K-MOOCs

Beacon Project final report: Summary

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K-MOOCs Beacon Project:
Final report: Summary

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Executive summary

The K-MOOCs Beacon Project has investigated the rationale for developing and delivering MOOCs at Kent, and demonstrated our ability to develop and deliver successful MOOCs. This report provides a summary of the full Final Report for the project.

The key benefits of engagement with MOOCs, and associated online Master Classes, are:

- **Enhanced profile and reputation** – strengthening public engagement with scholarship and research at Kent, including the potential to support our internationalisation agenda and enhance our links with partners in industry
- **Increased digital capacity** – increasing our expertise in online delivery and ‘future-proofing’ the university by providing a platform to exploit emerging opportunities in the digital space
- **Positive impact on teaching and student experience** – enhancing learning and teaching through creation of high-quality re-usable resources, engagement with innovative teaching practices and provision of additional learning opportunities
- **Positive impact on postgraduate and research activities** – consolidating the impact of our research and disseminating outputs to a wide audience, and building research partnerships through enhanced links with prestigious HE and industrial partners
- **Exploring new markets and income** – using MOOCs as a highly effective marketing tool, exploring opportunities to widen the curriculum with additional paid-for provision such as CPD, and direct income through certificates of participation or certified assessment

The project has been a great success in demonstrating a clear rationale for MOOCs at Kent, and in showcasing our ability to develop and deliver courses. We hope this report will prepare the ground for further in-depth discussion to take the K-MOOCs project forward and fully engage with MOOCs at Kent.

Our recommendations are:

- To partner with FutureLearn for the provision of MOOCs
- To aim to develop three MOOCs per year (ideally one from each Faculty)
- To recognise the necessary time commitment and integrate this in the workload allocation model for academics
- To provide a central budget for initial development and delivery costs
- To provide strategic direction via the eLearning Strategy Group (ELSG) or a new group with similar membership specifically focussed on MOOCs
- To oversee operational matters via a smaller steering group
- To incorporate MOOC project management as a responsibility of the university’s Distance Learning Technologist
- To invite proposals for MOOCs and select courses for development that are ‘identifiably Kent’, are linked to current expertise and provision, and have potential for expanding provision to CPD and/or credit-bearing – with preference for those courses where external partners and/or funding are identified

The report concludes with a 5-year vision illustrating how MOOCs will directly support our teaching and learning strategy, internationalisation agenda, and the objectives of the institutional strategic plan to enhance our research output and impact, provide excellent education including in the digital space, and strengthen our reputation nationally and internationally.
1. Background

A MOOC is an online course aimed at an unlimited online audience, with open access and no prerequisites; prestigious institutions worldwide have developed MOOCs. Our application for Beacon Project funding for development and delivery of a series of MOOCs was made in June 2014. The potential benefits to the University were recognised by Executive Group, but it was felt that there were issues concerning the long term funding of such courses and wider considerations about the university’s overall teaching and learning strategy.

Executive Group decided that the proposal should be reformulated towards a feasibility study, to help prepare the ground for a further in-depth discussion on whether and if so the extent to which Kent might engage with MOOCs. Funding of £25k was offered to undertake the feasibility study.

The development and impact of MOOCs has been well documented and, from a UK perspective, a comprehensive overview is provided by two key reports identified in the early stages of the project:

- **The maturing of the MOOC: literature review of massive open online courses and other forms of online distance learning** (Department for Business, Innovation & Skills, Sept 2013)
- **The pedagogy of the Massive Open Online Course (MOOC): the UK view** (Higher Education Academy, March 2014)

Two further reports were produced by the HEA during the course of the project:

- **Engaged learning in MOOCs: a study using the UK Engagement Survey** (HEA, Jan 2015)
- **Liberating learning: experiences of MOOCs** (HEA, Jan 2015)

Individual institutions have also produced reports on their MOOC activity. Amongst these, Glasgow and Edinburgh provide comprehensive and practical overviews:

