Self Regulated Learning in Massive Open Online Courses

A keynote presentation at Kings College London, May 2013

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www.gcu.ac.uk/academy

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Conceptualisation

- Learning processes
- Work practices
- Technologies

TEPL
Scenario 4

Online courses *aiming at large-scale participation & open access.*

May represent a pedagogical approach ideally suited to the network age.

Yet little known about how learners learn in MOOCs
Why MOOC?

- Massive
- Open
- Online
- Course
xMOOC

- Learning goals defined by instructor
- Learning pathways structured by environment
- Limited interaction with other learners
Why MOOC?

xMOOC
Coursera
EdX
Canvas Net
Codeacademy
Class2go
eCornell
Futurelearn
NPTEL
Openstudy
OpenHPI
Udacity
UniMOOC-Tec
10gen
Etc…
cMOOC

- Learning goals defined by learner
- Learning pathways ill defined
- Interaction with others depends on the learner
Why MOOC

cMOOC
CCK08
Change 11
DS106
HowtoMOOC
MoocMooc
MOOCDL
MechanicalMOOC
OCTEL
ODLMOOC
PHONAR
Etc…
Why MOOC?

- Mackness et al (2011) tensions across autonomy, diversity, openness, connectedness

- Fini (2009) digital literacies critical to learning in a MOOC

- Kop et al (2011) critical literacies required to learn in MOOCs

- Littlejohn et al (2009, 2011 & 2012) learners have to self regulate their learning
Our times are characterized by *inmaterial labour*...

...labour that is not restricted to material production but penetrates also the political, the social, the cultural, and ultimately life itself.

‘Multitude’, Hardt and Negri, 2004
Why SRL?

- Telepresence
- Multi-site micro expertise
- Networked innovation
- Crowdsourcing
- Multi site data analysis
<table>
<thead>
<tr>
<th>From...</th>
<th>To...</th>
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</thead>
<tbody>
<tr>
<td>Large organisations</td>
<td>Smaller units of production</td>
</tr>
<tr>
<td>Single site base</td>
<td>Multi-site working as the norm</td>
</tr>
<tr>
<td>Permanent employment</td>
<td>Consultancy</td>
</tr>
<tr>
<td>Silos of knowledge</td>
<td>Open knowledge</td>
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<tr>
<td>In-house idea generation</td>
<td>Crowdsourcing ideas</td>
</tr>
<tr>
<td>Local/ national focus</td>
<td>Global / networked reach</td>
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Why SRL?

Self-regulated Learning

Self-generated thoughts, feelings and actions that are planned and cyclically adapted to the attainment of personal learning goals.
Questions

1. How do people share and use knowledge while learning?

2. How do people self-regulate their learning?

3. How might technology tools support SRL?
How do people share and use knowledge while learning?
Sensemaking

**Context:** Shell global knowledge sharing networks

**Period:** Sept 08-Apr 09

**Method/instruments:** Mixed method: Questionnaire (Cross and Parker, 2004) & semi-structured interviews (critical incident)

**Sample:** survey: n=462 (E46%; N27%; M27%); interviews: n=29 (E41%, N31%, 28%M)
Sensemaking

COLLECTIVE KNOWLEDGE
Sensemaking

Connect

COLLECTIVE KNOWLEDGE

Consume
Sensemaking

- Connect
- Create
- Consume

Collective Knowledge
Sensemaking

Contribute

Connect

Create

Consume

COLLECTIVE KNOWLEDGE
Sensemaking

COLLECTIVE KNOWLEDGE

Contribute

Connect

Create

Consume
Charting occurs when each learner maps his/her learning pathway through planning, implementing, and reflecting on learning goals.

Builds individual & collective knowledge.
How do professionals self-regulate their learning?
SRL MOOC Study Hypothesis

People who exhibit a high degree of Self-Regulation in their learning will use qualitatively different strategies to plan, monitor and reflect on their learning than individuals who exhibit a low degree of Self-Regulation in their learning.
Self Regulated Learning in MOOCs

**Context:** Change11 MOOC  
**Period:** Jan 12-Apr 12  
**Method/instruments:** Mixed method: SRL Questionnaire & semi-structured interviews  
**Sample:** survey: n=29 interviews: n=29

www.gcu.ac.uk/academy/srl-mooc/
<table>
<thead>
<tr>
<th>Consume</th>
<th>Connect</th>
<th>Create</th>
<th>Contribute</th>
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<tbody>
<tr>
<td>Forethought Phase</td>
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<tr>
<td>Performance Phase</td>
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<tr>
<td>Self-reflection Phase</td>
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SRL: questionnaire

LEARNING OPPORTUNITIES

SRL

LEARNING ACTIVITIES
Principal component exploratory factor analysis highlighted 8 SRL factors:

F1 occupational self-efficacy – *belief in one’s ability/capacity to have some control over/cope in their role.*
F2 strategic planning - *purposive personal processes and actions directed at acquiring or displaying skill.*
F3 goal-setting – *use of goals a mechanism for planning and achieving* 
F4 task interest/value – *disposition to focus on the task and its wider value rather than merely the outcome (intrinsic motivation),*

P1 elaboration – *disposition to relate task to wider practice.*
P2 help-seeking – *seeking help from others or info sources.*

S1 self-satisfaction - *motivation does not stem from goals, but on whether individuals feel they are achieving them.*
S2 self-evaluation- *comparing performance against an external goal*
Multiple linear regression analysis highlighted 3 factors influencing SRL:

- **F4** task interest/value – disposition to focus on the task and its wider value rather than merely the outcome (intrinsic motivation),
- **P1** elaboration – disposition to relate task to wider practice.
- **S2** self-evaluation - comparing performance against an external goal
Q: How might these factors be supported in course design?

