UNESCO Bangkok
Asia and Pacific Regional Bureau
for Education

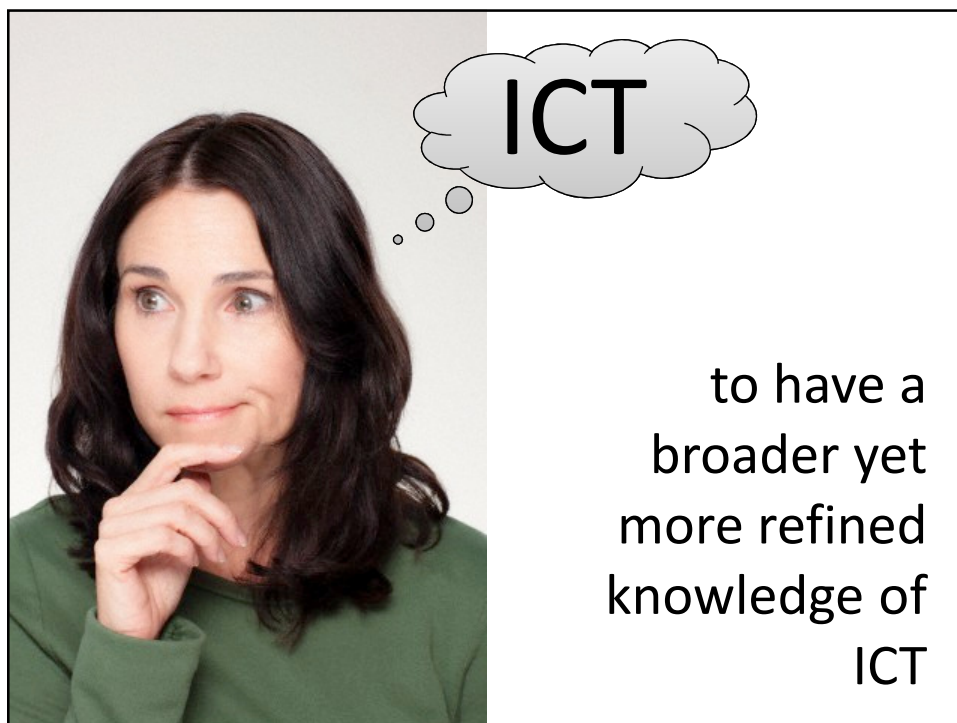United Nations
Educational, Scientific and
Cultural Organization

Designing Learning Objects using Multimedia Resources

Hartfried Schmid
UNESCO-Bangkok

Hartfried Schmid
"Hartie"
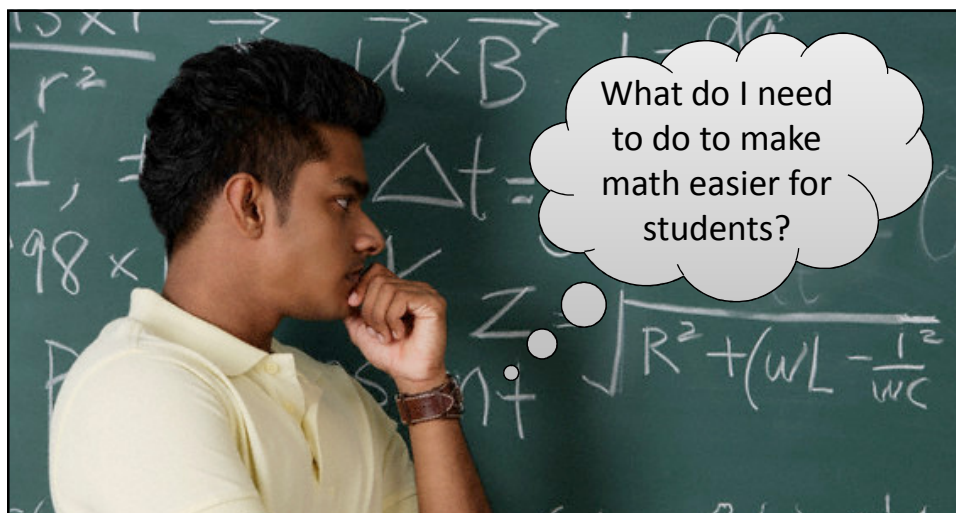
Our Training Objectives