- **Building and Executing MOOCs: A practical review of Glasgow’s first two MOOCs**
- **MOOCs @ Edinburgh 2013 – Report #1**
- **Edinburgh MOOCs handbook: How to grow your own MOOC with Coursera**

The main platform for UK-based MOOCs is FutureLearn. FutureLearn is a private company wholly owned by The Open University. Its free online courses currently reach over 2 million learners in more than 190 countries and territories around the world. FutureLearn has 30 UK University partners, including Bath, Birmingham, Durham, UEA, Edinburgh, Manchester, Nottingham, The Open University, Southampton and Warwick. In addition, FutureLearn partners with the British Council, British Library & British Museum, and overseas institutions including Trinity College Dublin, Monash University (Australia), the University of Auckland (NZ), and the University of Groningen (Netherlands).

An American provider, Coursera, is also active in the UK and Europe, with 4 UK partners (Edinburgh, Manchester, London, and the Commonwealth Education Trust). It has 52 US partners as well as partnering with leading institutions in 22 countries beyond the UK and the US. The other main MOOC platform, edX, has only five European partners (two of which – EFPL and TUM are also partnered with Coursera). Further MOOC providers include NovoEd, UniMOOC, Miriada X, iVersity, FUN: France Université Numérique, and Versal. It is also possible to provide MOOCs independently of a partner provider, for example by utilising the web and social media, or by using an ‘open’ solution such as Open edX or Blackboard CourseSites.
2. Case studies and external advisers

In seeking to better understand if, how and why we might choose to “go down the MOOCs path” we felt that the most instructive approach would be to draw on the experience of established MOOC providers. We approached three institutions that we considered would provide a broad perspective with relevant experience:

- Georgia Institute of Technology: Amongst the first MOOC providers with Coursera and the first MOOC-based online Masters degree in Computer Science in partnership with Udacity
- University of Edinburgh: The first UK MOOC provider, partnering with Coursera and also now with FutureLearn
- University of East Anglia: Amongst the first group of FutureLearn partners; produced the first FutureLearn MOOC

For our first case study, Georgia Tech, W. Michael McCracken produced a comprehensive report (included in the full report as an Appendix). In addition to the commissioned report we engaged Michael McCracken to advise on our MOOC development, including a week’s visit to Kent where we benefitted from his expert knowledge and practical advice as we designed and built our own pilot MOOC.

The two UK case studies, University of Edinburgh (Edinburgh) and University of East Anglia (UEA), were based on semi-structured interviews with those leading MOOC development for their institution: Amy Woodgate, Project Manager of Edinburgh’s Online Learning Special Projects, and Helena Gillespie, Senior Lecturer in Education and Academic Director for Learning and Teaching Enhancement at UEA.

The case study interviews with Amy (Edinburgh) and Helena (UEA) were extremely informative and helpful, and we recognised that their expertise would also be valuable beyond the interviews. We invited Amy and Helena to present at a K-MOOCs special event, “MOOCs and beyond: Exploring the opportunities for Kent”, held in February 2015 at UELT. This event was arranged to coincide with Michael McCracken’s visit, and was designed to explore the potential value of MOOCs for Kent and the possible wider impact – for example, on our teaching and learning, outreach, and professional development.
3. Rationale for open online learning at Kent

An initial SWOT analysis was carried out to provide a comprehensive overview of the factors affecting Kent’s position and ability to engage with MOOCs. From this analysis, together with our findings from the case studies, external advice, and key literature, we produced a summary of the key benefits for engagement, providing a clear rationale for open online learning at Kent. We summarised five key benefits of engagement with MOOCs as follows:

**Key benefit 1: Enhanced profile and reputation**

MOOCs will strengthen public engagement with scholarship and research at Kent and enhance our reputation and profile nationally and internationally, by showcasing what’s good at Kent and underlining our distinctiveness.

