Pengembangan Materi Pembelajaran Berbasis TI

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Overview

- Introduction
- Instructional Design
- Learning Theories
- Design of eLearning Courses
- Converting Traditional Courses to eLearning
- Guidelines for Presentation of Content
- Guidelines for Interactivity
- Learning Object Materials
- Program Mapping

Introduction

- common educational model in classroom learning
  - *„education = transmission of information“*
    - lecture approach
  - problems
    - passive learning
    - artificial divide between practice and instruction
    - irrelevant subject matter and inappropriate assessment

Introduction

- increasingly powerful and affordable computers and networking → increasing use of eLearning
- benefits
  - increased access
  - potential for improved quality of instruction
  - new opportunities for learning activities
  - potential for individualisation
- problems
  - replicating „education = transmission of information“
  - lacking opportunities to apply knowledge
  - complex skills/knowledge rarely included

Introduction

- key principles for creating effective learning
  - learning by doing
  - learning from mistakes
  - learning from stories
- things to consider when designing eLearning
  - thinking carefully what the course covers
  - organising material in a way that makes sense
  - putting the learner in control
  - providing a rich set of resources to the learners
  - using instructional design

What is Instructional Design?

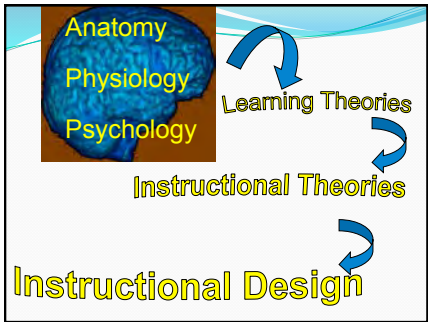
- Instructional design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction
- Good instructional design facilitates understanding
- It creates a framework for learning
- Instructional design does not guarantee quality

Why use Instructional Design?

- Distance learning courses are likely to fail if they are delivered as if they were traditional courses
- Technology is less adaptive than a human instructor
- Provides consistency between courses and authors
- Development time is reduced
- Learning is accelerated

Learning Theories

- Underpin our understanding of how people learn
- Extended to e-learning from classroom teaching
- **Behaviourism**: behavioural pattern repeated, assessment based on whether objectives have been met, a linear system.
- **Cognitivism**: it is based on the thought process and so learning occurs when there is interaction that stimulates development of cognitive capabilities.
- **Constructivism**: it is based on the main premise that learners constructs their own knowledge by interpreting personal experience in terms of prior knowledge and beliefs.

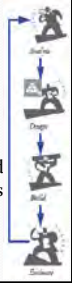


Instructional Design Models

- Robert Gagne's 9 step model
- ADDIE model
- ARCS model
- Roger Schank's goal-based scenarios
- Empathic instructional design

Design of eLearning Courses

- instructional design
  - based on learner needs and content requirements
  - critically important for elearning
  - designing effective instruction
- instructional design development process
  - analyse: determining the learning need
  - design: deciding how to meet the goals
  - build: creating learning experiences
  - evaluate: measuring effectiveness



Design of eLearning Courses

analyse

- determine the need for instruction
- setting global goal
- analysing the potential learners
- measuring learners' current knowledge
- determining what the course must teach
- comparing desired level of knowledge to learners' current knowledge
- specifying the results that should be achieved
- establishing instructional objectives

Design of eLearning Courses

design

- dividing the high-level goal into lower-level subgoals
- setting specific learning goals
- identifying learning experiences
- deciding how to implement the learning experiences
- defining standards

Design of eLearning Courses

build

- content outline
- organising and developing content
- creating learner-relevant examples
- developing/selecting learning material
- creating new learning objects
- reusing existing learning objects
- learning object repositories/libraries
- selecting delivery methods

Design of eLearning Courses

evaluate

- no course is perfect and every course can be improved!
- analysing the results
- revising the course
- good instructional design is never a linear, one-time process, but an ongoing cycle of development

