Massive Open Online Courses (MOOCs) as Philosophy outreach:

Evaluation of "Introduction to philosophy" and "Philosophy and the sciences".

THE UNIVERSITY *of* EDINBURGH

EIDYN

Massive Open Online Course

Introduction to Philosophy

Free and open to everyone
www.coursera.org/course/introphil

coursera

Dr Rosa Hardt, August 2019

Contents

Scope

This report is designed to evaluate the success of the early University of Edinburgh Philosophy MOOCs (Massive Open online Courses) as an outreach initiative. We will evaluate *Introduction to Philosophy*, and *Philosophy and the Sciences* and, where possible, benchmark this against data from other MOOCs.

This report is not designed to evaluate later MOOCs (e.g. *Intellectual Humility*), other forms of online learning (e.g. online MSc), or to evaluate the pedagogical effectiveness either of these MOOCs or online learning in general.

Planned outcomes: what did we want to achieve?

Edinburgh's philosophy MOOCs, 'Introduction to Philosophy' and 'Philosophy and the Sciences', brought specialist research of the university's academic staff to a world stage. Produced early in a still nascent MOOC landscape, these MOOCs were designed to help achieve the following outcomes:

1: People from a range of backgrounds will have **improved access** to key Philosophical concepts;

2: Learners will have **increased enthusiasm** for Philosophy;

3: Learners will have **increased understanding** of contemporary Philosophy research at the University of Edinburgh;

4: Learners will develop **increased critical thinking** or new perspectives;

5: Teachers and education professionals will have **improved access to education resources** in Philosophy.

Summary: what did we achieve?

- **568,392** learners have enrolled on the courses since their launch.
- **37%** of learners were based outside Europe and North America.
- **23%** of learners had no undergraduate degree.
- The courses were the first contact with academic Philosophy for **54%** of learners on *Introduction to Philosophy*, and **25%** of learners on the *Philosophy and the Sciences* courses.
- Between 2013-2016, the course lectures were viewed **2,046,442** times
- At any given time, there are around **4000** active learners on *Introduction to Philosophy*, and **400** active learners on the *Philosophy and the Sciences* courses.
- **87%** of learners were inspired to engage in further reading or study about philosophy.
- **88%** of learners valued finding out about contemporary Edinburgh research.
- **77%** of learners said the course had changed the way they think about the world.
- **10%** of learners were education practitioners or teachers.
- **21%** of learners reported re-using the course materials or content in formal or informal education including: high schools, community interest groups, professional development.

Background: what was the problem with current access and provision?

While philosophical thinking underpins all kinds of enquiry, there is currently a dearth of philosophy teaching in UK primary, secondary and further education. *Introduction to Philosophy* and *Philosophy and the Sciences* aimed to create greater public understanding of, and engagement with, philosophical research by providing accessible and expert online courses.

Philosophy is not offered as an option in the curriculum in England and Wales at GCSE level. It is offered but not compulsory at the equivalent level in Scotland (National 5), with low uptake: Philosophy entries make up < 0.1% of National 5 entries each year from 2014 to 2018 [1]. Uptake remains low for 16-18 year olds. Philosophy is available as a Scottish Higher (< 0.5% entries each year from 2015 to 2018[2]) and as an A-level in England and Wales a single examination board (0.7% AQA A-level entries[3]). Philosophy is not currently available as a Scottish Advanced Higher.

On the other hand, media coverage demonstrates an appetite for wider teaching of philosophy to facilitate curious, creative and critical thinking in the population,[4] [5] [6] highlighting the need to provide "a space for reasoned argument about the most fundamental questions of all". [7] [8]

We hoped that the open format of the MOOCs would provide a way of bringing these benefits to a wider, international audience, by providing a grounding in basic Philosophical skills and areas, and linking this to contemporary research happening at Edinburgh.

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[1] SQA Annual Statistical Report 2017-18: National 5. Accessed online March 2019 via: https://www.sqa.org.uk/sqa/64717.html

[2] SQA Annual Statistical Report 2017-18: National 5. Accessed online March 2019 via: https://www.sqa.org.uk/sqa/64717.html

[3] AQA exam results statistics, June 2018. Accessed online March 2019 via: https://filestore.aqa.org.uk/over/stat_pdf/AQA-A-LEVEL-STATS-JUN-2018.PDF

[4] The Guardian, April 2005. Accessed online March 2019 via: https://www.theguardian.com/education/2005/apr/05/teaching.schools

[5] The Telegraph, November 2008. Accessed online March 2019 via: https://www.telegraph.co.uk/education/secondaryeducation/3452510/Rugbys-first-philosopher-in-residence-An-argument-for-a-degree-of-success.html

[6] The Guardian, January 2017. Accessed online via: https://www.theguardian.com/commentisfree/2017/jan/09/philosophy-teach-children-schools-ireland

[7] Times Educational Supplement, November 2016. Accessed online March 2019 via: https://www.tes.com/news/philosophy-needs-be-given-its-proper-place-heart-uk-education

[8] Times Educational Supplement, February 2015. Accessed online March 2019 via: https://www.tes.com/news/c-grayling-seeks-fill-philosophys-screaming-silence

The Edinburgh MOOCs

The Edinburgh MOOCs were designed around the research specialisms of the University of Edinburgh's Philosophy department. All courses provide participants with short written introductions on the topic to complement the video lectures, which are delivered in four to five sections and total around 40 minutes per topic. Participants are also provided with:

- Handouts to accompany the lectures;
- Summaries detailing the original research Edinburgh academics have done that informs the video lectures, with links to open access resources for further independent research ("@Edinburgh" pages);
- Online quizzes that help participants to review their comprehension of material;
- Forums for online discussion (only included in earlier iterations);
- As with all Coursera MOOCs, learners can sign up to Signature Track. This is an optional service that track participants' progress to verify course completion and provide a shareable online course certificate to those who complete the course.

Introduction to Philosophy:

Introduction to Philosophy provided an overview of Philosophy as a discipline, and a taster of six research topics, each designed and delivered by a subject expert: philosophy of mind, epistemology, meta-ethics, philosophy of time travel, and philosophy of science (~14 hours study required).

- *Introduction to philosophy* - Dave Ward.
- *What is knowledge? And do we have any?* - Duncan Pritchard.
- *Minds, brains and computers* - Suilin Lavelle.
- *Should you believe what you hear*? - Alan Hazlett.
- *Are scientific theories true?* - Michela Massimi.
- *Time travel and philosophy* - Alasdair Richmond.
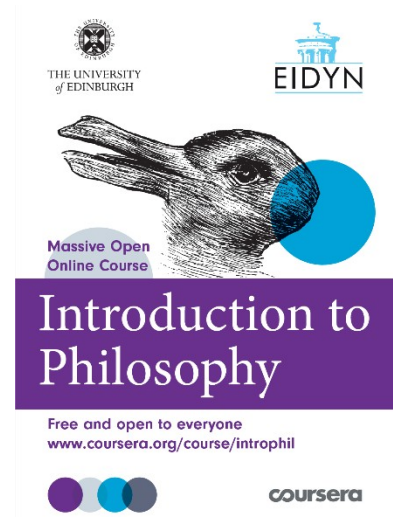
In 2017, the course expanded to include two topics on moral philosophy (~17 hours study):

- *Do we have an obligation to obey the law?* - Guy Fletcher
- *Do we have free will and does it matter?* - Elinor Mason
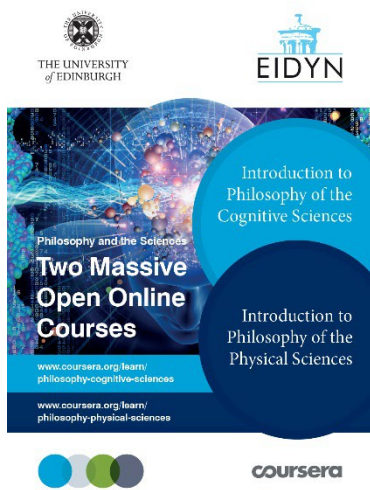
Philosophy and the Sciences:

Philosophy and the Sciences raises questions about scientific methods and concepts, drawing on Edinburgh's international expertise in this field. *Philosophy and the Sciences* is composed of two parts, both covering four topics: *Philosophy of Physical Sciences* and *Philosophy of Cognitive Sciences*. Since 2017, these parts have been available as separate MOOCs.

