

E-LEARNING AND E-TEACHING - MEDIA DEVELOPMENT AT UNIVERSITÄT STUTTGART

Barbara Burr *, David Boehringer , Peter Göhner

Rechenzentrum Universität Stuttgart (RUS), Allmandring 30, D-70550 Stuttgart Germany
(burr, boehringer, goehner)[@rus.uni-stuttgart.de](mailto:rus.uni-stuttgart.de)

Commission VI, WG VI/1 - VI/2

KEY WORDS: media development, eLearning

ABSTRACT:

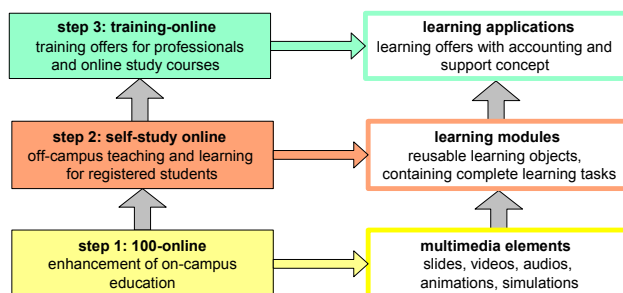
Teachers at Universität Stuttgart are highly motivated to improve teaching through multimedia. With campus-online education the university has started a programme to give university teachers the possibility of acquiring knowledge in multimedia applications on a broad basis and to provide them with financial, technical and didactical support. The realisation and organisation of the programme campus-online education are described in the contribution.

1. INTRODUCTION

In 2001 the headship of Universität Stuttgart decided to improve teaching and learning through multimedia elements and web technologies in lectures, seminars and exercises. So the headship of the University of Stuttgart has developed a broad strategy on

- how to improve teaching and learning by means of multimedia technologies,
- how to bring the knowledge gathered in the university to the public,
- how to improve the didactical competence of teachers on a broad basis
- how to gain direct economic impact from the university's teaching and learning products,

For the realisation of this strategy a general three step concept "campus-online education" has been worked out.



In a first step multimedia technologies were to be introduced or enhanced in the lectures and classes on-campus. The result of this would be multimedia elements like slides, videos, audios, animations and simulations

accompanying the scripts. This was achieved by the program "100-online".

In a second step those multimedia elements were to be integrated in re-usable learning modules which contain complete learning tasks and tests for self-assessment. These learning modules can be used by registered students for instruction and learning off-campus. The program "self-study online" in which such learning modules are produced is still going on.

In a last step the learning modules are intended to build complete learning applications which can be used as training offers for professionals or as online study courses. "Training online" is the provisional name for this program to be started in the near future.

In 2001 quite a few institutes developed and applied already media solutions and the majority of teachers of Universität Stuttgart was motivated to start with new media methods in their lectures however a framework program like "campus-online education" was necessary to support teachers in their doing and thus to set in motion the entire university.

2. REALISATION

Campus-online education is one of the strategic measures of the university. This fact and the support of the headship of the university guaranteed the success of the program. It was obvious from the very beginning, that the university, which consists of 10 faculties and is attended by about 20.000 students, has to start its concept from the very bottom. The framework program "campus-online education" had to give university teachers the possibility of

* Corresponding author.

acquiring knowledge and skills in multimedia applications on a broad basis and to support them in the adjustment and enhancement of their teaching methods with the new media.

For the realisation of the strategy a quite strong management structure and a very effective support structure were set up.

2.1 100-online

The main intentions of the program 100-online were

- to improve on-campus teaching and learning by the use of multimedia elements and web technologies in lectures and classes of all study courses
- and to give an impetus for future online-learning for students, graduates and professionals.

The headship of the university and his rectorate wanted to encourage lecturers to experiment and work with the new media in order to find out the appropriate use in their field of study. Within this context, it was hoped, they would continue to employ the new media in the future without extra funding as well.

The more detailed objectives of 100-online were

- to create or digitalize multimedia elements (like photos, graphics, audios, videos, animations, simulations etc.)
- to design re-usable online teaching material
- to start interactive online communication between students and teachers
- to develop the technical and didactical competence of lecturers.

From this resulted the framework of the program. Projects were to be supported with 10.000 DM (approximately 5.000 €). Projects were considered to last six to twelve months. All faculties were supposed to get involved, so special experience or knowledge were not a condition for participation and no special requirements were demanded. In the end, up to 100 projects were hoped to be initiated; thus the name of the program.

243 applications for projects were handed in. This response was much better than expected. This high number motivated the headmastership to provide more money for the program. This was successful. The university dedicated 2.3 million DM (1.2 million €) of its budget for the funding of the projects and finally 230 applications were approved. This meant that 50% of the professors (or one of their staff) took part in 100-online.

