The use of e-learning course management systems to support learning strategies and to improve self-regulated learning

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Outline

- Executive summary
- Educational technology revolution
- The Utilisation of CMS
- The underutilization of CMS
- A metacognitive approach to CMS
- Learning objects and metadata in CMS
- Characteristics of a metacognitive CMS
- Instructor in metacognitive CMS
- Conclusion
Executive summary (1/3)

- Adoption of Course Management Systems (CMS)
- Increase in today’s higher education

CMS Software program

Web-based

Support a number of activities and course management procedures

Blackboard, WebCT, eCollege, Moodle, Desire2Learn, Angel, etc

(Severson, 2004)
Executive summary (2/3)

- Improve students’ and educators’ self-regulation skills, in particular their metacognitive skills.
- CMS for the delivery of e-learning often underutilized.
- CMSs do not adequately scaffold learners to improve their self-regulation skills.
- Learning styles, prior knowledge, culture, and self-regulation skills

learners who can demonstrate ‘personal initiative, perseverance and adaptive skill in pursuing learning’ (Zimmerman, 2002).
Executive summary (3/3)

- Application of learners’ metacognitive skills
  - Prompting learners to plan
  - Attend to relevant content
  - Monitor and evaluate their learning

Extensive training and support is essential if educators are expected to develop and implement CMSs as powerful learning tools.
Educational technology revolution

- Learner-centred education & claimed that it would deliver more independent & active students (Swinney, 2004)

lead education to new learning method

- Than 96 percent have online course offerings (Allen & Seaman, 2006)
- About 3.2 million students were enrolled in at least one online course in the US
- Growing integration of CMSs in higher education
- Need for training in the effective use of CMSs
The utilisation of CMS (1/2)

- CMS can be used as a supplement to the traditional classroom curriculum
- Electronic repository of course materials

- Course syllabus is electronically
- In a different place
- Offer students more flexibility in accessing these materials

- CMS deliver additional or supplemental course materials
- More intellectually learning experience
The utilisation of CMS (2/2)

- More flexibility for university administration

  - Increased level of comfort or expertise
  - Level of expertise and strategies in order to design high quality instruction
  - Participate in synchronous and asynchronous
  - Own pace through the course materials
  - Determining their personal needs
# The underutilization of CMS

- Provide online access to course materials, assignments, discussions, assessment, etc.

<table>
<thead>
<tr>
<th>Underutilization</th>
<th>Improve</th>
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<tbody>
<tr>
<td>Systems’ features do not function properly</td>
<td>Good framework/design/tailored curriculum (Abitt, 2005)</td>
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<tr>
<td>Multimedia ways are underutilized</td>
<td>Initiative for managing their own learning processes (Boekaerts, 1997)</td>
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<td>Only text &amp; not promote interactivity</td>
<td>Dual Coding Theory (Paivio, 1986) --picture–picture, text–text, picture–text</td>
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<tr>
<td>Communication is limited</td>
<td>Discussion forums, chat and e-mail (Nelson, 2003)</td>
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A metacognitive approach to CMS (1/3)


Diagram:
- Meta Level
  - Modeling and Prompting evidenced by toggling and editing (metacognitive tools e.g. learning mentor)
- Object Level
  - Task definition/preparation
  - Goal setting, planning, enacting/ongoing study
  - Cognitive strategies applied
- Evaluation
  - Domain-specific knowledge
  - Self-as-learner
  - Communities of practice and reflection (role play and discussion)

References:
- Nelson & Narens (1990)
- Winne & Hadwin (1998)
- Lin (2001)
- Dunlosky & Hertzog (1998)
A metacognitive approach to CMS (2/3)

- **COPES** (Winne & Hadwin, 1998)
  - Cognitive strategies improves recall for a particular content
  - Feedback mechanism and allows learners to adjust their learning accordingly
  - Formative assessment should engage in monitoring and control

- **Metacognitive framework** (Lin, 2001)
  - Interaction between self-as-learner and the social environment
  - Collaboration and communication are key elements for self-assessment and reflection within
A metacognitive approach to CMS (3/3)

- Theoretical framework of self-regulated learning (Dunlosky & Hertzog, 1998)
  - Self-organized, self-directed, and independent, and actively participate
  - Strategic knowledge to collect and organize data and then demonstrate what they have learned
Learning objects and metadata in CMS

- Metacognitive approach to design within CMSs
  - Learning objects reuse is based on the creation and use of metadata
  - Learning objects search, retrieval and management
- Learner characteristics such as age, prior knowledge, or the level of education
- CMS designed by different organizations
Characteristics of a metacognitive CMS

- Instructional principles of constructivism suggested for CMS
  - Concerns the determination
  - Increasing refinement of strategies
- Modelling and prompting the learners can monitor and adapt their strategies to better their learning outcomes
- Feedback loops
- Help students to become self-regulated learners
Instructor in metacognitive CMS

- A guide, coordinator, facilitator, and coach of the learning process
- Structure their course content and to choose the web-based communication tools that fit best into the pedagogical framework
- Necessary use it effectively for instruction
- Training and support is absolutely
Conclusion

- metacognitive skills, learning styles, prior knowledge, and cultures
- A metacognitive approach to the design and use of CMS can offer new opportunities
- Personalise instructional support in education
- Instructional designers, graphic designers, multimedia specialists, programmers, and information system specialists
- Instructors should be trained
Thanks for your attention