

## Supporting Professional Learning in MOOCs

The following set of recommendations for the design of MOOC learning platforms and courses to support professional learning were developed during our research study exploring **Professional Learning in Massive Open Online Courses** (<http://www.gcu.ac.uk/academy/pl-mooc/>), funded in 2013-2014 by the Bill and Melinda Gates Foundation.

The recommendations draw on three main sources of data:

- A review of the literature on self-regulated learning in online courses conducted at the outset of the study.
- The course team for the *'Fundamentals of clinical trials'*, a MOOC run by the Harvard Medical School, Harvard School of Public Health, and Harvard Catalyst, the Harvard Clinical and Translational Science Center, and offered by edX who articulated the design decisions underlying the Fundamentals of Clinical Trials MOOC.
- Qualitative and Quantitative data collected from participants as the Fundamentals of Clinical Trials MOOC was delivered.

The first three recommendations focus on improving the link between theory and practice in line with the principles of integrative pedagogy (Tynjälä & Kallio, 2009). The second three recommendations focus on capitalising on diversity and encouraging the development of regulatory expertise (as per the integrative pedagogy framework).

### Recommendations

The design of MOOCs that seek to support professional learning should (where possible):

**Recommendation 1: Enable professional learners to link theory learned in the MOOC with their work practice by setting personal goals, or personalising course goals. The integration of expertise developed through the MOOC with expertise through professional practice could lead to improved learning.**

**Rationale: Effective professional learning is improved through tight integration of theory and practice.** This is best achieved by learners integrating their formal learning with informal, on-the-job learning. Professional learners must actively take responsibility for linking their formal and informal learning to ensure that they are investing their learning effort wisely. This type of linking of formal learning with work practice already happens in many professional training courses. A major barrier is the difficulty in taking concepts and practices from the formal learning context into non-formal work practices. Tynjala's framework for integrative pedagogy (Tynjälä & Kallio, 2009) provides insights into how different types of expertise can be integrated across the formal learning-workplace boundary.

**Evidence:** Professional learning – or learning for work – is a complex blend of deliberate, formalised learning and reactive, non-formal learning (Eraut, 2000). Professionals around the world operate in settings where profound social and technological changes are fundamentally changing the nature of work (Dall'Alba, 2009, p. 4). In these contexts where work practice evolves continually and is individualised, professional learning has to be bespoke for each individual (Tynjälä, 2008). SRL research such as Chang, et al (2013) highlights the importance of goal-setting in providing motivation, increased persistence, and academic achievement. The Fundamentals of Clinical trials course provides a set syllabus and does not ask participants to consider how the course might meet their wider development needs. The environment does not include any specific provision for learners to set their own goals. We found little evidence of goal-setting that focused on learning or articulated goals beyond the course. Instead, learners were focused on 'completion' and if they mentioned content, they reiterated the course topics.

**Recommendation 2: Help professional learners to reflect on the knowledge gained from the course and how it may be embedded into their work practice before the end of the course.**

**Rationale: Integrating theory and practice is key for professional learners as knowledge without context will quickly be forgotten or become obsolete.** Course design could encourage learners to articulate and share action plans for embedding new knowledge into practice. Examples showing how course knowledge impacts practice could be used to refine course design. It is important to remember that, even in courses where the integration of formal learning with informal, on-the-job learning is encouraged, it is often not followed through. The main hurdle is crossing the boundary between formal learning and work learning. This boundary restricts the integration of learning from one context to another.

**Evidence:** SRL research such as Kauffman (2004, exploring formal learning) demonstrates that learners who were encouraged to reflect on learning, gained more knowledge. Therefore, it is possible to encourage reflection in formal learning contexts. In our study we noted that the course design did not require learners to reflect on their learning and we found little evidence of reflection occurring or that the course had or would have significant impact on practice. However, we acknowledge that linking formal learning with non-formal, on-the-job learning requires concepts to be taken across boundaries from one context (the formal course) to another (the workplace). This boundary crossing presents an additional challenge to professional learners.

