

## COMPREHENSIVE ANALYSIS OF EXISTING LEARNING MANAGEMENT SYSTEMS (LMSs)

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<b>Name of training manager:.</b>	
<b>LMS used:.</b>	<b>VC-Prolog-Tutor</b>
<b>customized? self-developed:</b>	<b>self developed June 98, students Nov.98</b>
<b>language of the system-admin</b>	<b>German, English,</b>
<b>transferability of the system?</b>	<b>yes</b>
<b>Number and proportion of students involved</b>	<b>60-80 registered users</b>
<b>courses, subjects, duration</b>	<b>3 courses, 1 semester</b>
<b>teacher, tutors in the system:</b>	<b>6-8</b>

### standardizations? meta-tagging, Dublin Core?

*statistical data on the system inquired: No of participants, begin, No of courses, identifying institution, range of courses, no. of teachers etc. proportion of staff engaged in this. experiences with upgrading, software support, new versions, customization, source code ownership etc.*

<p><b><i>1 Course development tools</i></b></p> <p><i>1.1 Course creation.</i> How satisfactory was the LMS for course creation?</p> <p><i>1.2 Structure and didactic flexibility - openness.</i> In the creation of course materials did the LMS permit didactic flexibility? Was the structure open to differing didactic possibilities?</p> <p><i>1.3 Teacher userfriendliness.</i> How easy was the LMS to use by teachers and course developers?</p> <p><i>1.4 Support for graphics, audio and video, moving image.</i> Did the LMS support the provision of graphical materials, moving images, audio and video in the course content?</p> <p><i>1.5 Questioning, assessment, assignments.</i> What provision was made by the LMS for student questioning and assessment and the design of student assignments?</p>	<p>Since this is self-developed and adapted to our courses it is good</p> <p>There are certain constraints: we suppose that there is a form of seminar-exercise system and that this system is obligatory for our students – we experimented with a different format but when it was facultative students had less interest.</p> <p>This question is in the core of our interest: the tutorial surrounding enables us to instal courses completely new User-administration, corrections of turned in assignments, automatic correction.</p> <p>From the server side we work with JAVA – so we may include anything Java can deal with!</p> <p>The formalized stuff is predesigned by the structure of the interface, so students need not install own system elements, so they may download components e.g. to test their assignments before „turning them in“, to see whether these make sense: the whole exercise administration is done by the system. Questions go via e-mail communication with the tutor.</p>
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<p><b>2 Student support tools</b></p> <p>2.1 <i>Interactivity possibilities.</i> What provision does the LMS make for student interaction?</p> <p>2.2 <i>Online student to student communication (synchronous and asynchronous).</i> 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?</p> <p>2.3 <i>Online student to tutor/institution communication (synchronous and asynchronous).</i> 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?</p> <p>2.4 <i>Resources, library, references.</i> What facilities does the LMS provide for student acquisition of resources required by the course, especially library resources and references to required readings?</p> <p>2.5 <i>Feedback on work and assignments.</i> What is the quality of provision of feedback to students on their work and assignments?</p>	<p>We have workgroups with list that may be opened to other groups- so different groups might work together. All other internetbased possibilities are included and not offered extra.</p> <p>Since the exercises also are valid for credits is the communication among students not so important- the system itself favours only asynchronous communication. But students naturally may use synchronous forms, if they wish.</p> <p>Communication between student and tutor is that the student turns in his exercises, the tutor comments on it and sends it back. Anything else can be done during weekly face-to-face sessions. The system is online 24/7- direct contact is reduced to normal working hours</p> <p>Each course has a homepage, there the author/tutor tells the resources he offers or which are needed. There is no direct link to the library system apart from usual internet-linkage.</p> <p>There is automatic feedback whenever a student turns in an assignment and a commented feedback by the tutor- no comments though when there is no credit poit given nor when the maximum has been reached.</p>
<p><b>3 Tutor Support tools</b></p> <p>3.1 <i>Tracking students - database questions.</i> How user friendly is the LMS for tutors wishing to track their group(s) of students and retrieve data from the student database?</p> <p>3.2 <i>Group management tools.</i> What facilities are provided by the LMS to the tutors for managing their group(s) of students?</p> <p>3.3 <i>Preparation of questions and assignments by tutor.</i> How successful is the LMS in providing tutors with user friendly and didactically successful tools for the design of student questions and assignments?</p>	<p>Tutors may see all students of a course, and what credits they reached He may see all assignments but not any of the log-in data.</p> <p>Groups are managed via the interface, new members, new grouping, new courses: all very easy- it happens that students regulate their groups all by themselves</p> <p>Only technical support, not centent-related – since everything is meant to enable the exercises, there need not be much room for other things: you have assignments and there are solutions. These are corrected. Thats it.</p>