The projects were as distinct as the institutes which conducted them. They differed as much in their content as in their technical complexity. They included

- the generation of the institutes own web-sites for teaching
- the publication of slides and scripts of the lecture

- online communication and tutorials
- material for the preparation and wrap-up of on-campus lectures
- preparation of online exercises and self-tests
- simulations of processes
- online self-learning modules
- computer based trainings which were distributed on CD-ROM.

The publication of a regular e-letter was a quite effective way to bring in the same way information to the project and give guidance to the project participants. All lecturers had to hand in a preliminary report of his project. This was published in an e-letter (<http://www.uni-stuttgart.de/100-online/e-letter/>). The publication in the e-letter was the pre-condition to obtain the second half of the projects funds (the first half had been paid at the beginning of the program). This gentle pressure proved to be very effective. The participants took note of the e-letter very vividly. It was the best visited part of the 100-online web-site. Only 16 projects never handed in the preliminary report and were apparently abandoned at an early stage.

The institutes were supported in their production by courses organized by the computer centre which covered didactical and technical issues. The subsequent support was restricted to "help to help yourself" because there was (and still is) no manpower in the computer centre to provide programming or multimedia-producing services on a larger scale. A second part of the services of the computer centre were the first constituents of a technical infrastructure for eLearning: the groupware BSCW, a chat, a newsgroup, and a mailing list.

Moreover, the on-campus teaching was assisted by a better hardware infrastructure in the lecture halls which were largely equipped with beamers, micro ports, and access to the internet. In addition a lending for other hardware like camcorders, digital cameras or portable beamers was established.

The program was rounded off by a final event on the 11th of July 2002. On this occasion the 100-online award was bestowed, which the university had donated and announced in April. 37 projects applied for the award. A jury chose five candidates to present their project and the audience appointed the winner. The e-letter continued to be published until the end of the year, thus forming the unofficial end of the program 100-online.

2.2 self-study online

The program self-study online followed directly on 100-online and started in autumn 2002. It is funded one half each by the Universität Stuttgart and the Ministry of Science, Research and the Arts Baden Württemberg. The main intentions of the program were

- to improve off-campus learning by the use of self-study units and online cooperation in lectures and classes of all study courses
- and to develop central support structures.

For the projects the transfer from step 1 to step 2 was mainly a work to assemble their material of step 1 to self-contained learning modules. This meant supplementing the material with learning tasks, exercises, self-tests, and online-support. On the other hand the central program management at the computer centre had to provide a software environment which would support important standards (like LOM and SCORM) and allow the input of metadata. Moreover, the central management had to establish and make available central evaluations.

The organizational frame was quite similar to that of 100-online: each project was carried out in an institute, supported with 5.000 € and intended to be finished after 12 month. With the programs duration of three years three calls for applications were planned. The funds of the projects were split in two halves again; the first being paid at the beginning of the projects, the second after the preliminary report which was once more published in an e-letter.

To improve the information exchange and to support project participants Know-how Forums were newly implemented. These Know-how Forums are groups of participants with similar interests. In 100-online the projects were carried out relatively unconnected. The exchange between lecturers was rather a matter of coincidence. Accordingly the Know-How Forums serve the internal communication about specific topics, the knowledge transfer between the projects, lectures with subsequent discussions, Workshops, and the general exchange of ideas and experiences. The topics covered the production of teaching modules, modules for exercises, self-tests, tutorial support, and evaluations. Each topic had mainly a technical and a didactical aspect. The regular attendance at – at least – one Know-How Forum was required for the participants.

The e-letter of self-study online was structured in a new way (<http://www.campus-online.uni-stuttgart.de/self-study/e-letter/>). The e-letter met two demands of the lecturers and the producers of the material: information about tools and practical information for the realization of the projects. Thus the projects were asked to describe their course of action step by step and to describe their problems and solutions.

The screenshot shows the 'self-study online e-letter' website. The header includes 'online self-study' and 'e-letter' logos, along with the 'Universität Stuttgart' logo. A navigation menu on the left lists: Home, Berichte, Probleme & Lösungen, Toolbeurteilungen, Abonnieren, Impressum, and self-study online. The main content area is titled 'self-study online e-letter Nr. 4'. The text in the main area discusses the Medida-Prix award and a competition for e-learning concepts. The footer contains the text: 'Weitere Informationen über den diesjährigen Medida-Prix und den Auftritt der Universität Stuttgart finden Sie unter www.uni-stuttgart.de/online/aktuelles/ Dr. David Boehringer, RUS'.

Furthermore they were asked to make evaluations of the tools they had used and to give recommendations for

others. These evaluations of tools are very useful because the computer centre is not able to give support for most of the tools discussed there. The acquaintance with the tools and the need for the tools are both on the side of the institutes. The tool evaluations are an instrument to distribute the requested knowledge and experience about the tools in a standardized manner. In the future the tool evaluations will be incorporated in the general web-pages and user groups will be established.

