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THE USE OF E-LEARNING IN MEDICAL EDUCATION

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E-learning

E-learning comprises all forms of electronically supported learning and teaching.

The information and communication systems, whether networked learning or not, serve as specific media to implement the learning process.

E-learning is essentially the computer and network-enabled transfer of skills and knowledge. E-learning applications and processes include Web-based learning, computer-based learning, virtual education opportunities and digital collaboration. Content is delivered via the Internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio.
Setting the Scene...

• Drivers of change
• New environment
• Need to implement new approaches to meet needs
• Integrating vocational and technology
Terms

• Vocational Education
  – Skill-based learning
• Elearning
  – Technology-enabled learning
• Vocational E-Learning
  – Skill-based Technology-enabled learning
Goals of Education

• Acquire tools for survival
• Discover meaning
• Learning to learn
• More humane communities
• Role in social reform/reconstruction
• Not only to equip to contend with reform, but to initiate
Change in “Teacher’s” Role

• Due to focus of individual, social objectives and furthering of technical field, teacher is partner with learner

• Teacher is helper, facilitator, guide, encourager

• Student is not object of teaching, but focus of learning
What do learners need to learn?

• Content – text, videos, interactive activities, animations, etc.
• Forums to connect with learners (i.e. replicate real life in career)
• Mentorship – apprentice, instructor/chef
• Access – education outside of a physical location
• Flexibility – education that accounts for life
Stages of Knowing

• Linking – association between concepts/knowledge
• Reproducing – copying something as taught
• Interpreting – using existing knowledge to recognize needs and guide actions/decisions in new situation
• Applying – applying existing knowledge/skills to solve new problems
How Can Technology Meet Vocational Education Goals?

• Technology as a supplement, not replacement
• Tech improves access & flexibility
• Tech can communicate skills & theories
• Tech – better “quality” assurance
Combining Technology & Classroom

• Blended
• Saves instruction time
• Increases learning efficiency
• Anxiety and intimidation in regular classroom minimized
• Practice to proficiency
• Variable learning rates
Tools & Technologies

• Streaming
• Video
• Audio – audio blogging, pronunciation, VoIP
• Internet – LMS, blogging, “simple starts”, email, discussions
• Software – development, delivery, collaborate
• Simulations
Implications

• Technology as a tool
• Elearning meets needs of technical education – access, flexibility, quality
• Theory, skills, relationships, mentorship – can all be taught/enhanced via elearning
What is still needed

• Administration support
• Model for elearning development – skill based industry (plumbing etc.)
• Tech advances – ability to stream confidently
• Training instructors how to develop and use technology in teaching
LMS

• Learning Management Systems (LMS)
  – Administration and control of the learning process
  – Tracking
  – Communication
CMS

- Content Management Systems (CMS)
  - Creation and administration of content
  - Presentation and publication
  - Content-syndication (exchange)
LCMS

• Learning Content Management Systems (LCMS)
  – Integration of LMS & CMS
  – E-Learning-Standards (IMS, SCORM)
  – e.g. ILIAS 3
C3MS

– Content, community and collaboration management systems (C3MS)
– C3MSs are efficient learning tools to support socio-constructivist approaches such as project-based learning in a virtual environment.
– The teacher is manager, orchestrator and facilitator.
## Products

<table>
<thead>
<tr>
<th>Product</th>
<th>URL</th>
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<tbody>
<tr>
<td>Adept</td>
<td><a href="http://sourceforge.net/projects/adept">http://sourceforge.net/projects/adept</a></td>
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<tr>
<td>Blackboard</td>
<td><a href="http://www.blackboard.com/">http://www.blackboard.com/</a></td>
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<tr>
<td>Bolinos</td>
<td><a href="http://www.med-ia.ch/med-ia/bolinos/">http://www.med-ia.ch/med-ia/bolinos/</a></td>
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<td>Claroline</td>
<td><a href="http://www.claroline.net/">http://www.claroline.net/</a></td>
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<td>ClassAct &amp; ClassCampus</td>
<td><a href="http://www.ljgroup.com">http://www.ljgroup.com</a></td>
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<td><a href="http://classweb.ucla.edu/">http://classweb.ucla.edu/</a></td>
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<td>eCollege</td>
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<td><a href="http://eledge.sourceforge.net/">http://eledge.sourceforge.net/</a></td>
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<tr>
<td>Fle3</td>
<td><a href="http://fle3.uiah.fi/">http://fle3.uiah.fi/</a></td>
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<tr>
<td>FirstClass</td>
<td><a href="http://www.softarc.com/">http://www.softarc.com/</a></td>
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<td>Freestyle Learning Home 3.0</td>
<td><a href="http://pcwi122.uni-muenster.de/fsl/index.php">http://pcwi122.uni-muenster.de/fsl/index.php</a></td>
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<tr>
<td><strong>ILIAS</strong></td>
<td><a href="http://www.ilias.uni-koeln.de/ios/index.html">http://www.ilias.uni-koeln.de/ios/index.html</a></td>
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<tr>
<td>Knowledge Environment for Web-based Learning (KEWL)</td>
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<td>Merlin</td>
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<td>OLAT</td>
<td><a href="http://www.olat.org/bin/view">http://www.olat.org/bin/view</a></td>
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<td>Virtual Campus VLE</td>
<td><a href="http://www.teknical.com">http://www.teknical.com</a></td>
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<tr>
<td>Virtual-U Suite (VU)</td>
<td><a href="http://elearningsolutionsinc.com/">http://elearningsolutionsinc.com/</a></td>
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Open Source Learning Platforms