**Recommendation 3: Support professional learners to continually monitor their learning to determine its ultimate value beyond their immediate learning experience.**

**Rationale: Tight integration of theory and practice is key to successful professional learning.** Whether or not they are learning in a MOOC, it is important that throughout their learning experience, professional learners monitor their learning and recognise its ultimate value. Continual monitoring of learning is key to enabling a professional to direct effort where it is required, to understand short and long term benefits.

**Evidence:** Highly self-regulating learners break down their goals that are more easily monitor and exhibit strong self-monitoring strategies during learning to keep their efforts focused (Zimmerman, 2000). This enhances effectiveness and increases motivation. In the 'Fundamentals of Clinical Trials' study, the mismatch between aims (practice focused) and goals (participation focused) reflects the separation of theory and practice that is present in that course.

**Recommendation 4: Capitalise on the diversity of motivation, expectation, and prior knowledge and experience that is an inherent within all MOOC cohorts.**

**Rationale: By their very nature, MOOCs attract a broad range of learners.** These learners may differ in their motivation (e.g. learning for fun, or to address a specific learning need, or to gain accreditation), expectation (e.g. that the learner will gain access to high quality learning materials, or to exchange ideas with other professionals) and prior knowledge and experience (ranging from those who have strong theoretical knowledge but no practical experience to those who have no formal knowledge but a wealth of experience). All these different types of learners cannot remain motivated and engaged within a rigid curriculum with fixed content. Instead, course designs should encourage learners to determine how they interact with others, supporting learners who need support while affording self-regulated learners the freedom and flexibility to interact as they wish. From a course design perspective, some learner interactions could be scaffolded, for example by matching learners with similar intentions. Flexible design could extend to certification, with achievement being linked to personal goals and progress where possible. This recommendation provides an opportunity for learners to develop relational expertise (Tynjälä & Kallio, 2009) as they interact and negotiate with others

**Evidence:** We found examples of all the different types of learner described above. The syllabus provides explicit guidance on different course elements such as the relation between course materials and assessment. This could possibly explain why learners (even those who scored highly in terms of self-regulated learning ability) tended to take a passive role in their learning, doing only as much as was needed to complete the course. Participation in the course is designed as individual (no peer learning etc.). In this course, although there is evidence that the course forums were useful to a subset of learners, many expressed frustration with unanswered questions lack of access to tutors, etc., and voluntary participation meant that good interactions weren't seen by all participants. Given the large numbers of learners registered on most MOOCs (as well as other issues such as the language chosen for interaction), these issues are also likely to be relevant to other MOOCs.

**Recommendation 5: Encourage professional learners to discuss ideas from the course with co-workers in their external professional network as well as with other learners on the course.**

**Rationale: Discussion with colleagues is high value as it is localised and directly relevant to practice.** Interaction with an external network encourages breakdown of barriers between learning and work. To complement this (and to support learners who do not have professional networks or who seek to broaden their network), course designers should encourage focused communities<sup>1</sup> to develop. Communities could emerge around language (mooc

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<sup>1</sup> Of course focused communities have their drawbacks too: for example language based communities restrict sharing between communities while role based communities may encourage homophily.

participants can lack confidence to engage when they are not confident about expressing themselves in a second language), or role (e.g. school teachers and university lecturers in parallel communities) or motivation.

**Evidence:** Discussion forums are not compulsory and their structure/ organisation discouraged many to use them. The main help-seeking tool was google – which many preferred to asking questions of their internal/external network.

**Recommendation 6: Utilise the existing knowledge and experience that professional learners bring to the learning context.**

**Rationale:** While the focus of a MOOC for professional learners may be a specific area of knowledge, the value of that knowledge is ultimately realised only when it is applied in practice. Professional learners bring a wealth of experience to their learning. Designing tasks which capitalise on this by encouraging the learners to build on existing knowledge and share their experience can enrich the learning experience for all by exposing learners to real world experience and new practices. Engaging with real world examples can be motivating and provides learners with evidence that they can use for their own personal development.

**Evidence:** Integrating conceptual or theoretical knowledge (from the course) with practical (experiential) knowledge is key to successful professional learning (Tynjälä & Gijbels, 2012). In our study learners recognised the experience within the cohort but were frustrated that opportunities to share experience were limited and restricted to course discussion forums which many participants did not utilise as they were seen as a non-essential component of the course.

## References

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