ON COURSE FOR YOUR MASTERS: AN EVALUATION OF AN OPEN ONLINE LEARNING PROGRAMME IN INFORMATION SKILLS USED BY POSTGRADUATE STUDENTS AT A LARGE AND COMPREHENSIVE UK UNIVERSITY

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Abstract
Crossing campuses in the United Kingdom (UK), Malaysia and China, the University of Nottingham launched a Nottingham Open Online Course (NOOC) for postgraduate taught students with a focus on information skills development. The NOOC consisted of seven units, which included transition to Masters-level study, resource discovery, searching, critical appraisal, referencing, and career development. This paper is an evaluation of the first year using routine anonymised data collected from the virtual learning platform, a post-course self-completed survey (n=51) and focus group with one cohort of postgraduate taught students (n=14). Results from quantitative analysis revealed that 1155 participants registered, with completion rates decreasing with unit sequence. Peak activity was in October and November 2015, with activities and videos having the highest usage. Results from both focus groups and online survey established the benefits of the course related to convenience, flexibility, ease of understanding and accessibility. Recommendations were made for changes and development.

Keywords: massive open online course, MOOC, postgraduate taught students, evaluation, information literacy.

1 INTRODUCTION
Following an institution wide review of the information skills provided by the Department for Libraries, Research and Learning Resources, in January 2015 the University of Nottingham’s Teaching and Learning Board approved a proposal to move information skills for taught postgraduates online. A new, face-to-face, scaffolded approach had been recommended for students on undergraduate programmes to support key transitions throughout their university journey. However, it was recognised that the same approach would not work for taught postgraduates as the majority of campus-based students are on one year programmes with an accompanying need to develop the requisite skills as soon as possible. Furthermore, an anticipated increase in the number of Masters-level courses offered by the institution on a distance learning basis suggested that a move online would be prudent.

There was already experience of designing and delivering information skills teaching online, albeit for research postgraduates, as manifest in the previously reported Effective Literature Searching online course [1]. However, since the conception of this particular online course in 2011, the online learning landscape had developed, not least with the growing global popularity of Massive Open Online Courses (MOOCs). This led the institution to initiate its own Nottingham Open Online Courses (NOOCs), online modules open to students across all three international campuses [2]. The University endorsed a NOOC strategy in December 2014, acknowledging NOOCs as drivers for community building, collaborative learning, teaching enhancement and innovation. The NOOCs also had been recognised externally with a finalist position at the Guardian University Awards for 2013 and a ‘Highly Commended’ at the Green Gown Awards 2014. In 2016, NOOCs were further singled out for commendation by the UK Quality Assurance Agency as part of Nottingham’s institutional review [3].

Consequently, approval was given for an information skills online course for taught postgraduates to be developed as a NOOC using Moodle as the Virtual Learning Environment (VLE). A multi-disciplinary team was formed to steer its development consisting of a library information skills specialist; e learning experts; academic representatives from Medicine and Health Sciences, Education, and Engineering; the University’s senior academic lead for teaching enhancement; and a careers and employability consultant. Within the framework of definitions of MOOCs, this NOOC was defined as a joint classification of a ‘made MOOC’ (with video and interactive material) and an ‘asynchronous MOOC’ (without a fixed start and end date) [4]. The 7 Cs of the learning design framework were incorporated into the design stage with the steering group conceptualising the course, capturing the resource,
developing systems of communicating with the students, collaborating with students via the use of online staff and student helpers, considering tools to help students self-assess their progress, combining these in the overall programme and the consolidation phase of implementation and evaluation [4]. The practical application of the 7 Cs were as follows. The NOOC incorporated seven units the students could undertake. The creation of a sense of community was considered important in the NOOC and, at the beginning, students were asked to introduce themselves and where they were from. The first unit was to support students in understanding the transition from undergraduate to postgraduate study. This was followed by a unit introducing students to the University of Nottingham’s Libraries, including physical and online resources. A unit on the theme and variation of information sources supported the students’ exploration of the advantages and disadvantages of source material. The most detailed section was related to the mechanics of searching with its application to a range of discipline-specific databases. To support the application of this, an interactive section incorporated a search matrix to support the students’ skills development in the effective use of databases. This enabled the students to build to the next unit on critical appraisal. Referencing and reference management software also formed a separate unit. The final unit on postgraduate employability enabled the students to apply the transferrable skills developed in the NOOC, notably advanced search skills and critical thinking, to the next stage of their career. The modes of delivery included videos, readings, discussion forums, quizzes and drag and drop activities. In addition, the NOOC was actively facilitated by librarians and PhD students.