- Claroline
- Moodle
- ILIAS
Claroline

• „Claroline is a free application allowing teachers or education organizations to create and administrate courses through the web.“
  – built over pedagogical principles
  – allowing a large variety of pedagogical setup including widening of traditional classroom and online collaborative learning
  – 30 languages
Claroline

Five poles model (Lebrun, 1999):
Claroline

Tools to promote learning:
• Information
• Motivation
• Activities
• Interaction
• Productions
Claroline

A synthetic model for eLearning with Claroline:
Claroline

- Creating a course
- Try out:
ILIAS

- „is an Open Source Learning Management System for developing and realising web-based eLearning.“
  - to reduce the costs of using new media in education
  - to offer the maximum level of customer influence in the implementation of a LMS
  - allows efficient creation of courses and course materials
  - offers standardized tools and templates for the learning and working process including integrated navigation and administration
Evaluation

• Minimum Requirements
  – Usability
  – Possible extensions
  – Adaptability of layout
  – Good performance
  – Languages
  – E-Learning Standards
  – Low costs
Introduction to Moodle

Modular Object Oriented Developmental Learning Environment
What Is Moodle? (Continuation)

Moodle was created by Martin Dougiamas, a WebCT administrator at Curtin University, Australia, who has graduate degrees in Computer Science and Education. His Ph.D. examined "The use of Open Source software to support a social constructionist epistemology of teaching and learning within Internet-based communities of reflective inquiry". This research has strongly influenced the design of Moodle, providing pedagogical aspects missing from many other e-learning platforms.
Top 100 Tools for Learning 2011.
This, the 5th Annual Survey of Learning Tools, was finalised on 13 November 2011. This year’s list was compiled from the Top 10 Tools lists of 531 learning professionals worldwide – from education, training and workplace learning.

Previous years rankings shown in grey | 2010 | 2009 | 2008 | 2007
F = free, P = paid for, D = download, O = online

1. Twitter - micro-sharing site | 1 | 1 | 11 | 43= | F O
2. YouTube - video-sharing tool | 2 | 3 | 18 | 22= | F O
3. Google Docs – collaboration suite (incl Google Forms) | 3 | 5 | 7 | 14 | F O
4. Skype - instant messaging/VoIP tool | 6 | 11= | 4 | 3= | F/P D
5. WordPress - blogging tool | 8 | 6 | 5 | 6=6= | F O/D
6. Dropbox - file synching software | 13 | 71= | - | - | F/P O/D
7. Prezi - presentation software | 12 | 28 | - | - | F O
8. Moodle- course management system | 10 | 14= | 9 | 12= | F/D
9. Slideshare - presentation sharing site | 5 | 7 | 20 | 31 | F O
10. (Edu)Glogster - interactive poster tool | 25 | 55= | - | - | F O
Website: [www.moodle.org](http://www.moodle.org)

**Cost:** Free (open source)

**Availability:** Download

**Platform:** Windows, Mac, Linux

**Top 100 Tools 2011:** 8

**Top 100 Tools 2010:** 10

**Top 100 Tools 2009:** 14=

**Top 100 Tools 2008:** 9

**Top 100 Tools 2007:** 12=
What Is Moodle?

Moodle is an open source course management system (CMS) used by universities, community colleges, K-12 schools, businesses, and even individual instructors to add web technology to their courses.