Topics are presented in collaboration between scientists and philosophers (philosophers in the below list are highlighted **in bold**), allowing participants to learn about the unique approach of philosophers towards the scientific research they engage with.

Philosophy of Physical Sciences introduces the fundamentals of philosophy of science before examining different issues in the philosophy of cosmology (~7 hours study).

- *What is this thing called science?* - **Michela Massimi** & **Duncan Pritchard**.
- *The origins of our universe* - **Michela Massimi** & John Peacock.
- *Dark matter and dark energy* - **Michela Massimi** & John Peacock.
- *The anthropic principle and multiverse cosmology* - **Alasdair Richmond** & John Peacock.

Philosophy of Cognitive Sciences covers philosophy of psychology and neuroscience (~7 hours study):

- *Stone-age minds in modern skulls: evolutionary theory and the philosophy of mind* - **Suilin Lavelle** & Kenny Smith.
- *What is consciousness?* **Mark Sprevak** & David Carmel.
- *Intelligent machines and the human brain* – **Mark Sprevak** & Peggy Series.
- *Embodied cognition* - **Andy Clark** & Barbara Webb.

Timeline and development of the MOOCs:

Introduction to Philosophy launched on 28 January 2013 as part of a cohort of six University of Edinburgh MOOCs: these six courses were the first UK MOOCs to be hosted on a dedicated platform.[9] Further iterations of *Introduction to Philosophy* launched on 14 October 2013, 26 January 2014 and 15 September 2014. In all these cases, *Introduction to Philosophy* was a seven week course including an optional peer assessment essay, and learner forums monitored by teaching assistants.

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[9] UK MOOC report (Mooclab.club, 2016). Accessed online April 2019 via
https://www.mooclab.club/Reports/UK%20MOOC%20Report%202016.pdf

Introduction to Philosophy moved to an updated version of Coursera on 13 February 2015. In January 2017, the additional topics on moral philosophy were added, and the learner forums removed. The addition of two new topics increased the course length from seven to nine weeks.

Philosophy and the Sciences launched on 20 October 2014 as an eight-week course including learner forums, with a second iteration launching on 21 September 2015. *Philosophy and the Sciences* moved to the new version of Coursera on 5 September 2016, and the online forums were removed. In July 2017, it was split into two standalone four-week MOOCs: *Philosophy of Physical Sciences*, and *Philosophy of Cognitive Sciences*.

Both *Philosophy and the Sciences and Introduction to Philosophy* now run on-demand, with students able to start the courses every three and four weeks, respectively.

Table 1. Overview of MOOC development:

DATE	MILESTONE
January 2013	*Introduction to Philosophy* 1 launches on original Coursera platform
October 2013	*Introduction to Philosophy* 2 launches
January 2014	*Introduction to Philosophy* 3 launches
September 2014	*Introduction to Philosophy* 4 launches
October 2014	*Philosophy and the Sciences* 1 launches on original Coursera platform
February 2015	*Introduction to Philosophy* moves to updated Coursera platform; Course runs on demand every 4 weeks.
September 2015	*Philosophy and the Sciences* 2 launches
September 2016	*Philosophy and the Sciences* moves to updated Coursera platform and split into two standalone MOOCs: *Philosophy of Physical Sciences* and *Philosophy of Cognitive Sciences*; Online forums removed.
January 2017	New topics added to *Introduction to Philosophy*; Online forums removed.

Evaluation methodology

We used a range of sources to evaluate the success of the Edinburgh MOOCs in terms of their outreach objectives.

The length of the period covered (January 2013 – May 2019) and changes to the Coursera platform and analysis dashboard mean that the available evidence differs between MOOC iterations. The numbers and definitions used by Coursera to reflect reach and demographics also differ between sessions, making some direct comparisons difficult.

Below we outline the sources used and the information they provide.

<u>Evidence sources</u>

End of course evaluations (old Coursera platform):
- Optional questionnaire, designed by Coursera;
- Data averaged across all iterations of the same course;
- Includes questions on learner satisfaction, expectations, first language, and profession;
- *Introduction to Philosophy* n = 2279; *Philosophy and the Sciences* n = 254.

Coursera reports on demographics and engagement (old Coursera platform):
- Data averaged across all iterations of the same course;
- Static snapshots of old Coursera dashboard following course migration to new platform;
- Demographic information (e.g. gender, education) given in percentages only; raw numbers were derived based on percentage information and overall number of learners;
- Includes number of unique video lecture views and downloads.

Coursera dashboard on demographics and engagement (new Coursera platform):
- Figures correct as of August 2019;
- Data averaged across all iterations of the same course;
- Update to Coursera dashboard autumn 2019 makes it difficult to track certificates awarded;
- Dashboard includes comparative demographic information for all Coursera courses;
- Includes information on "active learners": learners who completed at least one item, including viewing a lecture, taking part in a quiz, etc. Unique lecture views or downloads are not included.

Learner Stories (new Coursera platform):
- Free text box within Coursera to allow learners to leave unstructured feedback;
- *Introduction to Philosophy* n = 667; *Philosophy and the Cognitive Sciences* n = 58; *Philosophy and the Physical Sciences* n = 68;
- Thematic analysis grouped stories into six categories:

- Satisfaction and enjoyment;
- Awareness of or interest in University of Edinburgh research;
- Thinking skills and perspectives;
- Use of MOOCs in education and teaching;
- Further exploration or study;
- Unexpected outcomes.
- Stories mentioning more than one theme were coded multiple times, once per theme;
- Satisfaction and enjoyment made up the largest proportion of stories: 460 stories (68%) for *Introduction to Philosophy*; 46 stories (68%) for *Philosophy and the Physical Sciences* and 38 stories (66%) for *Philosophy and the Cognitive Sciences*;
- These responses present positive feedback, and reinforce the general perception of course quality (in support of Outcome 1), but give few indications about why participants provided positive feedback, and were not analysed further.

Survey of MOOC alumni (University of Edinburgh survey):
- Designed by department's knowledge exchange and impact team;
- Distributed via Coursera to all alumni of the relevant courses between April – May 2019
- Asked questions specifically relating to outcomes 2 – 5;
- *Introduction to Philosophy* n = 447; *Philosophy and the Cognitive Sciences* n = 93; *Philosophy and the Physical Sciences* n = 89

Outcomes and indicators:

For each outcome, we identified a series of indicators and evidence sources.

