

# Blended Learning in the Bachelor of Economics and Business Administration for Large Scale Courses: Qualitative and Economic Effects

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## 1. PROJECT PROBLEM

Approx. 2,000 students complete the 'Bachelor of Business Administration' or 'Bachelor of Business Economics' Programme in the Department of Economics and Business Administration at Justus-Liebig University Giessen. During the first four terms, all the students attend the same compulsory courses on the basics of economics and business administration. The following are some of the compulsory courses:

- Introduction to Business Administration
- Basic Costing
- Basic Finance
- Introduction to Economics
- Mathematics and Statistics
- Corporate Accounting (Bookkeeping and Financial Accounting)
- Business Planning and Organization
- Operations Research
- Basic Information Management

These compulsory courses each consist of a lecture (2 hours a week) and a complementary seminar (also 2 hours a week). The lectures are all held in a large lecture theatre to an audience of 400-700 students present. The accompanying seminars are a consolidation of the content of the lectures, using practical applications, examples and tasks. The content of the seminars mainly involves applying a calculation method to solve a business problem. In all the seminars the software product Microsoft Excel (spreadsheet) is used to practise the methods of calculation, as this is also the instrument that is most frequently implemented in business practice. At the end of term, the students are required to attend an examination for each compulsory course, which is based on the content of the lecture and its accompanying seminar.

The compulsory course 'Basic Information Management' provides an example of the problems typically arising from the accompanying seminar. Until winter term 2005/2006 these seminars were attended by groups of maximum 20 students in the department's PC pool (limited number of PC working places). In order to offer all students a place in a seminar we therefore had to carry out 22-24 seminars per term, for which we hired, instructed and paid 10-12 tutors. By winter term 2005/2006, the organisational workload and the financial expense of this had reached a scale that was no longer feasible for the department. An additional problem was that the students were attaining varying levels of knowledge by the end of term due to the sheer quantity of seminars and tutors. Ultimately, the course was characterized by all the well-known problems of large scale courses – problems with organisation, finance and quality. These problems exist in all the compulsory courses mentioned above to a similar extent and, as a result, the entire department and all its lecturers and students are affected.

## 2. PROJECT OBJECTIVE

In summer 2005, the Department of Economics and Business Administration launched a pilot project to solve this problem. In winter term 2005/2006 (October 2005 to February 2006) the accompanying seminars for the compulsory course 'Basic Information Management' were no longer carried out as a multitude of seminars with student presence, but were offered to approx. 500 students as web-based trainings (WBT) online for self-study. The SCORM-compatible WBT was available in the students' personalized website area at all times ('SPIC' – Students Personal Information Center; executed in the learning management platform 'WPS' – Schwickert 2004, WPS 2006). Each student can therefore see individually which WBT has been completed, when and how often it has been completed and the test results achieved.

The WBT was not intended as an introduction to the software products MS Excel and MS Access – we assumed that students already had a basic knowledge of the software. The WBT was primarily intended to teach students how the software products can be used to solve business problems.

The self-study per online WBT was accompanied by components requiring presence, so that the students were not left completely to their own resources. This included an introductory session at the beginning of term, a briefing session mid-term, an examination training session at the end of term (all in a big lecture theatre for all students) and an open weekly advisory service in the PC pool to deal with individual questions. This mix of e-components and presence components was intended to greatly simplify the organisation of courses, significantly reduce the funds required and standardize the knowledge transfer at the desired level for all students.

## 3. PROJECT IMPLEMENTATION

In June 2005, a project seminar was started at the Chair of Business Administration and Information Management. Project seminars are an integral part of the compulsory program for the depth subject Information Management in the Economics and Business Administration Course at Justus-Liebig University Giessen. A project seminar deals with a real IT problem. In a period of approx. 3-4 months a team of 3-4 students of the depth subject Information Management work practically towards finding a solution for the IT problem. This can, for example, be the planning and design of a software product, or it can also be a survey of a specific IT topic. In this case, the task of the team of 4 students was to create an integrated series of web-based trainings (WBT) for the seminar mentioned above.

In the period from June 2005 to the end of October 2005 the team created a total of 13 WBT using MS Excel and MS Access to solve business problems. During the 5-month project Prof. Schwickert and two of his research assistants were intensively involved, advising the team. First, a content concept for the entire WBT series was drawn up, based on the materials that had been tried and tested in the previous presence seminars. Then the materials were divided between the individual WBTs and structured into individual scripts for each WBT. From mid-August 2005, the individual WBTs were produced successively. The authoring tool EasyProf and the tools TurboDemo, Captivate and Photoshop were deployed.

Each WBT was initially produced as a prototype and subsequently developed further in an evolutionary manner with 1-2 weekly reviews. The team was able to base the production of the WBTs on a methodic and didactic concept and a layout and design concept that had been developed in a research project at the Chair of Business Administration and Information Management from April to July 2006 (Schwicker et al. 2005).

In the first half of October 2005, all WBTs were subjected to final intensive quality control by three student test groups. In the last week of October 2005 all WBTs were made available to approx. 500 students online. The WBTs of this series can be used online at <http://wi.uni-giessen.de/gi/home/Schwicker/elearning/online> (WBT 2006).

#### 4. RESULTS AND EXPERIENCES

The course was carried out as described in '2. Project Objective'. The frequent use of the WBT and very low use of the accompanying support – the online forum and the presence advisory service – were particularly striking. Also surprisingly, the examination results on the WBT contents were visibly better than in the previous terms, during which the seminars had been held face-to-face in classrooms.