Previous studies have identified that there is an evidence gap in relation to the performance of large scale MOOCs in the longer term [5]. Therefore, as this NOOC was intended to change and evolve over subsequent years, it was important to evaluate the programme after the first year to enable staff, with insight from students, to inform future developments. Thus, the objective of this study is to evaluate, both quantitatively and qualitatively, student engagement and feedback on the online learning programme.

2 METHODOLOGY

An evaluation of the NOOC was chosen to enable the team to appraise the first iteration of the course and determine whether changes and developments needed to be made for subsequent cohorts. A mixed methods triangulation approach was considered to be the most informative way to obtain a comprehensive evaluation of the NOOC. The three methods used were:

2.1 NOOC activity: Quantitative data analysis of activity from the VLE, Moodle

NOOC activity data was retrieved from Moodle on 15 March 2016 and converted into an Excel spreadsheet. Quantitative data (e.g. demographic data, number of views and posts, unit completion rates) was analysed using SPSS 22, while qualitative data (e.g. content of the forum posts) was analysed using NVivo 11. Participants’ demographic data was retrieved from the student records’ database and matched with the NOOC activity data using anonymised student identification numbers. The demographic information included gender, student status, mode of study, year of study, course length, mode of learning, faculty and campus of study. Activity was measured by the number of views and posts, as well as unit completion rates. Descriptive statistics were used to analyse the data.

2.2 Qualitative data from a focus group of postgraduate taught students in the Faculty of Medicine and Health Sciences who had undertaken the NOOC

The focus group was facilitated by two members of the evaluation team (EN and CP) in December 2015. Fourteen students on a programme of study within the School of Medicine were the participants, and in contrast to most programmes, this cohort were required to undertake the NOOC within their first term. Participation in the focus group was entirely voluntary and in advance of the meeting students were provided with written information about the focus group. Students who wanted to participate signed a consent form for the recording of the session with a statement that no answers would be assigned to individuals. Open questions were asked, similar to those in the online survey, regarding motivation for joining, expectations of and satisfaction with the programme, experience of online courses, participation in specific units, engagement and interaction with the course, time and technical issues. The session was recorded using a digital recorder and was transcribed verbatim. The transcription was read by EN, CP and SHT to draw out themes from the focus group.
2.3 Self-completed online survey of participants: Quantitative and qualitative data from a self-completed online survey

A survey was developed using Bristol Online Survey (BOS). Students were asked a series of closed, open and rating questions that were developed from the questions asked of the focus group detailed above. Demographic questions related to place and mode of study. These were followed by questions on motivation for joining, expectations and satisfaction with the programme, experience of online courses, participation in specific units, engagement and interaction with the course, time and technical issues.

The survey was available from 14 March 2016 to 30 April 2016. Anonymised data (with participants’ university email) were extracted into an SPSS data file. Quantitative data was analysed using SPSS 22, while qualitative data (e.g. motivation for joining the course, expectations of the course) was analysed using NVivo 11.

As this was a service evaluation for the future development of the NOOC, it was not required to have ethical approval. This was determined by following the decision matrix from the Health Research Authority [6]. The use of this decision tool led to a categorisation of service evaluation rather than research as the study was not attempting to derive generalisable knowledge, and participants were not randomised. However, as the focus group was being recorded, informed consent from each participant was obtained, and for the online survey completion was deemed to be informed consent (i.e. a statement concerning confidentiality was included in the survey: ‘your responses to the survey will be treated confidentially’). All data were extracted and stored in accordance with Data Protection Act requirements.