**Key benefit 2: Increased digital capability**

Development of MOOCs would enhance our existing digital capacity. Academic staff involved in MOOC design, development and delivery would increase their expertise in online delivery, opening up further possibilities for enhanced on-campus provision – for example, by greater use of blended or ‘flipped classroom’ approaches, or by preparing the ground for development of online modules and programmes. MOOCs would to some extent ‘future-proof’ the University by ensuring we are fully engaged with innovations and well placed to exploit emerging opportunities in the digital space.

**Key benefit 3: Positive impact on teaching and student experience**

One of the criteria for selection of a MOOC for development would be in its ability to feed back into on-campus provision. The high-quality resources created for a MOOC would enhance on-campus teaching and learning – as additional resources to support existing delivery, or fully integrated through a ‘flipped classroom’ approach, for example.

Teaching staff would engage with innovative teaching practices; these could provide evidence for professional recognition. MOOCs can also enhance student experience by providing additional learning opportunities.

**Key benefit 4: Positive impact on postgraduate and research activities**

By focussing on relevant academic areas, MOOCs have the potential to enhance our reputation for outstanding research and building further critical mass in areas in which we already have standing. MOOCs can consolidate the impact of our research, providing a useful method of disseminating research outputs to a wide audience. MOOCs also have the potential to help build research partnerships through enhanced links with academic and non-academic partners.

**Key benefit 5: Exploring new markets and income**

MOOCs can be a highly effective marketing tool – the high numbers and global access provide opportunity for raising the profile of the institution as well as individual subject areas and academic staff. We would expect MOOCs to become an important element of the marketing mix, particularly for international and postgraduate recruitment but potentially for other groupings depending on the choice of courses for development. There is further potential to develop MOOC-like courses as paid CPD provision.

Whilst we believe the focus for ‘return on investment’ from MOOCs should be on their use as a marketing tool and the many other ‘indirect’ benefits, MOOCs do also provide a direct income stream through certificates of participation and, potentially, associated certified assessment.
4. The Master Classes and Pilot MOOC

A major part of the K-MOOCs project was the building and running of our own pilot MOOC. We designed, created and presented a MOOC in ‘Functional Programming with Erlang’, with Professor Simon Thompson from the School of Computing as academic lead. As part of the MOOC we also created a series of video Master Classes that are re-usable within our taught courses and as standalone learning objects.

For the purposes of the pilot we could not partner with a provider such as FutureLearn or Coursera, and so we used the available tools that were already well understood at Kent: External Moodle (an instance of the Moodle virtual learning environment (VLE) available to those without Kent IT accounts) as the main platform with Kent Player hosting video material. We wanted to ensure that any development could be readily transferred to a specialist MOOC platform, and so we designed the External Moodle module to mimic a MOOC site (specifically FutureLearn) as far as possible.

The Master Classes have been made available through the School of Computing. Between June 1st and August 31st, 7,420 page views were recorded (second only to the School’s main home page within the School of Computing web pages). The videos themselves are on the School of Computing YouTube channel. By late August, the videos had registered close to 15,000 views on YouTube.

The pilot MOOC itself was set up on External Moodle, designed to mimic the general set-up of a standard MOOC platform – we used FutureLearn as the template.

The ‘home page’ or ‘landing page’ (pictured left) provided a visual identity for the course, using the Erlang logo (with permission). This page also included: links to the ‘menu’ for each week and a ‘Taking it further’ page (this set of links appeared on every course page), key information about the type and duration of the course, a link for signing up (and for completing the pre-MOOC survey), preview material, a statement of requirements, and information about the course leader, Simon Thompson.

Each week included a ‘menu’ to link to individual components, providing the component number (1.1, 1.2, etc.) and name, type of component (video, quiz, discussion, etc.) and an approximate time.

Erlang pilot MOOC home page

Each individual MOOC component was then set up in the same way: navigation at the top (with an overall menu to navigate from week to week, and ‘previous’ and ‘next’ navigation between components); component title and approximate time; a brief introduction based on the learning outcomes provided in the component’s entry in the course blueprint; the main content – for example an embedded KentPlayer video or link to a quiz; and some ‘transition’ text to lead on top
the next component. Each component page was built as a Moodle ‘discussion’ so that every page included the facility for participants to create and engage in discussions.

