

# ICT in classrooms, current trends and introduction to OERs

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# Perfect storm! (from wikipedia)

- A "**perfect storm**" is an expression that describes an event where a rare combination of circumstances will aggravate a situation drastically. The term is also used to describe a hypothetical [hurricane](#) that happens to hit at a region's most vulnerable area, resulting in the worst possible damage by a hurricane of its magnitude.
- November 1991, the east coast of the US :
  - warm air from a low-pressure system coming from one direction,
  - a flow of cool and dry air generated by a high-pressure from another direction, and
  - tropical moisture provided by [Hurricane Grace](#).

# Perfect storm!



Book: [http://en.wikipedia.org/wiki/The Perfect Storm](http://en.wikipedia.org/wiki/The_Perfect_Storm)

Movie: [http://en.wikipedia.org/wiki/The Perfect Storm \(film\)](http://en.wikipedia.org/wiki/The_Perfect_Storm_(film))

Paradigm: [http://www.i-learnt.com/Paradigm The Perfect Storm.html](http://www.i-learnt.com/Paradigm_The_Perfect_Storm.html)

Perfect  
[Educational]  
Storm

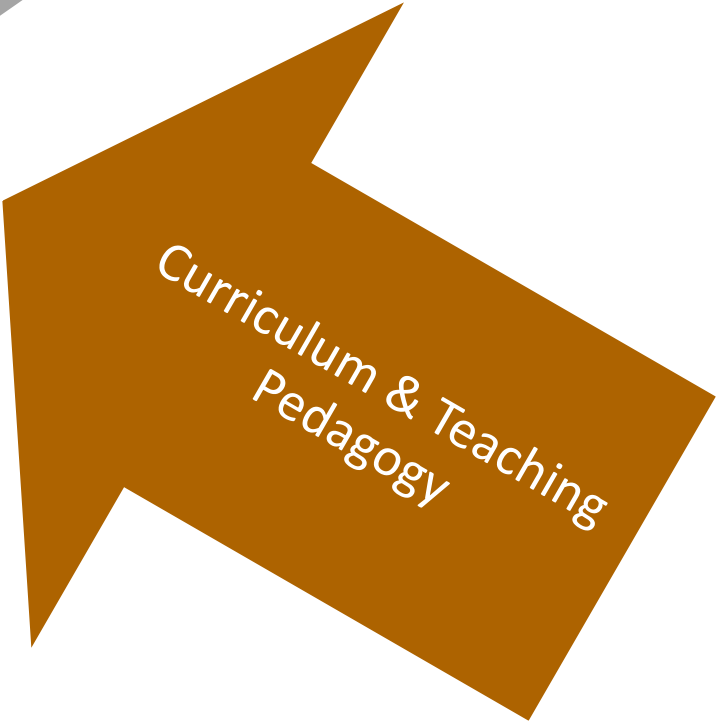
ICT  
Infrastructure



Resourcing &  
Professional  
Development



Curriculum & Teaching  
Pedagogy



# The first storm: ICT Infrastructure

- High Speed Data Networks
- Interoperability Standards
- Identity and Authentication
- School Networking
- Classroom Technologies

# The second storm:

## Curriculum & Teaching Pedagogy

- Curriculum Development:
- National Assessment:.
- Accreditation of student management systems:

# The third storm:

## Capability & Professional Development

- ICT Clusters
- Digital Learning Objects
- OER – Open Educational Resources



- For tens of thousands of years, human beings have come together to learn and share knowledge.
- Until now, we have had to come together at the same time and place.
- But today, the technologies of the Internet have eliminated that requirement.
- Soon anybody will be able to learn anything anywhere at any time, thanks to a new development called e-learning.

Now What?



# Open Educational Resources

- During the past ten or more years, thanks to innovative universities and educational projects from around the world, the Open Educational Resources (OER) movement has appeared and grown rapidly, addressing major educational issues such as the “knowledge divide” and access for all to relevant information.
- Opening Access to Education, by sharing high quality courses and training material is now considered as a necessity by major Universities and International Organizations, such as the OECD or UNESCO.
- OER represents a tremendous opportunity for youth, teachers, schools, NGOs, governments and any entity or citizen involved in the field of education and vocational training around the World. The quantity as well as the quality of available resources are exponentials. It is time to sensitize everyone.