Below, we outline how the indicators and evidence sources map onto our initial outcomes.

OUTCOME	INDICATOR	SOURCE OF EVIDENCE
People from a range of backgrounds will have improved access to key Philosophical concepts	Demographic information (reach, gender, education background, location, first language); Course satisfaction; Level of engagement with materials; Number of active learners.	End of course evaluations; Survey of MOOC alumni; Coursera reports (old platform); Coursera administrator dashboard (new platform).
Learners will have increased motivation to explore Philosophy	Number/ examples of learners undertaking further study; Number/ examples of learners doing additional reading.	Coursera learner stories; Survey of MOOC alumni.
Learners will have increased understanding of contemporary Philosophy research at University of Edinburgh	Number/ examples of learners referencing increased understanding.	Coursera learner stories; Survey of MOOC alumni.
Learners will develop increased critical thinking or new perspectives	Number/ examples of learners referencing critical thinking; Number/ examples of learners' citing new perspectives.	Coursera learner stories; Survey of MOOC alumni.
Teachers and education professionals will have improved access to education resources in Philosophy	Number of teaching practitioners taking the course; Number/ examples of people incorporating into their teaching practice; Number/ examples of people using resources in formal or informal educational contexts.	End of course evaluations Coursera learner stories; Survey of MOOC alumni; Video views outwith Coursera (e.g. YouTube); Individual feedback to staff.

Outcome 1: People from a range of backgrounds will have improved access to key philosophical concepts.

<u>Overall reach of the courses</u>

First we analysed the number of learners and their backgrounds (figures correct as of August 2019). Where possible, we have benchmarked these figures against those for Coursera[10] and FutureLearn[11]. FutureLearn is the UK's biggest MOOC platform[12], with a wide offering of humanities-based MOOCs, and may therefore be a useful comparator for our MOOCs.

Coursera's new platform provides various information on reach, including: visitors to the site, people who have enrolled on the course, and people who have started the course. The snapshots from Coursera's old platform include only information on learners joined, i.e. people who have enrolled on the course. On both old and new platforms, number of enrollments includes all learners who enrolled in the course in the given date range, including those who have since unenrolled or reenrolled. Each learner is counted only once.

The number of learners on *Introduction to Philosophy* and *Philosophy and the Sciences* has been both extensive and unexpected. According to a 2016 report[9], *Introduction to Philosophy* had the 7th largest average enrollment of all UK MOOCs, with an average enrollment of 66,441 students per iteration. This made it the third biggest UK MOOC in terms of total number of enrolled students, with 265,762 students. *Philosophy and the Sciences* (single course) took 20th position, with 30,526 enrolled students at the time of the report.

As of August 2019, *Introduction to Philosophy* had 439,454 enrollments total. Of these, 112,856 enrolled in the first iteration alone (January – March 2013). Since February 2015 (the move to the new Coursera platform), *Introduction to Philosophy* has had 286,684 enrollments, of which 206,390 have started the course. Typically, around half of those who enroll for a MOOC actually begin the course[11]; the conversion rate for Introduction to philosophy is much higher, at 72%. From August 2018 - July 2019, an average of 2536 learners started the course each month, compared with 2641 during the same period the previous year, 3074 during 2017-18, and 4434 during 2015-16.

Philosophy and the Sciences as a single course (on the old Coursera platform) had 81,509 enrollments. Since splitting into separate MOOCs on the new platform (2016), *Philosophy of Cognitive Sciences* has had 29,320 enrollments, of which 16,331 started the course (56% conversion rate from enrollment to starter); and *Philosophy of Physical Sciences* has had 18,109 enrollments, of which 11,364 started the

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[10] Coursera course administrator dashboard: demographics. Accessed online August 2019 via Coursera.
[11] How does my course compare? (FutureLearn, 2019). Accessed online April 2019 via: Future Learn pdf how does my course compare
[12] Class central: MOOC providers list, Access online August 2019 via: https://www.classcentral.com/report/mooc-providers-list/

course (63% conversion rate from enrollment to starter). The *Philosophy and the Sciences* courses have a whole have therefore had 128,938 total enrollments since October 2014, and 27,695 course starters since September 2016

The overall reach of both MOOCs combined is therefore 234,085 course starters on the new Coursera platform, plus an additional 347,135 enrollments on the old Coursera platform, where data on starters (rather than enrollments) is not available.

Table 1: Visitors, enrollments and starters in the Edinburgh Philosophy MOOCs.

	Visitors	**Enrollments**	**Starters**
***Introduction to Philosophy* – old platform**	Data not available	265,626	Data not available
***Introduction to Philosophy* – new platform**	107,8152	286,684	206,390
***Philosophy and the Sciences* – old platform**	Data not available	81509	Data not available
***Philosophy of Cognitive Sciences* – new platform**	70,880	29,320	16,331
***Philosophy of Physical Sciences* – new platform**	113,815	18,109	11,364

Learner demographics

Given the exceptionally high enrollment for the first iteration of *Introduction to Philosophy*, and its status as one of the first six UK MOOCs, we highlight demographic information both with and without this version ("IoP1") of the course.

Gender:

Introduction to Philosophy and *Philosophy of Cognitive Sciences* have a more equal gender balance than both the Coursera (39% female) and FutureLearn (61% female) average. *Philosophy of Physical Sciences (new platform)* and *Philosophy and the Sciences* (old platform) are both in line with the Coursera average.
- *Introduction to Philosophy* (old platform): 44% female (45% excluding IoP1)
- *Introduction to Philosophy* (new platform): 45% female
- *Philosophy and the Sciences* (old platform): 40% female
- *Philosophy of Cognitive Sciences* (new platform): 46% female
- *Philosophy of Physical Sciences* (new platform): 39% female

Education background:

A quarter (25%) of learners on *Introduction to Philosophy* (old and new platforms combined) do not have an undergraduate degree. This is in line with the average for Coursera (26%) and FutureLearn (23%). The original single version of *Philosophy and the Sciences* courses also has 25% of learners without an undergraduate degree, but this proportion is lower on the two separate *cognitive sciences* and *physical sciences* MOOCs on the new platform.

- *Introduction to Philosophy* (old platform): 25% no undergraduate degree (26% excluding IoP1)
- *Introduction to Philosophy* (new platform): 25% no undergraduate degree
- *Philosophy and the Sciences* (old platform): 25% no undergraduate degree
- *Philosophy of Cognitive Sciences* (new platform): 20% no undergraduate degree
- *Philosophy of Physical Sciences* (new platform): 20% no undergraduate degree

The MOOCs, in particular *Introduction to Philosophy*, also engaged a new audience with philosophy. In the alumni survey, 234 respondents (54%) from *Introduction to Philosophy* said the course was their first encounter with academic Philosophy. These figures were lower for *Philosophy of Cognitive Sciences* (24 respondents, 26%), and *Philosophy of Physical Sciences* (22 respondents, 25%). These figures may reflect the more specialist subject matter of the *Philosophy and the Sciences* MOOCs.

Geographical and linguistic diversity:

End of course evaluations show that a small majority of learners did not have English as their first language: 52% for both *Introduction to Philosophy* and *Philosophy and the Sciences*. This suggests that the courses were accessible and appealing to speakers of other languages.