Whilst we recorded the three Erlang Master Classes using a ‘semi-professional’ set-up (production studio, with filming and editing/post-production by Kersh Media to a very high standard), we took a ‘lo-fi’ approach using KentPlayer in Simon Thompson’s office to record the remainder of the MOOC materials.

Although participation in a MOOC is generally ‘self-study with peer support’, it is important that support is provided in the form of teaching assistants (TAs). We recruited Stephen Adams, a PhD student in the School of Computing with specialist knowledge of functional programming and Graduate Teaching Assistant experience, as our TA.

Recruitment was initially via direct email to current Kent Computing undergraduate and postgraduate students, plus a small number of other selected users in the Erlang community. Following the decision to open the pilot to a wider audience, Simon Thompson (as academic lead) also announced the course at an Erlang conference and posted an invitation on Twitter. This tweet was re-tweeted by several leading members of the Erlang community, and the course announcement soon found its way onto a variety of social media and other websites, including Reddit and LinkedIn.

Participants were asked to complete a short survey when they signed up to the course. From 504 sign-ups, we received 256 responses (51%) to the pre-MOOC survey.

The main findings were:

- Social media was very influential in driving recruitment to the course
- The main motivation for signing up was the subject matter
- A significant number of participants had no previous online learning experience
- There was a clear international reach, with sign-ups from over 50 countries
- Most participants were over 24 (i.e. beyond typical undergraduate age range)
- Overall, the MOOC created a very positive impression

The pilot MOOC opened on May 11th. Although overall completion was roughly in line with the intended three-week structure, many participants continued to access the course beyond the initial three weeks. Some participants completed the majority of the course as soon as it was available, whilst a few did not complete any of the course until close to the end of the presentation period (most likely prompted by the email warning of imminent course closure).
To summarise, we have categorised completion as full (all 70 tracked components completed) or ‘almost full’ (60-69 components); majority completion (40+ components); partial completion (20+ components); ‘samplers’ (just accessing a small number of components, 10+); and, ‘drop-ins’ (completing fewer than 10 components):

<table>
<thead>
<tr>
<th>Completion status</th>
<th>No. of participants</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full completion: all 70 tracked components completed</td>
<td>27</td>
<td>5.4%</td>
</tr>
<tr>
<td>Almost full completion: 60-69 components completed</td>
<td>25</td>
<td>5.0%</td>
</tr>
<tr>
<td>Majority completion: 40-59 components completed</td>
<td>26</td>
<td>5.2%</td>
</tr>
<tr>
<td>Partial completion: 20-39</td>
<td>73</td>
<td>14.5%</td>
</tr>
<tr>
<td>‘Samplers’: 10-19 components completed</td>
<td>88</td>
<td>17.5%</td>
</tr>
<tr>
<td>‘Drop-ins’: fewer than 10 components</td>
<td>132</td>
<td>26.2%</td>
</tr>
<tr>
<td>‘No shows’: 0 components completed</td>
<td>133</td>
<td>26.4%</td>
</tr>
<tr>
<td>Total</td>
<td>504</td>
<td>100%</td>
</tr>
</tbody>
</table>

These figures are largely in line with expectations – compare, for example:

- Overall FutureLearn data showing an average 44% ‘no shows’, 48% completing at least one step (i.e. ‘drop-ins’ or better), and 12% ‘majority completion’ or more
- Data for Harvard’s ‘HarvardX’ MOOCs showing an average 36% ‘no shows’, 18% ‘majority completion’ or more, and 5% full completion.

All participants were asked to complete a short survey towards the end of the initial 3-week course presentation. We received 48 responses (10% of all sign-ups) to the post-MOOC survey – mostly from those who had completed the majority of the course, and none from those who had signed up but not participated.