Converting Traditional Courses to eLearning

- converting existing courses into web-based format
  - risk of utilising old methods of face-to-face delivery
  - ineffective courses
  - without utilising the opportunities offerd by the Internet
- course redesign

Converting Traditional Courses to eLearning

- conversion must not mean replication
  - simply using eLearning technology to conduct a conventional training course at a distance
    - e.g. slide presentation
- things to consider
  - costs, technologies
  - how to convert classroom learning materials and experiences to successful eLearning experiences

Converting Traditional Courses to eLearning

- phases of the conversion process
  - setting goals: goals for the eLearning course need not be the same as those for the classroom course
  - reanalysing learners
  - specifying the course
  - describing the lessons, sections, topics, activities, practices, and other aspects of the course

Converting Traditional Courses to eLearning

- converting materials
  - for each learning experience in the classroom course it has to be decided how to realise the same experience in remote learners
- evaluating a prototype
  - testing pilot version of the course with actual learners
- redesigning based on feedback
  - identifying ways for improving the course

Guidelines for Presentation of Content

- using a variety of media (text, graphics, au, video)
  - accomodating individual learning styles
- text
  - using less text than in traditional instruction
  - if longer texts
    - summary with links to definitions, references
    - providing separate print file
  - well-defined text structure
  - increasing readability

Guidelines for Presentation of Content

- graphics, images
  - including not too much graphical information
  - including captions and annotations
- audio, sound effects
  - meaningful, relevant, simple, short segments
- video, animation
  - managing possible problems
    - providing CD-ROM
    - simultaneously downloading and viewing (streaming)

Guidelines for Interactivity

- levels of interaction in online learning
  - between learner and content
  - between learner and instructor/tutor
  - between learners
- learning strategies/guidelines
- individualised learning
  - students take greater responsibility of learning
  - student-centered learning activities
  - adaptive e-learning

Guidlines for Interactivity

- hyperlinking
  - hypermedia gives learners more freedom in the choice of paths through the learning materials
    - pre-determined path of instruction
    - freedom in navigation
- orientation guidelines
  - identifying current position in the course
  - returning to previous position/starting point
  - strategies to aid orientation
    - e.g. progress bar, network representations

Guidelines for Interactivity

- navigation guidelines
  - minimising amount of cognitive activity associated with controlling the interface
  - facilitating navigation
    - simplicity and consistency in design
    - site maps, hierarchical trees etc.
- collaborative learning
  - important strategy for eLearning
    - sharing knowledge with others
  - ways of student interaction and collaborative learning
  - activity needs to be guided and structured

Learning Object Materials

A learning object is...

- digital entities deliverable over the Internet and can be reused a number of times in different learning contexts.
- any grouping of materials that is structured in a meaningful way and is tied to an educational objective.

Learning Object Materials

Materials:
textual documents, pictures/images, simulations, movies, sounds

Meaningful structure:
LOM are related and are arranged in a logical order based on instructional analysis.

Learning Object Materials

Characteristics:

- flexibility:
  access to knowledge through multiple modes of learning
- cost-effective:
  Reusable, adaptable, scalable within a course to the next
- customized:
  LOM can be selected to suit professor' s instructional style, and can be assembled or re-assembled, or delivered across the network on demand.

Program Mapping

Judul Matakuliah : .....
Deskripsi MK : .....
.....
.....
.....
Tujuan : .....
(Standar Kompetensi, ...
Kompetensi Dasar) .....
.....

No	Activitas/ Topik/ Minggu	Teks	Images	Video/ Audio	Test/Quiz/ Assignment	Syllabus/ calender/ duration	Link: URL Addresses	Instructional Method

Conclusion

- eLearning has to be well-planned and built properly in order to provide effective learning
- instructional design can improve quality of course material for e-learning
- program mapping organizes learning objects

Thank You

Any Question?