The name Moodle has two meanings. First, it's an acronym for Modular Object Oriented Developmental Learning Environment. Moodle is also a verb meaning "to let the mind or body wander and do something creative but without particular purpose."
Moodle

• „Moodle is a free course management system, designed using pedagogical principles.“
  – to help educators create effective online learning communities
  – it can scale from a single-teacher site to a 40000-student University
Moodle

• Philosophy
  – Constructivism
  – Constructionism
  – Social Constructivism
  – Connected and Separate
What Is a Course Management System?

CMSs are web applications, meaning they run on a server and are accessed by using a web browser.

CMSs give educators tools to create a course web site and provide access control so only enrolled students can view it. Aside from access control, CMSs offer a wide variety of tools that can make your course more effective. They provide an easy way to upload and share materials, hold online discussions and chats, give quizzes and surveys, gather and review assignments, and record grades.

CMSs can be used to enhance teaching by taking advantage of the Internet without replacing the need for a teacher.
What Makes Moodle Special?

**Free and Open Source**

Open source software is aligned with the academic community's values of freedom, peer review, and knowledge sharing. Users can also write new features, fix bugs, improve performance, or simply learn from looking at how other people solved a problem.

Moodle is available for free on the Web ([http://www.moodle.org](http://www.moodle.org)). Moodle costs nothing to download and can install it on as many servers unlike expensive proprietary CMSs that require hefty maintenance contracts,
What Makes Moodle Special? (continuation)

**Educational Philosophy**

Moodle builds the tools into an interface that makes the learning task central. It can organize course by week, by topic, or by a social arrangement.

Other CMSs support a content model that encourages instructors to upload a lot of static content, Moodle focuses on tools for discussion and sharing artifacts. So the focus isn't on delivering information, it's on sharing ideas and engaging in the construction of knowledge. Moodle's design philosophy makes this a uniquely teacher-friendly package that represents the first generation of educational tools that are truly useful.
What Makes Moodle Special? (continuation)

Community

Moodle has a significant user base with 52,153 registered sites with 30,176,528 users in 2,770,832 courses in 207 countries and more than 75 languages are supported (as of March 27, 2011).
# Feature Comparison to other proprietary CMS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Blackboard</th>
<th>WebCT</th>
<th>Moodle</th>
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<tr>
<td>Upload and share documents</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Create content online in HTML</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
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<tr>
<td>Online Discussions</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Grade discussions / participation</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Online Chat</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Student peer review</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Online Quizzes / Suveys</td>
<td>Y</td>
<td>Y</td>
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<td>Student submission of documents</td>
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<td>Student Journals</td>
<td>N</td>
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<td>Y</td>
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<tr>
<td>Embedded glossary</td>
<td>N</td>
<td>N</td>
<td>Y</td>
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</table>
Moodle Features

News (forum) and Events (calendar)

Students know the upcoming events, such as deadlines and submission dates. Also students can be informed on any course news through a forum, in which they can respond.

Add Resources:

Compose a Text Page or Web Page
Allows you to created sophisticated documents which can be displayed in any web browser. The editor works like a word-processing which used the formatting tools to customize text.
Moodle Features (continuation)

Create Link to File or Web Site
Allows you to upload a Word document, a powerpoint presentation, a spreadsheet or any other file type. In addition you can also easily add links to other web sites to give your students access to important web resources.

File Formats that can be uploaded:
• RTF
• HTML
• PDF
• PowerPoint (ppt)
• Pictures (pict, tiff, jpeg , gif, png)
• Audio files (wav, mp3, ram, mov)
• Video files (mov, wmv, rv)
Create Activities:

**Assignment**
The assignment module gives you an easy way to allow students to upload any digital content for grading. You can ask them to submit essays, spreadsheets, presentations, photographs, or small audio or video clips. Anything they can store on their hard drives can be submitted in response to an assignment.

**Chats**
The Chat module allows participants to have a real-time synchronous discussion via the web. This is a useful way to get a different understanding of each other and the topic being discussed - the mode of using a chat room is quite different from the synchronous forums. The Chat module contains a number of features for managing and reviewing chat discussions.
**Moodle Features** (continuation)

**Choice**

A choice activity is very simple - you ask a question and specify a choice of responses. Students can make their choice, and you have a report screen where you can see the results. You could use it for quick polls or class votes.

**Forum**

Forums are the primary tool for having a discussion online and are the central organizing feature in the Social course type. Forums allow you and your students to communicate with each other at any time, from anywhere with an Internet connection. Students don't have to be logged in at the same time you are to communicate with you or their classmate.
Glossary
The glossary tool has a number of features that make it easy for you and your class to develop shared vocabulary lists add comments to definitions, and even link every appearance of a word in a course to its' glossary entry.

