation German: “Erzeugungsdidaktik”	Didactic of enabling German: „Ermöglichungsdidaktik“
Teaching	Learning
Transfer	Acquisition
Guidance	Self regulation

Table 1: Comparing the didactics of activation with a didactics of enabling

This transition from the external guidance for learning to a rather self-guided learning reflects also the change in learning culture and a new understanding in learning and teaching. Teachers should focus more and more on learners' process of knowledge acquisition (Schüßler/Thurnes 2005:9). Furthermore, self-regulated learning is expected to be an essential part in the process of lifelong learning.

This discussion goes along with a change in the concept of qualification. The singular focus on work domains changed to the broader concept of competencies, which evaluates an individual with its specific biography of learning. According to the German key project QUEM (ABWF 2001-2006) competencies describe a disposition for self organization and distinguish thereby from the classical skills. Thus, the discussion focuses on self organization as response to complex environments. The power of acting self-organized is a central aspect of a competencies-based culture of learning. Considering the chances of new media raises the issue about which technology facilitated learners to develop competencies.

According to Arnold (2002:106), the key challenge is not e-learning itself, but a change in the culture of learning towards self-regulated learning. The advantages of multimedia learning to provide convenient learning environments have to prove as didactically valuable for a sustaining learning process in this context. However, this insight develops slowly.

2 Policies

German policies for school education may vary between the different states. However, Länder make many efforts to improve their score in international rankings, e.g. the PISA or OECD studies. Results of these studies opened the discussion about the urgent need for change in the educational system (e.g. Lange 2002). Federal funding policies already reflect a change in the culture of learning and teaching. Furthermore, there are also efforts of German companies to promote e-learning and to ensure quality standards for the development of e-learning courses.

2.1 Federal policies and funding programs

With respect to federal funding policies, several research and funding programs were set up and are still going on. They comprise of programs for basic research, e.g. about net-based knowledge communication in groups (funded by DFG), application research, e.g. for the sustainable implementation of new media in schools (funded by BLK) and general programs for new media in education and multimedia (funded by BmBF). Currently, BmBF is planning to set up a new research program with respect to web 2.0. In the following, we will give some examples of these programs:

DFG: Net-based knowledge communication in groups
The German Science Foundation, the "Deutsche Forschungsgemeinschaft" (DFG) initiated a special priority program about net-based knowledge communication in groups (Buder/Hesse 2004). It focused on the analysis of cognitive, social and educational implications of net-based knowledge communication on a basic level. Furthermore, it promoted interdisciplinary approaches on net-based knowledge communication. This program focused particularly on the collaborative aspects of virtual (learning) environments, e.g.:

- Incentives for virtual collaboration
- Instructional support methods for collaborative knowledge construction
- Communication support for persons with different knowledge backgrounds
- Social presence in online learning
- Technical support for online collaboration

This program lasted from 2000 to 2006 and funded several research groups which had backgrounds in different disciplines like psychology, education and computer sciences.

BLK: New media in schools (SEMIK)
The SEMIK program was set up by the Bund-Länder-Kommission (BLK) for educational planning and research promotion and lasted from 1998-2003. It focused on the sustainable integration of new media in schools and funded twenty-five model projects in schools. These implemented environments and programs for the use of new media and they tried to establish a new culture of learning and teaching in the classroom. The program was accompanied by a

scientific evaluation (Mandl/Hense/Kruppa 2003) which could show constraints and affordances for the implementation of new media in schools.

BmBF: New Media in Education/Multimedia/Web 2.0
In the previous years, the German Ministry for Education and Research (BmBF) has set up several programs for funding e-learning and multimedia (BmBF 2000). These programs aimed at:

- Improving learning and teaching by the use of computers
- Promoting structural change in the educational sector
- Stimulating the market for educational software
- Preserving the national culture of learning

Target groups for these programs were widely spread and comprised of schools, education for further qualification on the job and universities. Currently, BmBF funding focuses on multimedia solutions with respect to learning and knowledge management for industry and public administration (BmBF 2007a) and on the use of digital media for further qualification on the job (BMBF 2007b). A research program for funding web 2.0 projects is being prepared (Checkpoint elearning 2007).