ICT
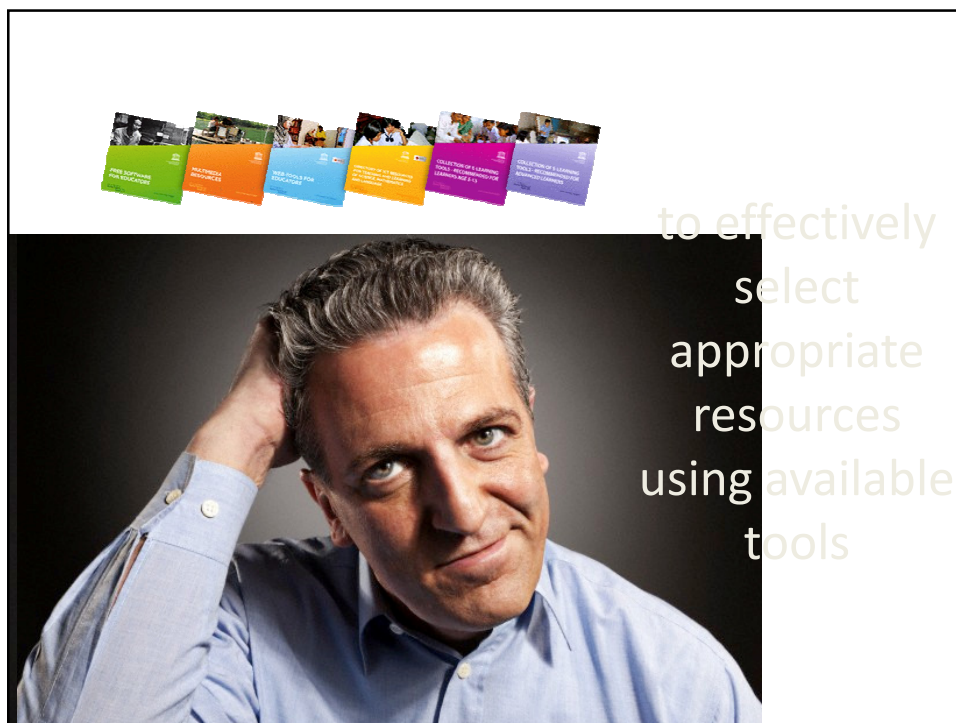
to have a broader yet more refined knowledge of ICT