- Open Educational Resources are digitized materials, offered freely and openly for educators, students and self-learners, to use and re-use for teaching, learning and research.
- OER includes open access to both the content and the technology such as Open Software, Open Standards and Open Licenses to distribute the material.
- Historically, the term "Open Educational Resources" was first adopted at UNESCO's 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries.

“free sharing of software, scientific results and educational resources reinforces societal development and diminishes social inequality. From a more individual standpoint, open sharing is claimed to increase publicity, reputation and the pleasure of sharing with peers.”

Jan Hylen, OECD Centre for Educational Research and Innovation

[http://www.unesco.org/iiep/virtualuniversity/forumsfiche.php?queryforums\\_id=27](http://www.unesco.org/iiep/virtualuniversity/forumsfiche.php?queryforums_id=27)

# Education Is Sharing

the technical argument

# Teachers Share With Students

Knowledge and skills

Feedback and criticism

Encouragement

# Students Share With Teachers

Questions

Assignments

Tests

# If There Is No Sharing

There is no education

# Successful Educators

Share most completely  
with the most students

# Knowledge is Magical

Can be given without being given away

# Physical Expressions Are Not

To give a book you must give it away

Simulation for the Social Scientist Gilbert and Troitzsch

GIBBONS  
FAIRWEATHER

# COMPUTER-BASED INSTRUCTION

Educational  
Technology  
Publications

1  
LeCOMPTÉ  
SCHENSUL

DESIGNING & CONDUCTING ETHNOGRAPHIC RESEARCH

2  
SCHENSUL  
SCHENSUL  
LeCOMPTÉ

ESSENTIAL ETHNOGRAPHIC METHODS

3  
SCHENSUL • LeCOMPTÉ  
MESTRE • BORGHETTI

ENHANCED ETHNOGRAPHIC METHODS

4  
SCHENSUL • LeCOMPTÉ  
TROTTER • CROWLEY  
SINGER

MAPPING SOCIAL NETWORKS, SPATIAL DATA, & HIDDEN POPULATIONS

6  
LeCOMPTÉ • SCHENSUL  
LIBERIS • SINGER

RESEARCHER ROLES & RESEARCH PARTNERSHIPS

7  
SCHENSUL  
LeCOMPTÉ  
& RESOURCES

USING ETHNOGRAPHIC DATA

Conducting Research Surveys via E-Mail and the Web

Schneider et al.

RAND

Reigeluth  
Carr-Chellman

## INSTRUCTIONAL-DESIGN THEORIES AND MODELS Volume III



## Training Complex Cognitive Skills

van Merriënboer

EDUCATIONAL  
TECHNOLOGY  
PUBLICATIONS

Cognitive and Computational Approaches

Instructional Design

## WEB-BASED LEARNING

Smith  
Ragan

THE IN THE PRIN

# When Expressions Are *Digital*

They also become magical





Home

Video

NewsPulse

U.S.

World

Politics

Justice

Entertainment

Tech

Health

Living

Travel

Opinion

iReport

Money

Sports

updated 10:52 PM EST, Wed January 25, 2012

Make CNN Your Homepage



## Obama takes State of the Union message on the road

President Obama launched a three-day visit to five battleground states by pressing State of the Union themes of core American values and having the rich pay more taxes. [FULL STORY](#)

- Ticker: Obama's testy encounter
- Does Obama really = big government?
- Opinion: Need jobs to level playing field
- Romney, Gingrich in tight Florida race
- Romney: Man on the wedding cake?
- Bill Maher: Obama will beat Romney

### LATEST NEWS

- Two buildings in central Rio collapse
- U.S. special forces rescue aid workers
- Rates low through 2014 | Stocks rise
- Family: Syria releases American student
- Good Samaritan shot in front of sons
- Concordia captain admits 'mistake'
- State College bids farewell to Paterno
- Mayor apologizes for 'taco' comment
- Kennedy cousin says he didn't kill
- Stolen art returned after 3 decades