3 RESULTS

3.1 NOOC activity: quantitative data analysis of activity from the VLE, Moodle

A total of 4582 PGT students, excluding School of Nursing students, registered at the University of Nottingham UK campus in 2015/16, of whom 867 had self-enrolled on the NOOC out of a total of 1155 course participants (764 if Nursing PGTs are excluded). This shows that that a significant majority of those enrolled on the NOOC were from the UK campus (88.7%) with 9.2% from the China campus and 2.2% from the Malaysia campus.

Female, overseas, full time and campus-based students in their first and only year of a Masters-level programme were the most representative of participants in the NOOC (Table 1).

<table>
<thead>
<tr>
<th></th>
<th>UK (N=764)</th>
<th>CN (N=73)</th>
<th>MY (N=17)</th>
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<td>49.9</td>
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<tr>
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<td>49</td>
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<td>Distance-Learning</td>
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NB: each of the three campuses has a different faculty structure which does not allow for a direct comparison. Also, not all subjects are taught across all three campuses.
It is worth noting that the total PGT populations at UNNC and UNMC in 2015/16 were 377 and 460 respectively.

Of the total number of UK participants (1224), 867 (including those from the School of Nursing) were identified as PGT students, with the remaining participants identified as undergraduates, doctoral researchers and staff.

The NOOC opened in September 2015 and there was a peak in activity on 31st October 2015 when 16219 views and 3899 posts were recorded. Interactive activities were the most popular and activity completion rates decreased with each subsequent unit.

3.2 Focus group: Qualitative data from a focus group of postgraduate taught students in the Faculty of Medicine and Health Sciences who had undertaken the NOOC

Fourteen health related PGT students attended the focus group. Students identified that the compulsory requirement of this NOOC, as stipulated by the programme convenor, was an important driver for them to undertake it. However, some students felt pressurised to complete the course in the time period specified. The ability to return to units was considered helpful and the NOOC exceeded many students’ expectations. All students had completed units 1 and 2 but participation was inconsistent for later modules. Units that were identified by the students as more complex were returned to at different periods of time, and there was an indication that due to the course-imposed deadline, there was an element of clicking through units to indicate completion, and then returning at a later date for learning purposes. The videos, academic staff ‘talking heads’ and critical appraisal were elements that were considered most helpful, but critical appraisal in particular was also described as the most difficult. The streaming of elements of the NOOC to be more subject specific was identified for a number of units, and having the discussion fora focused on medicine and health sciences was suggested as a mechanism to make these fora more relevant and to encourage interaction. The time period students had invested in undertaking the NOOC varied from 2 to 37 hours, which appeared to be dependent on their prior knowledge and experience. Students also suggested that the NOOC participants would benefit from a mechanism for instant responses to check the work they were doing, toolkits on referencing and citation, and a frequently asked questions section.

3.3 Self-completed online survey of participants: Quantitative and qualitative data from a self-completed online survey

The survey invitation was sent to all registered participants on the NOOC across the 3 international campuses via the announcement feature in Moodle. Of 1155 registered participants, a total of 51 people responded, giving a response rate of 4.4% or 5.3% when discounting non-PGTs from the total of registered participants. The majority of respondents were from the UK (94.1%), full-time (92.2%), campus based (96.1%) and had been in employment for 1-3 years (31.4%) prior to commencing their course. The majority of participants indicated the course had met their expectations (92.2%) and the majority were satisfied with the course (74.5%). Those who had not had their expectations achieved and made open text comments felt the course was too long and should have been available prior to the start of classes. For half of the respondents (51%), it was the first time they had undertaken an online course and flexibility, convenience and accessibility were identified as the key advantages to this medium. However, free text comments indicated that isolation, motivation, lack of direct feedback as well as technical constraints, were disadvantages.