2.2 Policies of German companies

Enterprise policies show a slightly different focus. According to a survey of Learntec, the leading trade fair and conference on learning and technology, many German companies plan to increase their budgets for digital learning and knowledge management in 2008 (Learntec 2007c). Several industrial associations, e.g. BITKOM, the association for information technology, telecommunications and new media, set up committees for the promotion of e-learning (Bitkom 2007). They have goals like:

- Promoting e-learning
- Supporting employability by blended learning concepts
- Introducing best practice examples
- Establishing a new culture of learning

Furthermore, there are efforts to ensure high quality of e-learning courses by standardization. Several companies and the German Institute for Standardization (DIN) developed a reference model for quality management and quality assurance of e-learning with respect to planning, development, realization and evaluation (DIN 2004). This reference model is subject to international standardization efforts by ISO.

3 E-learning Context and Culture

In the 90ies, e-learning implementations were rather technologically driven (concurrently to the e-business hype). They focused on transmission rates, hardware and software. This trend resulted in many monetary efforts of companies and educational organizations, which were rather inefficient. Contents were accumulated and big courses were created and merchandized. As already stated in the introduction, these efforts resulted in several problems (Freund 2003):

- Mueller (2001) headlined that e-learning initiatives fail from the employees' point of view.
- One important reason mentioned by Mueller (2001) is the lack of personalization.
- Further aspects in which e-learning initiatives fail are collaboration and interactivity (Hutzschenreuter 2002).
- According to a study by the Initiative D21, e-learning is not learner oriented so far (Initiative D21 2002**).**

3.1 E-learning contents and contexts

After experiencing these problems, implementation strategies changed. Contents are now produced in small units (learning objects), which can be configured and customized by metadata. This requires the use of national (Meder 2003) or international standards (e.g. SCORM). Goal of this strategy is to create contents individualized and cost-effective. This could be seen as transferring the hybrid competition strategy of mass customization and personalization to the educational sector (Rao 2001, Piller/Moeslein 2002). Hutzschenreuter (2002) states: "The customization of learning products is possible throughout the different steps of the value chain and can address all distinguished dimensions in which learning processes differ" (see figure 3).

However, also this strategy can result in difficulties. Critics state that

- Learning products can not be mass-customized in regard to collaboration. A decreased level of social interaction and therefore limited flow of tacit knowledge is possible. This problem cannot be tackled, because real-life social interaction is unique in its nature (Hutzschenreuter 2002).
- „Such efforts result in a pool of autonomous, **low context** knowledge bricks, which is no medium for learning that could be easily handled" (Meder 2003). Particularly the context of content provides added value for it.

This context may be a company's workflow, a domain, an organization (Company, school, university), a region or a country. Their values and prerequisites, which means their specific culture, are the base for enabling learning.

Customization along the „education value chain“

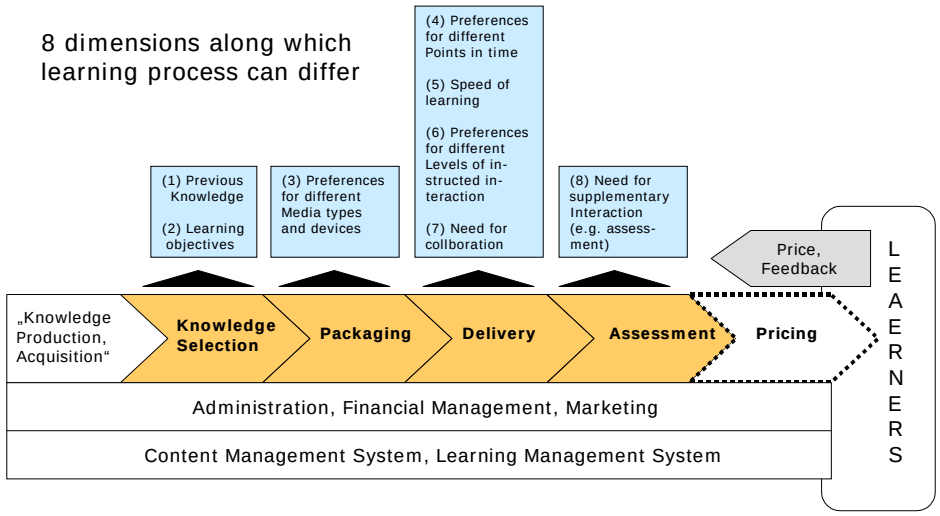

Figure 3: Customization along the education value chain (Hutzschenreuter, 2002)

