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

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

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

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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

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 construct 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**
- 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**
- 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**
- 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
- 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, audio, video)
- Accommodating 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 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

### Guidelines 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 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

- 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

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?