2013

Designing OER with diversity in mind

Daly, Una and Gruszczynska, Anna and Treviranus, Jutta
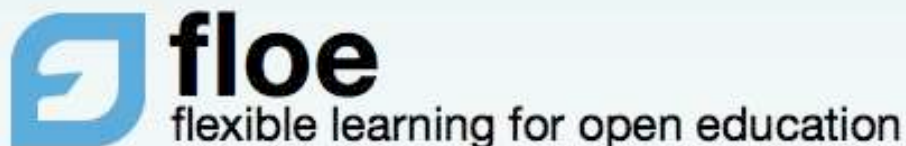
Designing OER with Diversity in Mind

Anna Gruszczynska, Sheffield Hallam University, UK
Jutta Treviranus, OCAD University, Canada
Una Daly, OCW Consortium

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Collaborate Window Overview

OPENCOURSEWARE CONSORTIUM

Audio & Video

Participants

Chat

OPEN COURSEWARE CONSORTIUM

Welcome

Please introduce yourself in the chat window

Anna Gruszczynska
Project Manager
Sheffield Hallam University
United Kingdom

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Professor
OCAD University
Canada

Una Daly,
Community College
Outreach Director
OCW Consortium

Today's Agenda

- Introductions
- Overview of Needs
- OER & Accessibility Research
- Inclusive Design for Learning
- Additional Resources
- Questions

OER Defined

Open Educational Resources are teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution.
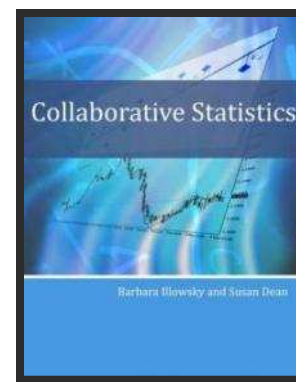
OER Logo 2012, J. Mello CC-BY

The William and Flora Hewlett Foundation
United Nations Education, Science, & Cultural Organization (UNESCO)

Examples

Includes –

- Course materials
- Lesson Plans
- Modules or lessons
- OpenCourseWare (OCW)
- Open textbooks
- Videos
- Images
- Tests
- Software
- Any other tools, materials, or techniques used to support ready access to knowledge

Characteristics of OER

- Digital
  - Easy to modify
  - Free to distribute

- Open License
  - Reuse, revise, remix, redistribute

Labeled for reuse by MrKCoolsPhotostream

- Low cost
  - Lowers barriers to education

Why accessibility?

- Recognition of diverse learners

Country	% Student with Disabilities
Canada, 15 yrs or older	14%
United Kingdom students	7.6 %
United States post-secondary students	11%
Worldwide, UN estimate	10%

- Higher % in developing countries
- Higher % in aging populations

Source: U.S. NCES (2011), UNESCO, Equality Challenge Unit (2011), Canadian Journal of Higher Education (2003)

Diverse Learner Challenges

- Cognitive learning disabilities

- Sensory & motor impairments

- Country language deficits

- Lack of engagement

Kersti Nebelsiek CC-BY

Treaties and Laws

- UN Convention on Persons with Disability (2006)

- UK Equality Act (2010)

- Canadian Human Rights Act (1985)

- Americans with Disabilities Act (1990)

Design & Guidelines

- ## Universal Design for Learning
  - Providing multiple means of expression, representation, & engagement

- ## Web Content Access Guidelines 2.0
  - POUR Matrix
    - Perceivable
    - Operable
    - Understandable
    - Robust