Respondents indicated that critical appraisal, resources (theme and variations) and the mechanics of search were the most useful units, although a fifth of the respondents indicated that these were also the most difficult. As regards activities, demos/videos, reading, discussion forums and quizzes were the regarded as the most useful. Interestingly, 60% of respondents indicated that they did not benefit from the interaction with other participants and yet, 66.7% considered the facilitators had enhanced their learning experience. Respondents indicated that they had accessed the NOOC between 1-5 times (60.8%) and spent up to 5 hours on the course. 98% of the respondents would recommend the NOOC to new postgraduate taught students, and 88.2% would sign up for another NOOC.
# 4 CONCLUSION

## 4.1 Main findings of the study

Enrolment in the NOOC was high with 1155 participants in total. PGT students who were based on the UK campus, full time, female, overseas and from the Faculties of Social Science and Medicine and Health Science were the groups most likely to join the NOOC. However, in comparing these demographics with the total registered PGT cohort at the UK campus, we see significantly more Medicine and Health participants in the NOOC (29.3%) than their overall proportion of the student population (16.5%). Also, where home students constitute the largest cohort of the overall population (49.8%), the largest cohort in the NOOC were overseas students (49.9%). Furthermore, a significantly greater proportion of full time students participated in the NOOC than their representation as part of the whole student body would suggest, and it can also be seen that fewer distance learning students took part than the proportion this cohort constitutes within the total cohort.

Half of the survey respondents had undertaken previous online learning. Critical appraisal was considered the most useful unit from both the survey and the focus group, although this was also identified as one of the most difficult. Whilst 62.7% spent between 0 to 5 hours on the course, the evaluation identified that some students spent up to 30+ hours. There was a high level of agreement that students would recommend this course to others.

## 4.2 Strengths and limitations

The use of a triangulated approach to data collection served to enhance and illuminate findings for development for the 2016 iteration of the NOOC. In particular, the qualitative components enabled the team to further develop and explore ideas. However, there are limitations to each of the components of data collection. Understanding the size of the postgraduate taught population in campuses other than the UK proved to be problematic to obtain, and therefore our understanding of the needs and requirements of our overseas campuses is an area for future work. The focus group took place with only one cohort of students and these were students who were required by their programme of study to undertake the NOOC, which would have influenced their opinions and responses. Finally, the response rate for the online survey was low and subject to response bias.

## 4.3 What this evaluation adds

With the 2015/16 course being the first iteration of the NOOC, the results from the three evaluations of student participation were intended to identify what was working well in the course, as well as what needed to be further developed or changed, in order to enhance the experience for future cohorts. Furthermore, the results have exposed some unexpected trends and insights.

Engagement in the NOOC was predominately from full time, UK and campus-based students. Given the flexible nature of the course – online, 24/7 and open throughout the year – the proportion of participants registered at the University’s UK campus as distance learners (11.3%) or part time students (24%) is notably lower than that of their corresponding cohort percentages as part of the overall PGT population (21.4% and 43.4% respectively). With regard to part time students, this may have been an artefact of the data in that part time year 2 students could have undertaken face to face information skills sessions with library staff within their first year of study, prior to the move to online delivery. Indeed, 90.7% of NOOC participants reported to be in their first year. However, there may also be a facet of the campus-based learner that has contributed to their seemingly over-representation.

An exercise had been included in Unit 1 to identify where students had come from in order to demonstrate the global reach of the NOOC. Furthermore, the NOOC was open to PGTs registered at the China and Malaysia campuses. However, only 31.4% of the students who responded to the survey felt they were part of an international student community. Therefore, to enhance engagement and participation in the NOOC, there is a need to further develop the international flavour. In addition, it was not possible to accurately compare campuses in China and Malaysia and therefore more work needs to be undertaken to understand the needs of those students and staff to encourage more active engagement of the NOOC on these campuses, such as via a wider spread of academic talking heads.

