IAA study group 2.8 on “e-learning in space life sciences”

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Overall goals of the study group

- To promote cross-disciplinary collaboration in space medicine
- To report on (electronic) educational activities occurring around the globe in this scientific area
- To facilitate the utilization of contemporary platforms/environments for e-learning deployment
- To spread experiences related to conformance with educational standards
- To facilitate the e-exchange of educational digital material among educators
- To experiment with the implementation of digital copyright
Intermediate Goals

- To conduct a survey on current use of educational digital material within associated Institutions and IAA members
- To collect all the above information in a common/shared educational environment
- To split into various thematic areas and build cross-linkages/connections
- To enable the uploading of material in the various thematic areas
- To enable the registration of interested parties (e.g. other educators, students)
- To standardize the educational material with the use of educational standards (like SCORM, HealthCare LOM)
- To experiment with the implementation of digital copyright (Creative Commons)
- To enable the exchange of educational material among educators given certain copyright schemes
Technical conditions for the development of web-based courses

- Various educational platforms support web-based courses and perform as Learning Management Systems (LMS) that enable the management of e-learning courses.

- LMS standards are used to ensure interoperability and transfer of courses between platforms.

- The Sharable Content Object Reference Model (SCORM) by ADL is a standard that adopts specific requirements to enable interoperability, accessibility, reusability, sequencing between learning objects.

- SCORM is embraced by a large number of institutions and corporations.
e-Learning Environments

- Student-centred teaching plan
- Personal data protection
- 3 users:
  - User-Student
  - User-Teacher
  - Administrator
- Learning methods:
  - self-directed
  - Asynchronous communication
  - Synchronous or Virtual Classroom
Moodle: Modular Object-Oriented Dynamic Learning Environment
Moodle Features

- Open source
- Easy creation of courses from existing resources
- Course content which can be re-used with different learners, including content from other vendors (Blackboard, WebCT etc.)
- Enrollment and learner authentication which is simple yet secure
- Intuitive online learner and teacher management features
- An active support community to help solve problems and generate new ideas
- Affordability
SCORM
(Sharable Content Object Reference Model)

- Consists of small, distributable learning entities (Sharable Content Objects (SCOs))
- SCO’s are
  - Small in size
  - Reusable
  - Provide solid autonomous learning material but also in combination with others
- The combination of SCO’s leads to:
  - An educational unit
  - A complete course
  - A training field
- The result is a “Package as one object” (a ZIP file)
Our approach

1. Creation of LOM xml file
2. Creation of SCORM Package by the use of a SCORM Editor
3. Import LOM xml file into SCORM Package (.ZIP)

E-learning Environment

SCORM Run-Time Environment

SCORM Package
- imsmanifest.xml
- LOM XML file

Link

Learning Objects Repository
We can envisage the use of “Blogs” and “Wikis”…

- A related Web information sharing technology is the ‘blog’. A blog (WeBLOG) is a Web site that contains dated entries in reverse chronological order (most recent first) about a particular topic.
- Functioning as an online journal, blogs can be written by one person or a group of contributors.
- Entries contain commentary and links to other Web sites, and images as well as a search facility may also be included.

- A wiki (from Hawaiian *wiki*, to hurry, swift) is a collaborative Web site whose content can be edited by anyone who has access to it.
We may also envisage the use of “Podcasts”...

- “Podcasting’s essence is about creating content (audio or video—vodcasts) for an audience that wants to listen when they want, where they want, and how they want.”*

- Advantages:
  - Listen on your computer or download to portable MP3 players and listen on the move/anywhere (perfect for the busy health professional). But audio and video files can be large in size; users must have sufficient bandwidth to download them.
  - Support for auditory learners (it is claimed that the primary learning style in at least 30% of learners is auditory).

... and why not the “Second Life” environment...
Members of the study group

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SECRETARY

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- Vincent Boles (USA)
- Ludmila Buravkova (Russia)
- Jean-Michel Contant (France)
- Mary Anne Frey (USA)
- Claudie Hauger (France)
- Nick Kanas (USA)
- Antonios Kyparos (Greece)
- Chiaki Mukai (Japan)
- Christos Papadelis (Italy)
- Thais Russomano (Brazil)
- Ashot Sargsyan ( )
- Nikolaos Spyrou (Greece)
- Patrik Sundblad ( )
- Joan Vernikos (USA)
- Dengyuan ZHUANG (China)
Set up

- During the 1st year, the system was set up at the Lab of Medical Informatics, Aristotle University of Thessaloniki, Greece (hardware and software):
  - [http://aerospace.med.auth.gr](http://aerospace.med.auth.gr)
  - A welcome page and then different courses may be chosen
  - Username and passwords can be set
  - Enrolment or free attendance may be enforced / allowed
  - Provide specific links to/from IAA
Progress in past six months

- A literature review has been initiated already
- Opened an open source educational environment. (aerospace.med.auth.gr).
- This will be facilitating temporarily both the “study group web site”, as well as, the “collaboration environment site”.
- Initial set up of course on “Pulmonary Medicine” which is acting like a demo is already available there.
- Instructions for login and use of the educational environment have been drafted and are being delivered to study group members.
- A survey questionnaire has been drafted (is being fine-tuned). The survey is web based using the open source tool “PHP-Surveyor” and is hosted upon: http://www.edumed.gr/questionnaire/phpsurveyor//index.php?sid=24.
Educational Environment
http://aerospace.med.auth.gr
Example course available for "Pulmonary Medicine" (in Greek)
IAA SG2.8 Web Site News space: acts as collaboration space for group members
IAA SG2.8, data collection form