OPENCOURSEWARE CONSORTIUM
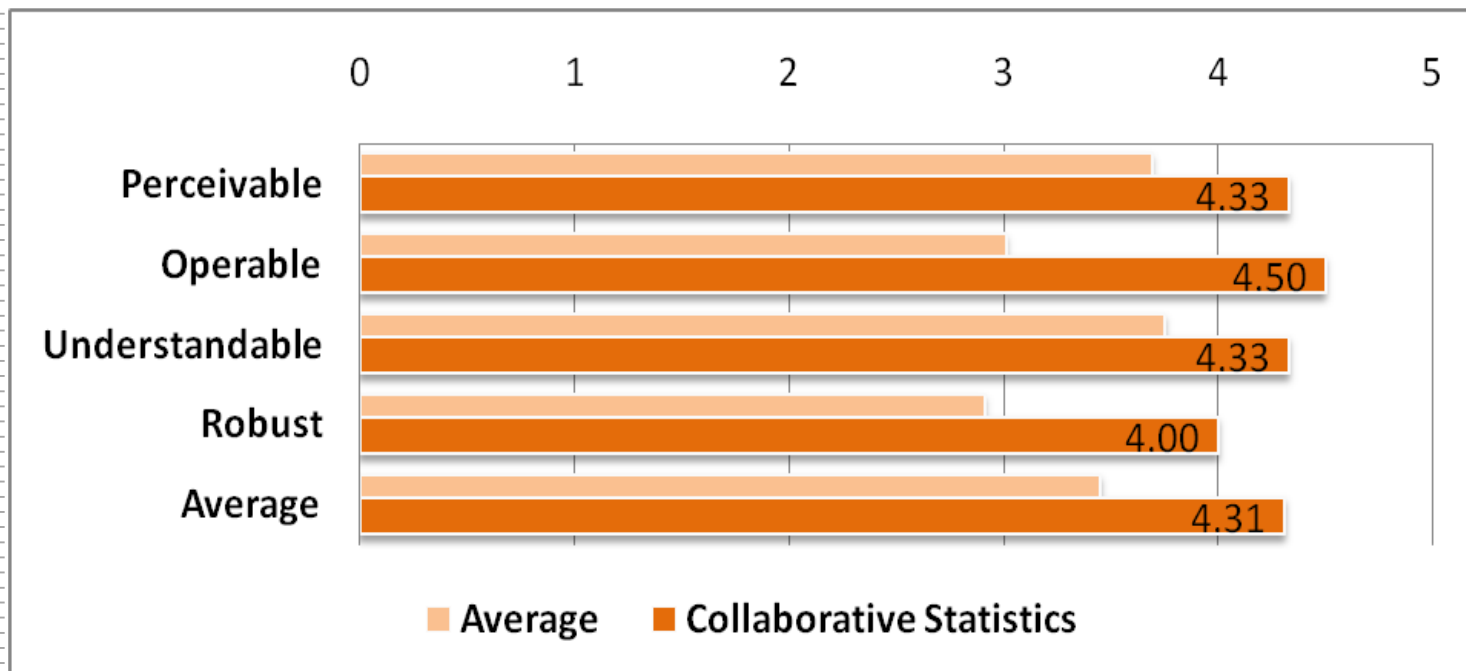
Top 3 Accessibility Must-dos

- Use semantic markup
  - Structural definitions e.g. styles

- Annotate non-textual items
  - Tag Images
  - Caption Audio & Videos

- Label tables and other complex information

Open Textbook Accessibility Reviews

Textbook: Collaborative Statistics
Accessibility reviewed by: Virtual Ability, Inc.

collegeopentextbooks.org
merlot.org

OER Accessibility Goals

- # Improve learning for all
  - – Universal Design (UDL)

Used with permission from Virtual Ability, Inc

- # Educate authors
  - – Design accessible OER

- # Empower faculty adopters
  - – Evaluate OER and adapt for accessibility
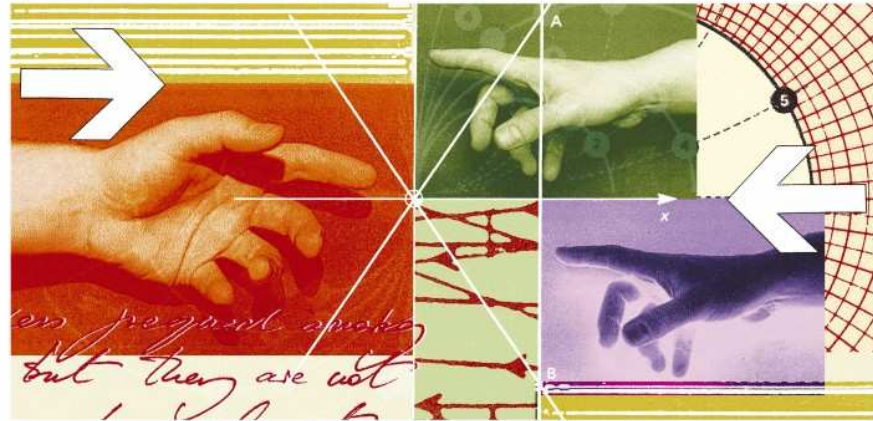
Wellcome Images