to increase and/or update
awareness of UNESCO ICT resources

to enhance existing learning plans by
identifying portions of the lesson in which
ICT resources may be integrated
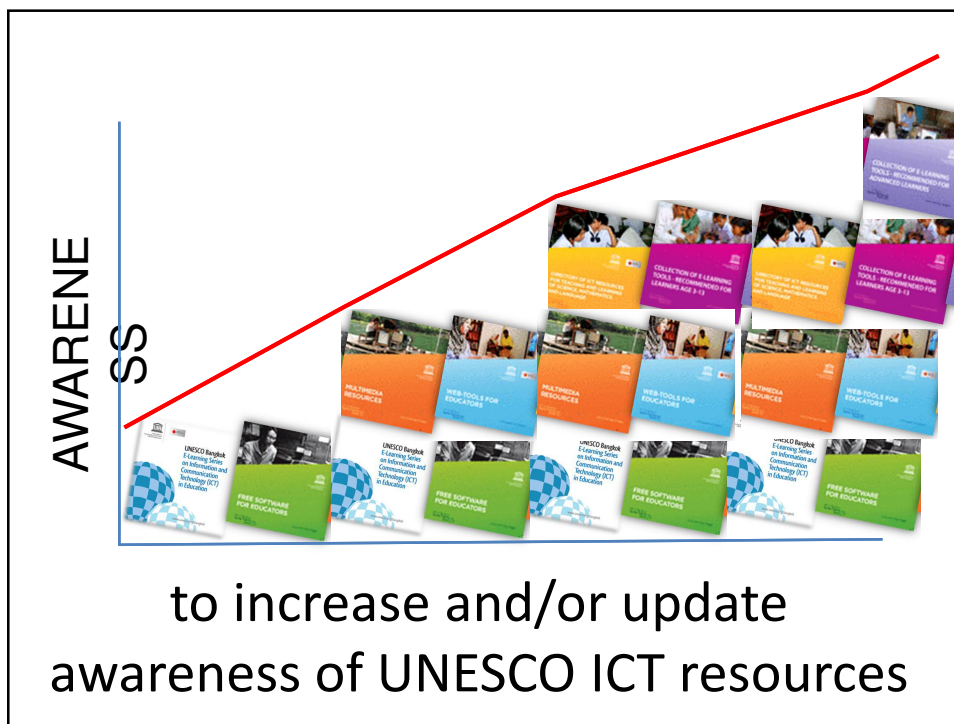
to identify the needs of their particular teaching-learning contexts while keeping their areas of specialization in mind
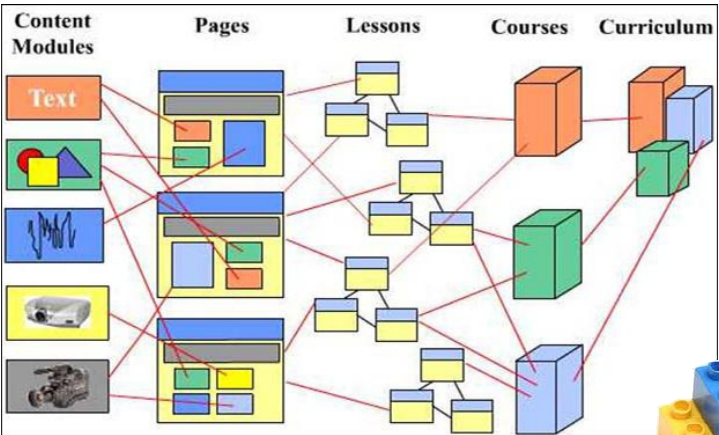

to effectively select appropriate resources using available tools

to plan and eventually implement a training program for their respective institutions

Learning Objects

Santally, and Senteni (2). A Learning Object Approach to Personalized Web-based Instruction
http://www.eurodl.org/?article=166

Sample Learning Objects

- Video/ animation/ audio clip
- http://education.uoit.ca/lordec/ID_LORDEC/water_cycle/
- http://phet.colorado.edu/en/simulation/fractions-intro

Development Process
- Developers' Perspective

Instructional Design → Storyboarding → Screen Design → Scriptwriting → Multimedia Authoring → Implement / Testing
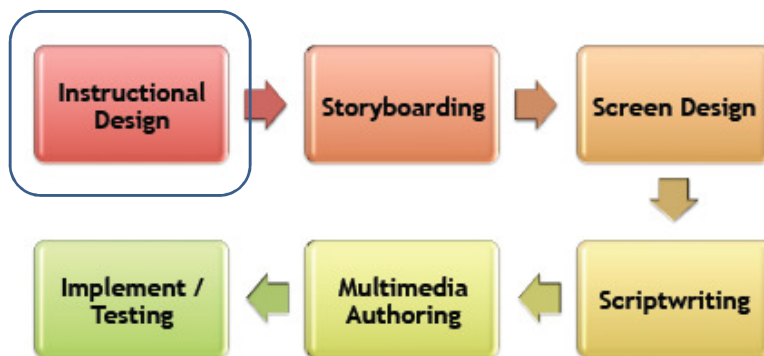
Slide from: eSkwela Content Development Training, 2008

Instructional Design

What for?

The quality of your content begins with a good and grounded instructional design/ plan that integrates the different elements of instruction into a cohesive whole.

