# Pemanfaatan Teknologi untuk Menunjang Persiapan Calon Guru dalam Mengajar

***"Guru Melek Teknologi dan e-Learning Sekolah"***


## Wawan Setiawan

wawans@upi.edu, 085222888713


Disampaikan pada Seminar Nasional "Teknologi dalam Pembelajaran dan Pekerjaan"
Program Skills to Succeed (S2S) dari Save The Children, 14 Maret 2016

# Teknologi e-Learning

**akses**

***Konten)***

# Akses

- Mengakses informasi/pengetahuan, kini sudah dilakukan oleh siapa saja bahkan bisa terjadi anomali (saking mudahnya mengakses).
  - Komunikasi (Communication)
  - Perangkat (Device)

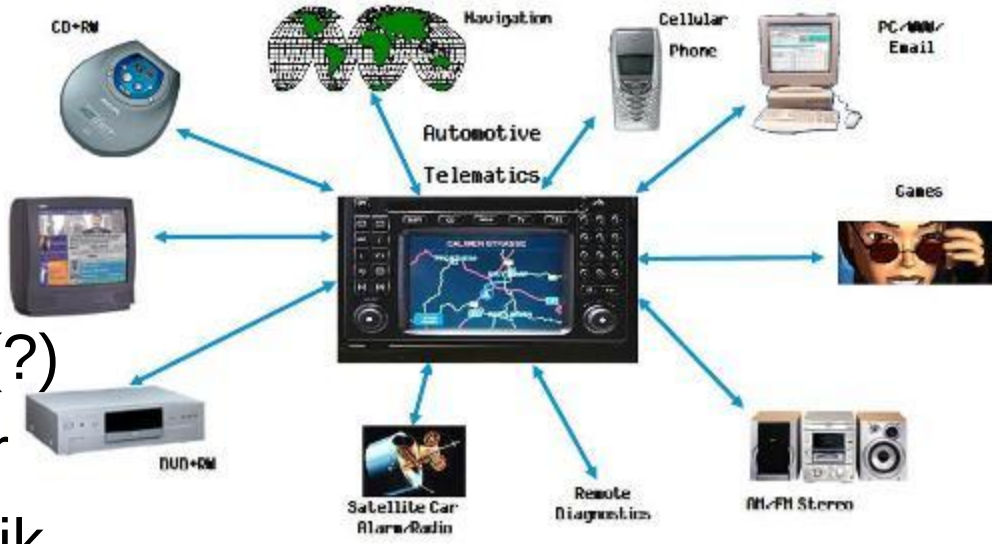
# Teknologi Komunikasi

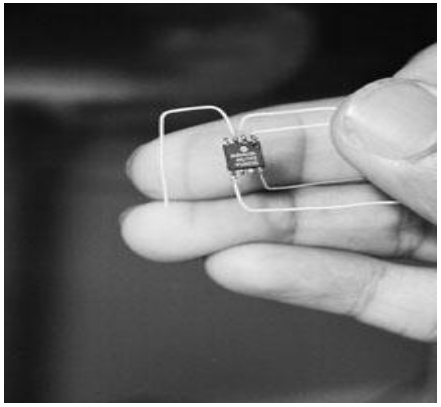
- Non-interaktif
  - Radio, TV, media cetak
- Interaktif

  - Suara: telepon
  - Data:
    - Fixed Internet
    - Wireless: GPRS/CDMA

# Perangkat Pengakses

- Interaktif
  - Telepon
  - Komputer multimedia(?)
  - PDA / Telepon Seluler
  - Kios Info / Akses Publik
  - Perangkat khusus: kertas elektronik