- **F4 task interest/value** – disposition to focus on the task and its wider value rather than merely the outcome (intrinsic motivation),

- **P1 elaboration** – disposition to relate task to wider practice.

- **S2 self-evaluation** – comparing performance against an external goal
SRL: forethought

Participation

Performance (Networking)

Learning
Participation: low level (eg ‘experience a MOOC’) (20/26)

Performance: measurable and concerned participation eg ‘blog once per week’. (13/26)

Network: sub-goal for participation (7/26)

Learning: three categories: (1) learning tools (2) learning about specific topics (3) applying knowledge back into practice. (10/24)
SRL: forethought

Learning to learn in a MOOC

15/24 changed their goals: most were new to MOOCs

9/24 did not change their goals: (8/9) had studied on a MOOC

<table>
<thead>
<tr>
<th>Combinations of goals observed</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>3</td>
</tr>
<tr>
<td>Participation only</td>
<td>7</td>
</tr>
<tr>
<td>Performance only</td>
<td>1</td>
</tr>
<tr>
<td>Performance-participation</td>
<td>5</td>
</tr>
<tr>
<td>Network-participation</td>
<td>2</td>
</tr>
<tr>
<td>Learning-participation</td>
<td>1</td>
</tr>
<tr>
<td>Learning-performance</td>
<td>3</td>
</tr>
<tr>
<td>Learning-networking</td>
<td>2</td>
</tr>
<tr>
<td>Learning-performance-network</td>
<td>1</td>
</tr>
<tr>
<td>Learning-performance-participate</td>
<td>1</td>
</tr>
<tr>
<td>Learning-participation-network</td>
<td>1</td>
</tr>
<tr>
<td>All 4</td>
<td>2</td>
</tr>
</tbody>
</table>

*Nb in total:*

10 chose learning goals (inc 10 in comb. with others)
14 chose performance goals (inc. 13 in comb. with others)
20 chose participation goals (inc 13 in comb. with others)
7 networking goals (inc. 7 in combination with others).
Combination of learning behaviours implied by goals set. | Number
--- | ---
None | 3
All 4 C’s | 2
Consume Only | 12
Connect only | 2
Connect, Create and Contribute | 2
Consume and Create | 3
Connect and Create | 1
Create and Contribute | 4

Nb in total:
- 17 articulated goals around Consuming
- 7 articulated goals around Connecting
- 12 articulated goals around Creating
- 8 articulated goals around Contribution.
Q: How might MOOCs be designed to encourage learners to contribute their ideas and knowledge?

Q: How might MOOCs be designed to encourage learners to connect & ‘consume’ ideas from others and embed these ideas into their own knowledge?
Active learners who set goals & structure their learning

Passive learners who expect others to provide structure

Lurkers....
## SRL: Performance

<table>
<thead>
<tr>
<th>Level of Engagement</th>
<th>Primary Network for this course</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal</td>
</tr>
<tr>
<td>Active</td>
<td>12</td>
</tr>
<tr>
<td>Lurkers</td>
<td>5</td>
</tr>
<tr>
<td>Passive</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
</tr>
</tbody>
</table>

Total: 17 Active, 13 Lurkers, 4 Passive, 8 Total.
“Oh there’s some people who are everywhere you turn in the Change 11 MOOC: there’s this group of people who are inspirational, just phenomenal the way they just keep going and they know their way around it.” (P08).

“You can read the comments of people who are participating from different places and they give links to things that they are doing or they think while you hear what is happening” (P20).

“I have no idea how scattered I am across this MOOC, I have no idea how many contributions I’ve made, 30? 50? I’ve got a lot of replies… I usually end a reply on an open end” (P05).
Lurkers (13/29)

“I guess I tend to be a loner and I’ve done more lurking & I'm quite happy lurking, I think it’s an honourable profession” (P21)

“Lurking is actually hugely beneficial [knowledge is filtered by the course organisers and has] more value than something I randomly come across on the Internet” (P18)

“I'm going out to the MOOC and lurking and getting lots of great interesting ideas [to my] networks” (P01).

“I’m more or less like what do you call? A lurker and not very active … I'm always invisible and the reason is that the way I’ve been using the MOOC is to put into things that I'm doing… to be a network mentor” (P17).
“Sure, I can read other people’s blogs and that’s not a problem and I comment occasionally, but as far as really putting my ideas out there in the open in my own blog to be trampled on, you know there’s a bit of fear there I think that I have and so that has been difficult for me” (P12).