Open Educational Resources and accessibility issues

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Sheffield Hallam University

Background

- **SCORE (Support Centre for Open Resources in Education) research fellowship**

  OER-related accessibility issues and their relevance to practices of re-purposing/re-use

  http://oeraccessibility.pbworks.com

- **ACTOER (Accessibility Challenges and Techniques for Open Educational Resources)**

  Improving accessibility support for OERs across a range of sectors (higher/further education, vocational and specialist)

  http://actoer.referata.com

Key interests

- **Approaches to accessibility** within UKOER (UK Open Educational Resources) programme **barriers and enablers** to embedding accessibility within OERs

- **Attitudes and approaches** of education professionals towards accessibility issues in the context of Open Educational Resources

Wellcome Images

Definitions of accessibility

- **Accessibility** refers to the ability of web-based resources to be viewed, navigated and read by **everyone**, including learners with **additional needs**, which may be due to auditory, visual, mobility, and/or cognitive impairments

- The **ethos of open education** and open access emphasises the need to widen access and remove educational barriers, including any barriers related to accessibility

Issues: Good intentions?

If mentioned at all, accessibility is seen as a low-priority issue, tackled as an **afterthought**, resulting in costly **retrofitting**

> *We can also see that there is a real potential to develop the resource to further meet the needs of disabled students working in the performing arts, and to raise awareness of accessibility issues amongst a wider cohort of students. It was outside the scope of this particular project to consider these issues in depth, but the resource could be adapted and re-purposed to this end if sufficient time and resource was dedicated. (UKOER project final report)*

Issues: discovery and description

- Repositories don't always encourage good practice
- Past the point of **deposit**, the resource creator/depositor is no longer in control of material
- Very **difficult to locate** accessible resources/ practices
- "openness allows you to **find** something that isn't inaccessible" (expert interview)
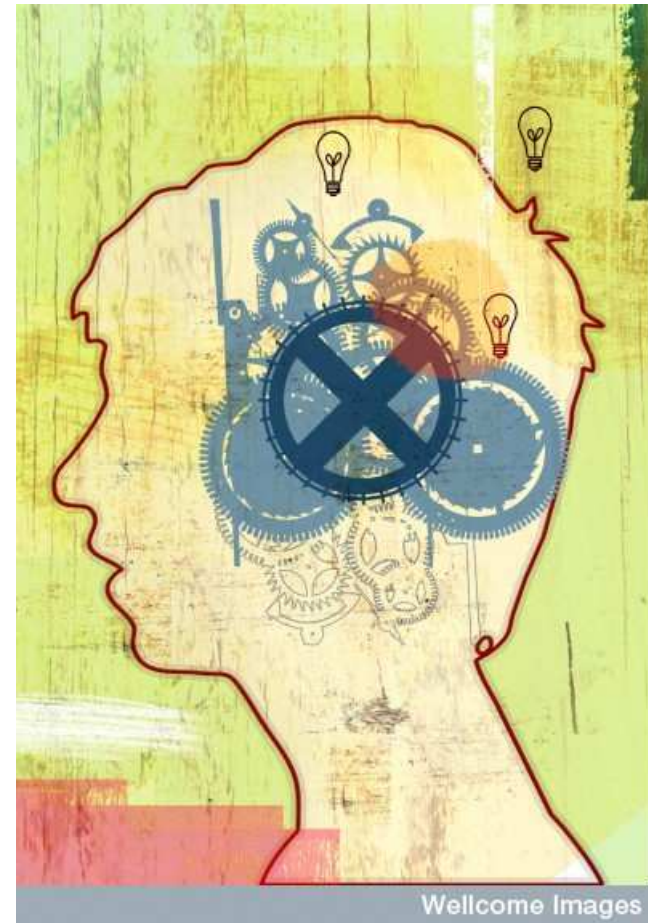
Issues: OER "accessibility sins" in JORUM

- Videos/audio: only a very small minority (1%!)were accompanied by a transcript
- PowerPoint presentations
  - A small minority provided appropriate alternative descriptions for images and charts
  - Most failed to use unique titles for the slides
  - Often overloaded with text, using relatively small font
- Documents
  - Very few included appropriate alternative descriptions for images
  - Majority failed to use "True styles" to apply headings/formatting correctly

Conclusions (1)

- There are a number of relatively **simple strategies** that could enhance OER accessibility

- There is a need to address accessibility features of **platforms** where OERs are deposited

- Resource creators should use **metadata** accurately so that it is easy to locate accessible practices

Wellcome Images

Conclusions (2)

- Responsibility for ensuring the accessibility of OERs should not be seen solely as that of resource creators - there is a need to provide **adequate support and resources**

- Accessibility issues are **complex** and should not be discussed in isolation from other OER-related issues such as **copyright** or practices related to sharing resources

Comments? Questions?