3.1.1 E-learning in schools

E-learning in schools is monitored by The German Ministry for Education and Research (BmBF). A report on the IT-use in schools (BmBF 2004a) shows that 98% of all schools are well equipped with computers (all in all over 11.5 Mio pupils). In primary education, there are in average 15 pupils per computer and in secondary education around 13. Most schools have desktop and mobile computers available for teaching and learning and nearly half of the schools offer their pupils to use the computers also outside class. These computers are mainly used for e-learning purposes: Most of the software applied relates to the categories of programs dedicated for learning and multimedia encyclopaedias. With respect to the subjects of learning, there are differences between primary and secondary education. In primary education, computers are in most of the cases applied in German language teaching, followed by the subjects of mathematics and social studies. Furthermore they are used for students' group work. In secondary education, mathematics lectures get the first rank followed by German language teaching, natural sciences, group work and computer science. Internet use relates mainly to (natural) sciences teaching. Kollar (2006) for example describes efforts for inquiry learning in biology. However, such approaches rely on a new culture of learning and teaching (Mandl/Hense/Kruppa 2003) and require organizational prerequisites for a successful implementation. In this context they also emphasize socio-cultural aspects, e.g. teacher collaboration and exchange with respect to innovative teaching concepts, the provision of best-practice examples, the provision of collaboration tools and collaboration facilitators, and the general facilitation of collaboration by regular meetings, particular collaboration events and the building of adequate collaboration groups.

3.1.2 E-learning in universities

With respect to universities, the HIS GmbH for University Information Systems presented a study about the e-readiness of German universities (Kleinmann/Schmid 2006). The study covered more than 200 German universities and investigated the implementation of e-campuses, which means to what extent universities use IT for university management, as well as the implementation of e-learning in general. The survey revealed that most German universities (87%) offer online material accompanying presence lectures to their students. Results show that that bigger universities use more e-learning than smaller ones. One hundred per cent of the universities with more than 5000 students use digital material accompanying lectures. Similar results can be found with respect to interactive learning material (71-95%), virtual seminars and tutorials with online collaboration (44-76%), online lectures (44-76 %) and virtual practical (25-43%). The fact that over 23% of the bigger universities offer whole programs of study online is remarkable. Furthermore, the study reveals that universities use e-learning for improving teaching and service for the students to acquire a higher level of satisfaction and better study success of the students rather than for reducing capacity shortages. Furthermore, the use of e-learning is attributed to increasing the university's reputation.

One example of the introduction of e-learning at German universities is the project "100 online" of Stuttgart Universities (Euler/Seufert 2005). 100 online aimed at promoting the introduction of e-learning at Stuttgart University on a broad basis. Therefore, it comprised of three steps with different goals. The first step aimed at the broad dissemination of e-content. This step funded teachers, who enriched their traditional courses with some new multimedia material and put this online. The second step called "self-study online" promoted further development of this material. The goal of this step was to create e-content modules for self study allowing learners the elaboration and consolidation of lecture contents. The third step "training online" aims at the development of e-learning units with tutorial support, which could be offered as hybrid online courses for university students or advertised for further education. With respect to the socio-cultural dimensions, Euler and Seufert emphasize the need for dedicated support by promoters, network building and change agent, active politics with respect to information and communication, formal and informal offers for the development of competencies, dedicated incentives and strategies for ensuring acceptance.