## Giffords: I will recover and I will return

Rep. Gabrielle Giffords, who moved the nation with an improbable comeback after a gunman shot her in the head last year, formally resigned in an emotional appearance in the U.S. House of Representatives. [FULL STORY](#) | [OPINION](#)

### EGYPT'S REVOLT: 1 YEAR LATER



Egypt's 'unfinished revolution'



Seeds of struggle sown years before



Photos: Beginning of Arab Spring

### FEATURED



Multitasking bad for kids' social skills?



Golden Orb spiders weave silk for cape



Colbert's chaplain: Jesus was funny



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SPORTS

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Markets Closed

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Enter Symbol

Get quotes

# An Indescribable Advance

The first time in human history

# Both Knowledge and Expressions

Can be given without giving away

# Unprecedented Capacity

We can share as never before

# Unprecedented Capacity

We can *educate* as never before

# What Does “Share” Mean?

Online it means copy and distribute

# Cost of “Copy”

For one 250 page book:

- Copy by hand - \$1,000
- Copy by print on demand - \$4.50
- Copy by computer - \$0.00084

# Cost of “Distribute”

For one 250 page book:

- Distribute by mail - \$5.20
- Distribute by internet - \$0.00072

# Copy and Distribute are “Free”

This changes everything

# Educational Sharing

Also means adapting or editing

# Sense-making, Meaning-making

Connecting to prior knowledge

Relating to past experience

(In an appropriate language)

# Digital Makes Editing “Free”

Editing a printed book or magazine  
is difficult and expensive

# Free Copy, Distribute, Edit

We can share as never before

# Free Copy, Distribute, Edit

We can *educate* as never before

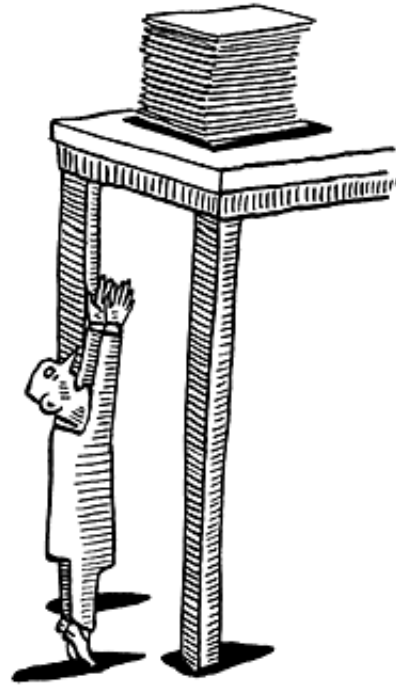
# Except We Can't

© forbids copying, distributing, and editing



# © Cancels the Possibilities

Of digital media and the internet



# © Cancels the Possibilities

Of digital media and the internet



# © Cancels the Possibilities

Of digital media and the internet

Internet  
Enables



Copyright  
Forbids

What to do?





Use copyright to enforce sharing

How do we fully leverage ICT  
in education?