- **E-Learning Component 1:**  
The subject matter of the seminars accompanying the lectures was offered online to the students in a series of 13 consecutive WBTs (each with learning contents, practical exercises and tests) for self-study. From October 2005 to June 2006, we registered a total of approx. 16,700 WBTs completed by, surprisingly, approx. 800 different students.
- **E-Learning Component 2:**  
Throughout the lecture period, we offered a supervised online forum in which the students could discuss the seminar contents with each other and the lecturer. This forum was only moderately used.
- **Presence Component 1:**  
At the beginning, during and towards the end of the lecture period we held three presence sessions ('briefings') in a lecture theatre, at which Prof. Schwicker was available to consolidate and explain certain contents. The initial session was attended by approx. 450 students, the middle session by 200 students, the final session by only approx. 100 students.
- **Presence Component 2:**  
Throughout the lecture period, we offered two 2-hour open advisory sessions per week in the PC pool. These advisory sessions were used by only approx. 20 students!
- **Presence Component 3:**  
The final examination which was based on the contents of the lectures and seminars was, as accustomed, a presence examination (half of the tasks on the lecture contents, half on the seminars) held at the end of the lecture period. The examination tasks on the contents covered by the WBT were more difficult than in previous terms, when the contents were taught face-to-face. Nevertheless the examination results on these contents were significantly improved.

From an organisational point of view, the entire course ran smoothly. While approx. 30-40 students (of approx. 500 participants) experienced some technical problems using the WBT online from their work stations at home during the first weeks of term, by mid-November 2005 we registered no more problems at all. The workload for supervising the online forum was marginal, the two 2-hour open advisory sessions in the PC pool could have been halved.

While it had cost approx. 9,000 euros per term in previous winter terms to employ tutors to carry out the presence seminars, the total direct costs in the 2005/2006 winter term amounted to 3,000 euros. This amount was necessary for the purchase of authoring tools and the employment of a student tutor to carry out the weekly presence advisory sessions.

Finally, the quality objectives were fulfilled. The significantly improved examination results with a higher requirement level speak for themselves. The widespread student acceptance for this type of teaching was reflected in the online evaluation of the course. In the approx. 200 completed questionnaires there was not one single negative evaluation of the seminar. Far from it – the quality and the 'learning aptitude' of the WBTs were consistently assessed very positively, as was the possibility to complete the WBTs where they wanted and when they

wanted. Similarly, students appreciated the fact that the transfer of knowledge was not completely electronic, but accompanied by periodic briefings and an advisory service on site.

The quality of the teaching program is enhanced decisively by the blended learning concept, due to the fact that the course materials – their quantity, contents and external form – are presented to all the students uniformly. In conventional classroom seminars these characteristics depend heavily on the individual qualifications of the numerous tutors and the varying levels of previous knowledge of the seminar participants. The project demonstrates that WBTs make it possible to boost the level of subject matter without making excessive demands on the students and guaranteeing individual supervision.

In the next two winter terms 2006/2007 and 2007/2008 the compulsory course 'Basic Information Management', which was tested in this pilot project, will continue to be offered in this same form with online WBTs. The costs for acquiring the authoring tools no longer apply, the WBTs can be used again without modifications, the presence advisory sessions will be halved. In the next winter terms the costs incurred for the seminar accompanying the compulsory course 'Basic Information Management' will amount to max. approx. 1,200 euros. In comparison to winter 2004/2005, when the exercises were last carried out as presence seminars, the costs will have been cut by approx. 85%.

#### 5. ORGANISATIONAL FRAMEWORK AND PERSPECTIVE

A further result of the pilot project at the Chair for Business Administration and Information Management was that a concept has been developed on the basis of which the other chairs in the department can integrate blending learning using the model described with WBTs. This includes an organisational process model, a didactic guideline on WBT authoring, ready-made WBT templates and suitable authoring tools.

Since May 2006, this concept has been applied to the compulsory course 'Introduction to Business Administration'. This course will be offered in winter term 06/07 (starting October 2006) for approx. 700 first year students. The lecture on 'Introduction to Business Administration' will be held as a presence course, as in the past. The subject matter covered in the complementary practical seminars will be offered in a series of successive WBTs online for self-study, supported by presence briefings, tutor advisory sessions and supervised online forums. In this case also, a team of students has worked under supervision on an integrated WBT series within the framework of an information management project seminar. The WBT series has been ready for use since September 2006.

In November 2006, a WBT project seminar, based on the concept from the pilot project, will be launched to support the large scale 'Costing' course. The same is scheduled for the basic education in mathematics and statistics, as well as for basic finance from January 2007.

Blended learning is therefore spreading rapidly and 'bottom up' within the department. The individual chairs in the department are ultimately convinced because the quality of studying and teaching in the Department of Economics and Business Administration benefit from the increase in student motivation to learn. Similarly, the quantitative benefit is driving the project forwards. Considerable financial economies, particularly as regards personnel costs, have been achieved. It's worth emphasising that no chairs have had to make specific investments for blending learning, other than the one-time purchase of authoring tools (approx. 1,000 euros). As demonstrated in the project, it can be achieved with the resources available: good students and good staff. A WBT series covering a complete seminar course can be developed and ready for operation without problem within 3-4 months.

By mid-2007 accompanying exercises will be offered for five of the nine compulsory courses mentioned in chapter one online per WBT, based on the concept resulting from the pilot project. In year 2007 alone, a reduction in costs of approx. 40,000 euros will be achieved and this, importantly, without reducing the quality of education.

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