Further resources

- Gruszczynska, A. (2011). Accessibility issues in the context of UK Open Educational Resources programme. http://www.slideshare.net/akgruszczynska/accessibility-issues-in-the-context-of-ukoer-programme
- Gruszczynska, A. (2012) Accessibility and Open Educational Resources survey report. http://www.slideshare.net/akgruszczynska/accessibility-and-oe-rs-report
- ACTOER project
  http://actoer.referata.com

Inclusive Design for Learning

Jutta Treviranus

Inclusive Design Research Centre
Inclusive Design Institute
OCAD University

The Inclusive Design Research Centre

- inclusive design of emerging information and communication systems and practices, since 1993

- open source, open access, open standards, open data

- over 18 multi-partner, multi-sector proactive research projects at any one time

inclusive design
INSTITUTE

Inclusive Design

- Design that considers the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference

- Designing for Diversity

- Addressing the beginning of the development "food chain" to support integrated accessibility from the start
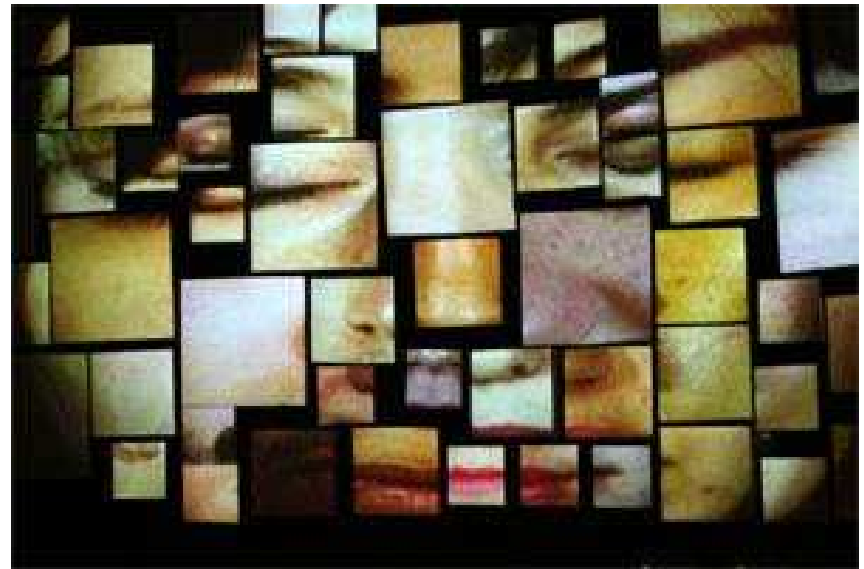
Revised Notion of Disability in Design

- Disability = a mismatch between the needs of the learner and the educational environment and experience offered

- Not a personal trait

- A relative condition
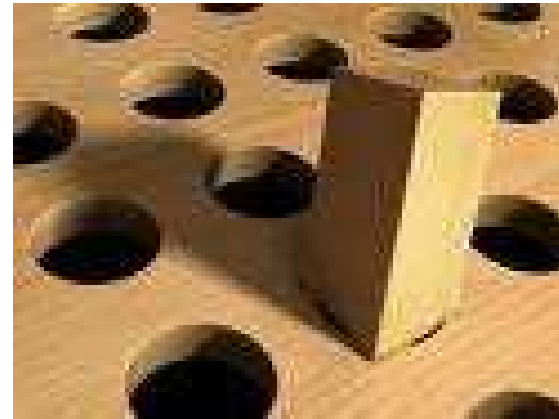
Accessibility =

- Ability of the learning environment to adjust to the needs of all learners

- Flexibility of education environment, curriculum and delivery

- To optimize the learning environment for each individual learner

- A relative quality

Important relearned insight:
Learners learn differently

- "Learning breakdown and drop out occurs when students face barriers to learning, feel disadvantaged by the learning experience offered or feel that their personal learning needs are ignored" ~2009 Report

- We need to design for diversity.