Besides these individual efforts of the different universities, some German Länder founded virtual universities to coordinate and concentrate e-learning activities. Virtuelle Hochschule Bayern (vhb), for example, is a network of 29 Bavarian universities (VHB 2007). Each of the universities offers e-learning courses and students may chose to attend any course from vhb. In total, vhb provides over 100 courses from different disciplines, including computer sciences, engineering, teacher training, medicine, law, key qualifications, social work, languages and economics.

Kursbuch eLearning 2004 (BmBF 2004b) describes the contents of 100 BmBF-funded e-learning projects, grouped by the fields of humanities, law/economics/social sciences, engineering, medicine, computer sciences/math and natural sciences. It provides scenarios for e-learning and e-teaching, knowledge resources and tools. One project described, for example, is called “school of vision” and deals with the history of art. Participants of the courses learn about the development of art till nowadays, starting from the antique mythology. The course provides elements for individual and collaborative learning and can be used for university learning as well as for individual knowledge acquisition. Another project described in this book deals with geo-information systems (see also Dvorak 2006). The geo-information project developed 14 learning units, which could be applied during lectures or for individual studies. They also include offers for tutorial and group-based learning. They dealt with contents like geo-data, spatial coordinate systems, algorithms, cartography, standards and visualization (see also Reinmann 2005).

3.1.3 E-learning at the workplace

Considering e-learning at the workplace, there are many different approaches which vary between the companies and different learning purposes. Stiftung Warentest (2007), a German company specialized for product testing, analyzed six databases, which are specializing for elearning courses. They offer in total over 6000 e-learning courses for training on the job. The German Chamber of Commerce (DIHK) runs a program called “80.100 plus”. Learners can participate in this program to prepare for the examination for master craftsman’s diploma (Matthes-Rieke 2007). The program provides modules which may either be used for self-study or be integrated in a blended learning concept. Matthes-Rieke reports that over 2000 learners have taken part in the program during the last 18 month and that learners as well as teachers evaluated this program positively.

One particular example for e-learning at the workplace may be a course for employees of the Bundesrechnungshof, an institution responsible for the financial controlling of the German government. Deschler, Mandl and Winkler (2005) describe the conception, development and evaluation of this course. The course itself used the method of blended learning and dealt with organization’s theory for employees of the higher and upper grade of civil service at the institution. The course, which is called GO@ELSE, comprised of face-to-face phases and virtual phases. The didactical design of the course was structured according to the principles of problem-based learning. One implementation of the course provided learners with short video elements, which were accompanied by slide presentations. Moreover, learners could use a broad, textual knowledge base and they worked in small groups for assignments. An evaluation focused on acceptance, motivation, group work, learning success and the quality of the learning environment and found positive effects for this video-based course.

