
Network Enabled Open Education: Changing the landscape of learning

M.S. Vijay Kumar

(...with a little help from my friends)

LINC 2010

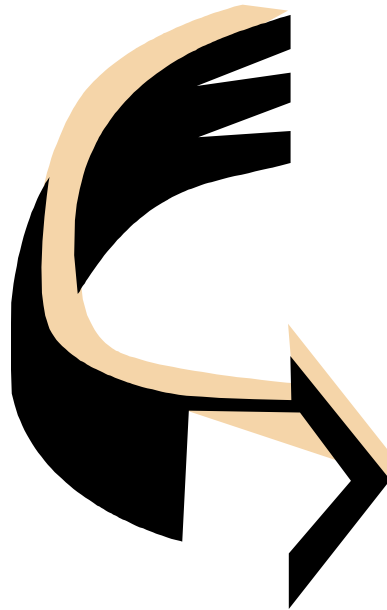
MIT

May 26, 2010

Educational Opportunity

□ Open

- Content
- Tools
- Knowledge
- Enabling Resources
 - Legal
 - Policy



□ Network

- **Connectivity**
 - Wired; Wireless
 - Satellite; Cell; Mesh.....
- **Community**

**Quality
Educational
Opportunity**

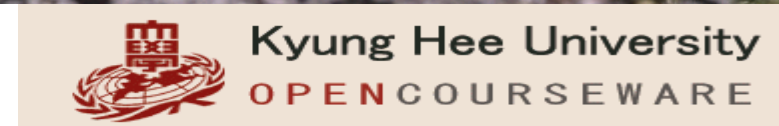
Accelerating Global Movement

MIT **OPEN**COURSEWARE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY



OUI
האוניברסיטה הפתוחה 

Yale University



NPTTEL

IGNOU



OPENCOURSEWARE CONSORTIUM

200+ OCWC Institutions
~ 10,000 Courses Online
~2,000,000 visitors/month



Broadcast Yourself™

Search

[Create Account](#) or [Sign In](#)

[Home](#) [Videos](#) [Channels](#)

[Subscriptions](#) [History](#)

[Upload](#)

<http://www.nptel.iitm.ac.in>

FUNDED BY
THE MINISTRY OF HUMAN RESOURCE DEVELOPMENT
GOVERNMENT OF INDIA



NATIONAL PROGRAMME ON TECHNOLOGY ENHANCED LEARNING

A JOINT VENTURE BY
INDIAN INSTITUTES OF TECHNOLOGY
& INDIAN INSTITUTE OF SCIENCE



NPTEL

nptelhrd's Channel

[Subscribe](#)

[All](#)

[Uploads](#)

[Playlists](#)



46 videos

**Mechanical -
Refrigeration and**

2 hours ago
[more info](#)



40 videos

**Electronics - Digital
Circuits and**

1 hour ago
[more info](#)



41 videos

**Mechanical -
Project and**

10 hours ago
[more info](#)



55 videos

**Electronics - Digital
VLSI System**

52 minutes ago
[more info](#)



40 videos

**Electrical - Energy
Resources and**

19 hours ago
[more info](#)



40 videos

**Civil - Water &
Wastewater**

1 day ago
[more info](#)



36 videos

**Computer Sc - Data
Structures and**

49 minutes ago
[more info](#)



47 videos

**Electrical - Control
Engineering**

6 hours ago
[more info](#)



40 videos

**Mechanical -
Robotics**

4 hours ago
[more info](#)



43 videos

**Computer Sc -
Database**

6 hours ago
[more info](#)



39 videos

**Civil - Foundation
Engineering**

2 days ago
[more info](#)



35 videos

**Mechanical - Heat
and Mass Transfer**

1 day ago
[more info](#)

K-12



⁶OER as Key Strategy for Educational Advancement

- Commonwealth of Learning
- International Council for Distance Education (ICDE)
 - EADTU
- UNESCO
- Open Textbook Initiatives
- India: National Knowledge Commission
 - Capacity Building through Net Enabled Open education

Part of the Discourse on Educational Change

India: Capacity Building through Net Enabled Open education

- **Network-based delivery needs to become a central modality for delivering quality education.**
 - A blended process – intelligent combinations of physical and virtual elements.
 - Distributed Repositories, Domain-specific Grids and Portals, Interaction facilities, Robust connectivity

- **Faculty and Institutional Development Program**
 - Promote distance and network based delivery techniques
 - Develop domain competencies and teaching skills for quality education using quality faculty and high quality materials.