However, there is also evidence of demand for the course in other language communities. Learners who have completed the course have produced transcripts of course videos in Catalan, Chinese, Dutch, Finnish, French, Hebrew, Korean, Italian, Portuguese, Romanian, Russian, Serbian, Slovak, Spanish, Turkish, and Vietnamese. In 2016, a Chinese version of the course was released by Coursera in response to demand from Chinese learners.

Coursera location data shows that learners come from across the globe, although the spread outside North America and Europe is lower than the Coursera average (48%):

- *Introduction to Philosophy* (old platform): 37% outside Europe/ N. America (39% excluding IoP1)
- *Introduction to Philosophy* (new platform): 42% outside Europe/ N. America
- *Philosophy and the Sciences* (old platform): 35% outside Europe/ N. America
- *Philosophy of Cognitive Sciences* (new platform): 37% outside Europe/ N. America
- *Philosophy of Physical Sciences* (new platform): 34% outside Europe/ N. America

This global reach of the courses is also reflected in the top seven countries with the largest number of participants, including Mexico, India, China, and Brazil for *Introduction to Philosophy*; and India, Brazil, China and Russia for *Philosophy and the Sciences*.

The difficulty in accessing Philosophy in some of the learner's own countries was noted by several participants.

> Here in Peru, it's hard to get information about Philosophy of Cognitive Sciences or Philosophy of Mind, but now, I can make progress in those fields.
> - *Philosophy of Cognitive Sciences* learner

Learner engagement

In order assess whether the courses improved access to philosophical ideas, we need to know whether people actively engaged with the material. A criticism that is sometimes made in relation to MOOCs is that large numbers of enrollments or course starters can mask a lack of engagement with the course material. We analysed engagement by looking at the following:
- Course completion rate and, where possible, certificates awarded via Signature Track
- Number of video views, streams, and downloads
- Forum engagement

Completion and certificates

Completion refers to learners who passed all assessments in the given date range. A certificate is a paid for service available to participants who have completed the course and have enrolled in Coursera's Signature Track programme via direct payment, Financial Aid, or their organisation.

Comparison data was not available for other Coursera courses. According to FutureLearn's report, their courses have an average completion rate of 7%, and a paid-for statement of participation (equivalent to Coursera's certificates) of 2%[11].

Due to changes in Coursera's dashboard in autumn 2018, data on the number of certificates was no longer straightforwardly available. We estimated the total number of certificates awarded in the new platform based on the number of learners eligible for a completion certificate (paid learners, Financial Aid learners, organisation learners) who completed the course. These data are only available on the new Coursera platform.

- *Introduction to Philosophy (new platform)*: 5820 eligible learners, 3195 completions (1.5% total starters).
- *Philosophy of Cognitive Sciences*: 965 eligible learners, 648 completions (4% total starters).
- *Philosophy of Physical Sciences*: 577 eligible learners, 392 completions (5% total starters).

Coursera provides completion rates as a percentage of course enrollments, however FutureLearn's completion figure of 7% is based on the percentage of starters. Therefore, we calculated a comparable completion rate using the raw numbers (starters, completers) supplied in Coursera dashboard. These data are only available on the new Coursera platform.

- *Introduction to Philosophy (new platform):* 206,390 starters; 12,348 completers (6% completion).
- *Philosophy of Cognitive Sciences*: 16,331 starters; 2645 completers (16% completion).
- *Philosophy of Physical Sciences*: 11,364 starters, 2026 completers (18% completion).

Engagement with course material

Snapshots of the old Coursera dashboard provide data on learner engagement with video lectures:

- *Introduction to Philosophy (old platform):* 1,709,413 lectures streamed (871,206 excluding IoP1); 927,064 lectures downloaded (505,578 excluding IoP1).
- *Philosophy and the Sciences:* 337,029 lectures streamed; 179,208 lectures downloaded.

Participation in quizzes and forums was lower but still substantial:

- *Introduction to Philosophy (old platform):* 316,501 quiz submissions (189,085 excluding IoP1)
- *Philosophy and the Sciences:* 57,502 quiz submissions.

We were unable to obtain information on direct engagement with course materials from the new Coursera platform. However, Coursera does provide information on the number of active learners (the number of learners who have completed at least one item in the previous 28 days). We calculated the average number of monthly active learners at any point since moving to the new Coursera platform.

In addition, the Course Progress Funnel captures the dropout rate for each course checkpoint, where a checkpoint represents an activity such as a watching a lecture or submitting an assessment. We estimated the total number of checkpoints (e.g. videos watched or quizzes submitted) reached by matching the percentage learners progressing through the relevant checkpoints (completed item, completed assessment) with the number of learners on the course. To minimise double counting, we excluded checkpoints linked to enrolling in the course, beginning an item, and marking a module complete. This gave us a cumulative figure for the number of times learners completed watching a video lecture or submitted an assessment exercise on a given course. It was not possible to separate out engagement with video lectures with engagement in other course materials using this method.

Introduction to Philosophy (new platform): 712,983 checkpoints; 3889 average active learners
Philosophy of Cognitive Sciences: 45,182 checkpoints; 453 average active learners
Philosophy of Physical Sciences: 32,415 checkpoints; 341 average active learners

Forum engagement

Online forums were included in the earlier iterations of both *Introduction to Philosophy* and *Philosophy and the Sciences*, in order to stimulate discussion between learners and teaching staff.

While active, the forums generated a large amount of activity involving learners, lecturers, and teaching assistants.

- *Introduction to Philosophy (old platform):* 8309 threads (4508 excluding IoP1); 70,965 posts/ comments (33,328 excluding IoP1); 18,658 users posting (7985 excluding IoP1); 72,025 votes (18,537 excluding IoP1); 760,067 views (345,653 excluding IoP1)
- *Philosophy and the Sciences:* 1775 threads; 33,378 posts/ comments; 7512 users posting;127,021 votes; 66,537 views

However, given the numbers of participants on the courses, this amount of activity proved unsustainable: the forums were removed due to the resource involved in moderating the discussions, and an increase in off-topic posting and suspected spam.

Conclusion:

Widening access to Philosophy was a core aim of these MOOCs, and in light of the above evidence, we feel confident this aim has been met. The uptake of both courses, but particularly *Introduction to Philosophy*, was unprecedented: the course remains the highest recruiting University of Edinburgh MOOC of all time. In some cases, such as the moderation and maintenance of discussion forums, such unexpectedly high enrollment became problematic and difficult to manage.

Enrollment has slowed since the move to Coursera's new platform, reflecting a more crowded marketplace and lower rates of new learner sign ups across the sector[13]. However enrollment in the MOOCs remains high, with an average of 2536 new learners enrolling on *Introduction to Philosophy* each month from August 2017 – July 2018. For the sciences courses, there were an average of 675 monthly enrollments in *Philosophy of Cognitive Sciences*, and 362 for *Philosophy of Physical Sciences*.

Both MOOCs reached a large and varied audience, with *Introduction to Philosophy* reaching the most diverse demographic, and *Philosophy and the Physical Sciences* the least diverse. Course demographics do not differ substantially from those on other Coursera programmes, although this profile includes a range of backgrounds, and the large reach of the courses means that the percentages translate into large absolute numbers of people reached. For example, the 25% of enrolled learners without a university qualification equates to 109,864 people for *Introduction to Philosophy*, and 32,235 people for the *Philosophy and the Sciences* courses.