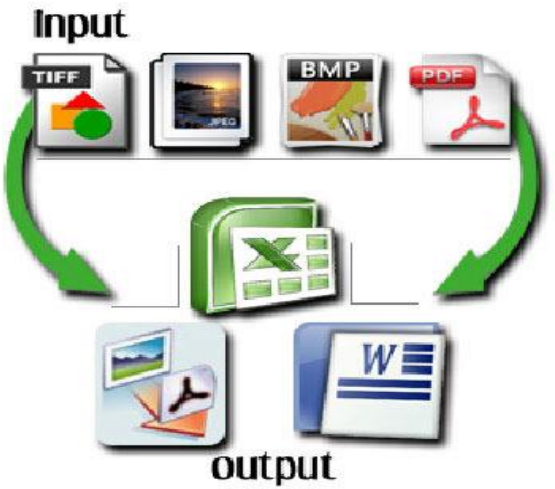



# Penyimpan Data (Storage)


- Kapasitas disk meningkat 3 kali / tahun
- Ukuran makin kecil & harga terjangkau
  - CD-ROM
  - DVD
  - Flash Disk / USB
  - Memory dalam telepon, kamera digital


# Format dari data

- Format analog menjadi format digital yang memudahkan untuk diakses dari jarak jauh
- Dibutuhkan format yang standar, *portable* dan berukuran kecil agar dapat dipertukarkan
- Contoh format
  - Format proprietary dari Microsoft (Office), ebook
  - Adobe PostScript (PS), PDF
  - Format portable: HTML, XML
  - Grafik: GIF, JPEG, PNG
  - MP3 (audio)



# Pengolahan Data

- Semakin banyak jumlah data / informasi yang tersedia, semakin sulit untuk mengelolanya
  - Content Management System (CMS)
  - Data warehouse, data mining
  - Perpustakaan digital?

# e-Learning (1)

## Definition:

- **e-Learning** is one of the teaching and learning types that allows materials to be accepted by students using the internet media, intranet or other computer network media*(Hartley, 2001).*
- **e-Learning** is the education system using the electronic application to supporting the teaching and learning with the internet media, the computer network, as well as the standalone computer *(Glossary, 2001)*

# e-Learning (2)

## The two types of e-learning

- **Synchronous e-learning**

  The learning process between the teacher and the students occurs at the same time.

  *For example: web seminar, web conference.*

- **Asynchronous e-learning**

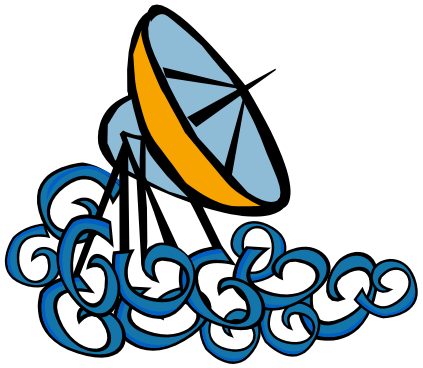
  The learning process between teacher and students are not happen simultaneously.

*Note: The type has been selected will determine the implementation strategy.*

# e-Learning (3)

## The Advantages

- Save the costs
- Time flexibility
- Place flexibility
- Speed learning flexibility
- Teaching standardization
- Teaching effectiveness
- Distribution speed
- Availability of *on-demand*
- Administration process automation
- Student centre



## The Limitedness

- Learning culture problems
- Early investments costs relatively expensive
- Technology limitedness
- Internet infrastructure
- Not all the material match with the e-learning

# e-Learning (4)

## Must be considered on the e-Learning

- E-learning must be able to producing interaction between the students with their community in the developing and exchanging the knowledge.
- E-learning must be able to show the strengths and able to overcome the weakness from the web-based learning to creating the conducive learning environment.
- E-Learning must be able to consider that students have: (1) Learning strategies, (2) knowledge, (3 Attitude.