- **National Portal for Open Education**
 - Enabling resources for faculty and resource development
 - Clearinghouse function and an interaction environment

A⁸ Collaborative Publication Project

- **“How can we advance teaching and learning by taking full advantage of open education?”**
- A hardcover book + free online distribution with Creative Commons
- 30 chapters by 38 prominent leaders and visionaries (Foreword by John Seely Brown)
- Lessons learned and visions of the future from: OKI, IMS, CNI, Sakai, Moodle, ETUDES, iCampus, VUE, Mellon Foundation, OCW, Connexions, OLI, MERLOT, OpenLearn, SOFIA, Creative Commons, LAMS, Hewlett Foundation, CASTL, VKP, ISSOTL, Open University, Carnegie Foundation, and more

OPENING UP EDUCATION

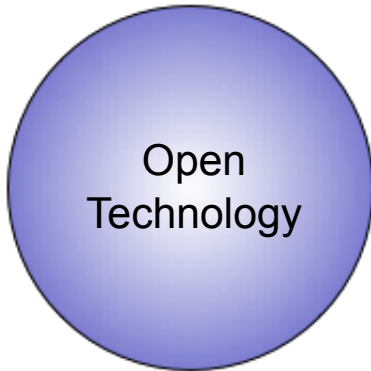
The Collective Advancement
of Education through Open
Technology, Open Content,
and Open Knowledge



edited by
Toru Iiyoshi and M.S. Vijay Kumar

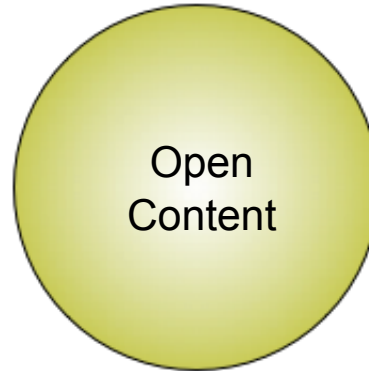
The Carnegie Foundation's Book on
Open Education (Winter 2008, MIT Press)

Opening Up Education: A Framework



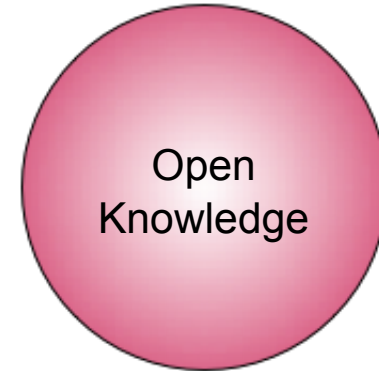
Section Editor:
Owen McGrath

Trent Batson
Steve Ehrmann
David Kahle
M. S. Vijay Kumar
Stuart Lee
Phil Long
Clifford Lynch
Christopher Mackie
Neeru Paharia
Edward Walker



Section Editor:
Flora McMartin

Richard Baraniuk
Tom Carey
Catherine Casserly
Gerard Hanley
Diane Harley
Andy Lane
Steve Lerman
Anne Margulies
Shigeru Miyagawa
Marshall Smith
Candace Thille
David Wiley



Section Editor:
Cheryl Richardson

Randy Bass
Dan Bernstein
Barbara Cambridge
James Dalziel
Bernadine Chuck
Fong
Richard Gale
Mary Huber
Pat Hutchings
Toru Iiyoshi
Diana Laurillard
Marilyn Lombardi
Diana Oblinger

Opening Up Education: Key Dimensions

- What does open education mean as an agency for change both in formal and informal education?
 - **The educational value proposition and implications of open education initiatives**
 - **The factors that would propel these initiatives towards having a larger impact on education.**