- Diaz & DeClaro

Instructional design is more than just putting information in front of the learners.

What am I supposed to do with all of this information?

The role of the instructional designer is to **help the learners make sense of the new information** they get.

What Everybody Ought to Know about Instructional Design (July 2008). The Rapid E-learning Blog. http://www.articulate.com/rapid-elearning/what-everybody-ought-to-know-about-instructional-design/ (Accessed: October 2012)

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Instructional Design

- has clear goals and gets learners focused on the right things
- provides context and perspective
- compresses the learning process and saves time
- engages learner with clear and meaningful content

What Everybody Ought to Know about Instructional Design (July 2008). The Rapid E-learning Blog. http://www.articulate.com/rapid-elearning/what-everybody-ought-to-know-about-instructional-design/ (Accessed: October 2012)
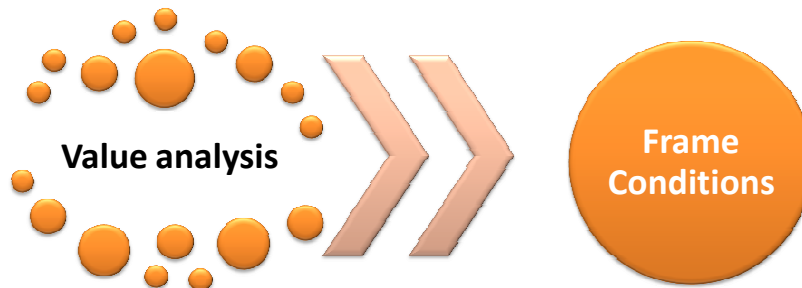
Considerations

Value analysis

- Is there a "need"?
- How is it going to be used?
- For what purpose (contribution)?

Frame Conditions

- learning objectives and content
- learners' & teachers' context
- learning environment and conditions (access, support)
- resources (funds, people, time)

LO Design

- Stick to the essential content, based on the topic and learning objective/s
  - Appropriateness of text, objects/media
  - Type of activity
  - Level of interactivity
  - Form of assessment and feedback
  - Tools to use

LO Design

- Content:
  - simplify, contextualize, localize
  - chunking and sequencing
- Interface / Object design and layout
  - layout of elements, background, colours, navigation, animation, etc.
- Reusability

Resource Selection

Traditional, non-electronic formats	Electronic/ ICT media
• Text (textbooks, printouts, worksheets, manuals, pamphlets) • Printed visuals (posters, photos, illustrations, comics, maps, graphs) • Displayed visuals (chalkboards, bulletin boards) • Real objects and models	• Projected visuals (overhead transparencies, presentation slides) • Audio media (radio, podcasts, audiotapes, voice recordings) • Video media (motion pictures) • Multimedia and other computer-based media (programmes and applications) • Internet media (online resources), including web tools

Feature Analysis Matrix
From Newby, T. J., etal (2006). Educational Technology for Teaching and Learning (3rd ed.)

Resource Selection

Where will the content be sourced?

- Bought? Borrowed?
- Internet portals/sites?
- Teacher-generated? Learner-generated?
- Professional development team? In-house or outsourced?
- Shared across institutions?

Selection criteria

Extent of interactivity

The quality of your content begins with a good and grounded instructional design/ plan that integrates the different elements of instruction into a cohesive whole.

While ICT has a positive impact, it is not the end-all and be-all of teaching and learning. Instruction is enhanced by ICT, but can still be effective even without it.

Avoid ICT Abuse!