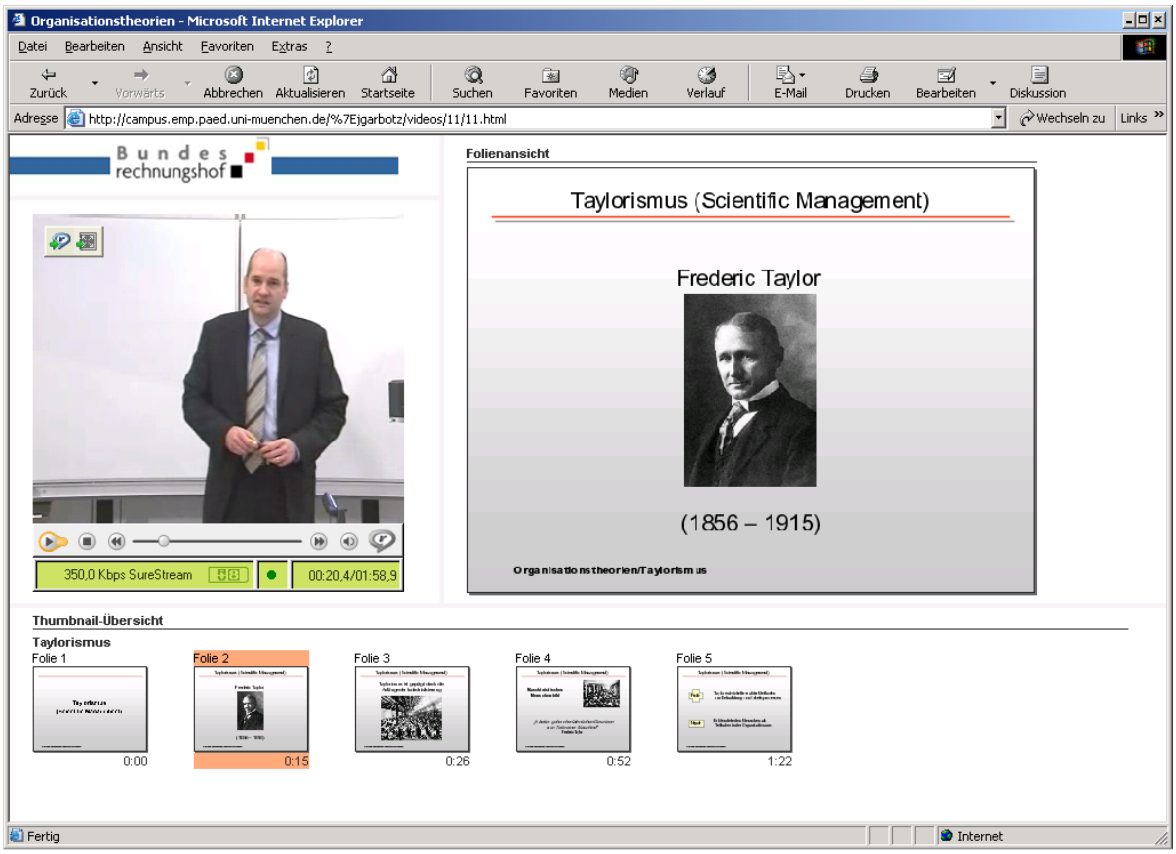

Figure 4: Screenshot of GO@ELSE (Deschler 2007)

The Quality Initiative E-Learning in Germany (Q.E.D. 2004-2006) deals with the quality of further education, with particular emphasis on e-learning. In this context, it is intended that the promotion of standards and their integration in existing educational and business processes should create new markets and business models, especially for SMEs. Reference models are being built for the innovative application fields of mobile learning and rich media content, and the necessary tools are being created for the immediate application and utilisation of these models. This will secure the domestic competitiveness of SMEs in particular.

3.1.4 E-learning and Open Source software

Schools, Universities and companies all face the same problem of having to make their e-learning content available at every possible location and at every possible time. Therefore it is necessary to either expand on current infrastructures or develop new ones. E-learning systems represent the first successful answer to this challenge. However such systems have often been monolithically programmed and cannot be expanded easily or integrated into the existing IT infrastructures. (Gehrke/Meyer/Schäfer 2002). More and more schools, universities and companies are using Open Source software. An Open Source licence is characterised by the following:

- Anyone must be able to legally use the software without paying licensing fees
- Anyone may change the source code
- Anyone may create and pass on copies of the original or the modified software

Open Source software is "free software". This generic term expresses the fact that the software can be obtained without charge and that it may be freely distributed. A good example for such initiatives is CampusSource (2000-2007): The Ministry of Science and Research (MWF) of the Federal State of North Rhine-Westphalia (NRW) is supporting the development of a virtual university system NRW, which consists of multimedia contents and technical infrastructure. With the project "Software-Technologies for Teaching and Learning" within the framework of the innovative program research, the state initiates a process which includes the constructing and developing as well as operating of an infrastructure for computer and web-based learning and teaching. This project also promotes the progress in quality of teaching and learning at universities. The project supports, and welcomes the set up of cooperative networks in universities and with industrial partners. The portal offers information about the initiative and its activities as well as information about the Open Source software and software infrastructure for educational institutions. Since the CampusSource Exchange opened on 1 April 2001 more than 5.000 developers and users of the CampusSource systems have registered with CampusSource. Through this network, based on the open source idea, communities have been created for the individual systems, which complete and optimise the software. Consequently, in these strained financial times the sparse resources can be invested in further developing existing systems rather than in parallel developments.