MIT OpenCourseWare 1900+courses

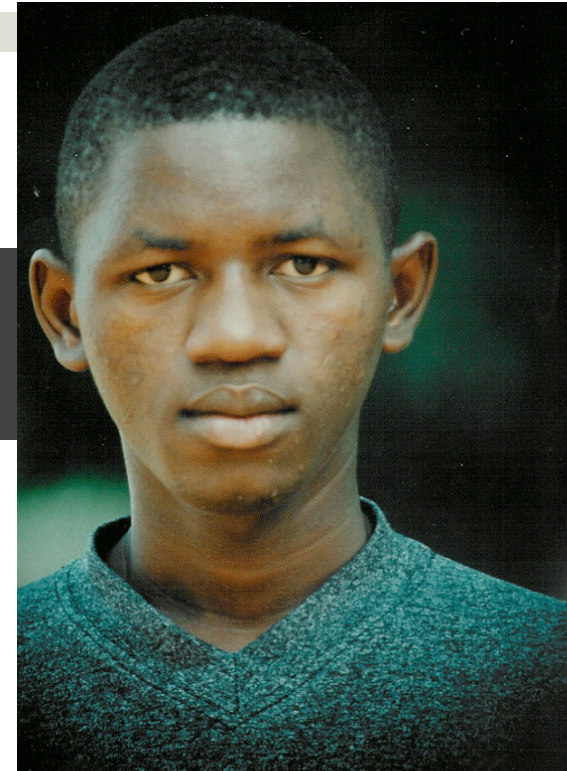
- ❖ **Site Highlights**
- ❖ **Syllabus**
- ❖ **Course Calendar**
- ❖ **Lecture Notes**
- ❖ **Exams**
- ❖ **Problem/Solution Sets**
- ❖ **Labs and Projects**
- ❖ **Video Lectures**

The screenshot shows the MIT OpenCourseWare website homepage. At the top, there is a navigation bar with links for 'COURSE LIST', 'ABOUT OCW', 'HELP', and 'FEEDBACK'. The main header features the MIT logo and the text 'MIT OPEN COURSEWARE MASSACHUSETTS INSTITUTE OF TECHNOLOGY'. Below the header, a welcome message states: 'Welcome to MIT OpenCourseWare a free, open publication of MIT Course Materials. We invite you to view all the courses available at this time.' A search bar is located on the left side, with a 'GO' button. Below the search bar, there is a list of available courses, including 'Aeronautics and Astronautics', 'Anthropology', 'Architecture', 'Biological Engineering Division', 'Biology', 'Brain and Cognitive Sciences', 'Chemical Engineering', 'Chemistry', 'Civil and Environmental Engineering', 'Comparative Media Studies', 'Earth, Atmospheric, and Planetary Sciences', 'Economics', 'Electrical Engineering and Computer Science', 'Engineering Systems Division', 'Foreign Languages and Literatures', and 'Health Sciences and Technology'. The main content area features a 'Welcome to MIT's OpenCourseWare:' section, which includes a list of bullet points: 'Is a publication of MIT course materials', 'Does not require any registration', 'Is not a degree-granting or certificate-granting activity', and 'Does not provide access to MIT faculty'. Below this, there is a 'Learn more about MIT OCW...' link. The 'Investing in Open Sharing' section features a photo of Jon Gruber and text stating: 'Demonstrating his belief in MIT and the ideal of open sharing of educational materials, MIT alumnus Jon Gruber has donated \$1 million to the OpenCourseWare project.' The 'Other OpenCourseWare Projects' section includes links for 'Top Japanese universities announce OpenCourseWare initiatives', 'Tufts University has launched its pilot OCW project, offering six courses, with more to come in September.', and 'Visit other OpenCourseWare sites from around the world.' At the bottom, there is a 'Newsletter' section with a 'Sign up' link for monthly email updates on new courses. On the right side, there is a 'Give Now' button and a 'Support MIT OCW with a financial donation' link. Below this, there is a 'Reflections from MIT President Susan Hockfield' section with a photo of Susan Hockfield and text: 'OpenCourseWare expresses in an immediate and far-reaching way MIT's goal of advancing education around the world. Through MIT OCW, educators and students everywhere can benefit from the academic activities of our faculty and join a global learning community in'.