Share and Collaborate, Freely



Share and Collaborate, Freely

**GitHub**



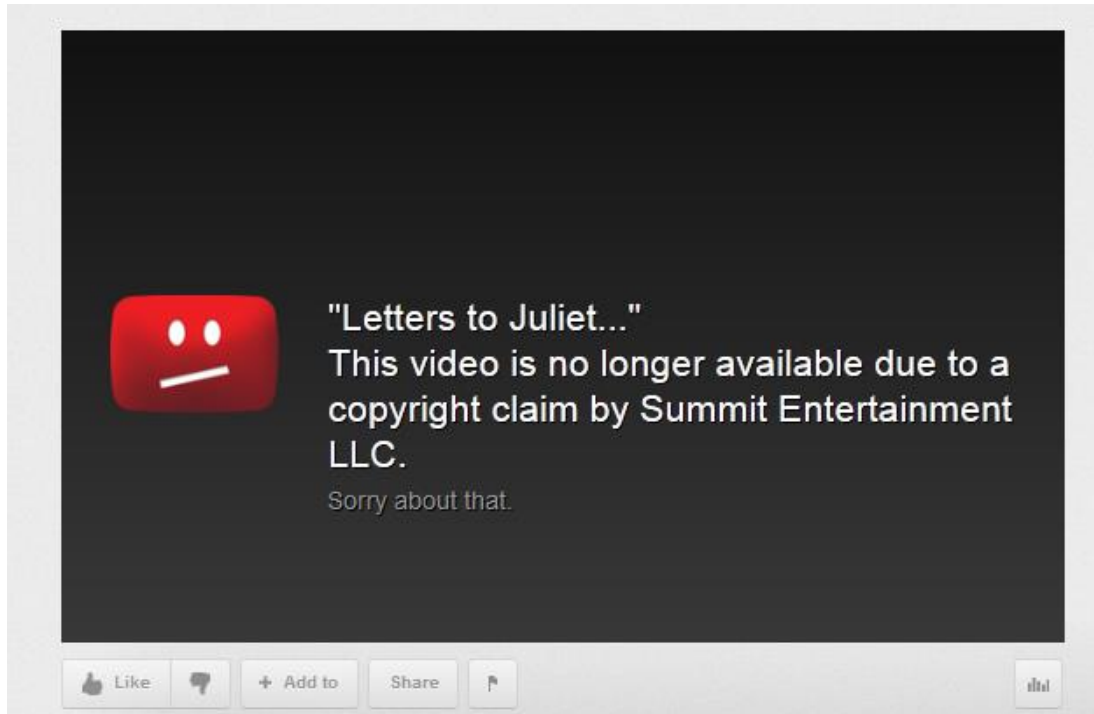
**stackoverflow**



**WORDPRESS**



Copyright law prevents us from  
fully leveraging the power of ICT



Copyright restricts our ability  
to share with each other and collaborate

$$\text{price} = 1 / \text{supply}$$



with digital, supply is  
infinite

price  $\Rightarrow$  \$0

© keeps prices of digital  
educational materials  
artificially high

What  
ICT Makes  
Possible



© Makes Illegal  
and Expensive



use copyright licenses  
to enable sharing



# Open Educational Resources





open  $\approx$  free

free is *assumed* online



Free

Open

`open` = free + permissions

# Open

1. Free and unfettered access
2. Perpetual, irrevocable 5R permissions

# The 5Rs

Retain

- Make and own a copy

Reuse

- Use in a wide range of ways

Revise

- Adapt, modify, and improve

Remix

- Combine two or more

Redistribute

- Share with others

What ICT  
Makes  
Possible



OER Makes  
Legal and  
Free

# The 5Rs

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retain is fundamental

retain is prerequisite  
to revise and remix

# The 5Rs

Retain

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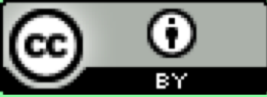
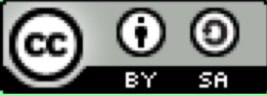

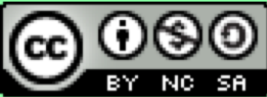


- Share with others

# Open Educational Resources

1. Free and unfettered access
2. Perpetual, irrevocable 5R permissions

# “Faux-pen”

1. Free (possibly gated) access
2. All rights reserved (or stronger)

Status	Permissions	Complexity	Ok to Use?
Public Domain	5Rs	None	OK
 (BY)	5Rs	None	OK
 (BY SA)	5Rs	Low	OK
 (BY NC)	5Rs	Moderate	OK
 (BY NC SA)	5Rs	Moderate	OK
 (BY ND)	3Rs	None	Enrichment Only
 (BY NC ND)	3Rs	Moderate	Enrichment Only
Youtube Terms of Use	2Rs	None	Enrichment Only
Fair Use Claim	5Rs	High	Case-by-Case Approval
"Boutique" Licenses	?	High	Case-by-Case Approval
All Rights Reserved	-	-	No