- Diaz & DeClaro

To use or not to use ICT

Pair Activity: Lesson ICT Integration Plan

Possible Integration Points

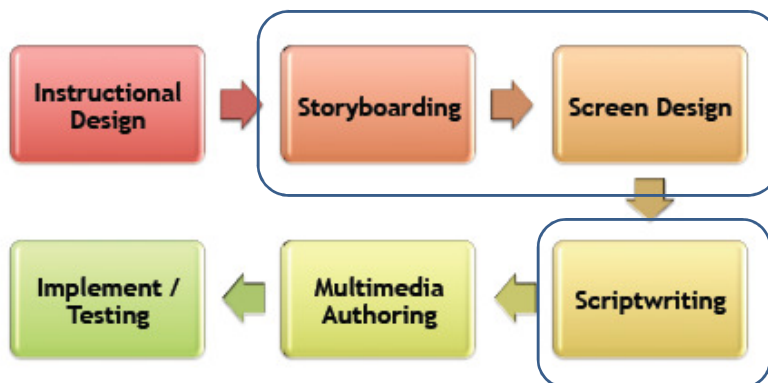| motivation and lesson intro	presentation and information	application	drill and practice	assessment	synthesis and closing

Avoid ICT Abuse!

* Diaz, C. & DeClaro, R (2012). UNESCO Training Guide on ICT Multimedia Integration for Teaching and Learning.

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- Developers' Perspective

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Slide from: eSkwela Content Development Training, 2008

Decisions, decisions

Item	Considerations
Text	• Font color, size, type • sentences or phrases 1. numbers or bullets • Table or prose; table or graph (type)
Visuals	• Background • Photo or illustrated • static or moving • combination and arrangement • Others: timeline, diagrams
Movement	• Animation or video • Sourced or developed • Linear or interactive

Decisions, decisions

Item	Considerations
Audio	• Yes or no • music or voice • constant or highlights • sound effects?
Links	• Yes or no
Interactivity	• Yes or no • Navigation/menu design • programming (e.g. games)
Others	

Available Resources

- UNESCO's CD collection – refer to list provided
- Phet (sample: Eating and Exercise)
- MIT OpenCourseware
- Hippocampus
- UP-DILC podcasts and learning objects
- MERLOT
- OpenLearn
- Khan Academy

- Physion
- UNU Open Course Ware
- Apple Learning Interchange
- Nobelprize.org (sample: Blood Typing)
- Edheads.org (sample: Simple Machines)
- Intel's skoool
- Youtube
- BrainPOP
- etc. etc. etc.

How We Became Green

http://www.youtube.com

http://www.eSchoolToday.com

http://www.dilc.upd.edu.ph/
(Speech Communication, Voice and Diction: Effective Speaking Voice)

http://www.hippocampus.org
(General Physics, Equations of Motion)

Intel's skoool site: http://skoool.net.ph
– Sophomore, Biology, Breathing sim)

Use of available resources

Benefits	Challenges
• Readily available pool of resources • Affords flexibility • Can combine learning objects	• Some: costly • Must have sound evaluation mechanism • Need to be customized/ localized • For most: editing and embedding functions • IPR concerns

Development Process
- Developers' Perspective

Slide from: eSkwela Content Development Training, 2008

Teacher/ Learner-developed

- Word processor
- Spreadsheet
- Slide Presentation
- Video or audio recording
- Website
- Album
- Blog
- Wiki
- Forum
- eXe Learning
- Xerte
- CourseLab
- Adobe Authorware
- Etc.

Teacher-developed

Benefits	Challenges
• Affords flexibility • Customized to own set of learners • Can combine learning objects	• Requires time and effort • IPR concerns

Common Authoring Tools

- Slide Presentation software (demo1, demo2)
- Blogs and wikis (can embed files and widgets) (demo)
- Learning Tools (http://www.learningtools.arts.ubc.ca/)
  - Multimedia Learning Object Authoring Tool (demo)
  - Timeline (demo)
- eXe Learning (http://exelearning.org/wiki)
- Xerte (http://www.nottingham.ac.uk/xerte/)
  - LO demo

TIPS

application	useful tools
Slide presentations	master slides, shapes, SmartArt, animation / motion path (t1, t2), hyperlinks, rehearse timings / record slide show Site: http://www.articulate.com/rapid-elearning/
Image editing	downloading, print screen, crop, brightness/contrast, resize, rotate/flip
Video production and editing	angles, lighting, sound, cut and fade

Ask for permission, cite sources

Development Process
- Developers' Perspective

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Enhance!