Making A Difference

“Last semester, I had a course in metallurgical engineering. I didn’t have notes, so I went to OCW. I downloaded a course outline on this, and also some review questions, and these helped me gain a deeper understanding of the material.”

— *Kunle Adejumo, Engineering student
at Ahmadu Bello University, Zaria, Nigeria*



Making A Difference



“I was delighted by the way the material is so coherently presented. It is truly inspiring to see this level of excellence.”

— Prof. Richard Hall, LaTrobe University, Melbourne, Australia
*Teaching Information Systems, Beginning Microprocessors, and
Advanced Computer-Aided Software Engineering*

Flashback - Flashforward



“... even though I relied heavily on material from [Differential Equations], I had no idea how it was being taught—or what was being taught. ... I’d like to bring more of the technology into the classroom, so that while I was giving a lecture, I could give them a flashback to something they had seen in a previous course... This will create better linkages, and to fully integrate the learning experience.”

— *Prof. Karen Willcox, Aeronautics & Astronautics*
Teaches required aero/astro course to MIT juniors

Transformative Potential: Changing the Ecology and Economics of Education

Access; **A**lternate Pathways; **A**daptation;

A

- ▣ Teaching → Learning
- ▣ Scaling Excellence: Overcome the Iron Triangle of AQC (Daniel)

Blended Learning

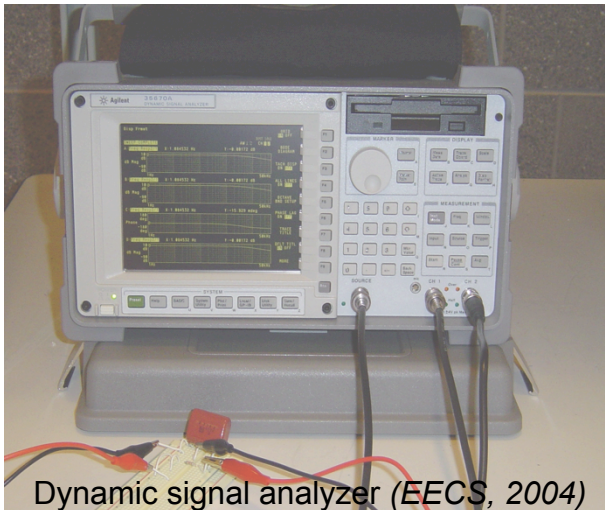
Boundary-less Education

Continuous improvement

Continuous Education

iLabs:

"If you can't come to the lab... the lab will come to you!"



U.S., Australia, China, India, Africa: iLabs Consortium

Order of magnitude more lab experiences

More lab time to users/researchers

More sophisticated labs available

Communities of scholars created around iLabs

Sharing educational & research content

Deeper Learning and Leveraged Resources

The screenshot shows a web browser window titled "MIT Lecture Browser" with the URL <http://oeit-tsa.mit.edu:8080/lectures/>. The browser's address bar also contains a Google search box. The page header includes the MIT CSAIL logo and the text "Lecture Browser SPOKEN LANGUAGE SYSTEMS" and "MIT COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE LABORATORY".

Below the header is a search interface with the text "Search for words: and/or pick a category:". There are two input fields: one containing "Angular Momentum" and another with a dropdown menu set to "Physics". A "Search" button is to the right. Below the search fields, it says "Examples: violin, 'solar system', wine AND glass".

The main content area displays "25 results for Angular Momentum in 'Physics'". The first result is titled "1. Angular Momentum, Torques, Conservation of Angular Momentum, Spinning Neutron Stars, Stellar Collapse". Below the title, it says "Lecture 20, Physics I: Classical Mechanics, Physics, MIT, 51:05 (Walter Lewin)".

