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Distance Learning, OER, and MOOCs: some UK experiences

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ABSTRACT
This paper discusses learning at scale from the perspective of two UK Universities engaging in technology enhanced learning. Three case studies are used to illustrate ways in which scale has been achieved. There is diversity in how scale is supported but also common factors. Openness and choice appear as enablers in all cases.

Author Keywords
Distance learning; informal learning; science education; European experience; recommendations.

ACM Classification Keywords
K.3.1 distance learning

INTRODUCTION
This describes the experience of two UK Universities engaging with technology enhanced learning and considers implications for the adoption of more open approaches to education, such as Massive Open Online Courses (MOOCs). The Open University (OU) is a distance teaching institution which has been providing open education for over 40 years, the University of Edinburgh is a more traditional university innovating on its history of providing full time tuition to degree level for more than 400 years.

The OU was established in Britain in 1969 and from its start operated at scale, running courses for thousands of learners. It supports approximately 250,000 registered learners and reaches millions more through open content and shared environments [1]. The primary model the OU uses for its students studying for a qualification is of supported open learning, combining content with tutor support and assessment to guide learners through their

program of study. In the last 10 years it has also provided open access offering open educational resources through its OpenLearn website, and via its courses on iTunesU and YouTube. In December 2012 a MOOC platform, FutureLearn, was founded by the OU as a company and now has 24 partners including major UK universities, Australia's Monash University, Ireland's Trinity College Dublin and three non-university institutions: British Museum, the British Council and British Library.

The University of Edinburgh is a great civic institution whose mission is the creation, dissemination and curation of knowledge. The University is recognized as one of the top twenty institutions in the world. Most of its on-campus courses now also have online aspects, e.g. using social media, online assessment, virtual experiments, or real experiments calibrated for use virtually. In the last ten years, 60 planned online extensions of regular undergraduate teaching have been funded. Online students, in particular on postgraduate courses, have been growing in number. The University has 31,000 students registered on conventional courses and is aiming to have 10,000 postgraduate students online. In 2012, the University became the first UK University to offer MOOCs and first on the Coursera platform [2]. They have also joined the FutureLearn partnership and are offering courses in 2014 in both platforms. The University of Edinburgh has a reputation as an early adopter of educational technology. For the University, working with MOOCs allows an exploration of new space to inform practice. In both institutions MOOCs are being introduced in an environment that also includes open educational resources, and tools that provide access for informal learning.

Case study 1: The OpenScience Laboratory
Science at a distance faces the challenge of providing suitable experiences to support programs of learning. Recently the Open Science Laboratory (OSL) [3], co-founded by the OU with support from the Wolfson foundation, built a collection of tools to combine remote access, virtual experiments and citizen science into the curriculum, building on experience in bringing experiments into the home [4]. 39 applications across a broad range of science were produced for the launch in July 2013. The data provided by the real or virtual equipment is authentic, not simulated, gained from remotely operated sensors, photo-

realistic recordings of physical experiments and microscope images of real specimens. The OSL enables students to conduct practical science experiments and also to open up some of those experiments to the general public blending citizen science with learning.

Case study 2: accessibility at the OU

The Open University is the largest provider of higher education to disabled students in the UK [5] and such students are making up a growing proportion of its learners. In 2012/13 over 21,000 registered students had a declared disability, approximately 12% of registered students. This is in contrast with 8% more typical of other providers of Higher Education. The proportion is even higher for the Open University's free learning provision; across iTunesU, YouTube and OpenLearn a recent survey [6], found approximately 16% learners with a disability amongst respondents These higher than expected figures emphasize the importance of designing for accessibility at scale. The OU approach to accessibility recognizes the need for human support along with alternative paths. This can seem onerous, however a consistent result is that planning for use by disabled students leads to content that is better for all.

Case study 3: Edinburgh Surgical Science Qualification and the Edinburgh Coursera MOOCs

The MSc in Surgical Sciences is a collaboration between the University of Edinburgh and the Royal College of Surgeons led by James Garden [7]. The course targets trainee surgeons, looking to advance their knowledgebase and prepare for the MRCS examination whilst gaining a postgraduate qualification. As described by Smith [8] the approach fits with clinical activities and achieves impressive results "ESSQ students score an average of 17% higher in the MRCS exam". Although this is smaller in terms of student numbers than the other case studies, it achieves impressive spread of countries from which students are drawn in a subject area that is not an obvious choice for online education

In January 2013 University of Edinburgh launched six MOOCs on the Coursera platform: An Introduction to Philosophy, Astrobiology the Search for Life on other planets, An Introduction to AI Planning, Equine Nutrition, E-learning and Digital Cultures, and Critical Thinking and Global Challenges. Each course was short, designed to take a few hours per week but with varying structures and designs. 309,628 people registered for the courses. Analyzed in the MOOCs@Edinburgh group report [9] (further reported by Jeff Heywood [10] and Siân Bayne [11]) most students state wanting to gain new knowledge or more experience of online learning.

CONCLUSIONS

These brief studies show diversity in the way scale is achieved from a customized approach in accessibility to limited services supporting a recognizable product in MOOCs. There are also common factors. Openness and choice act as enablers in all cases and indicate that to work at scale an important step is to relax the constraints.

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