

COMPREHENSIVE ANALYSIS OF EXISTING LEARNING MANAGEMENT SYSTEMS (LMSs)

Status: Accepted by Claus Nygaard, November 26, 2001

Name of institution	Center for Fjernundervisning
Type of institution:	Distance Education Institution Center for FjernUndervisning (Center of Distance Learning) was established in 1997. It is a faculty within Randers Business College and is situated in the mid-eastern part of Jutland, Denmark. The faculty is managed by a group of 10 people and they only operate within Distance Learning.
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LMS used	TopClass
URL of LMS	www.wbtsystems.com
Language of LMS	CFU has translated TopClass to Danish. Blackboard is not available in Danish, but translation is possible.
Number of years in use	CFU has used TopClass since August 1997
Other LMSs used	We will convert to BlackBoard (www.blackboard.com) from January 2002 because we belong to an association of 28 schools and institutions that have signed a framework agreement with Blackboard. See www.blackboard.dk for information about the Danish Blackboard user group.
Number of students in the system	We have more than 500 online students. We enroll about 300 students per year in our European Computer Driving Licence and PC-user courses, 200 in our Economy Program, and 40 in our other courses.
Number of courses available	We offer 20 online courses. We teach 13 courses in the European Computer Driving License and PC-user program, 4 in the Economy Program, and three other courses.
Typical duration	The typical course duration is from 1 to 4 months. The students may enroll any time and follow their individual progress plan. There are no face-to-face seminars in any of the courses.

Number of tutors in the system	We have both full-time and part-time tutors. Together they fill the equivalent of 4 full-time positions.
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This analysis is divided into six parts.

1 Course development tools

2 Student support tools

3 Tutor support tools

4 Administration (student database and records)

5 Technology (quality of software)

6 Price

1 Course development tools

1.1 Course creation. How satisfactory was the LMS for course creation?

We use FrontPage for development of web-pages, Coral for graphics, Macromedia Authorware for multimedia elements, and Viewlet (<http://www.garbon.com>) for sequences of screenshots. [CFU]

1.2 Structure and didactic flexibility - openness. In the creation of course materials did the LMS permit didactic flexibility? Was the structure open to differing didactic possibilities?

1.3 Teacher userfriendliness. How easy was the LMS to use by teachers and course developers?

A team of tutors design the course content. [CFU]

1.4 Support for graphics, audio and video, moving image. Did the LMS support the provision of graphical materials, moving images, audio and video in the course content?

1.5 Questioning, assessment, assignments. What provision was made by the LMS for student questioning and assessment and the design of student assignments?

Both TopClass and Blackboard are equipped with tools for Multiple Choice and other types of assignments. Assignments and questions are usually e-mailed to the tutors. In our Economy Program, the tutors grade the coursework during the course, but the final grade is exclusively based on a traditional exam. In our computer driver license courses we use a Swedish examinations software (Autotest). [CFU]

2 Student support tools

2.1 Interactivity possibilities. What provision does the LMS make for student interaction?

We primarily rely on e-mail communication since students have individual course progression. However, we have established one discussion forum per course. My experience is that many students are reluctant to participate in the discussion

forums. We have experimented with chatting channels without much success because the format does not really support our focus on individual time flexibility. [CFU]

2.2 *Online student-to-student communication (synchronous and asynchronous).* What facilities does the LMS provide for student communication to other students and how successful is it? Is both synchronous and asynchronous communication between students supported?

2.3 *Online student to tutor/institution communication (synchronous and asynchronous).* What facilities does the LMS provide for student communication to the tutor ion to the institution's administration and how successful is it? Is both synchronous and asynchronous communication supported? Are these support services available 24 hours a day?

2.4 *Resources, library, references.* What facilities does the LMS provide for student acquisition of resources required by the course, especially library resources and references to required readings?

2.5 *Feedback on work and assignments.* What is the quality of provision of feedback to students on their work and assignments?

3 Tutor Support tools

3.1 *Tracking students - database questions.* How user friendly is the LMS for tutors wishing to track their group(s) of students and retrieve data from the student database?

TopClass tells us whether a student has accessed the learning material, which tests they have taken etc. We have also developed an e-mail based database system that holds information about the results from the student assignments. Whenever a tutor e-mails a student with a carbon copy (CC) to the systems e-mail address, text and header information is stored in the database. [CFU]

3.2 *Group management tools.* What facilities are provided by the LMS to the tutors for managing their group(s) of students?