- We need a diversity of learners.
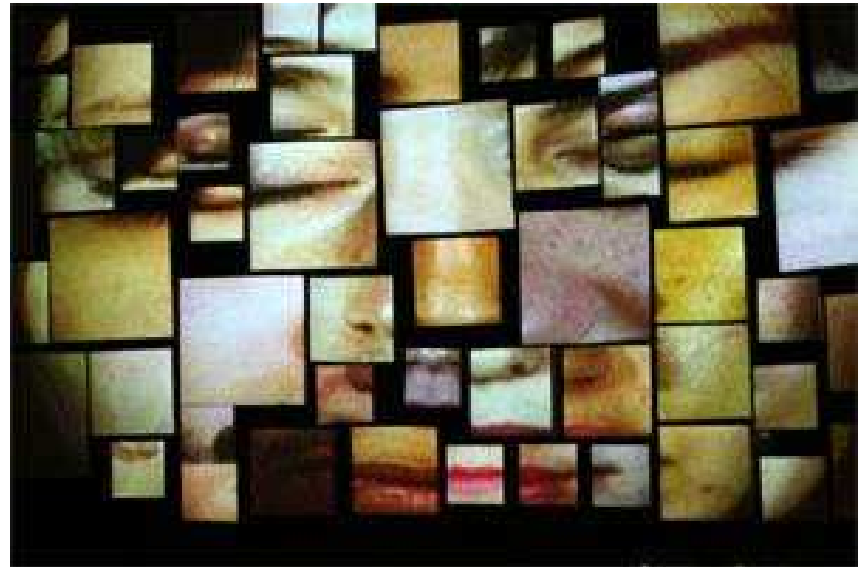
The problem with One-Size-Fits-All Accessibility Approaches

- exclude learners that do not fit the categories

- treat learners with disabilities as a homogeneous group

- ignore the multiplicity of needs and skills that affect learning,

- constrain the design of learning resources - less leeway to address minority needs and non-normative learning styles or approaches

- compromise the learning experience for many of the learners the services are intended to serve

- ghettoize education for students with disabilities - less sustainable, more costly

One-Size-Fits-**One** Education

- optimizing learning for each learner

- Learning needs that affect learning include:

  - sensory, motor, cognitive, emotional and social constraints,

  - individual learning styles and approaches,

  - linguistic or cultural preferences,

  - technical, financial or environmental constraints.

Flexible Resources and Making the Match

- Large pool of diverse, flexible resources

- To make the match:

    - transform the resource (e.g., through styling mechanisms),

    - augment the resource (e.g., by adding captioning to video), or

    - replace the resource with another resource that addresses the same learning goals but matches the learner's specific access needs.

FLOE Project

- Global, public infrastructure to deliver a learning experience that matches each learner's individual needs

- uses AccessForAll ISO 24751 interoperability standard, a common language for describing learner needs and labelling resources that meet those needs

- support for creating resources amenable to transformation and augmentation

- support for filling the gaps

- **http://floeproject.org**

- Funded by William and Flora Hewlett Foundation (with feasibility study funded by US Dept of Education)

Requires...

1. information about each **learner's access needs**,

2. information about the **learner needs addressed by each resource**, (a11y metadata effort and schema.org)

3. **resources** that are amenable to transformation, and a pool of alternative equivalent resources, and

4. a method of **matching** learner needs with the appropriate learning experience

floe
Learner Options
+
"Learning to Learn"
SERVICE

DISCOVER
REFINE
LABEL
DECLARE
} & *individual needs & preferences*

floe
MATCHING ENGINE
Match Learner Options Request with
Individualized Learning Experience

TRANSFORM
AUGMENT
or REPLACE

PULL SYSTEM

Federated Existing
Education Resources

Crowd Sourcing

Paid Public & Private
Resources

Learner Options
request

Matching Individualized Learning Experience

Queries
Evidence
Matching
Algorithms

Learner

Learning Outcomes
User Feedback
Usage Metrics

Learning Analytics
PRACTICE BASED RESEARCH

Learning Discovery and Refinement

- Learning to learn

- Metacognition

- Determine what works best and refine through use

- Data regarding learning strategies that are most effective for unique learning requirements

FLOE Video

- http://www.openeducationweek.org/floe-animation-for-open-education-week/

Authoring Support

- Handbook for authors - http://handbook.floeproject.org

- Support within Open Author

- Support within OERPub

- http://adod.idrc.ocad.ca/ for simple document accessibility

⊕ 🖨 **teaching bundle** (text & media)   ⊕ 🖨 **pdf resource** (text only)

Instructions

Created **January 12, 2012** *by User's Name*

Welcome *Username*, to the OER Authoring Tool!