The main findings were:

- Time commitment was the main factor preventing completion
- A significant number of respondents who had not completed the full course had completed as much as they intended to
- A majority of respondents intended to continue accessing the course beyond the initial three-week period
- Moodle was generally suitable as a MOOC platform so could provide an alternative to a specialist platform
- Overall, participants reported that their subject knowledge had increased:
  - 12% reported knowledge as ‘good’ or ‘excellent’ before the MOOC, compared with 56% afterwards
  - 59% reported knowledge as ‘none’ or ‘poor’ before the MOOC, compared with only 4% reporting ‘poor’ knowledge afterwards
- A large majority of respondents found MOOC navigation straightforward
- The pilot MOOC generally compared well with other MOOCs: over half of experienced MOOC users reported the pilot as at least as good as previous MOOCs they had taken
- A large majority of respondents would recommend the course to others, and would take the full six-week course when available

Overall the MOOC pilot was very successful, demonstrating our ability to design, develop and deliver MOOCs.
5. Developing and delivering MOOCs at Kent: recommendations

- Kent should seek a partnership agreement with FutureLearn for the hosting of MOOCs
- We should aim to develop three MOOCs per year (ideally one from each Faculty)
- Each MOOC developed should have a single academic lead
- Schools should support MOOC development and delivery by recognising the necessary time commitment and integrating this in the workload allocation model for academics
- A central budget should be provided for development costs (media production) and cost of TAs
- Preference should be given to proposals able to bring in external contributions and show clear links with business and industry, either as direct funding or ‘in kind’ through provision of expertise and resources
- For repeated presentations, funding should be from any direct income (e.g. statements of participation); provided the MOOC can demonstrate ‘return on investment’ some limited central funding could again be applied for
- Teaching Assistants should be appointed by Schools, based on the existing Grade 6 ‘Sessional Demonstrator’ role
- Media production for MOOC videos should be outsourced (in first instance)
- Strategic direction should be overseen by the existing eLearning Strategy Group (ELSG) or a new group with similar membership specifically focussed on MOOCs, with additional representation from Corporate Communications and the Dean for Internationalisation
- A smaller steering group should oversee practical / operational matters and ensure ELSG is fully informed to enable strategic decisions
- Day-to-day MOOC project management should be the responsibility of the university’s Distance Learning Technologist in UELT, with administrative support also from within UELT
- Proposals for MOOCs to be developed should undergo a selection process including the following criteria:
  - Acceptance by FutureLearn as a suitable course
  - Named lead, and clear support from Faculty Dean / HoS
  - Commitment to maintenance and repeated presentations
  - Identifiably Kent
  - Links to existing on-campus provision
  - Potential for expanding provision to CPD and/or credit-bearing
  - Preference for courses with external partners and/or funding identified
  - Provision of ‘Master Class’ or similar within proposal
  - Ensures a broad portfolio (i.e. courses should be distinct)
  - Inclusion of students in proposal (e.g. involvement in development or as TAs)
- A quality assurance process should follow the same overall procedure as credit-bearing courses, but ‘light-touch’ & ‘fast-track’ (note that FutureLearn have their own internal QA procedures which would add to our own, to make this more robust)
In addition to the recommended route of partnering with FutureLearn to develop Kent MOOCs (or as alternatives if it is decided not to ‘go down the MOOCs path’) the project has highlighted a number of areas where MOOC-like courses and associated resources would have a positive impact:

- Smaller-scale offerings on External Moodle
- Paid-for courses on External Moodle:
- Master Classes or similar
- Increased ‘blended’ learning’ to enhance on-campus delivery
- Centralised / strategic focus and identity for non-credit-bearing (and often paid-for) online activities

Francesco Cesarini, Simon Thompson and Joe Armstrong filming a discussion, with Kersh Media
6. Conclusion

By way of conclusion we present a 5-year vision for MOOCs at Kent, illustrating how MOOCs will directly support our teaching and learning strategy, internationalisation agenda, and the objectives of the institutional strategic plan to enhance our research output and impact, provide excellent education including in the digital space, and strengthen our reputation nationally and internationally.