”I'm not really sure how to find a group of people online who really want to learn about what I most want to learn about.” (P13).
Factors affecting engagement in a MOOC:

- Prior Experience
- Confidence
- Motivation

### SRL: performance

<table>
<thead>
<tr>
<th>Participation in Previous MOOCs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Active Participant</td>
<td>11</td>
</tr>
<tr>
<td>Lurker</td>
<td>9</td>
</tr>
<tr>
<td>Passive Participant</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
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</tbody>
</table>
SRL: performance

Our hypothesis:
People with high SRL score use different learning strategies in MOOCs

• Those with high SRL scores tend towards being ACTIVE
• Those with low SRL scores tend towards being PASSIVE
• Lurkers interspersed

Some correlation between degree of Self-Regulation and learning BUT not statistically valid.

www.gcu.ac.uk/academy/srl-mooc/
## SRL: self-reflection

<table>
<thead>
<tr>
<th>Phase</th>
<th>Consume</th>
<th>Connect</th>
<th>Create</th>
<th>Contribute</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forethought Phase</strong></td>
<td>Research learning needs via search engine or trusted information sources.</td>
<td>Connect to personal learning network to seek advice, or identify others with similar learning goals.</td>
<td>Formulate goals or complete development planning tool. <em>(goal setting)</em></td>
<td>Make goals or development plan or learning strategies public <em>(strategic planning)</em></td>
</tr>
<tr>
<td><strong>Performance Phase</strong></td>
<td>Discover new knowledge to help achieve learning goals <em>(enact task strategies)</em></td>
<td>Engage with others to achieve learning goals through collecting and connecting knowledge and developing new knowledge structures</td>
<td>New knowledge creation or augmenting existing knowledge <em>(annotation)</em></td>
<td>Make new knowledge and knowledge structures public through formal and informal mechanisms</td>
</tr>
<tr>
<td><strong>Self-reflection Phase</strong></td>
<td>Seek evidence for validation of strategy <em>(self-evaluation)</em></td>
<td>Find others with similar experiences to establish/confirm causality (ie this strategy produced these results) <em>(self-evaluation)</em></td>
<td>Personal, private reflection notes <em>(self-judgment)</em></td>
<td>Public self-reflection through blogging or similar.</td>
</tr>
</tbody>
</table>

## SRL: summary

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Forethought</strong></td>
<td>Learners with high SRL scores set clear goals &amp; can adapt these goals as learning pathways change. Those with low SRL set vague (or no) goals.</td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td>Learners with high SRL scores &amp; clear goals can adapt these goals as learning pathways change.</td>
</tr>
<tr>
<td><strong>Reflection</strong></td>
<td>Learners with high SRL scores are more likely to reflect on and adapt goals.</td>
</tr>
</tbody>
</table>
Q: MOOC design

Q: How might MOOCs be designed to accommodate learners with a wide range of SRL abilities?
Question

How might technology tools support SRL?
What/ who structures learning?

Find others with **similar goals**
Collaborate/cooperate to achieve

Find how others **achieved the same goals**
Ideas
Motivation
Charting tools use goals as a social object for sharing, discovery and cooperation.
articulate and share goals
find resources and make notes

Metacognition and Student Learning

By James M. Mark Shaver for The Chronicle

This evening, America's favorite reality show, "Idol," premieres. Metacognition will join lousy singing for two cringeworthy hours tonight and another hour tomorrow night, as amateur musicians audition for the opportunity to win fame, fortune, and a recording contract. The opening two episodes of each season have become notorious for featuring the worst singers who auditioned for the show, encouraging viewers to engage in some gentle schadenfreude as "Idol" participants make fools of themselves on national television.

What makes so many of those atrocious singers laughable to us—excepting the ones who put on deliberately bad performances in order to get on camera—turns out to be a problem that plagues not just the contestants but all of us. Our own limitations and foibles, the failures in our own goals, and the peculiarity of our own desires are the very stuff of our recognition of others' weaknesses.
and associate them with goals
develop collections of resources around a particular goal
browse or search for, and adopt goals created by others

**CHARTING**

**My Goals**
- develop skills in ethnographic res.
- read about goal orientation and motivation
- learn how to do cluster analysis
- learn how to use spss

**All Goals**

**My Notes**
- Inbox

**All Notes**

**My Sources**
- Unattributed Sources

**All Sources**

**People**

**improve my statistical analysis skills**

Owned by: anoush

Adopt

Subscribers: isobel
Charting Tools

Open Source

Lightweight

charting.gcu.ac.uk
Q: How could the charting toolset support SRL in your context?
Questions

1. How do people share and use knowledge while learning?

2. How do people self-regulate their learning?

3. How might technology tools support SRL?
Forthcoming book

Technology-enhanced Professional Learning: Processes, Practices & Tools

Littlejohn & Margaryan (Ed)

Routledge
Dec 2014
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