E-Learning:

The Technical Aspects

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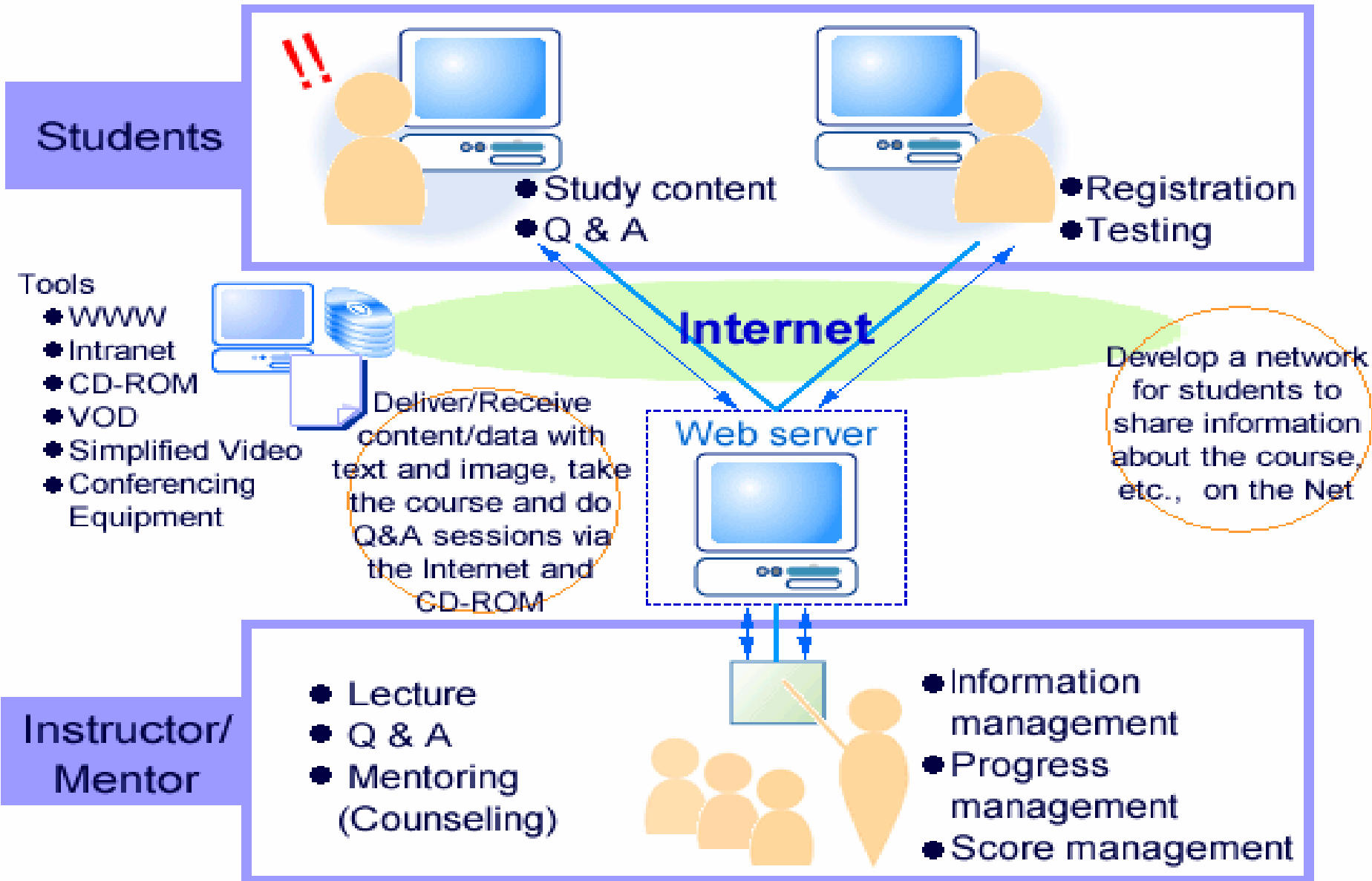
Presentation Outline

▶ What is e-Learning?

▶ E-Learning Technology

▶ Reusability, standards and learning objects

   - **SCORM:**
- What is SCORM?, What does SCORM let you do?, What is a SCO?
- Advantages and Disadvantages of SCORM

▶ Communication technologies used in e-learning

▶ E-Learning 2.0

What is e-Learning

▶ Electronic learning (or e-Learning or eLearning) is a type of education where the medium of instruction is computer technology.

▶ No in-person interaction may take place in some instances. E-learning is used interchangeably in a wide variety of contexts.

▶ In companies it is referred to the strategies that use the company network to deliver training courses to employees.