# e-Learning (5)

LMS (**Learning Management System)** is the application automate and make virtualization teaching and learning process electronically

## LMS Features:

- **Teaching and learning completeness features**:
  List of the lessons and category, syllabus of the lessons, Lecture material (based text or multimedia), List of reference or reading material
- **Discussions and communication features**:
  Discussion forum or mailing list, instant messenger for real-time communication, notice boards, profile and instructor contact, file and directory sharing
- **The exam and assignment features**:
  Exam, Assignment, report and assessment

# e-Learning (6)

## Standard of LMS

Organization and consortium for e-Learning standards :

- Advanced Distributed Learning (ADL) (http://adlnet.org/)
- Aviation Industry CBT Committee (AICC) (http://aicc.org/)
- IEEE Learning Technology Standards Committee (IEEE LTSC) (http://ltsc.ieee.org/)
- IMS Global Consortium (IMS) (http://imsproject.org/)

# e-Learning (7)

## LMS Application:

### Proprietary

Saba Software (http://www.saba.com/)
Apex Learning (http://www.apexlearning.com/)
Blackboard (http://www.blackboard.com/)
IntraLearn (http://intralearn.com/)
SAP Enterprise Learning (http://www.sap.com/solutions/business-suite/erp/hcm/learningsolution/index.epx)

### Open source

ATutor (http://www.atutor.ca/)
Dokeos (http://www.dokeos.com/)
dotLRN (http://dotlrn.org/)
Freestyle Learning (http://www.freestyle-learning.de/)
ILIAS (http://www.ilias.uni-koeln.de/)
LON-CAPA (http://www.lon-capa.org/)
Moodle (http://moodle.org/)
OpenACS (http://openacs.org/)
OpenUSS (http://openuss.sourceforge.net/openuss)
Sakai (http://www.sakaiproject.org/)
Spaghetti Learning (http://www.spaghettilearning.com/)

# The Moodle?

- Moodle *(Modular-Oriented Dynamic Learning Envinronment)* is the software packet  has been produced for learning activities based web/internet using the principles pedagogy.
- Open source under GNU license
- Version 1.0 has been pioneered by Martin Dougiamas on the August 2002
- In the July 2008 has been registered as much as 47477 sites using the Moodle

# e-Learning (9)

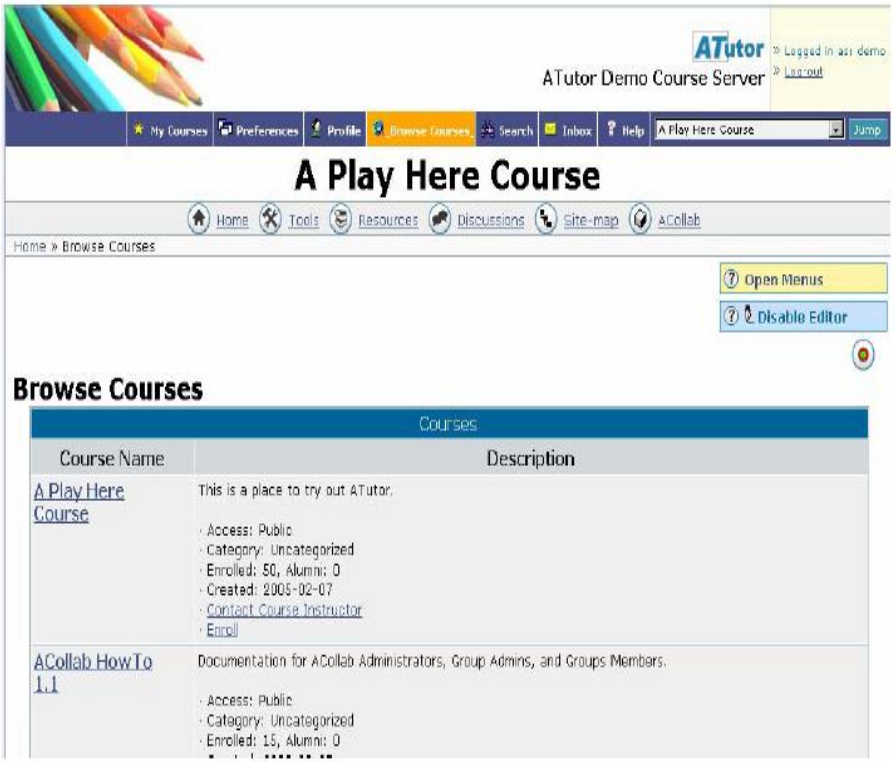
## Advantages of LMS by Moodle

- Simple, efficient, easy and compatible with many browsers and OS.
- Easy to install and supports many language
- Availability of site management to setting the overall site, changing the theme or the site templates, adding the modules, etc.
- Availability the user management.
- The lesson management /the teaching materials, addition/reduction/alteration of the lesson types/teaching materials.
- Many providing the modules : chart, polling, forums, journals, quizzes, surveys, workshop etc.
- Free and open source software