Slide from: eSkwela Content Development Training, 2008
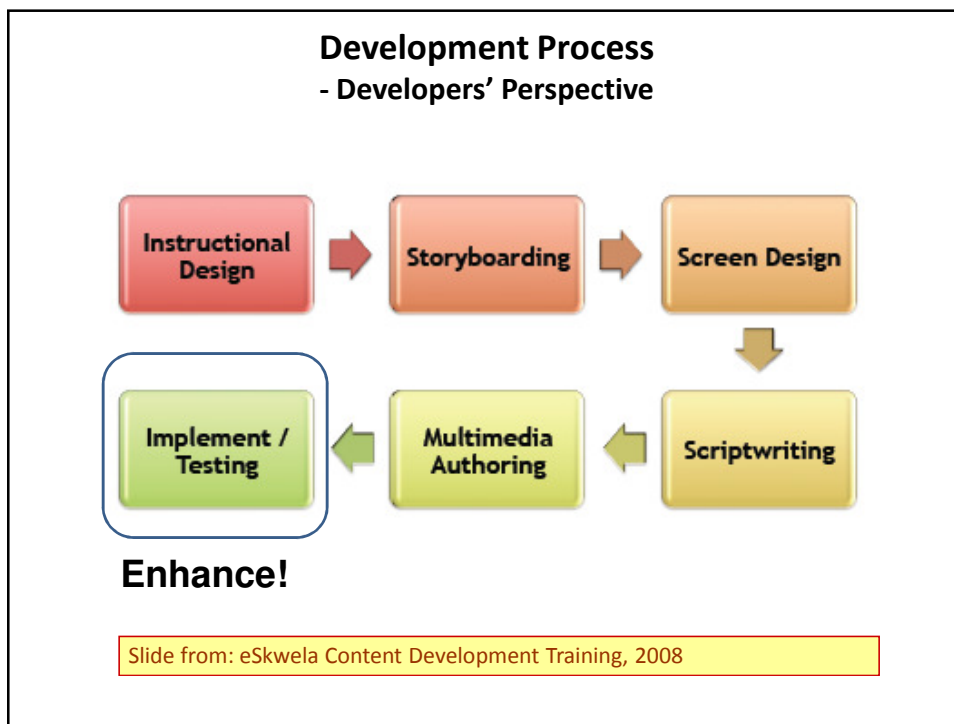
THANK YOU!

h.schmid@unesco

http://www.unescobkk.org/education/ict/

Links used

- Kiwi demo: http://video.about.com/australianfood/Kiwis.htm
- DNA: http://www.brainpop.com/health/geneticsgrowthanddevelopment/dna/
- Water cycle: http://education.uoit.ca/lordec/ID_LORDEC/water_cycle/
- Fractions: http://phet.colorado.edu/en/simulation/fractions-intro
- Eating and Exercise: http://phet.colorado.edu/en/simulation/eating-and-exercise
- Blood Typing: http://nobelprize.org/educational/medicine/landsteiner/landsteiner.html

Links used

- Speech Communication, Voice and Diction: Effective Speaking Voice: http://www.dilc.upd.edu.ph/media/lo/speechcom/LO_1version4.swf
- General Physics, Equations of Motion: http://www.hippocampus.org/Physics;jsessionid=9FAB9418BA17F0EA2B5798DE37A32B55
- Breathing simulation game: http://skoool.net.ph/files/SIMS/Biology/Humans%20As%20Organisms/breathing%20and%20respiration/index.html
- Moving Hand: http://cdn.articulate.com/images/blogs/wom/demos/NutritionLabels/player.html

Links used

- Earthquake Scenario: http://articulate.www.resources.s3-website-us-east-1.amazonaws.com/community/blogdemo/remittance_branch/player.html
- Tutorials on Motion Paths in PPT:
  - http://www.screenr.com/yjd
  - http://www.screenr.com/noG
- Xerte demo: http://www.nottingham.ac.uk/xerte/media/loDemo/rloObject.htm