TopClass provides a list of all students in the class. The list includes information about names, e-mail addresses, when they enrolled, and when they plan to finish the course. In addition, our CFU-database holds information about phone numbers, addresses etc. The CFU-database is available via a web-interface, but it is not integrated with the LMS and it is only available for the tutors. [CFU]

3.3 *Preparation of questions and assignments by tutor.* How successful is the LMS in providing tutors with user friendly and didactically successful tools for the design of student questions and assignments?

3.4 *Course planning for students (monitoring pace).* What tools are provided by the LMS to tutors to enable them to monitor and plan student progress?

3.5 *User-friendly administrative systems between tutor and institution.* What provision does the LMS make for successful tutor to institution communication?

4 Administration (student database and records)

4.1 *Enrolment procedures and fee paying.* What facilities does the LMS provide for student enrolments, course allocations and payment of fees?

The textbooks are included in the tuition fees and we have established a system for online payment via credit cards. The economy system we use for tuition fees is not integrated with our LMS. [CFU]

4.2 *Passwords and security.* How successfully does the LMS handle student access to the system and the security of all student interactions with the system?

4.3 *Student records database.* How successful is the system's student database, especially for data storage and data retrieval.

We have developed a separate database system for logistics, student registration etc. The system is accessible via a web-interface, but not integrated with the LMS. We are also required by the Ministry of education to use some additional student administrative systems that are not integrated with our LMS. [CFU]

4.4 *Examination and certification records.* What structures are provided for recording of data and results leading to examination and certification?

4.5 *Course, class and tutors database.* What facilities are provided for administration of courses, classes and tutors?

TopClass is not especially suitable if we want to get an overview over all courses and resources associated with the courses. Our CFU-database, you may call it a help-desk, is developed to present the additional information we need. [CFU]

5 Technology (quality of software)

5.1 *Server - hardware and software options.* What is the quality of server hardware and software options? How is the system integrated with existing software?

We have installed TopClass on a local CFU server. It has been extraordinary stable, with very little need for special attention. We will also install BlackBoard on a local CFU server. [CFU]

5.2 *Client - hardware and software options.* What is the quality of client hardware and software options? Does the system permit metatagging?

There is no TopClass client that should be installed on the students PCs. Neither do we rely on other software or plugins that students have to install on their local PCs. [CFU]

5.3 *Flexibility of didactic structure; updating, adaptability.* Is the didactic structure flexible or is it determined by the technology? How adaptable is the technology to updates and to new technology that becomes available to the market?

5.4 *Limitation of size (number of students, courses, tutors..)* How satisfactory is the LMS for handling varying numbers of students, courses, tutors? How does it cope with 100, 1000, or 10000 students and large course databases?

We have paid for a TopClass license that can handle 200 simultaneous users. This is more than enough to handle 1000 students. [CFU]

5.5 *Speed of system.* How is the speed of the system and student satisfaction? How does it cope with downloading courses and high bandwidth materials?

Our courses are developed so that they can be accessed by modem users. We do not rely on multimedia elements etc. that requires much bandwidth. [CFU]

6 Price

6.1 *Cost of the LMS (Learning Management System).* What is the cost of the LMS to the institution?

We pay 28.000 DKK per year for TopClass. In addition we use less than that amount on internal resources such as training and systems operation. [CFU]

6.2 *Annual fee.* What fees have to be paid annually for the system by the institution?

The tuition fees are DKK 850 per course for the PC Drivers license courses are, DKK 1,350 for the economy courses. This gives us a small surplus after we have paid the wages for 1.5 fulltime employees and 2-3 part-time employees. Some externally funded development projects, such as the Virtual Library project, give us extra income. [CFU]

6.3 *Student Enrolment fee (100 students, 1000 students, 10000 students.)* How do fees to use the LMS vary when the student base is 100 students, 1000 students, and 10000 students? Is online invoicing available?

6.4 *Maintenance costs: staff involved in management, IT specialists, trainers, etc* What is the maintenance course to the institution of the LMS and what staff resources are need to maintain it and keep it functioning?

6.5 *Training of teachers and learners and system users.* What costs are involved in staff and student training to use the LMS system?

Conclusion: Overall evaluation:

We have been very satisfied with TopClass. The graphic layout is somewhat old-fashioned, but it provides most of the functionality we need. I recommend the KISS-model, Keep It Simple S....[CFU]

What features would you like to see included in this LMS in the future?

In the future, I would like to see that all users have more bandwidth so that we can provide more advanced multimedia material. [CFU]