# “Closed Until Proven Open”

1. Online resources without an explicit copyright statement
2. Resources in library databases

traditionally © materials  
+ internet



openly licensed materials  
+ internet



Internet  
Enables



OER  
Permits

# OER Adoption

Replacing whatever was previously in the “Required Materials” section of your syllabus with OER

# High Impact OER Adoption

Adoption that:

1. Improves student success,
2. Improves affordability, and
3. Does it at scale

# High Impact OER Adoption

An adoption that:

1. Improves student success,
2. Improves affordability, and
3. Does it at scale

# Kinds of OER Adoption

Replace

- Simple substitution

Realign

- Objectives as TOC

Rethink

- Open pedagogy

replace



realign



rethink

“what does `open` allow me  
to do?”

# The Remix Hypothesis

	Change in Student Learning
<b>Replace</b>	Small
<b>Realign</b>	Moderate
<b>Rethink</b>	Large

# High Impact OER Adoption

Adoption that:

1. Improves student success,
2. Improves affordability, and
3. Does it at scale

# High Impact OER Adoption

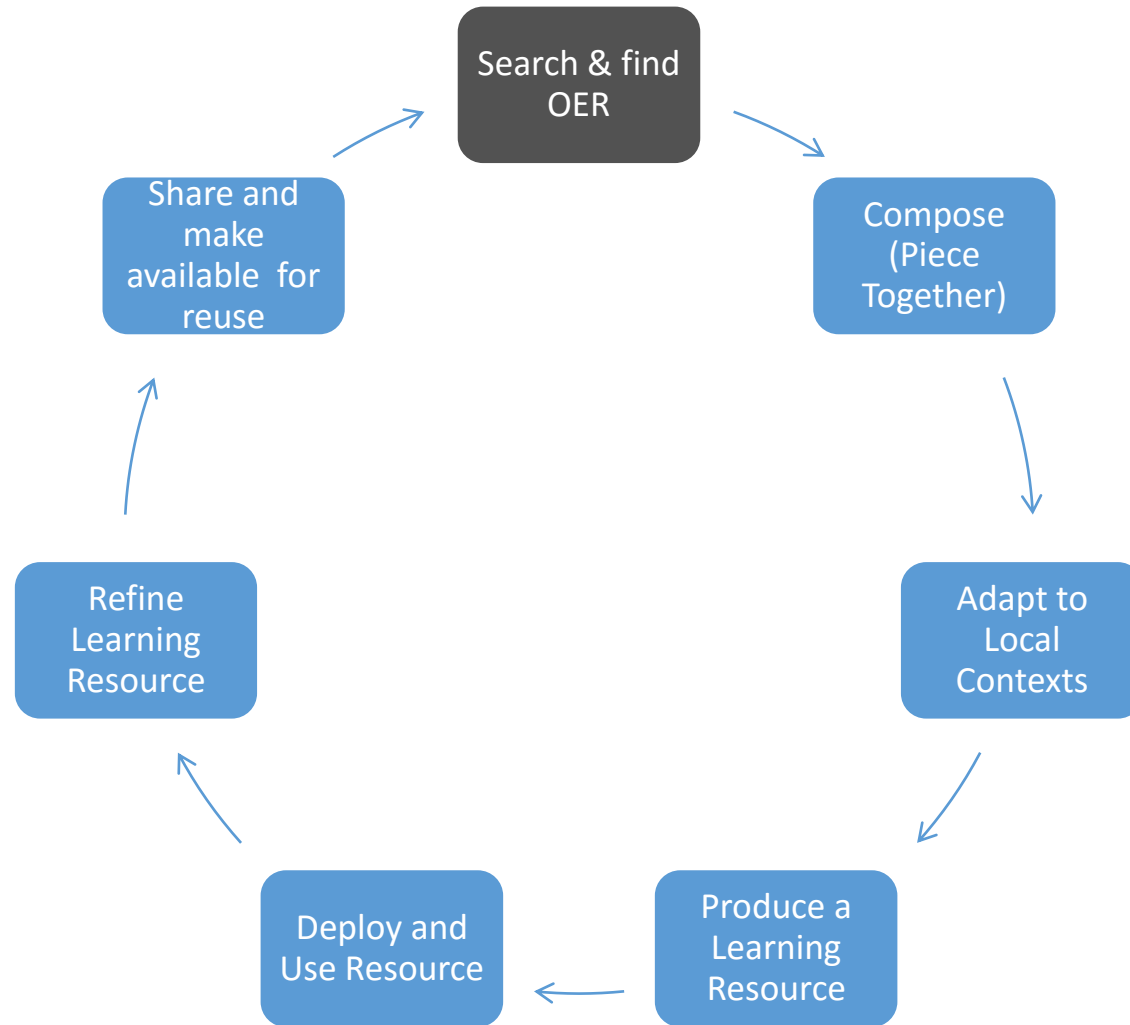
Adoption that:

1. Improves student success,
2. Improves affordability, and
3. Does it at scale

# OER Life Cycle

Expanded

# OER LIFE CYCLE



# SEARCH & FIND

#	OER Repository	URL
1	MIT Open Courseware	<a href="http://ocw.mit.edu">http://ocw.mit.edu</a>
2	Utah State University	<a href="http://ocw.usu.edu/">http://ocw.usu.edu/</a>
3	OpenLearn (Open University - UK)	<a href="http://www.open.ac.uk/openlearn/home.php">http://www.open.ac.uk/openlearn/home.php</a>
4	Connexions (Rice University)	<a href="http://cnx.org/">http://cnx.org/</a>
5	MERLOT (All Licences, not only CC)	<a href="http://www.merlot.org/merlot/index.htm">http://www.merlot.org/merlot/index.htm</a>
6	OER Commons	<a href="http://www.oercommons.org/">http://www.oercommons.org/</a>
7	Directory of Open Access Journals (DOAJ)	<a href="http://www.doaj.org/">http://www.doaj.org/</a>
8	United Nations University (UNU)	<a href="http://ocw.unu.edu/">http://ocw.unu.edu/</a>
9	Open Learning Initiative (Carnegie Mellon)	<a href="http://www.cmu.edu/oli/index.shtml">http://www.cmu.edu/oli/index.shtml</a>
10	Yale University	<a href="http://oyc.yale.edu/">http://oyc.yale.edu/</a>
11	webcast.berkeley (Podcasts and Webcasts)	<a href="http://webcast.berkeley.edu/">http://webcast.berkeley.edu/</a>