<p>3.4 <i>Course planning for students (monitoring pace). What tools are provided by the LMS to tutors to enable them to monitor and plan student progress?</i></p> <p>3.5 <i>User-friendly administrative systems between tutor and institution. What provision does the LMS make for successful tutor to institution communication?</i></p>	<p>No special tool for this . The course –responsible person may comment on the exercises.</p> <p>Not necessary</p>
<p><b>4 Administration (student database and records)</b></p> <p>4.1 <i>Enrolment procedures and fee paying. What facilities does the LMS provide for student enrolments, course allocations and payment of fees?</i></p> <p>4.2 <i>Passwords and security. How successfully does the LMS handle student access to the system and the security of all student interactions with the system?</i></p> <p>4.3 <i>Student records database. How successful is the system's student database, especially for data storage and data retrieval.</i></p> <p>4.4 <i>Examination and certification records. What structures are provided for recording of data and results leading to examination and certification?</i></p> <p>4.5 <i>Course, class and tutors database. What facilities are provided for administration of courses, classes and tutors?</i></p>	<p>You log in into the system, your password has been received via e-mail ; you may only participate when you attend the main lecture face-to-face (in our case); one could use the system also in an open manner. The exercise part in our university functions only that way. Participants have to be enrolled as students of the university- no special fees.</p> <p>Via password , stored in a database, encrypted. Also tutors may administer new passwords for their level of responsibility.</p> <p>No problems, in the case of work-groups only data of individuals may be seen which the „owner“ the individual has agreed upon.</p> <p>These data are also stored in the database- just the ones for this exercise-system- because this system is additional to the normal enrolment/testing/certification procedures of the university. Just attending this system would not lead to a credit.</p> <p>Only 3 courses, not applicable</p>
<p><b>5 Technology (quality of software)</b></p> <p>5.1 <i>Server - hardware and software options. What is the quality of server hardware and software options?</i></p> <p>5.2 <i>Client - hardware and software options. What is the quality of client hardware and software options?</i></p> <p>5.3 <i>Flexibility of didactic structure; updating, adaptability. Is the didactic structure</i></p>	<p>Dual processor machinery, 250MB Hdisk space,LINUX software, Apache with JAVA 1.3 as web server, self-developed software, not integrated into anything else.</p> <p>Not applicable, the system is just for the exercises</p> <p>Restrictions due to the target of the project (exercises) the problem is financing for the future because it is an extra-</p>

<p>flexible ion is it determined by the technology? How adaptable is the technology to updates and to new technology that becomes available to the market?</p> <p>5.4 <i>Limitation of size (number of students, courses, tutors..)</i> 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?</p> <p>5.5 <i>Speed of system.</i> How is the speed of the system and student satisfaction? How does it cope with downloading courses and high bandwidth materials?</p>	<p>funded project.</p> <p>Systems of this kind are scalable – we have no experineec with more than 100 users at a time - probably one should use parallel machinery: technically no problem.</p> <p>You only need standard access to the Internet No large databases will be processed during work. No downloads necessary</p>
<p><b>6 Price</b></p> <p>6.1 <i>Cost of the LMS (Learning Management System).</i> What is the cost of the LMS to the institution?</p> <p>6.2 <i>Annual fee.</i> What fees have to be paid annually for the system by the institution?</p> <p>6.3 <i>Student Enrolment fee (100 students, 1000 students, 10000 students.)</i> How do fees to use the LMS vary when the student base is 100 students, 1000 students, 10000 students?</p> <p>6.4 <i>Maintenance costs: staff involved in management, IT specialists, trainers, etc</i> What is the maintenance course to the institution of the LMS and what staff resources are need to maintain it and keep it functioning?</p> <p>6.5 <i>Training of teachers and learners and system users.</i> What costs are involved in staff and student training to use the LMS system?</p> <p><b>What features would you like to see included in this LMS in the future?</b></p>	<p>Not calculable, it has been a research project</p> <p>Cost for an extra server, some €5000,--</p> <p>Normal enrolment fees, none extra.No online invoicing</p> <p>The project with two fulltime staff is over now, today it is planned that a student helper with 46 hrs a month will be able to run the system technically.</p> <p>Tutors received a 1-2 hrs instruction, so did the students; this was done by project team members- one would have to pay for travel etc in the future.</p> <p>One could think of an enlargement of this system into the direction of more courses and including tests and assignment system from other faculties.</p>
<p><b>Conclusion: Overall evaluation:</b></p>	