The potential social, economic and environmental benefits of MOOCs: comparisons with a massive 'closed' online course

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Social and economic objectives: widening participation in higher education

HE policy on widening access

Higher levels of educational attainment are strongly associated with higher employment rates and are perceived as a gateway to better labour opportunities and earnings premiums. Individuals have strong incentives to pursue more education, and governments have incentives to build on the skills of the population through education, particularly as national economies continue to shift from mass production to knowledge economies. (OECD, 2013, p28)

Widening access conceptual framework

Whether from the perspective of the learner or a higher education institution it is possible to consider the availability, accessibility, affordability and acceptability of educational provision and educational resources including MOOCs. A large number of social, economic, cultural and psychological factors or barriers influence how many and, what type of people participate and what achievements they gain. (OER-HE report WP1)

Re-inventing the wheel?

There has been a growth in interest in online learning, open educational resources and MOOCs. This interest in openness both builds upon the pioneering work of open and distance learning institutions to address open entry, to widen participation, to teach online and to handle large numbers of students. So how do MOOCs compare with the past experiences of a massive, open entry, online fee-paying course from The Open University, UK?

T171 You, Your Computer and the Net

- Level 1
- 30 CATS points (300 study hours)
- 3 blocks of 10 CATS points each
- 32 weeks total duration
- Pilot presentation in 1999 with 900 students
- Full presentations in 2000 with 12,000 students p.a.
- Annual registration dropped to 5,000 by 2005
- 2 set texts, everything else online
- Website plus conferencing software

T171/MOOC comparisons #1

- First, the student demographics show that the age profiles were similar. Interestingly 75% of MOOC participants were doing their first MOOC while about 70% of T171 students were new to the OUUK and thus online and distance learning. Geographical dispersion differed, as the MOOCs attract more people from different countries than was the case with T171 who were mostly UK based

- Second, while both are open entry, the fee for a credit bearing course tied to teaching grant support from an HE funding council, plus the nature of tuition and support from regional centres, means the OUUK course was much more geographically-focussed (most students were from the UK). Whilst some MOOCs charge fees for credits none offer the place-based network of tutorial support, and instead provide all tutorial support online.

T171/MOOC comparisons #2

- Third, most T171 students were signing up for a long duration course lasting 32 weeks (in contrast most MOOCs last ten weeks or less

- Fourth, for T171, like many early MOOCs, the medium was the message. The extensive interest by large numbers of people that surprised the early course providers in both cases was in learning about subjects that related very much to computers and communications technologies. In both cases too, online courses have quickly moved into many other disciplines.

T171/MOOC comparisons #3

- Fifth, interest in the topic seemed to be a prime motivating factor rather than any vocational or job-related factors. However, whereas that interest in MOOCs has been mostly with the already well-educated, the interest in the OUUK course was from as diverse educational backgrounds as most other OUUK courses, with up to 40% having low previous educational qualifications. The fact that this course was clearly part of the existing credit-bearing provision aimed at opening up opportunities to attain qualifications rather than a separate adjunct to it, might account for some of this difference in educational backgrounds.

T171/MOOC comparisons #4

- Sixth, completion rates (35-50%) were much higher for the OUUK course than nearly all MOOCs to date (5-20%). Again, the fact that T171 was part of existing credit-bearing provision would account for this as well as the higher levels of direct tutorial support provided by Associate Lecturers compared to the much lower levels of personal support given in MOOCs, mainly provided through peer interaction.

Environmental objectives: lowering carbon impacts

Environmental impacts of HE teaching models

- All HEIs are expected to contribute to sustainable development and reducing their environmental impacts (Tilbury, 2011). Nevertheless very little attention has been paid to the direct (and indirect) impacts of HE teaching models except by the OUUK

- The environmental impacts of T171 were first examined within the Factor 10 Visions study (Roy et al, 2008), and then subsequently re-analysed as part of the SusTEACH project using the latest measures of energy consumption and carbon conversion factors (Caird et al, 2013).

Environmental impacts of HE teaching models

- Assessed the main sources of HE course-related energy consumption and carbon emissions, including travel, the purchase and use of ICTs, the consumption of paper and printed materials, residential energy and campus site operations.

- A large sample of 846 students responded to surveys about their course-related activities on T171 and 55 staff provided information on the course production and initial presentation.

- Data analysis was supported by energy databases and energy assessment software, and the development of a classification of teaching models including using ICTs, face-to-face teaching and classic distance teaching methods.

- The results were converted to measure the average energy consumption and CO_2 emissions of a course per student/per 10 CATS credits (i.e. equivalent to 100 hours of study)

Average CO2 emissions (kg) of T171 in comparison with Face-to-face and Online teaching models (per student per 100 study hours)

Average CO$_2$ emissions (kg)						
	Travel	ICTs	Paper, print, and other materials	Residential energy	Campus site operations	TOTAL
Face-to-face	129	4	11	57	77	278
T171	8	14	9	6	16	52
Online	2	13	4	1	16	36

(Tentative) Conclusions

1. First, for T171, like many early xMOOCs, the medium was also the message.

2. Second, interest in the topic seemed to be a prime motivating factor rather than any vocational or job related factors.

3. Third, completion rates were much higher for the OU course than nearly all MOOCs to date.

4. MOOCs, like OER, are forcing a re-conceptualisation of widening access to, and participation in, HE study

5. MOOCs/online courses offer a more environmentally sustainable teaching model

Further questions

- If MOOCs attract and suit a well-educated audience should they be used simply for lifelong learning or as a prelude to postgraduate studies?

- How can MOOCs be designed to develop their potential to widen participation beyond existing well-educated students?

- On an economic front, does it matter if completion rates are low when the provision is free, as there is possibly a good social return on investment?

- Will MOOCs be mainly a test-bed for pedagogical developments using online technologies and will this lead to lower overall environmental impacts?

Key references

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