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[13] Class Central "By the numbers: MOOCs in 2018". Accessed online August 2018, via:
https://www.classcentral.com/report/mooc-stats-2018/

It is interesting to note that the demographic profile of learners does not change considerably over time. As an early course (*Introduction to Philosophy* being one of the first ever UK-based MOOCs to be released), many learners of the earlier iterations may be thought of as early adopters. We might have expected to see increased diversity as awareness of MOOCs increased, but this does not appear to be the case in our MOOCs.

While engagement levels on all courses show large numbers of learners engaging with some course content (e.g. watching video lectures), completion rate remains an issue across the sector. This may be in line with a perception of MOOCs as a public engagement outlet to spark curiosity, rather than a pedagogical tool per se. The two shorter science based courses (*Philosophy of Cognitive Sciences*, *Philosophy of Physical Sciences*) do show higher completion rate, at 16% and 18% respectively. It is unclear whether these rates are linked to the shorter length of these courses, or the more specialised topics perhaps requiring a higher level of initial interest and motivation.

We note that our estimated rate of learners eligible for certificates (i.e. paid learners who completed the course) is in line with or slightly above FutureLearn's estimate of 2%, in spite of the non-vocational nature of the courses.

While there is undoubtedly work to do across the MOOCs sector in engaging (and retaining) diverse audiences, we are delighted to have been able to contribute to increasing access to Philosophy to so many learners.

> I love how you could turn such a complex subject into a course that anybody could take. I think it is a very important task that philosophers today should work on, making philosophy less elitist and academic and more accessible and popular, without losing its elegance.
> - *Philosophy of Cognitive Sciences* learner

Outcome 2: Learners will have increased motivation to explore Philosophy

Overall quality of the course

End of course evaluations show that both MOOCs were enthusiastically received by participants:

- *Introduction to Philosophy* (old platform): 46% rated course as good; 38% rated course as excellent. 56% said course met expectations; 44% said course exceeded expectations.
- *Philosophy and the Sciences*: 43% rated course as good; 41% rated course as excellent. 63% said course met expectations; 28% said course exceeded expectations.

An additional question on the end of course evaluations for *Philosophy and the Sciences* found that 82% of participants said that they would be extremely or very likely to take another online course from the same university, and 63% learners reported they viewed the University of Edinburgh more favourably as a result of the course.

Learner Stories

Many Learner Stories on the new Coursera platform referenced further exploration of Philosophy, ranging from further reading to postgraduate study. We identified 65 such stories in total: 46 for *Introduction to Philosophy*, 11 for *Philosophy of Cognitive Sciences,* and 8 for *Philosophy of Physical Sciences.*

Some of these referenced wider reading, including original research by University of Edinburgh researchers:

> It was a pleasure to participant [in] that course. I am just reading "What is [this] thing called knowledge - not easy but interesting.
> - *Introduction to Philosophy* learner

> Really inspired me to learn more about philosophy, I've purchased the book "A history of Western Philosophy" and plan to read it cover to cover in the coming weeks.
> - *Introduction to Philosophy* learner

> The presentations have inspired me to seek out that much more material in the field.
> - *Philosophy of Cognitive Sciences* learner

> Prof Massimi […] has inspired me to read much more about the topic; to think more deeply about the same questions that have tickled our imagination since humans first started looking up at the sky!
> - *Philosophy of Physical Sciences* learner

Others had been inspired to undertake further informal study (e.g. additional MOOCs) in Philosophy:

> Nice lectures! They got me into signing and completing other Philosophy courses!
> - *Introduction to Philosophy* learner

> I have been out of education for over 15 years and this has encouraged me to enroll in further philosophy courses (Kierkegaard is next).
> - *Introduction to Philosophy* learner

A third group credited the course with their decision to enroll in formal study in Philosophy:

> Thanks to this course I enrolled to a direct programme to Master's degree in Philosophy.
> - *Introduction to Philosophy* learner

> Thanks to you I decided to study philosophy at the Catholic University of Chile".
> - *Introduction to Philosophy* learner

Alumni Survey:

In the alumni survey, we specifically asked about further reading or study (yes/ no, forced choice). 550 respondents (87%) said that the course prompted them to read or study philosophy further:

- *Introduction to Philosophy (new platform):* **385**/447 (86%) further reading or study
- *Philosophy of Cognitive Sciences:* **85**/93 (91%) further reading or study
- *Philosophy of Physical Sciences:* **80**/89 (90%) further reading or study

Conclusion

While there is, as always, a risk of selection bias in the learner stories and survey responses, they nonetheless demonstrate that many learners did leave view the course in a positive light, and ended it with increased motivation to explore Philosophy, either independently or as part of further study.

The clearest evidence for this came from the alumni survey, where a specific question was asked on this topic. The majority of the Learner Stories concerned learners' enthusiasm or interest in the subject matter, which could be taken as increased motivation in its broadest sense; however, we only counted those stories which specifically referenced further reading or study.

Therefore, it is possible that the thematic analysis significantly underestimates the motivational impact of the MOOCs. This is supported by the sizeable disparity between those reporting further reading or study when prompted in the alumni survey (87%) compared with those mentioning it unprompted in a Learner Story (8%).

Based on the alumni survey, and taking into account the possibility of respondent bias, we are fairly confident this aim has been met for many learners. It would be useful if a question specifically linked to future motivation could be incorporated into future feedback and evaluation, given the disparity between the two sources of evidence we examined here.

Outcome 3: Learners will have increased understanding of contemporary Philosophy research by the University of Edinburgh

<u>Alumni survey</u>

In the alumni survey, 552 respondents (88%) said that it was very or somewhat valuable to learn about contemporary Edinburgh research during the course.

- *Introduction to Philosophy (new platform):* **181**/447 (41%) very valuable; **197**/447 (44%) somewhat valuable.
- *Philosophy of Cognitive Sciences*: **54**/93 (58%) very valuable; **35**/93 (38%) somewhat valuable.
- *Philosophy of Physical Sciences*: **47**/89 (53%) very valuable; 38**/**89 (43%) somewhat valuable

Respondents also reported that the courses had improved their understanding of the following areas of contemporary Edinburgh research:

Introduction to Philosophy (new platform):
- Morality and ethics: **329**/447 (74%)
- Should you believe what you hear?: **290**/447 (65%)
- Time travel: **217**/447 (49%)
- What is knowledge: **353**/447 (79%)

Philosophy of Cognitive Sciences:
- Embodied cognition: **60**/93 (65%)
- Intelligent machines and the human brain **51**/93 (55%)
- Philosophy of mind **69**/93 (74%)
- What is consciousness? **67**/93 (72%)

Philosophy of Physical Sciences:
- Dark matter and dark energy: **64**/89 (72%)
- Origins of the universe: **50**/89 (56%)
- The anthropic principle and multiverse cosmology: **70**/89 (79%)
- What is science? **62**/89 (70%)

<u>Learner Stories</u>

Some Learner Stories refer specifically to the research of Edinburgh academic staff members.