Hot Potatoes Quiz
Hot Potatoes is an easy-to-use software that can be downloaded for free from the internet. It is an excellent resource for making graphically attractive interactive quizzes and activities, such as multiple choice and matching exercises.

Lesson
A lesson delivers content in an interesting and flexible way. It consists of a number of pages. Each page normally ends with a question and a number of possible answers. Depending on the student's choice of answer they either progress to the next page or are taken back to a previous page. Navigation through the lesson can be straightforward or complex, depending largely on the structure of the material being presented.
Quizzes
Moodle's quiz module is one of the most complex pieces of the system. The community has added a large number of options and tools to the quiz engine, making it extremely flexible. You can create quizzes with different question types, randomly generate quizzes from pools of questions, allow students to retake quizzes multiple times, and have the computer score it all.

Types:
• Multiple Choice
  Both single- and multiple-answer multiple-choice questions are possible.

• True/False
  A simple multiple-choice question with only two possible answers.

• Short Answer
  Students answer this question by typing a word or phrase. You need to provide a list of acceptable answers.
Types (Quizzes):

• Numerical
  A short-answer question that accepts a numerical value instead of a word.

• Matching
  A standard two-column matching question.

• Description
  This embeds some text into the quiz. It's not a question but it's useful for giving mid-quiz instructions.

• Random Question
  Creating this question type allows you to add a question randomly drawn from the category to your quiz.

• Random Short-Answer Matching
  An interesting question type. The subquestions for the matching exercise are randomly drawn from short-answer questions in the category.
Moodle Features (continuation)

Survey
The survey module provides a number of predefined survey instruments that are useful in evaluating and understanding your class. They can be given to students early in the course as a diagnostic tool and at the end of the course as an evaluation tool.

Wikis
A wiki is a collection of collaboratively authored web documents. Basically, a wiki page is a web page everyone in your class can create together, right in the browser, without needing to know HTML. A wiki starts with one front page. Each author can add other pages to the wiki by simply creating a link to a page that doesn't exist yet.

Workshop
A Workshop is a peer assessment activity with a huge array of options. It allows participants to assess each other's projects, as well as exemplar projects, in a number of ways. It also coordinates the collection and distribution of these assessments in a variety of ways.
Moodle

- Course Management Features
  - Assignment
  - Chat
  - Choice
  - Dialogue

Assignment activity can require the learner to upload a completed project.

Property screens guide instructor through setup when creating a new Assignment.
Moodle

- Course Management Features
  - Forums
  - Quiz
Moodle

- **Course Management Features**
  - Resource
  - Survey
  - Workshop
Moodle

- Learner Management Features
  - Access to information about learners
  - Ability to segment participants into groups
  - Site, course and user calendar event scheduling
  - Etc.
Conclusions

• Change drivers are significant
• New student/industry needs require new approaches
• Continued vocational e-learning can:
  – Expand the field
  – Improve education
  – Result in higher student satisfaction
  – Greater organizational quality control
Resources

• Claroline: http://www.claroline.net/
• ILIAS: http://achill.ilias.uni-koeln.de/ios/
• Microsoft Learning Gateway: http://www.microsoft.com/emea/education/microsoftLearningGateway.mspx
• Moodle: http://moodle.org/
• WebCT: http://www.webct.com/
• Educause: 7 Things You Should Know About Lecture Capture http://www.educause.edu/ELI/7ThingsYouShouldKnowAboutLectu/163555
• Campus Technology. Capturing the Market by Rama Ramaswami http://campustechnology.com/articles/2009/06/01/lecture-capture.aspx
• http://www.youtube.com/watch?v=vfimFQB8LN8
• http://www.youtube.com/watch?v=T7JWQLgLTw4&feature=endscreen&NR=1
• http://vimeo.com/29841377
• http://www.youtube.com/watch?v=jgaSSlh59Ss&feature=endscreen&NR=1
• http://www.youtube.com/watch?v=qLeNGykRAvU&feature=related
• http://vimeo.com/26633893
• http://www.youtube.com/watch?v=OhdUivs72zE&feature=relmfu
• http://www.youtube.com/results?search_query=Moodle+Tutorial&oq=Moodle+Tutorial&aq=f&aqi=g4&aql=&gs_sm=e&gs_udi=60795l60795l0l62681l1l1l0l0l0l0l205l205l2-1l1l0