Under the title is a video player with a progress bar and several control buttons. Below the video player is a list of bullet points:

- ▶ we're now entering the part of eight oh one which is the most difficult for students and faculty alike ... we are going to enter the domain of **angular momentum** and torques it is extremely nonintuitive ... the good news however is that we will stay with this concept for at least four or five lectures today i will
- ▶ the good news however is that we will stay with this concept for at least four or five lectures today i will introduce both torque and **angular momentum** ... what is **angular momentum** if an object has a mass m ... and it has a velocity v ... then clearly it has a **momentum** ... p that's very well defined in your reference frame the product of m and v ... **angular momentum** ... i can take relative to any point i choose i choose this point q arbitrarily ... this now ... is the position
- ▶ this now ... is the position vector which i call r of q ... let this angle be θ ... and **angular momentum** relative to that point q it's a vector ... is the position vector relative to that point q cross p ... so it is r of q ... cross v ... and then ... times m ... the magnitude of the **angular momentum** relative to point q ... is of course $r m v$ but then i have to take the sine of the angle θ so let's say it is $m v r$ sine θ and this i often call shorthand notation r perpendicular ... that ... r perpendicular is this distance relative to point c
-
- ▶ may have confused you and for good reason because i changed my index q to c and there is no c ... the indexes should all be q of course ... so this r is the length of this vector it is the magnitude of this vector so this should have a q ... and r of q sine θ which i call r perpendicular must have an index q and that is this part here ... this angle is ninety degrees and this here ... is r of q

At the bottom of the browser window, a status bar shows the message "Cancelled opening the page".

Challenges of Planning, Critical Challenges facing Cities of Global South, IIHS, and Challenges within the IIHS Curriculum Framework



00:15 07:36

Prof. Bish Sanyal

Search transcript

I think one central challenge of planning is legitimacy of government as a key institution that should be involved in bringing the change The legitimacy of the government is under attack in many different parts of the world so that it has to be reestablished as a major planning institution I think the second challenge for planning at least in the US or the west is that the market is

Audio English (US) Transcript English (US)

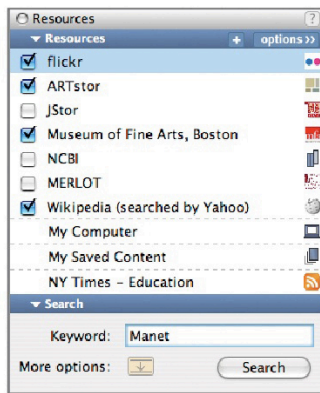


<http://spokenmedia.mit.edu/demo/iihs/>

Process and Platform for Collaborative Course & Curriculum

: Finding → Getting → Building

Discover

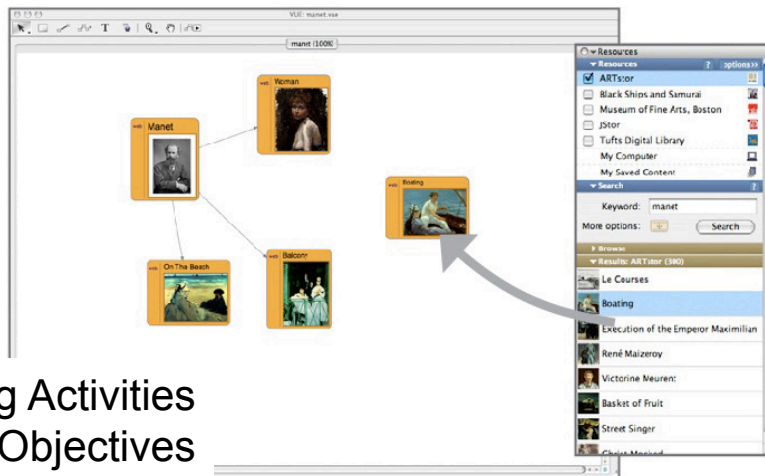


For example...
 MIT OCW
 OCW Consortium
 Academic Earth
 Wikipedia
 NPTEL
 iTunesU
 YouTube