For *Introduction to Philosophy,* we identified 42 stories which fell into this category, with the topic of time travel receiving the highest proportion of positive feedback (26 stories). Learners particularly noted its relevance to understanding popular culture:

> I have also been an avid fan of sci-fi for ages and was pleasantly surprised to hear Dr Alasdair Richmond's lectures on time travel. I have bought both the course text and the Sci Fi and Philosophy book recommended.
> - *Introduction to Philosophy* learner

> I especially loved the Time Travel module by Dr. Alasdair Richmond and the philosophical questions it raised. Being Science Fiction fan I have always pondered upon such questions or paradoxes.
> - *Introduction to Philosophy* learner

For *Philosophy of Cognitive Sciences*, we identified 5 stories referencing Edinburgh research. Here, comments included references to embodied cognition, and the nature of the human mind:

> It really has changed my perspective on algorithm, computers, and human mind.
> - *Philosophy of Cognitive Sciences* learner

> I learned a lot about embodied cognition.
> - *Philosophy of Cognitive Sciences* learner

> "It has helped me understand the challenges of modern life with our stone-age minds"
> - *Philosophy of Cognitive Sciences* learner

For *Philosophy of Physical Sciences*, we identified 7 stories referencing Edinburgh specific research, in particular discussions about Kuhn, cosmology, the anthropic principle, and the nature of scientific knowledge.

> The idea of under-determination [sic] was something new, and which I shall read more about.
> *Philosophy of Physical Sciences* learner

> "I caught myself totally absorved [sic] by the debates on the very nature of scientific knowledge where each lecturer presented very relevant issues, including some methodological problems related to the study of cosmology".
> - *Philosophy of Physical Sciences* learner

Conclusion

Both *Introduction to Philosophy*, and *Philosophy and the Sciences* aimed to provide learners with a grounding in the overall subject matter while highlighting key elements of current Philosophy research happening at the University of Edinburgh. Evidence that the courses increased learner's awareness of this current research comes from Learner Stories, and the alumni survey, as well as the wide reach of the course itself (see Outcome 1), since this included content based around this research.

As with motivation, learners are more likely to report increased understanding of Edinburgh specific research when prompted with a yes/ no question in the alumni survey. Unprompted feedback tended to be more general, and while there were many positive references to individual researchers, it was often not clear if these were being credited for their engaging presentation or for their research ideas. We only included comments specifically referencing research ideas under this theme, and hence may have under-reported. Again, this may account for the apparent discrepancy between the two sources of evidence.

It is clear from the overall positive reception of the MOOC (Outcome 2, above) that the focus on contemporary research, rather than a simple historical overview, was appreciated by learners. The MOOCs' modern approach is also praised in Learner Stories:

This course was new and refreshing rather than […] talking about old dead people.
- *Introduction to Philosophy* learner

What I particular liked about the course […] was the fact that the material was very up-to-date.
- *Philosophy of Physical Sciences* learner

Combined with the evidence from the alumni survey, and the Learner Stories noted above, we are reasonably confident that the Outcome (increased awareness of contemporary Edinburgh research) was achieved for many learners.

Outcome 4: Learners will develop increased critical thinking or new perspectives

Alumni survey:

In the alumni survey, we specifically asked whether taking the course had changed the way learners think about the world around them (yes/ no, forced choice). 487 respondents (77%) answered that they had indeed changed the way they think about the world:

- *Introduction to Philosophy:* **353**/447 respondents (79%)
- *Philosophy of Cognitive Sciences:* **67**/93 respondents (72%)
- *Philosophy of Physical Sciences:* **67**/89 respondents (75%)

Learner Stories:

Many participants, particularly those who took *Introduction to Philosophy*, reported an improvement in their thinking capacities or a change in their way of seeing the world. We identified 55 such stories for *Introduction to Philosophy.* For *Philosophy and the Sciences,* we identified fewer stories: 2 for *Philosophy of Physical Sciences*, and 1 for *Philosophy of Cognitive Sciences*.

A selection of the 55 comments made by *Introduction to Philosophy* participants on this theme include:

This course has also taught me how to step back and think about things and how to challenge things that are often taken for granted.
- *Introduction to Philosophy* learner

I found myself seeing "layers" in things I had never noticed before.
- *Introduction to Philosophy* learner

I have enjoyed learning the necessary skills to sharpen my cognition, reflection, and analysis to be better thinker in this digital age.
- *Introduction to Philosophy* learner

This course was totally overwhelming and it's like a door to open a new world of perspectives for me.
- *Introduction to Philosophy* learner

I…have really had my eyes opened to the world of possibilities. You have helped my aging brain to create new pathways and look at things in a different light.
- *Introduction to Philosophy* learner

I learnt that, it is in fact okay to question EVERYTHING ABOUT EVERYTHING. I am now able to approach and appreciate all subject matter in a way that I would have never been able to before."
- *Introduction to Philosophy* learner

Conclusion:

Philosophy is often presented as a way of developing increased critical thinking or new perspectives. One proposed outcome of the MOOCs was to see if we could find evidence of such a change even in a short term, distance learning environment.

Once again, we saw a much higher reference to new perspectives when learners were specifically asked about this in the alumni survey, than in the open format Learner Stories.

Within Learner Stories, this was a theme we primarily saw arising in *Introduction to Philosophy.* This is perhaps not surprising given the larger number of stories submitted for this course, however it may also reflect the broader scope of *Introduction to Philosophy*, where participants are presented with a large variety of topics, and what remains constant is researchers presenting multiple perspectives that can be taken towards the same subject.

Additionally, we note that *Introduction to Philosophy* has a higher proportion (30%) of participants without an undergraduate degree than is the case for *Philosophy of Physical Sciences* (22%) and *Philosophy of Cognitive Sciences* (20%). It is possible that learners on the *Introduction* course may have had, on average, less contact with philosophical thinking, and therefore more potential to significantly develop their thinking skills and shift their perspective during the course. This idea has some support from the fact that the proposition of learners for whom the MOOC was their first experience of academic Philosophy was higher for *Introduction to Philosophy* (54%) than for either of the science based courses (25% for both *Cognitive* and *Physical Sciences*).

Overall, we can be reasonably confident that this outcome was achieved for many learners.

Outcome 5: Teachers and education professionals will have improved access to education resources in Philosophy

The final proposed outcome was for the courses or their content to act as Philosophy-based teaching resources for use in education. To this end, all course content was released under a Creative Commons license, allowing it to be reused or adapted. The video lectures were added to the University of Edinburgh's Open Education YouTube (3,139 subscribers, 78,000 views as of April 2019). However, the Creative Commons license has made it hard to track uptake of the course materials outwith the Coursera platform. Here again, we rely on Learner Stories for examples of usage, and the alumni survey for a percentage of respondents who affirm they have used the materials in this way. We also draw on individual feedback given directly to researchers involved in the courses.

Occupation

In end of course evaluations, 11% of *Introduction to Philosophy* participants and 10% of *Philosophy and the Sciences* participants report their occupation as teachers or education professional. This provides an opportunity for the MOOCs to be used in teaching settings.

Learner Stories

One theme that emerged from Learner Stories was that participants had used the course materials to inform their teaching, or had been encouraged to engage with the course by their teacher. Looking at the comments that constitute these stories allows a fuller picture of the various ways the MOOCs have been used in education.

For example, Learner Stories reveal that *Introduction to Philosophy* has been integrated into teacher training in the Philippines (12 stories). The course is a compulsory part of Philosophy 1 at Mindanao State University; this module is a course requirement for the Bachelor of Elementary Education.

Other courses cited in Learner Stories as having *Introduction to Philosophy* as a compulsory part of the programme include a Masters in Science Nursing (unknown university) and a Higher School of Economics (Moscow) combined programme with the London School of Economics. Desk research confirms the course The Higher School of Economics also lists *Philosophy of Cognitive Sciences* as a recommended 2nd year course for their Master's in 'Cognitive Sciences and Technologies'.[14]

Learner stories showed that the courses have also been used by teachers to inform their teaching practice.

