MOOC for Capacity Building in Indian Agriculture

NAAS-COL Brain Storming Session

V Balaji, COL
Balwinder Sodhi, IIT Ropar

With inputs from
T V Prabhakar, IIT Kanpur
Background

- Online Learning matures into an Institutional Practice
  - Georgia Tech now offers a full MS online

- Access devices have proliferated
  - Highly diverse

- Drive to unbundle the package of Higher Education (North America)
MOOC-Massive Open Online Courses

- Every letter in MOOC negotiable
- Origin: U Manitoba in Canada (2007)
- Widespread notice in 2012
  - Highly integrated platforms
  - edX, Coursera, Udacity
MOOC in early 2014

- Total estimated learners in MOOC:
  - about 4 Million

- Large new players:
  - FutureLearn (UK)
  - Tsinghua U (China - highest QS ranked in Asia)
  - NPTEL India
Looking inside a MOOC - World Bank Course on Climate Change

- World Bank Course on Climate Change
  - Offered through Coursera.com, a for-profit MOOC provider
  - “Turn Down the Heat: why a 4C warmer world must be avoided”
  - Concluded on 28th Feb 2014
  - Two co-instructors with a dozen resource persons
Week 1 Video Talks

Turn Down the Heat: Why a 4°C Warmer World Must be Avoided
by Pablo Benitez, Kanta Kumar Rigaud

4°C

Week 1 Video Talks

Observed Climate Changes and Impacts: 650,000 Years to Now

Setting the Context
Duration: 08m 01s
Speaker: Prof. Hans Joachim Schellnhuber HBE
Director, Potsdam Institute for Climate Impact Research, Potsdam, Germany

The Changing State of the Climate
Duration: 13m 06s
Speaker: Dr. Thomas R. Karl
Director, NOAA’s National Climatic and Data Center, Asheville, North Carolina, US
## Week 1 Discussion

Climate changes and their impacts. Please read our forum posting policies before posting or starting a new thread.

### Sub-forum

<table>
<thead>
<tr>
<th>Sub-forum</th>
<th>Latest Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy and Leadership</td>
<td></td>
</tr>
<tr>
<td>Climate Champions</td>
<td></td>
</tr>
<tr>
<td><strong>Meetup with experts - Google Hangout on the Air</strong> (10:00 am EST on Friday, January 31)</td>
<td>Carbon footprint of India and ... (33 minutes ago)</td>
</tr>
<tr>
<td>Questions and clarifications regarding this week's quiz and exercise/peer assessment</td>
<td>where does your carbon footprint go (7 hours ago)</td>
</tr>
<tr>
<td></td>
<td>How can our traditional knowledge ... (20 hours ago)</td>
</tr>
<tr>
<td></td>
<td>Impact of climate change on food ... (2 hours ago)</td>
</tr>
</tbody>
</table>

### All Threads

<table>
<thead>
<tr>
<th>Thread</th>
<th>Points</th>
<th>Posts</th>
<th>Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane emissions from land</td>
<td>0</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Can we really turn down the heat?</td>
<td>6</td>
<td>48</td>
<td>212</td>
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<tr>
<td>Natural gas fracking</td>
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<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Relation between temperature and atmospheric CO2</td>
<td>0</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Climate Change: The most important issue of our time</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

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**STAFF REPLIED** • Started by **Pablo Torres** instructor • Last post by **John Sykes** (3 hours ago)

**AKINOLA A. BABATUNDE** • Started by **Pablo Torres** instructor • Last post by **Jennifer Zikos** (3 hours ago)

**Pablo Torres** instructor • Last post by **John Sykes** (3 hours ago)

**Pablo Torres** instructor • Last post by **John Sykes** (3 hours ago)

**Kristin Adkins** • Last post by **Kristin Adkins** (4 hours ago)
Projected Extreme Temperature

Week 02: Video transcript
Featuring Dr. h.c. Bill Hare

In the *Turn Down the Heat Report*, we used the new generation of climate models, the so called CMIP5 climate model and the comparison generation five models to project the consequences of two scenarios: a 2°C world and a 4°C world.

And whilst the 4°C world warms the planet roughly 4°C on average, the regional consequences of that warming are quite different. The climate models show that we expect the warming over land to
MOOC is thus.....

- An event
  - not just a face-to-face class that has moved online

- Content is created by instructors AND by learners (in discussion forums)

- Strong presence of online social spaces/norms

 MOOC is not just an event, it is a media event
MOOC is rooted in technology mediation

- Learner identity management
- Content authoring
- Content delivery
- Online discussions and Forum
- Online socialisation
- Evaluation and grading
- Analytics of participation
MOOC is at the intersection of

- Increased availability of bandwidth
- Diversity of access devices
- Cloud computing
- Business Analytics/Intelligence
MOOCs | Some Technology Aspects

- Leveraging cloud computing
- Content/learning management systems
- Creation of learning content
- Delivery of learning content
- Engagement analytics
- Role of a MOOC-IT specialist
Cloud Computing