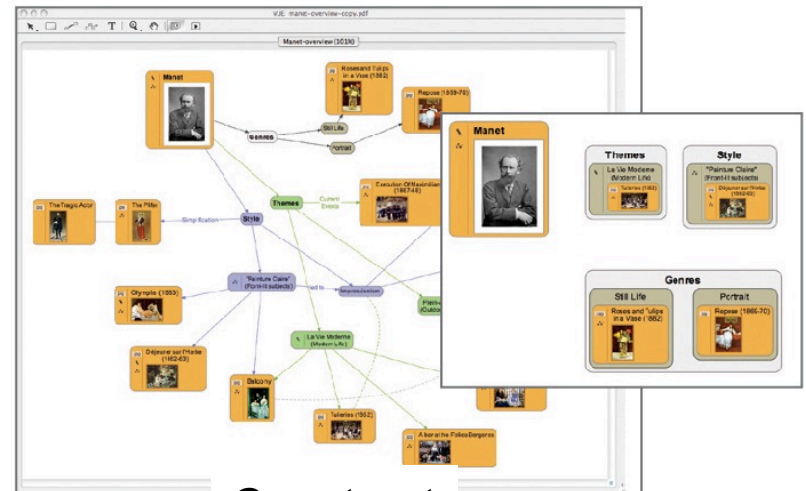


Collaborate

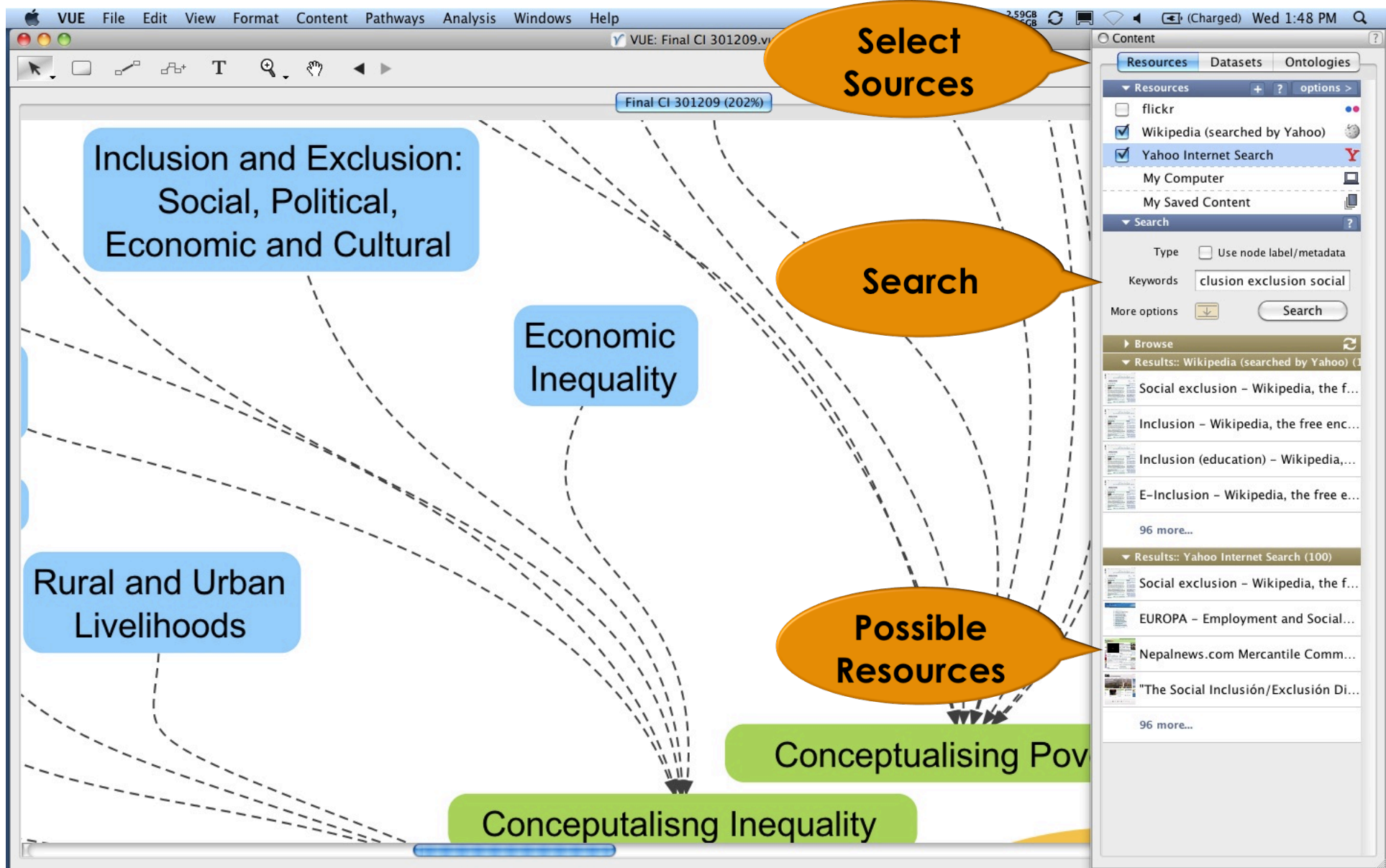
Collect



Learning Activities
 Learning Objectives
 Content



Construct





http://open.iihs.co.in/poverty_and_inequality/activity



Home > Poverty and Inequality > Activity

Aromar Revi

Logout

search

Term 1 2011

About Us | Send Us News | Advertise With Us | Contact Info | Feedback

SEND SMS TO

SPOTLIGHT

NEWS

VEIL, ED, NO. 12, Nov. 27 2008 (Monday 12, 2008)

Space for advertisement

nepalnews.com

nepalnewsmobile.com

Web | nepalnews.com

Budget 2008-09

Publication: Weekly

Apur: Bishnuvar, Dharan, Janakpura, Sagaura

Frequency: Daily

Category: News Business, Arts, Health

Print Download: Karbir

Social Exclusion/ Inclusion: South Asian vis-à-vis Western Discourse

By Mohan Das Manandhar

Rajan Balacharya

Background

Social Exclusion/ Inclusion: South Asian vis-à-vis Western Discourse

Historical origin of the phrase 'social exclusion'

The distinctiveness is on account of the stratification system of caste and emerging socio-political practices of religion that prevailed, in one form or the other, in the South Asian societies for centuries which excluded a community as whole from common facilities or benefits. The religious, caste and ethnicity are the prime factors moulding factor and the base of social structure in the South Asian region. The religious, caste and ethnicity has influential role in any sort socio-political activities in the region ranging from anti-colonial movement against British rule to the burning Naxalite and Naxal movement, to current day's military take-over to separation of Indian state. The crosscutting between the religious, caste and ethnic communities gave birth to issues of communal identity politics including regional nationalisms and caste and ethnic based parties.