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[14] Higher School of Economics. Accessed online June 2019 via:
https://www.hse.ru/en/ma/cogito/moocs/

> I took the [Introduction] course because I am a […] Philosophy teacher in High School and I wanted to improve as an individual […] everything about the course was just perfect.
> - *Introduction to Philosophy* learner

Two other philosophy high school teachers, both from Mexico, report that *Introduction to Philosophy* has benefitted their teaching and, as a result, their students. In a follow up enquiry, one of these teachers explains that taking *Introduction to Philosophy* has improved his ability to teach relevant and contemporary philosophy:

> Thanks to your university I can offer to my students...better content […] One of my strategies when I talk about philosophy with my students [is to] talk about time travel.
> - *Introduction to Philosophy* learner

He explained that philosophy is not widely available in Mexico, so philosophy teachers tend to come from law or linguistics:

> They only teahc [sic] the same historical dates and topics, [and] the course [Introduction to Philosophy] gives me the opportunity to show different areas.
> - *Introduction to Philosophy* learner, continued.

Teachers are also using *Philosophy of Physical Sciences* and *Philosophy of Cognitive Sciences* to improve their courses and teaching:

> I am a secondary Physics teacher with recent textbook publication in junior science and senior physics. The most pressing problem for educators at secondary level is updating content knowledge rapidly and understanding the pedagogy of deep, stable conceptual change in novice learners. I took this course to update my knowledge so as to build a better knowledge base for a course for 16 year-olds at my school, which includes aspects of cosmology, thermodynamics, chemistry and biology… I enjoyed this course and will use it to develop a better planned and implemented course.
> - *Philosophy of Physical Sciences* learner

> As a Theory of Knowledge teacher in the IB Diploma programme with a very limited scientific knowledge, this course is very helpful for me.
> - *Philosophy of Physical Sciences* learner

> Just wanted to say thank you for creating this course! It was a great introduction, and it will help me in my job in the education sector, particularly in our current thinking about meta-cognition and self-talk (the notes on the embodied cognition sector [sic] will be most useful).
> - *Philosophy of Cognitive Sciences* learner

<u>Alumni survey</u>

In the alumni survey, we tried to obain more examples of how the MOOCs had been used in education. To this end, we included a forced choice (yes/no) question about whether respondents has used, or planned to use, any of the MOOC content or material in workshops, classes, or other teaching settings. Respondents were reminded of the Creative Commons license and that the teaching team encourage such use. The responses were fairly consistent across the three courses, with 131 respondents (21%) confirming educations usage:

- *Introduction to Philosophy:* **89**/447 respondents (20%)
- *Philosophy of Cognitive Sciences:* **22**/93 respondents (24%)
- *Philosophy of Physical Sciences:* **20**/89 respondents (23%)

Where respondents answered YES to this question, we asked them to provide more detail where possible.

Introduction to Philosophy participants used the course to as a teaching resource in schools, Universities, and online learning:

> *"I mentor philosophy MOOCs and individuals in online academic communities. Information and ideas in your MOOC updated my learning on various points and inspired further growth, strengthened skills."*

> *"[I use the course] For illustrating some points in my classes as a philosophy teacher in Secondary Education."*

> *"I teach A-Level Philosophy and I made completing the MOOC a pre-course requirement."*

The course was also used to inform teaching practice:

> *"Philosophy has impacted the way I arrange materials and training."*

> *"I use it in the planning of my daily classes."*

> *"It informs my thinking when planning leadership teaching."*

> *"I do quite a bit of mentoring and also am starting to teach classes to young designers and innovators in India. I feel that the course got me thinking in ways that will invariably make into my mentoring and teaching."*

And in a range of informal educational settings, including interest groups and the workplace:

> *"I have started a Philosophy group."*

"I have used the ideas about what it means to do philosophy with my U3A [University of the Third Age] group."

"I conduct a Philosophy workshops for seniors.

"[I used it] in one of our Continuing Learning Sessions (CLS) in the office."

"I intend to use it for my employee capacity building programs"

Examples of Philosophy of Physical Sciences and *Philosophy of Cognitive Sciences* being used in school settings include:

"For my classes (I'm a High School philosophy teacher)" [Physical Sciences]

"I am a teacher and I am using what I learn on my classes." [Physical Sciences]

"In a reading group for a bunch of high school students. We explore some seminal ideas and philosophical underpinning of sciences." [Physical Sciences]

"I am a teacher and the course provided some interesting examples." [Cognitive Sciences]

"I might use the course content materials in my class in senior high school." [Cognitive Sciences]

"I teach mathematics and science to high school children. I created a reading group to explore ideas behind development of sciences, and I discuss some material from the philosophy course with them. We LOVE it!" [Cognitive Sciences]

<u>Direct feedback</u>

While MOOC stories provide a sense of some of the uses of Edinburgh's philosophy MOOCs, the activity of University of Edinburgh academics, and those connected to the university, show additional uses of the MOOCs in a range of classroom settings.

For example, *Philosophy and the Sciences* has been used:
- **In a secondary school workshop** at Knox Academy (June 2014) in collaboration with Children's University. Around 40 children participated in a 1.5 hour workshop on 'A Philosophical Journey Through Science' led by Prof. Michela Massimi and Dr. Wahid Bhimji. The workshop introduced students to the Galileo's thought experiments, as well as some general philosophy of science.
- **In a flipped classroom course** at the University of Stuttgart (autumn 2014). Led by Dr. Mog Stapleton, students watched a topic of *Philosophy and the Sciences* each week before discussing it in class. These eight weeks prepared students for reading Kuhn, which composed the second half of the course. An estimated 5-10 students were involved.

Introduction to Philosophy has been used:

- In a **University of Third Age philosophy group** for local residents.
- For **Introductory Philosophy courses in Scottish Prisons**. People in prison participated in a seven week course. Each week involved first watching a topic of Introduction to Philosophy with their prison teacher, before having a discussion facilitated by University of Edinburgh based on the theme of that week's MOOC lecture.
- In **University of Edinburgh undergraduate teaching**. The video lectures on "what is knowledge" were part of the teaching content for students taking Knowledge and Reality (~ 300 students); all first and second year Philosophy students were encouraged to take the MOOCs alongside their formal studies.

Conclusion

Based on the above feedback, we can be reasonably confident that (a) at least some teachers are accessing the course (~10% learners), and that (b) at least some of these teachers are implementing the learning and/ or resources into their practice. Others are sharing the learning in more informal settings. At the other extreme, some institutions have incorporated the MOOCs into required or recommended learning for university students.

We therefore know that the course content and resources are being used in a variety of settings. However, the lack of structured feedback on this topic means we are unaware of the scope of this usage, and what, if any, barriers prevent wider uptake. For example, is the online nature of the course (and therefore basic technological requirement) itself a barrier? Would an updated offline version of the course be useful?

One possibility would have been to use a different level of re-use license might make uptake easier to monitor. The license we use (CC-BY) technically requires attribution, but in practice many people tend not to do so. On the other hand, updating the license may reduce the number of cases where the materials are used, and would not account for cases where the learning itself (e.g. insights about contemporary Edinburgh research), rather than the materials, have informed teaching practice.

Overall, we can be confident this Outcome was met to some extent, though it is difficult to be precise about the level of use and the reach of the materials in this context.