- Deliver computing as utility/service
  - Accessible over a network (Internet or intranet)
- Lower provisioning time and cost
  - On-demand self-service
  - Pre-canned configurations available e.g. a Moodle virtual machine on Amazon
- On-demand scalability
  - Can add more compute power based on application demand
- Control over geographic location of VM
  - Addresses privacy concerns
Learning Management Systems (1/2)

• Content is central to a MOOC event
  o Generated by both instructors and students
  o E.g. lecture videos/slides and forum discussions

• Online learning via MOOCs
  o It is more than just watching the lectures
  o Assessment and feedback are crucial components
  o Online interactions among participants is crucial too

• Learning Management Systems
  o Provide necessary infrastructure to conduct a MOOC event
Learning Management Systems (2/2)

• Provides self-service and self-guided services for:
  o Student administration and registrations
  o Reuse of knowledge
  o Quick assembly and delivery of learning material
  o Course event management
  o Engagement analytics

• Typically, it is a web based software application
  o Several open source products available (Sakai, Moodle, Canvas etc.)
Creation of Learning Content (1/2)

- Learning content is mostly in the form of short videos
- Some content creation issues:
  - Where to record? Professional studio or home studio?
  - What tools to use?
  - Is content reuse desired? How to create for reuse?
  - What formats and resolution to choose? It impacts size.
  - Create incrementally or not? Impacts delivery timeline.
Creation of Learning Content (2/2)

• Content creation tools selection
  o Depends on where we want to record

• Media formats are important
  o Need to support variety of clients and bandwidth

• Viewer experience is crucial
  o Plain “voice over slides” is a big repellant
  o Animation, scribbling and mixing enhance viewer experience
  o In-video quizzes and interaction

• Video editing skills are important
  o Editing person should have knowledge of content being edited
Delivery of Learning Content

- **Learning content**
  - Mostly in the form of short videos
  - Often created incrementally in a new course
  - Can be potentially reused

- **Delivery of content**
  - Mostly over the Internet
  - Leverage services like youtube (for open content)
  - Network bandwidth issues with students

- **Harvesting engagement analytics**
  - Depends on choice of streaming service and LMS platform
Engagement Analytics (1/2)

• Measuring students’ engagement is crucial
  o For achieving a MOOC’s broader objectives
  o For students’ assessment and certification

• Can be obtained via analytics services of:
  o the LMS itself
  o content hosting/streaming service
Engagement Analytics (2/2)

- **Should be assessed via multiple channels**
  - Discussion forums and chatroom participation
  - Click-streams for MOOC’s pages
- **MOOC’s website layout is important**
  - E.g. multiple videos on single page or
  - One page per video (learning object)
  - It impacts your ability to extract analytics data
- **Students downloading videos for offline viewing**
  - Can impact accuracy of analytics data
Role of a MOOC-IT Specialist

• **Solid IT support is a must for any MOOC initiative**
• **Running a MOOC needs specialized IT skills**
  o Platform selection, setup and administration
  o Planning and managing content delivery
  o Selection and setup of content creation tools
  o Harvesting analytics
• **Plain webmaster’s skillset does not suffice**
• **Desired skillset in a MOOC-IT specialist**
  o Hands-on with IT architecture and management
  o Media content creation
  o Exposure to education and learning domain
MOOC in India- NPTEL

- A large online resource of courses
- About 200 courses online, equal to 4600 hours
- Launched a MOOC with industry participation – March 3, 2014
- New foundation courses for any interested learners
- Course is free, proctored exam and certificate is Rs 2000
- http://opencourses.nptel.iitm.ac.in
MOOC for Development

- A rapidly evolving trend, focusing on human development interests
- Many educationists consider it the real use of MOOC’s
- Interest is to
  - increase awareness,
  - build a community of practice,
  - bringing frontline technology topics and HD interests together
MOOC on Mobiles for Development

- Offered and certified by IIT Kanpur and COL
- 2 Oct- 25 Nov 2014
- 2286 participants, 116 countries
- Mobile tech, Ag, education and rural credit covered
- 333 certificates (after assessment)
- About 300 sign ups from Ag, one among top 5 also from Ag
- Large demand for a repeat offer

http://m4d.colfinder.org
MOOC for Ag: India has significant advantages

- E-courses under NAIP: a great asset
  - Largest such source globally (incl. USA)
- Several choices in technology for hosting and for components
  - Mobile theming is no longer a challenge
- Costs are dropping for tech management
- Media centers available in SAU’s
- Prior national experience: NPTEL
- Existing thought leadership: UGC
Approaches and Policies

- **Multiple stakeholders:**
  - Research capacity building
  - faculty improvement
  - extension training,
  - lead farmers/fishers

- **Guidelines for quality**
  - may have to be audience-specific
MOOC4Ag-Approaches and Policies

- Guidelines for
  - evaluation,
  - ID verification and
  - certification
- Credit for use in recruitment, career advancement and enterprise development
Opportunities for Global Leadership

- NARES in India, both large and diverse
- Reputation for research excellence and coordinated networks
- MOOC may be a new vehicle for masses of learners to take advantage
- Could lead to considerable increase in awareness about food and environmental issues among general population