Set within the context of a highly probable institutional, global expansion in masters-level distance learning provision, these lower than expected cohorts in the NOOC together with a minority reporting a sense of international community, could be seen as worrying trends. Yet, the online survey element of the evaluation identified that only half of the participants had previously undertaken any form of online
learning. Whilst the evaluation did not explore this further, it is necessary to be mindful in the development of such programmes - particularly for postgraduates - that their previous learning environment may have taken a different format and, therefore, it may have an impact on engagement with new learning environments. It is important to consider for such a cohort whether digital learning skills need to be enhanced in advance of student enrolment and the undertaking of a programme of study that incorporates online learning. Previous research indicates that whilst it is unclear if students learn more in online courses, it does seem clear that there is an increase in students’ digital literacy following participation. For example, Robinson and Hullinger [7] established a positive correlation between online courses and enhancement of students’ computer skills. Though most online courses do not require students to have high level computer skills in order to complete the courses, they nevertheless require students to become familiar with essential information technological skills [7], [8]. A first step in addressing this issue in the next iteration of the NOOC may be to include information as frequently asked questions to help support digital literacy (e.g. how to use Moodle, engage in live chat, post and reply in the discussion forums etc.)

It could be hypothesised that prior online course experience would help students to have better learning strategies. Indeed, Richardson and Newby [9] identified a statistically significant difference in achievement if students had previously undertaken online courses. There was not a similar assessment in the NOOC, which means this finding cannot be corroborated from our evaluation. However, there is the potential for future research, which includes the analysis of the course activity data log and data linkage to student course performance.

In order to extend the reach of this NOOC, the next stages are to embed the course into students’ existing modules and provide them with more support (e.g. live chat sessions). Developments for 2016-17 within the School of Medicine are the integration of this module into the Masters in Public Health, Masters in Research Methods, and the various Applied Psychology programmes, which will include an element of assessment. The introduction of additional support mechanisms within the course may also support a stronger working relationship with the China and Malaysia campuses.

An issue identified by both staff and students was the potential for allocation of credits to this programme, or mechanisms that allow students to demonstrate their progress in the NOOC. The focus group identified that the requirement to undertake the NOOC within a specific time period was broadly an enabler to participation. Within the steering group, the allocation of “badges” or certificates of completion had been discussed to incentivise students to progress at a quicker pace, which in turn may support student retention and completion, thus addressing the drop off rates in the later units. It has also been suggested that pre-course reading material and an assessment of learning styles may prove helpful to students prior to enrolment.

Krause [10] identified that management of online learning experiences required contact with academics and peers, and the use of such environments to capitalise on the community building capacity of online discussion forums. Whilst these were incorporated into the NOOC, students identified the support they received in them as being variable. Therefore, in order to enhance the student experience on this NOOC as well as others at the institution, a training package has been developed for facilitators on all NOOCs which the PhD facilitators will be able to access. “Becoming an online facilitator” is intended to help give a sense of confidence to facilitators, develop a mentor-mentee relationship, engage and encourage participants to interact as well as to stretch individual participant learning. This social presence is designed to encourage and stimulate contributions from students thereby in the longer term developing independent learning [11]. Currently, the interactions between PhD facilitators and the course engagement outcomes are not compared, but future research may examine how the social presence of the PhD facilitators affects students’ course engagement.

The final unit of the NOOC focused on employability by engaging participants in thinking about the application of their newly enhanced search and critical evaluation skills to researching opportunities post-graduation. Lane [12] identified that employers require graduates who not only have the knowledge needed for the job, but also have the skills to assist them to satisfactorily perform their roles in the work place. In the NOOC, the online discussion forum is used as a platform for collaborative learning, which is vital to a well-functioning organisation. To be effective, the online discussion forum should not only have students who interact with each other, but also instructors/facilitators who interact with the students. Indeed, for the development of employability skills, the guidance of instructors/facilitators is essential.

The NOOC was able to engage a large proportion of the postgraduate taught students during the early stages of delivery. The decline in engagement may mean that there is a need to consider alternate ways
of sustaining engagement with the programme. Consideration needs to also be given to how to further engage across campuses outside of the UK to ensure that all students’ needs are catered for. Recommendations from this programme have been rolled out to subsequent cohorts.

REFERENCES