Unexpected outcomes

The final group of Learner Stories concerns unexpected outcomes, which did not map onto out our intended aims for the project. The majority (38) of these stories concern students who are using the MOOCs to supplement current study, or prepare for future studies (i.e. as a formal learning aid):

> I decided to pursue my masters degree in Mathematical Philosophy […] To increase my chances of being admitted, I looked for Philosophy online courses, and I found this amazing course.
> - *Philosophy of Physical Sciences* learner

> The course really has given me a great grounding for my BA Philosophy degree which I am stating in September.
> - *Introduction to Philosophy* learner

> I'm currently doing my PhD in Cognitive Neuroscience. I have enjoyed the course very much and I have learnt topics that I didn't know [and] developed a deeper understanding of topics that I have already known.
> - *Philosophy of Cognitive Sciences* learner

Other stories in this category involved participants acknowledged benefiting from the MOOC and having jobs or social activities that means this benefit will be passed on to a much wider social circle. Stories that fit this category include writers, theatre practitioners, government workers, and those working with community groups.

We identified 9 such stories for *Introduction to Philosophy*, 2 for *Philosophy of Cognitive Sciences*, and 1 for *Philosophy of Physical Sciences*. These stories focussed on the applicability of course content to their various roles, without mentioning specific changes in knowledge or perspective, or educational usage.

Conclusion

Overall, we believe we have evidence to conclude that Outcome 1 was fully met, and Outcomes 2 – 5 were at least partially met.

Both courses, and especially *Introduction to Philosophy,* reached a large audience. Demographics and completion rates were in line with the MOOCs sector in general, and positive feedback from participants showed that learners appreciated the quality of the courses.

These MOOCs have been greeted enthusiastically and generated significant engagement from many learners. A large majority of participants valued learning about contemporary Edinburgh research, and were motivated to learn more about the topics that University of Edinburgh academic staff specialise in. We conclude that *Introduction to Philosophy* and *Philosophy and the Sciences* widened access to philosophy in general, and to the particular research at Edinburgh in particular. Furthermore, a general shift in perspective and ability to think more critically has been reported by many participants, especially on the *Introduction* course.

It is also clear that *Introduction to Philosophy* and *Philosophy and the Sciences* have been used as an educational resource in various settings – thus these courses have not just affected those who took them directly, but those who have contact with course participants. Testimonial evidence shows that teachers found these courses useful for expanding their knowledge base in order to teach individual classes and design curriculum. We can see that both courses inspired a further activities, enabling and enhancing opportunities to engage philosophically in a wide range of contexts – from Scottish prisons to rural farming communities in Bengal.

However, we also note that staff are reliant on Coursera data for much of the evaluation. While Learner Stories provide an opportunity for unstructured feedback, it was our own survey of MOOC learners which allowed us to ask specific questions linked to the intended outcomes of the courses, and indicators for some of the Outcomes were not identified until several years into the MOOCs delivery. We would encourage universities developing future MOOCs to consider both their outcomes *and* suitable indicators at the outset, to enable efficient and timely evaluation of their courses.

The evaluation process was also made more difficult by changes to the Coursera platform and analytics dashboard, resulting in inconsistent indicators and/or missing data for some of the courses. Going forward, it may be sensible for the course organisers to save snapshots of data of analytics at regular (e.g. six month) intervals. This would prevent an archive of relevant data in the event of future changes to, or difficulty accessing, the Coursera reporting platform.

Appendix 1

Learners' country of origin (if known), data from Coursera, 2019.

Country Name	Course Learners Count
Afghanistan	62
Albania	193
Algeria	176
Andorra	18
Angola	38
Argentina	4307
Armenia	135
Australia	6236
Austria	598
Azerbaijan	147
Bahamas	35
Bahrain	101
Bangladesh	545
Barbados	44
Belarus	335
Belgium	1090
Belize	28
Benin	10
Bhutan	21
Bolivia	563
Bosnia and Herzegovina	113
Botswana	49
Brazil	10931
Brunei Darussalam	30
Bulgaria	455
Burkina Faso	8
Burundi	2
Cambodia	111
Cameroon	56
Canada	8577
Cape Verde	11
Chile	4716
China	11537
Colombia	7683
Comoros	1
Congo, The Democratic Republic of the	12
Costa Rica	662
Cote d'Ivoire	33
Croatia	382
Cuba	24
Cyprus	197

Czech Republic	649
Denmark	944
Djibouti	13
Dominica	7
Dominican Republic	517
Ecuador	1651
Egypt	2232
El Salvador	466
Equatorial Guinea	4
Eritrea	1
Estonia	205
Ethiopia	198
Fiji	32
Finland	491
France	3977
Gabon	3
Gambia	20
Georgia	341
Germany	5283
Ghana	339
Greece	2126
Grenada	15
Guatemala	795
Guinea	5
Guinea-Bissau	0
Guyana	40
Haiti	91
Holy See (Vatican City State)	1
Honduras	242
Hungary	546
Iceland	81
India	16861
Indonesia	1266
Iran, Islamic Republic of	651
Iraq	200
Ireland	1461
Israel	2037
Italy	1992
Jamaica	166
Japan	2131
Jordan	249
Kazakhstan	386
Kenya	536
Korea, Republic of	2023
Kosovo	10
Kuwait	170
Kyrgyzstan	69
Lao People's Democratic Republic	12
Latvia	248

Lebanon	251
Lesotho	17
Liberia	22
Libyan Arab Jamahiriya	37
Liechtenstein	2
Lithuania	384
Luxembourg	114
Macedonia	103
Madagascar	8
Malawi	34
Malaysia	1516
Maldives	49
Mali	8
Malta	116
Marshall Islands	1
Mauritania	9
Mauritius	106
Mexico	16935
Micronesia, Federated States of	1
Moldova, Republic of	147
Monaco	6
Mongolia	131
Montenegro	48
Morocco	685
Mozambique	36
Myanmar	185
Namibia	39
Nepal	272
Netherlands	4126
New Zealand	1040
Nicaragua	207
Niger	6
Nigeria	804
Norway	551
Oman	108
Pakistan	1961
Palestinian Territory	91
Panama	218
Papua New Guinea	14
Paraguay	266
Peru	4030
Philippines	2558
Poland	1633
Portugal	1244
Qatar	177
Romania	1426
Russian Federation	6537
Rwanda	49
Saint Kitts and Nevis	12

Saint Lucia	26
Saint Vincent and the Grenadines	13
San Marino	2
Saudi Arabia	1061
Senegal	46
Serbia	494
Seychelles	7
Sierra Leone	17
Singapore	3245
Slovakia	224
Slovenia	272
Solomon Islands	2
Somalia	118
South Africa	1885
South Sudan	9
Spain	7618
Sri Lanka	285
Sudan	146
Suriname	16
Swaziland	10
Sweden	1047
Switzerland	1281
Syrian Arab Republic	74
Tajikistan	15
Tanzania, United Republic of	116
Thailand	978
Timor-Leste	6
Togo	9
Tonga	3
Trinidad and Tobago	233
Tunisia	167
Turkey	4288
Turkmenistan	3
Uganda	107
Ukraine	1832
United Arab Emirates	1098
United Kingdom	15341
United States	59607
Uruguay	522
Uzbekistan	52
Venezuela	1578
Vietnam	1337
Yemen	31
Zambia	298
Zimbabwe	69

Total of countries: **184**