# e-Learning (10)

## Samples of free e-Learning softwere

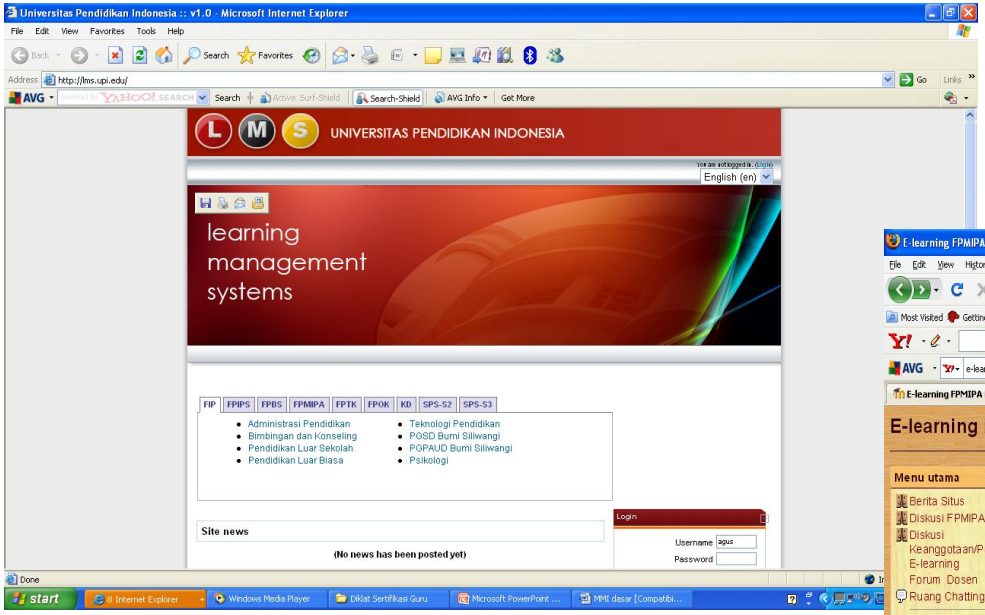

*Gambar 3: Moodle - Learning Management System (LMS) Berbasis Opensource [http://moodle.org]*




*Gambar 4: ATutor: Learning Content Management System (LCMS) Berbasis Opensource [http://atutor.ca]*

# e-Learning (11)

## Samples of e-Learning software:




http://lms.upi.edu/


http://fpmipa.upi.edu/kuliah/

# Useful Websites

- PheT (http://phet.colorado.edu)
- Hyperphysics (http://hyperphysics.phy-astr.gsu.edu)
- Curriki (http://www.curriki.org)
- Cambridge (http://www.cie.org.uk)
- Mutimedia (http://www.merlot.org/merlot/index.htm)
- Physics misconception (http://www.physics.montana.edu/physed/misconceptions/index.html)
- Fisika Asyik (http://www.fisikaasyik.com/home02/index.php
- HFI ( http://hfi.fisika.net/)
- Fisika Net (http://www.fisikanet.lipi.go.id/)

# Persoalan

- Konten (akademik) masih kurang banyak
- Mind Set yang belum nyambung
- Harga / biaya akses masih “relatif mahal” di beberapa tempat
- Infrastruktur pendukung belum memadai di beberapa tempat

# Penutup

- Teknologi e-Learning sangat mendukung
- Mapannya e-Learning bukan masalah teknologi, melainkan masalah kultural
  - Bukan kultur membaca
  - Kurang rasa berbagi
- Kuasai konteks learning dengan baik
- Masih dibutuhkan pertemuan fisik