Tutorial on Crowd-Sourced Learning and Assessment in MOOCs

Sandra Milligan, Melbourne University, skm.milligan@gmail.com
Ulla Lunde Ringtved, Aalborg University and University College of Northern Denmark, ulr@hum.aau.dk

Abstract: Massive, Open Online Courses represent a valuable new laboratory for the exploration of collaborative learning. This Tutorial enabled participants to develop practical insight into the nature of teaching and learning in a MOOC. They reviewed the field of learning analytics and the tools it provides to investigate learning; reviewed an empirically verified theoretical learning progression defining the nature of skills required by learners to crowd-source their learning from open forums; used qualitative techniques to profile learner skill; experienced hands-on qualitative and quantitative approaches to investigate and assess learning behaviors; and discussed issues arising such as privacy, ethics,. The tutorial was based on research from the University of Melbourne (UM) MOOC program and on research at the University of Aalborg (AAU) on analysing feedback and assessment.

Keywords: MOOCs, crowd-sourced learning, learning analytics, feedback, assessment

Background
Massive, Open Online Courses (MOOCs) represent a valuable new laboratory for the exploration of collaborative learning. They are cloud-based, operate at scale, and are open to people of all ages, language, cultural and educational backgrounds. They demand that learners are self-regulating and able to operate without personal guidance or direct contact from an authoritative teacher. They make extensive use of crowd-sourced collaboration between participants especially through forums and in peer assessment.

This tutorial was based on research emerging from the University of Melbourne (UM) MOOC program and on research at the University of Aalborg (AAU) on analysing feedback and assessment. The UM MOOC program has as at December 2014, run 14 MOOCs on the Coursera Platform (University of Melbourne, 2014), and has been the focus of a research and development program, conducted under the auspices of the Science of Learning Research Centre and the Assessment Research Centre. Topics of investigation include how learners crowd-source learning in MOOCs, how learning can be attested to reliably, how learners can be better supported, particularly in areas related to higher order learning for professional practice (Milligan & Griffin, forthcoming), how assessment including quizzes, tests, free text assignments, peer assessment and peer evaluation can support collaboration among peers, and how all this can be analysed.

The tutorial included exploration of techniques in learning analytics and data visualisation in this context. Participants used their own data or data derived from one particular UM MOOC – entitled Assessment and Teaching of 21st Century Skills (ATC21S). This MOOC is unique in the UM context in targeting professional learning for experienced educational practitioners. It originated from a long-term research program on collaborative problem solving. It was designed to allow MOOC participants to engage with the research findings, to learn in company of a global cohort of their peers, and to work through implication for their own practice. The ATC21S MOOC initial running in 2014 attracted over 18,000 participants from 176 countries, and issued certificates to nearly 1000. Participants contributed more than 8000 posts and comments into 1200 threads; and completed over 7500 peer evaluations on 2500 assignment submissions. Collaboration levels were amongst the highest across the UM MOOC program.

The tutorial tapped into key themes that underpin the UM research program and also the MOOC content itself: that people living and working in the digital, knowledge-based era need ‘digital era learning skills’ to prosper (Binkley et al., 2012; Griffin & Care, 2015). They need the ability to use digitally-mediated methods to stay abreast of higher order learning in a field; to learn wherever they are, whenever they want; to be self-regulating and self-motivating; to learn from and with people around the globe, and from and with those with different perspectives and backgrounds. Further its seems that such ‘digital-era learning skills’ are native to MOOCs, in much the same way that industrial production processes were native to schooling as it emerged in the 19th century. MOOCs require these ‘digital-era learning skills’; and furthermore, the process of participation in a MOOC helps refine these skills. This thinking has led to development of a Skills Progression for Crowd-Sourced Learning (Milligan,2014), based on the Dreyfus skills taxonomy (Dreyfus & Dreyfus, 1980), which will be used to frame some of the hands-on work in the Tutorial. The Tutorial will also review assessment frameworks in MOOCs, especially automated peer assessments and peer evaluations; discuss if and how these
support collaborative learning and feedback (Hattie, 2008); and identify the underlying pedagogical principles in the assessment frameworks (Jones, Dirkinck-Holmfeld, & Lindström, 2006; Ringtved & Milligan, 2015).

**Tutorial objectives**
The tutorial aimed to develop for participants a range of competencies to help them understand, explore and make explicit skills that learners require to learn in collaboration with others through crowd-sourced learning. Activities included:

- sharing practical insight into the nature of teaching and learning in a MOOC
- reviewing the field of learning analytics and the tools it provides to investigate learning
- critically reviewing an empirically-verified theoretical learning progression defining the nature of skills required by learners to crowd-source learning from open forums
- using qualitative techniques to profile learner skill using de-identified data derived from a MOOC
- experiencing hands-on qualitative and quantitative approaches with real data, to investigate and assess learning behaviors and outcomes in digital, scaled environments
- discussing issues arising in this new field, including those relating to privacy, ethics and professional development.

**Format and schedule**
The sessions included the following components:

**Introduction**
Sharing backgrounds, perspectives and desired outcomes for the day.

**MOOC background briefing**
An introduction to the UM MOOC program and the ATC21S MOOC: its successes and failures in generating higher order learning for participants; lessons on learning at scale.

**Briefing on learning analytics and visualisation**
Canvasing a range of different types of data and data tools useful in visualising collaborative learner behaviour.

**What is meant by ‘Crowd-Sourced Learner Skills’**
Exploration of a construct ‘Crowd-Sourcing Learner Skills: This session shared research which defines the skill-set of learners as they progress form novice through various stage to expert when using large scale forums to support learning in MOOC forums.

**Identifying learner skill in practice**
Participants worked in groups using qualitative (de-identified) data of the sort provided to instructors by MOOC platforms and other LMS systems. They were used to interrogate and understand behaviours of participants to make explicit the level of skill of learners.

**Practical hands-on session in data visualisation**
Participants used quantitative data sets provided by the organisers, or their own data relating to forums and other collaborative activities, to explore how they can be analysed to illuminate learning. Tools such as Excel and Tableau will be examined.

**Pooling views**
This session was a collaborative knowledge-building session exploring questions such as: Can crowd-sourced learner skills be defined? Can they be taught? Can they be assessed? Can they be analysed? Are there privacy and ethical concerns? What next?

**References**