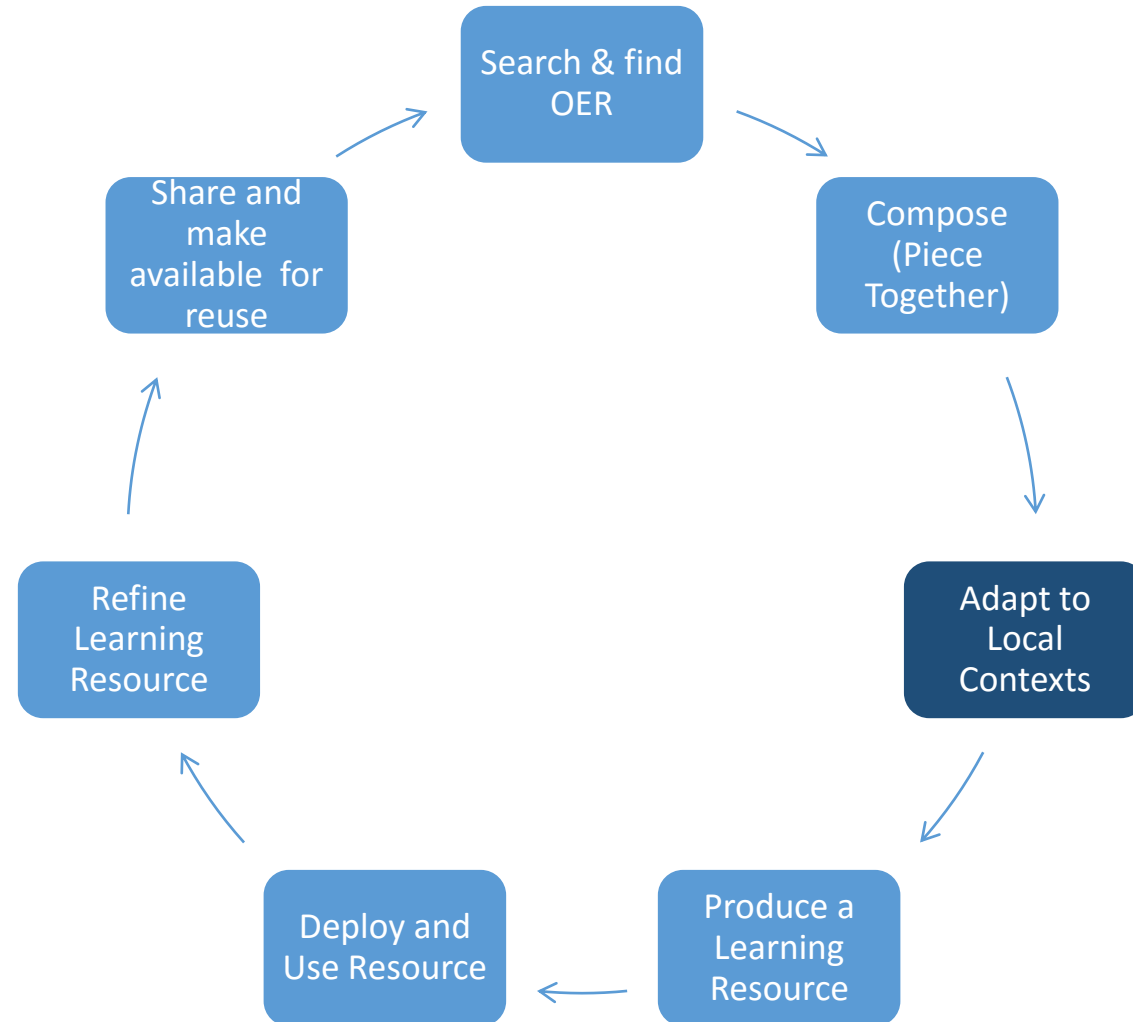
# OER LIFE CYCLE



# COMPOSE

- Link to Outcomes
- Language (translation, remove colloquialisms)
- Pitch at your learners level
- Chunk information appropriately
- Insert into your methodology/pedagogy
- Contextualise materials

# OER LIFE CYCLE



# ADAPT

- **ReUse** (Use OERs as per original)
- **Rework** (Rework OER but remain true to its message)
- **Remix** (Mix OER materials)
- Be true to copyrighted conditions of materials

# OER LIFE CYCLE



# PRODUCE, DEPLOY & REFINE

- **Produce:** Medium, (Paper vs Digital) has implications for distribution and access.
- **Produce:** Quantity, implications for cost.
- **Deploy:** Who should have access to the documents and when?
- **Refine:** After the first run the document needs to be refined/revised based on 'lessons learnt' so that it remains useful.

# OER LIFE CYCLE



# SHARE

- Need to get the OER's back to the OER community.
- Others should benefit from your revisions (especially in Africa where material context is significant)
- Need to advertise your 'improvements'.

## Some words of wisdom from others

To unlock the potential of OERs, they 'have to be first located, then adapted, used and the adaptations (perhaps with commentary on the form and impact of their use) made available to a wider community; otherwise they remain just another piece of 'content', merely stuff rather than a tool (Cantoni, quoted in Conole & Weller, 2008, p.11).'

# References:

- David Wiley, slides: <http://slideshare.net/opencontent>
- George Siemens, [http://www.elearnspace.org/index\\_old.htm](http://www.elearnspace.org/index_old.htm)
- Andrew Moore and Tessa Welch, slides: OER Life Cycle  
<http://www.oerafrica.org/resource/oer-life-cycle>
- [Open Educational Resources Handbook for Educators Version 1.0  
http://www.lulu.com/shop/view-cart.ep](http://www.lulu.com/shop/view-cart.ep)
- <http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/>