A template was made to facilitate the data collection re the courses/modules:

- creator
- copyright
- languages of instruction
- educational goals and objectives
- educational context
- learning outcomes
- content outline
- keywords
- teaching methods & strategies
- type
- instructions for use
- instructions hours / workload
- indicative bibliography
- life cycle
Questionnaire - survey

- **Aerospace Survey**
- A survey for the IAU study group (SS 26) on "e-learning in Space Life Sciences"

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
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<tbody>
<tr>
<td>1. <em>Institution Name, Department</em></td>
<td>[ ]</td>
</tr>
<tr>
<td>2. <strong>Is there a Learning (course) Management System (LMS) software available in your institution?</strong>&lt;br&gt;[Only answer this if the following conditions are met:] Is question 1 answered &quot;Yes&quot;?&lt;br&gt;[Only answer this if the following conditions are met:] you answered &quot;Yes&quot; in question 2. Which is the LMS available and/or used at your Institute?</td>
<td>[ ] Moodle&lt;br&gt;[ ] eClass&lt;br&gt;[ ] Claroline&lt;br&gt;[ ] Blackboard Academic Suite&lt;br&gt;[ ] WebCT&lt;br&gt;[ ] eXACT&lt;br&gt;[ ] ATutor&lt;br&gt;[ ] Other</td>
</tr>
<tr>
<td>3. <strong>What kind of features are available in your LCMS?</strong>&lt;br&gt;[Only answer this if the following conditions are met:] Is question 2 answered &quot;Yes&quot;?</td>
<td>[ ] Uploading of (file) resources (ppts, pdfs, etc)&lt;br&gt;[ ] Chat between participants&lt;br&gt;[ ] Class Wide&lt;br&gt;[ ] Other</td>
</tr>
</tbody>
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Immediate and Future activities

- Finalise and complete the online survey
- Turn digital material into SCORM compliant material,
- Experiment with Creative Commons,
- Upload on e-learning space,
- Experiment with their interaction friendliness and easiness to use
- Fully report on each activity.
Longer term goals

- Our target community is initially medical students, which can be extended in all science students, teachers, universities and medical colleges, medical associations and medical doctors, as well as researchers in space medicine, and space life sciences.
- SG 2.8 secretary was awarded a European Project on “medical education content sharing” and achieved funding from the EU for the next 3 years.
- It is believed that there will be a chance, some of the achievements of this SG to be able to continue with partial funding from this project (which will be hopefully available to some extent to study group members – especially those related to medical education).
mEducator: Multi-type Content Repurposing and Sharing in Medical Education

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mEducator

- To be funded by the
  - eContentplus 2008 programme
  - European Commission, Information Society and Media Directorate-General, Digital Content & Cognitive Systems
- Best Practice Network
- Duration 3 years
- Starting in 2009

Luxemburg, 26/02/2009
## m Educator Partners

<table>
<thead>
<tr>
<th></th>
<th>Institution</th>
<th>Country</th>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aristotle University of Thessaloniki</td>
<td>GR</td>
<td>Coordinator, Technology provider, Content provider, User/Evaluation, Dissemination</td>
</tr>
<tr>
<td>2</td>
<td>University of Cyprus</td>
<td>CY</td>
<td>Technology Provider, Content provider, User/Evaluation, Dissemination</td>
</tr>
<tr>
<td>3</td>
<td>Democritus University of Thrace</td>
<td>GR</td>
<td>Content provider, Technology provider, User/Evaluation, Dissemination</td>
</tr>
<tr>
<td>4</td>
<td>SITUSI Limited</td>
<td>IR</td>
<td>Content provider, Technology provider, Dissemination</td>
</tr>
<tr>
<td>5</td>
<td>Technical Univ. of Cluj-Napoca</td>
<td>RO</td>
<td>Technology provider, Pedagogical expert</td>
</tr>
<tr>
<td>6</td>
<td>Université Nice Sophia Antipolis</td>
<td>FR</td>
<td>Content provider, User</td>
</tr>
<tr>
<td>7</td>
<td>Medical University Plovdiv</td>
<td>BG</td>
<td>Pedagogical expert, Content provider, User</td>
</tr>
<tr>
<td>8</td>
<td>Università degli studi di Catania</td>
<td>IT</td>
<td>Pedagogical expert, Content provider, User/Evaluation</td>
</tr>
<tr>
<td>9</td>
<td>University of Helsinki</td>
<td>FI</td>
<td>Pedagogical expert, Evaluation</td>
</tr>
<tr>
<td>10</td>
<td>St George's Hospital Medical School</td>
<td>UK</td>
<td>Standardisation Body, Technology and Content Provider</td>
</tr>
<tr>
<td>11</td>
<td>Succubus Interactive</td>
<td>FR</td>
<td>Content and Technology Provider</td>
</tr>
<tr>
<td>12</td>
<td>The Open University</td>
<td>UK</td>
<td>Technology Provider</td>
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<tr>
<td>13</td>
<td>Coventry University</td>
<td>UK</td>
<td>Content provider, Technology provider</td>
</tr>
<tr>
<td>14</td>
<td>European Cervical Cancer Association</td>
<td>FR</td>
<td>User/Evaluation</td>
</tr>
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Questions and concerns ??

- Ultimate goal/focus of study group needs to be towards recommendations
- The study will not be bound to any tool/solution, but will focus on the international collection of “practice” and identify gaps, make recommendations
- There is a risk to “act locally”… Thus, SG2.8 will try to expand and involve as many “topic experts” as possible
- Thus, the survey will try to collect as much of this material and experience as possibly achievable
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