By 2020, Kent, in partnership with FutureLearn, is recognised as a leading and innovative provider of MOOCs. We have a thriving set of MOOCs, having developed and delivered three new MOOCs each year since 2016, with each being maintained and updated for presentation on an annual basis. We provide high-quality education that plays on Kent’s strengths and meets recognised needs including continuing professional development in a number of fields. There is a waiting list of courses to be developed.

Our MOOCs are an important element in the marketing mix, particularly for international and postgraduate recruitment. We have an established and respected brand, with enhanced international esteem and attractiveness to potential students, staff and donors. Students have chosen Kent because we have demonstrated our commitment to online innovations: ‘the digital’ is clearly important to us. We have benefitted from the involvement of partners from business and industry in building and delivering material, and have strengthened our connections with university partners through FutureLearn.

Across all three faculties, we have seen an increase in take-up of blended forms of learning. The MOOC experience has given staff the confidence and digital literacy skills to exploit our virtual learning environment to enhance our on-campus provision, making more and better use of online resources and innovations such as flipped classrooms.

We have used our MOOCs as the inspiration and basis on which to build further paid-for courses, from stand-alone CPD offerings to full online Masters courses. Our MOOCs continue to be the main recruiting ground for these new paid-for courses.

Our on-campus students also benefit from our MOOCs. High-quality resources developed for MOOCs have contributed to our on-campus courses. Many students have taken the opportunity to be involved in MOOC production as part of their studies. Students taking Kent Extra to enhance their CVs and employability now have additional recognised options online, whilst postgraduates have benefitted from the opportunity to act as Teaching Assistants.

The Kent “Master Classes” underpinning several of our MOOCs have raised the profile of the university by presenting leading-edge research and scholarship featuring Kent experts and external colleagues. These Master Classes complement the university’s series of TED-style lectures with a deeper and more focussed counterpart.

Overall, we have achieved a truly global reach to showcase and promote our expertise, scholarship and research. We have transformed the way Kent provides learning opportunities, extended our learning community and boosted enrolment. The profile of our university has been raised – as has that of many of our individual academics. As one of Europe’s recognised leaders in MOOC provision, we are continuing to help create and shape the evolving model of MOOCs.
Acknowledgements

Thanks are due to all those who have contributed to the project from within and outside the university.

In particular we would like to thank the Executive Group and Beacon Projects initiative for funding and support, and David Powell and the Beacon Projects team for their help, advice and overall organisation and administration.

We would also like to thank our key external advisers: Mike McCracken, Amy Woodgate and Helena Gillespie; our external contributors to the MOOC and Master Classes: Francesco Cesarini (Erlang Solutions) and Joe Armstrong (Ericsson); and, Graham Majin and his colleagues at Kersh Media, for media production.

We are especially grateful to Diane Houston and the Graduate School, Louise Naylor and UELT, Frank Wang and the School of Computing, and Anthony Manning as Dean for Internationalisation, for their continuing support of the K-MOOCs project and the Erlang MOOC and Master Classes initiatives.

Internally, particular thanks are due to: Stephen Adams, our Teaching Assistant on the pilot MOOC; Barbara Criddle for taking care of the finances; Skylar Kelty and the L&RD team for advice and assistance with Moodle; Ayman El-Kharrat and the EDA studio team; Miles Banbery and Orla Garrett for assistance with YouTube for the Master Classes; and, KIE and Purchasing for their advice on bidding and contracts.

Finally, many thanks to all our MOOC participants and Master Class viewers, whose interest, enthusiasm, feedback and support have helped to ensure the success of the K-MOOCs Beacon Project.

Cover pictures:
1) Mike McCracken (Georgia Tech) presenting at K-MOOCs special event
2) K-MOOCs team in the EDA studio
3) Erlang MOOC home page
4) Simon Thompson presenting an Erlang Master Class
5) ‘Live coding’ MOOC video
6) External contributor Joe Armstrong (Ericsson) – one of the creators of Erlang
7) Filming the Master Class with Francesco Cesarini (Erlang Solutions)