The South Asian political and social structure which has great influence of religion, caste and ethnicity has the social exclusion in two lines - Hindu majority and Indigenous Non-Indigenous. Through religious angle, there is enmity of majority religious group against religious minority group. Indigenous and Tribal. For instance, majority Muslims of Pakistan and Bangladesh dominates the Hindu minorities; Hindu majorities of India and Nepal dominate Muslims and Indigenous minorities. In term caste, Dalits are regarded as impure and employed by high caste groups like manual work (car, bullock, plough and other) use of low status. The contemporary fact of South Asian state and society is its adaptation of division of labor on the basis of caste with Dalits being lowest in the hierarchy. Dalits are spread in every country of South Asia. The South Asian countries have largely made caste system solid but it has limited in word but not in practice. So, in many instances, South Asian politics has observed the rising of caste based political parties against such discrimination - viz. Bahujan Samaj Party, the ruling party of Uttar Pradesh of India, had evolved against Dalit discrimination in India. In term of

Discussion

Aromar: I think this article misses some of the major points...

Kavita: The article does include some of the issues most relevant

Places



Timeline

INDIAN CIVIL SERVICE EXAMINATION

1859 - First Indian Civil Service Examination held in India.

1871 - First Indian Civil Service Examination held in India.

1877 - First Indian Civil Service Examination held in India.

1880 - First Indian Civil Service Examination held in India.

1883 - First Indian Civil Service Examination held in India.

1886 - First Indian Civil Service Examination held in India.

1889 - First Indian Civil Service Examination held in India.

1892 - First Indian Civil Service Examination held in India.

1895 - First Indian Civil Service Examination held in India.

1898 - First Indian Civil Service Examination held in India.

1901 - First Indian Civil Service Examination held in India.

1904 - First Indian Civil Service Examination held in India.

1907 - First Indian Civil Service Examination held in India.

1910 - First Indian Civil Service Examination held in India.

1913 - First Indian Civil Service Examination held in India.

1916 - First Indian Civil Service Examination held in India.