CREATING CONTENT

Content is created in this field. Content structure will dynamically be interpreted in the *Table of Contents* panel. In addition, *headings* and *sub-headings* can be added and edited through the *Table of Contents*. Below is an outline of the toolbar:

| Paragraph | ▼ | ☰ ☰ ☰ ☰ | ⊞ | B | I | U | A | F | ⦾ | 🎬 | 66 |
| 1 | | 2 3 | | | | | | | 4 | 5 | 6 |

1. **Toolbar:** See description below for each option's purpose.

Text Style: Define whether text is a *heading, sub-heading, paragraph, ect.*

Lists: Create *bulleted lists* or *numbered lists* (such as this one).

Indent: In order to create sub-lists use the indent option.
   - This is an example of a sub-list.

Links: Link to another webpage or a heading in the resource: e.g. OER homepage.

Media: Add images, video, audio, and attachments to the resource. Media can also be dropped directly into the content field.

6.   **Citations:** After selecting text or media use this option to cite your work. [1]

http://www.oercommons.org **websites will be created into links**

PUBLISHING YOUR ENTRY

After you've created your content, *describe* [...] so that it can be easily found and used by others. You can always switch back to *write* mode to make changes. Once your content is ready and all the required fields are filled out, click *submit* to publish your entry!

[1] http://www.oercommons.org **websites will be created into links**

TABLE OF CONTENTS

SUMMARY:

Cras nunc nibh, tristique a posuere sed, facilisis at metus. Sed tempor ullamcorper risus, at ultricies nulla accumsan ac. Sed lorem velit, Vestibulum in mauris tortor, in molestie justo nulla accum. Cras nunc nibh, tristique a posuere sed.

A4A AI

MOUSE ACCESS

- Resource is operable using the mouse only.
- Users may need to use an on-screen keyboard for some inputs.

Gene

Imag

Ⓣ

Audio

Ⓣ ⊙

Video

AUDIO TRACK   **VIDEO TRACK**

Ⓣ ⊙   ⊙

Checking and Web Content Accessibility Guidelines

- One example http://achecker.ca

Players, Browsers, Learning Management Systems

- http://build.fluidproject.org/videoPlayer/videoPlayer/demos/Mammals.html

Support for Current Challenges …

- Moving from Flash to HTML5 for simulations and games

- EPub3 for textbooks and support for structural markup

- Mobile displays and responsive design

- Inclusively designing MOOCs

- Accessible scientific notation, math notation, maps and other gnarly issues...

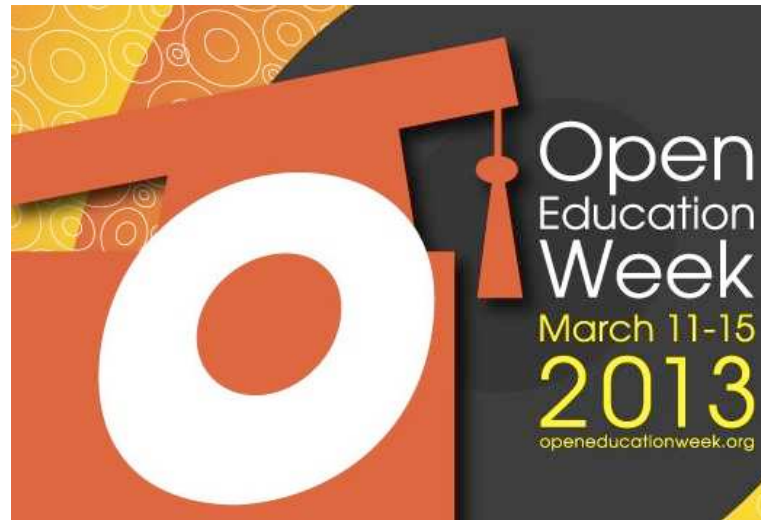- http://wiki.fluidproject.org

Conclusion

- Reach more learners

- Easier updating

- Easier internationalization

- Better browser and device compatibility

- Reach doubly marginalized learners

- Greater resource longevity

- Learning to learn resulting in deeper learning

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Thank you for attending!

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