▶ In the USA, it is defined as a planned teaching/learning experience that uses a wide spectrum of technologies mainly Internet to reach learners at a distance.

▶ Lately in most Universities, e-learning is used to define a specific mode to attend a course or programs of study where the students rarely, if ever, attend face-to-face or for on-campus access to educational facilities, because they study on-line.

What is e-Learning

Presentation Formats

▶ Teaching based content VS resource-based content
(text-based with a good mix of graphics; less graphics and animation)

▶ Flash based VS PowerPoint based

▶ Text-led VS Voice-led

E-Learning Technology

► Building Asynchronous and Synchronous Teaching-Learning Environments

► Today many technologies can be, and are, used in   e-Learning, from blogs to collaborative software, ePortfolios, and virtual classrooms

► M-Learning

► Blended Learning

▶ Much effort has been put into the technical reuse of electronically-based teaching materials and in particular creating or re-using *Learning Objects.*

▶ These are self contained units that are properly tagged with keywords, or other **metadata**, and often stored in an **XML** file format.

▶ Creating a course requires putting together a sequence of learning objects. There are both proprietary and open, non-commercial and commercial, peer-reviewed repositories of learning objects.

▶ A common standard format for e-learning content is SCORM (Sharable Content Object Reference Model) whilst other specifications allow for the transporting of "learning objects" (Schools Interoperability Framework) or categorizing meta-data (LOM).

Source: http://www.adlnet.gov/scorm/

What is SCORM?

▶ A collection of specifications adapted from multiple sources by Advanced Distributed Learning (ADL) to provide a comprehensive suite of e-learning capabilities that enable accessibility, interoperability, durability, reusability, and cost effectiveness of Web-based learning content.

▶ Brings other standards together:
  – AICC, IMS, IEEE, ARIADNE

Source: http://www.adlnet.gov/scorm/

What is SCORM? (Cont'd)

▶ **In short, SCORM is a set of specifications for developing, packaging and delivering high-quality education and training content/materials whenever and wherever they are needed. SCORM compliance leverages course development investments by ensuring that compliant courses are "RAID":**

▷ Reusable: Easily modified and used by different development tools and platforms.

▷ Accessible: Can be searched and made available as needed by both learners and content developers.

▷ Interoperable: Operate across a wide variety of hardware, operating systems and web browsers.

▷ Durable: Do not require significant modifications with new versions of system software.

Source: http://www.adlnet.gov/scorm/

What does SCORM let you do?

▶ Lets you make small independent learning objects called Sharable Content Objects (SCOs)

▶ Lets you easily combine and recombine these SCOs in different Aggregations (e.g., courses) for different purposes.

▶ Lets you create learning content that is independent of any particular Learning Management System (LMS) implementation, but that still allows you to track the learner and sequence content.

Source: http://www.adlnet.gov/scorm/

What is a SCO?

▶ **A cohesive collection of any kind of media that can be viewed in a web browser. Pedagogically, corresponds to a lesson addressing (ideally) one objective.**

▷ Web pages in a SCO contain JavaScript function calls that communicate (indirectly) with the LMS, setting data such as whether the user has viewed the SCO, for how long, their performance on learning interactions, and their mastery status.

▷ SCOs are (ideally) described with XML metadata so that they can be indexed, searched, and accessed within an LMS or Content Repository.

Source: http://www.adlnet.gov/scorm/

Advantages of SCORM

▶ Frees you from dependence on a particular LMS

▶ Encourages reuse

▶ Creates an object economy for learning content (eventually)

▶ Encourages structured instructional design

Disadvantages of SCORM

▶ Makes developing content based on learner and context analyses more challenging.

▶ Makes scaffolding challenging

▶ Does not easily accommodate group work or communication

▶ Does not easily accommodate instructor-led or blended learning

▶ Presentation issues inhibit reuse

Communication technologies used in e-learning

► **Asynchronous**
  ▷ E-Mails
  ▷ Blogs
  ▷ Wikis
  ▷ discussion boards

► **Synchronous**
  ▷ online chat session
  ▷ virtual classroom or meeting.

E-Learning 2.0

▶ Emphasis on social learning and use of social software such as blogs, wikis, podcasts and virtual worlds such as *Second Life*

(htpp://www.SecondLife.com).

E-Learning 2.0

▶ Virtual classrooms and meetings can often use a mix of communication technologies.

▶ In many models, the writing community and the communication channels relate with the E-learning and the M-learning communities. Both the communities provide a general overview of the basic learning models and the activities required for the participants to join the learning sessions across the virtual classroom or even across standard classrooms enabled by technology. Many activities, essential for the learners in these environments, require frequent chat sessions in the form of virtual classrooms and/or blog meetings