3.2 E-Learning and its socio-cultural dimension

“The anthropologist Clifford Geertz [1973:13] defines ´Cultures´ rather broad and comprehensive as integrated systems if interpretable symbols, which allow to understand social events, styles of behavior institutions and processes. They set a **context**, a framework fort he interpretation of perceivable phenomena.“ Simon (2004:223). The Dutch anthropologist Geert Hofstede defines culture as learned patterns of ”thinking, feeling, and potential acting” that form the mental program or the ”software of the mind” (Hofstede 1997:4, Hofstede 2003).

Social-cultural theory is a pedagogical theory formulated by Lev Semenovich Vygotsky (1896-1934). Advocates for social-cultural theory are of the opinion that learning is a part of **social contexts**, and will be different in different cultures (Gard 2005:58). The Socio-Cultural Theory says that learning is embedded within social events, and occurs as the student interacts with its environment, and with other people, thus learning will be different within different cultures. Cultural differences need to be considered in learning programs when designing layout, interaction, navigation, content, didactics and learning style preferences. The ultimate goal is the implementation of a user modeling module which will enable the system to adapt to the individual needs and expectations of students from different cultures (cf. Kamentz/Womser-Hacker (2002). Kamentz/Mandl (2002:6) “believe that the range of cultural factors that need to be considered when designing educational software also includes learning styles and preferences, which vary from culture to culture. The culturally specific educational environment in which students learn to acquire knowledge (i.e. learn how to learn) strongly affects their personal learning style and therefore the acceptance and effectiveness of the used educational software.”

Because of the immigration during the last decades, many Germans have migrational backgrounds with many different cultural experiences. Thus, the permanent presence of migrant generations results in an increased socio-cultural heterogeneity of the learners and teachers. This process is intensified by continuing immigration and particularly by the permanent change of migrants’ ethnical backgrounds and their socio-economic and legal opportunities for residence. If we assume the culture as context (like above) then we come to many different interpretations. However, e-learning concepts consider these correlations too few, so far.

Another perspective on this is presented by Seufert/Mille (2003:19), who postulate that e-learning initiatives may cause socio-cultural changes and diffusion. The key principle of this perspective is the facilitation of a positive attitude towards innovation and self organization. Yet, focusing too strongly on the socio-cultural issues may neglect a realistic resource analysis and the educational benefits of an initiative. The authors mention that socio-cultural factors may relate either to the implementation layer of e-learning projects, or to institutions (see table 2 for an example with respect to universities):

	e-learning Project	Institution
Socio-cultural dimension	Contribution of the project to a new culture of learning, Integration in existing cultures, Considering cultural means, Imparting knowledge	Innovation-friendly university culture, Changes in the culture of learning and teaching, Framework of cultural means (for fostering diffusion and acceptance)
		Seufert/Miller (2003:20)

Table 2: Socio-cultural factors of the project and the institution.

4 Trends and Conclusions

In order to see the trends for the next year, one may have a look at Learntec, which is the leading convention for Education and Information Technology in Germany. Looking at their prognoses for 2008, one can identify trends with respect to 5 dimensions (Learntec 2007b):

Business

- Strategic management for education
- Sustainable Innovations
- Facilitating cultures of learning and leadership

Didactics

- Innovative learning scenarios
- Sustainable concepts of learning
- Collaborative learning and learning in web 2.0 environments
- Competencies for self-studies
- Considering results of brain research
- Learning in the age group of 50+

Technology

- Innovative infrastructures for learning
- Personal learning environments
- Web 2.0 applications: social software, webcasting, mobile technologies, microlearning

Knowledge management

- Convergence of e-learning and knowledge management
- Knowledge services for companies
- Competitive intelligence
- Identifying, acquiring, developing, disseminating, applying and preserving knowledge

Main branches

- Banking companies and insurances
- IT-training
- Commerce
- Universities

Comparing this prognosis with the trends for 2007 (Learntec 2007a), one can recognize some shifts of attention. In general, strategic management and sustainability are expected to attract more attention. Furthermore, the web 2.0 technology has first impacts on didactics and collaborative learning scenarios are becoming fashionable.

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