As a technical eLearning environment the computer centre started to build – mostly – client-server-architectures in consideration of the existing software applications (<http://www.uni-stuttgart.de/online/dienste/#elearning>). Up to now these eLearning services consist of a learning management system (ILIAS), a streaming server (Helix), a tool for lecture recordings (Lecturnity), and an upload-interface programmed by the computer centre. The individual components have open interfaces and can be adapted to individual needs, whether they are open source or commercial products. This keeps the whole architecture flexible and open for future developments and necessities.

Lecture recordings are a new feature in the eLearning activities of the Universität Stuttgart. They started in the summer term of 2004 with the first 14 lectures. Each recording project was supported with 1000 €. A few of the lecture halls were adapted to the new demands, but mostly new hardware components (touch-sensitive boards, VGA-signal splitter, portable micro-ports) were added to the lending of hardware which was rearranged in the course of this. The lecturers were trained to make the recordings themselves and the new web-interface of the upload-service allowed them to publish the recordings comfortably right after the lecture

(<http://www.uni-stuttgart.de/online/dienste/aufzeich/>). The evaluations show a very good acceptance and a wide use of the recordings by the students. They appreciated especially the possibility to recapitulate complicated parts of the lecture and to be able to use the recordings for the preparation of their exams.

In the summer term 2004 evaluations of online supported classes were – for the first time – realised centrally. The results showed that a good integration of the online material and exercises in the course of the classes and a clear transparency of the goals and the kind of the modules are most important for the acceptance and therewith the success of eLearning offers. In the end of the third year an evaluation of all classes is intended on the large scale.

2.3 training online

In the third step of the eLearning concept, starting in near future, training courses for professionals will be designed and offered to the public for payment. The main intentions of training online are

- the commercialisation of existing eLearning contents
- and the development of study programs organized in a blended learning scenario.

The first part, the commercialisation of existing eLearning contents, will probably be realised in a network of universities and universities of applied sciences from Baden-Württemberg in the project "ok-bw" (online-knowledge Baden-Württemberg). All partners will contribute content for a common platform which is provided by a commercial partner who will also take care of accounting procedures and marketing.

3. SUMMARY

The campus-online education of Universität Stuttgart is to be realized by a media concept consisting of three steps. The first step, the program 100-online, was finished in 2002. Multimedia-material was produced which was designed to be used in on-campus lectures, but also published in the www. Building on this learning modules are created in the program self-study online, which started in autumn 2002 and will end in 2005. The learning modules of self-study online are meant to provide self-learning possibilities for registered students of Universität Stuttgart to deepen their knowledge. In the third step, training online, the learning-modules will be extended to teaching units. These are supposed to be used in a commercial context as self-training programs in professional web-based scientific trainings, but also at university in courses of study with blended learning scenarios.

The results that were reached until now are quite impressive. 60% of all university teachers came in touch with eLearning which became a part of their daily work. Almost all students of the university are involved in more than one of their classes. The reactions of both, lecturers and students, are very positive.

In the development three key factors proved to be essential for success:

- Initiative and support of the rectorate of the university
- Central coordination and technical and didactical support
- Openness and engagement of the lecturers.

The development of the eLearning concept was a strategic decision of the rectorate and the official support of the eLearning programs was an important sign for the whole university. The small central management proved to be very effective and established very effective support structures. Last, but not least the success of the programs rested on the shoulders of the many university teachers who tackled a completely new way of producing and maintaining their teaching material.

The main lesson learnt by the Universität Stuttgart in all this is that sustainability proves to be the central point in multimedia and eLearning projects and that sustainability of eLearning at universities can be reached if people

- do it broad
- do it themselves
- do it continuously
- do it like us.

REFERENCES

K Burr, B., Göhner, P., Töpfer, A. 2002: 100-online-Universität Stuttgart goes Multimedia. In: Proceedings des World Congress on Network Learning in a Global Environment, Berlin, Mai 2002

Töpfer, A., Burr, B., Göhner P. 2002: 3 Steps to prepare Universität Stuttgart for the Virtual Community. In: Proceedings der 2002 EDEN Annual Conference on Open and Distance Learning in Europe and Beyond, Granada, Juni 2002.

Töpfer, A., Burr, B., Göhner P. 2002: 100-online: Ein erster Schritt in einem umfassenden Konzept multimedialer Wissensvermittlung an der Universität Stuttgart, In: Bachmann, G., Haefeli, O. und Kindt, M. (Hrsg.), Campus 2002. Die Virtuelle Hochschule in der Konsolidierungsphase, Münster 2002, S. 59-67.

Boehringer, D., Burr, B., Göhner, P., Töpfer, A. 2004: eLearning Programme der Universität Stuttgart, In: Bremer, C. & Kohl, K.E. (Hrsg.): E-Learning Strategien und E-Learning Kompetenzen an Hochschulen. Bertelsmann Verlag, Reihe "Blickpunkt Hochschuldidaktik" 2004