1919 - First Indian Civil Service Examination held in India.

1922 - First Indian Civil Service Examination held in India.

1925 - First Indian Civil Service Examination held in India.

1928 - First Indian Civil Service Examination held in India.

1931 - First Indian Civil Service Examination held in India.

1934 - First Indian Civil Service Examination held in India.

1937 - First Indian Civil Service Examination held in India.

1940 - First Indian Civil Service Examination held in India.

1943 - First Indian Civil Service Examination held in India.

1946 - First Indian Civil Service Examination held in India.

1949 - First Indian Civil Service Examination held in India.

1952 - First Indian Civil Service Examination held in India.

1955 - First Indian Civil Service Examination held in India.

1958 - First Indian Civil Service Examination held in India.

1961 - First Indian Civil Service Examination held in India.

1964 - First Indian Civil Service Examination held in India.

1967 - First Indian Civil Service Examination held in India.

1970 - First Indian Civil Service Examination held in India.

1973 - First Indian Civil Service Examination held in India.

1976 - First Indian Civil Service Examination held in India.

1979 - First Indian Civil Service Examination held in India.

1982 - First Indian Civil Service Examination held in India.

1985 - First Indian Civil Service Examination held in India.

1988 - First Indian Civil Service Examination held in India.

1991 - First Indian Civil Service Examination held in India.

1994 - First Indian Civil Service Examination held in India.

1997 - First Indian Civil Service Examination held in India.

2000 - First Indian Civil Service Examination held in India.

2003 - First Indian Civil Service Examination held in India.

2006 - First Indian Civil Service Examination held in India.

2009 - First Indian Civil Service Examination held in India.

2012 - First Indian Civil Service Examination held in India.

2015 - First Indian Civil Service Examination held in India.

2018 - First Indian Civil Service Examination held in India.

2021 - First Indian Civil Service Examination held in India.

In Context



²³Open ...Readiness

- What factors would help Open initiatives have a larger impact on education?
 - How can we tightly integrate open education efforts with educational program priorities?
-

Readiness

Content and Culture

“Water, Water, Everywhere, Nor any drop to drink.”

— Coleridge, *The Rime of the Ancient Mariner*

■ Content Readiness

- Addressing challenge of effectively finding, evaluating and making the best use resources in one’s own educational context.

■ Cultural Readiness

- Embracing a culture of open in educational design, development, and delivery
 - *By Educators and Institutions , from the get-go.*
-

Content Readiness:

Finding..... Getting.... Using

▣ **Content Discovery and Re-use**

- ▣ link existing educational materials and aid in their discoverability ; making it easier to utilize relevant educational materials in teaching and learning.

▣ **Community and Context:**

- ▣ Collective intelligence: Social tagging and social networking tools to help find useful materials more quickly and to share best practice
- ▣ Collaborative Annotation tools that will enable sharing of information and ideas through annotation of content in text, web, video.

▣ **Core Concept** Catalog:

- ▣ Curriculum concepts, or “learning objectives”, mapped to OCW materials enabling the re-use of cross-disciplinary content.
 - ▣ Point of Need Learning; Guided Pathways

Challenge: Recasting Resources, Relationships and Roles

▣ Institutional Inertial Frames and Invariants

- ▣ Scarcity vs. Abundance

▣ Recasting roles and values

- ▣ Sense Making
- ▣ Ordering the digital disorder
- ▣ Pedagogical Shifts
 - ▣ Individual learning -> collaborative, social learning
 - ▣ Co-development of knowledge with learners

▣ Credentialing

- ▣ Distributed over time and place
- ▣ P2P and Self-Learning

In Search of Useful Open Resources

- **OCW Finder** :: ocwfinder.org
 - Search and browse across OCWs
 - OCW Consortium also has a search at www.ocwconsortium.org/use/use-dynamic.html

- **OER Recommender** :: oerrecommender.org
 - “Related” resources from selected collections
 - Plug-in for Firefox

- **KEEP/Knowledge Commons**
 - Tacit Knowledge

- **Open Knowledge Initiative (O.K.I)**
 - OSIDS – Specifications for Portability, Interoperability

Project Greenfield

<http://greenfield.mit.edu>