

Open UToronto MOOC Initiative Annual Report

July 2016

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This report on MOOC activity at the University of Toronto for the past academic year is organized into three sections, each of which focuses on an important dimension of our work in this domain:

- **Community Engagement**
- **New Approaches and Pedagogies**
- **MOOC Research**

In each of these areas, in partnership with both Coursera and EdX, we have advanced our understanding of the potential of scalable online learning. Our institutional strategy remains focused on addressing the following goals:

- Contribute to education community and broader public by sharing curriculum
- Explore a range of pedagogical approaches and open course platforms
- Leverage use of MOOC materials through integration into UofT degree program courses
- Showcase the University of Toronto's capacity as a leading institution for teaching, learning and research

Under the broader Open UToronto umbrella, we have continued to leverage partnerships with both Coursera and EdX, responding to the interests and needs of our community and the evolving MOOC landscape.

Community Initiatives

MOOCapalooza Event

In fall 2015, many members of our community gathered for "*MOOCapalooza: Purposes and Potential of Massive Open Online Courses (MOOCs)*." This event offered an opportunity to learn how MOOCs can act as 'sandboxes' for pedagogical innovation, provide new research insights on teaching and learning, and serve as effective outreach tools. Five very diverse MOOC projects were describe by instructor's and their teams:

- Jim Slotta and Stian Haklev – EdX MOOC – INQ101x – Teaching with Technology and Inquiry
- Hedieh Najafi, Carol Rolheiser and Laurie Harrison – Research: University of Toronto Instructors' Experiences with Developing MOOCs
- Steve Joordens – Coursera MOOC: Introduction to Psychology; Alumni Outreach
- Jim Wallace – Research: Teaching and Advance Engineering MOOC: Lessons Learned
- Wendy Newman, Research: Case study of LA101x: Library Advocacy Unshushed

As an acknowledgement to the interest we received from the event we interviewed each of our presenters to follow up on some of the main themes and take-aways from their work in the MOOC sphere.



Presenter Interviews



[[Watch Interview Video Clips](#)]

Alumni MOOC

In collaboration with Alumni Relations, a special "Alumni MOOC" session was offered by Professor Steve Joordens in the fall of 2015. The *Introduction to Psychology* MOOC on the Coursera platform attracted 27,908 registrants in total, with 1814 or 6.5% of the total number signing up for the Alumni cohort experience. Feedback from participants indicated that our Alumni ranked themselves as having a high level of "intellectual connection with UofT" and over 90% indicated an interest in participating in future MOOCs. Notably, a high proportion of the participants in this pilot were female.

Alumni: Giving U of T more reasons to be proud

Home Benefits & Services Learn & Explore Events Alumni Groups Volunteer About Alumni

WHAT MAKES YOU TICK?

BOUNDLESS

JOIN YOUR U OF T COMMUNITY ONLINE AND FIND OUT HOW YOUR MIND WORKS.

Introduction to Psychology
An 8-week MOOC (massive open online course)
With benefits just for U of T alumni and friends
October 5 - November 29, 2015

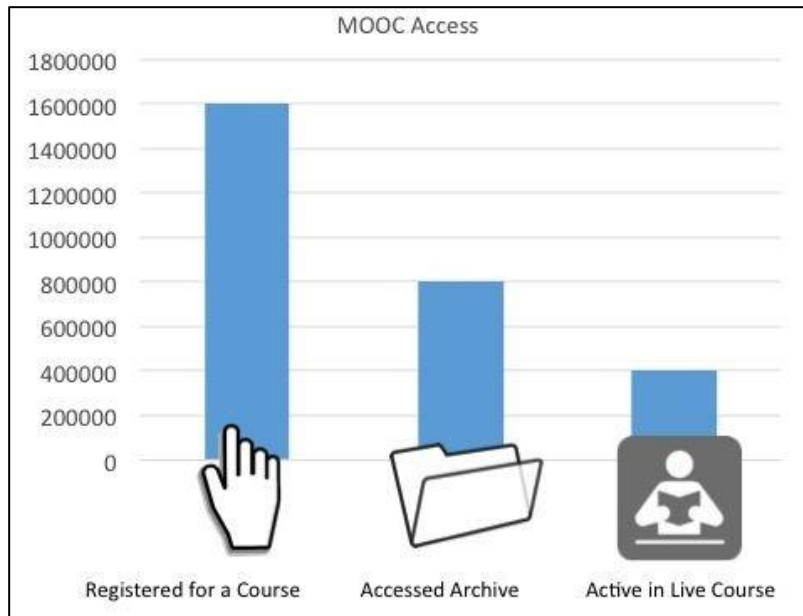
In his fast-paced tour of psychology, Prof. Steve Joordens explores the brain, human behaviour and why people are so incredible. Each week, the popular U of T lecturer covers a different topic—all of them fascinating, free and online. So join us anytime, anywhere.

We are planning a second Alumni MOOC offering in fall 2016, as *BE101x: Behavioural Economics in Action* will be offered on the EdX platform.

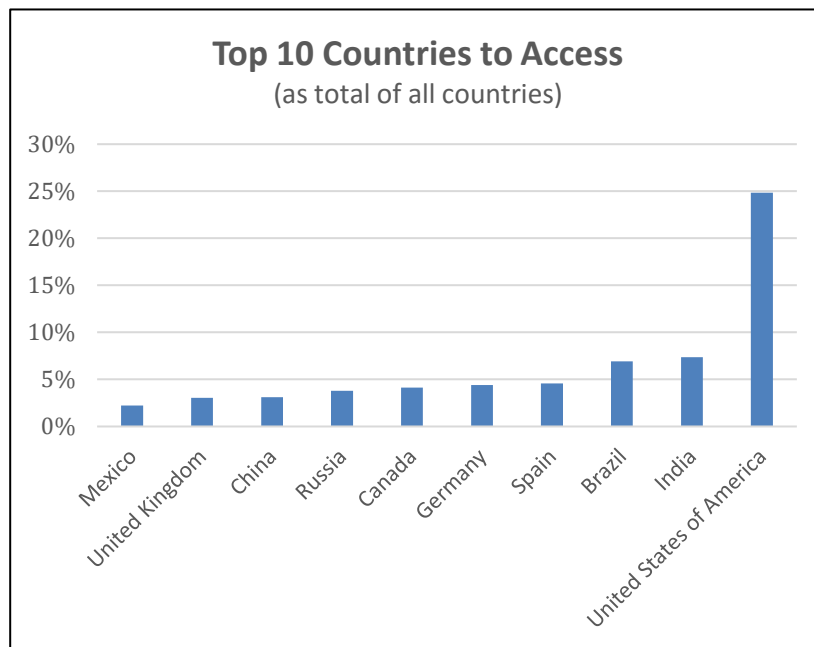
Outreach and Impact

The MOOC platform continues to provide a powerful opportunity for extending our reach to diverse learners beyond our campus borders. Demographic data collected through our partner platforms and research projects indicates learners have a range of educational backgrounds and differing motivations for participating in our courses.

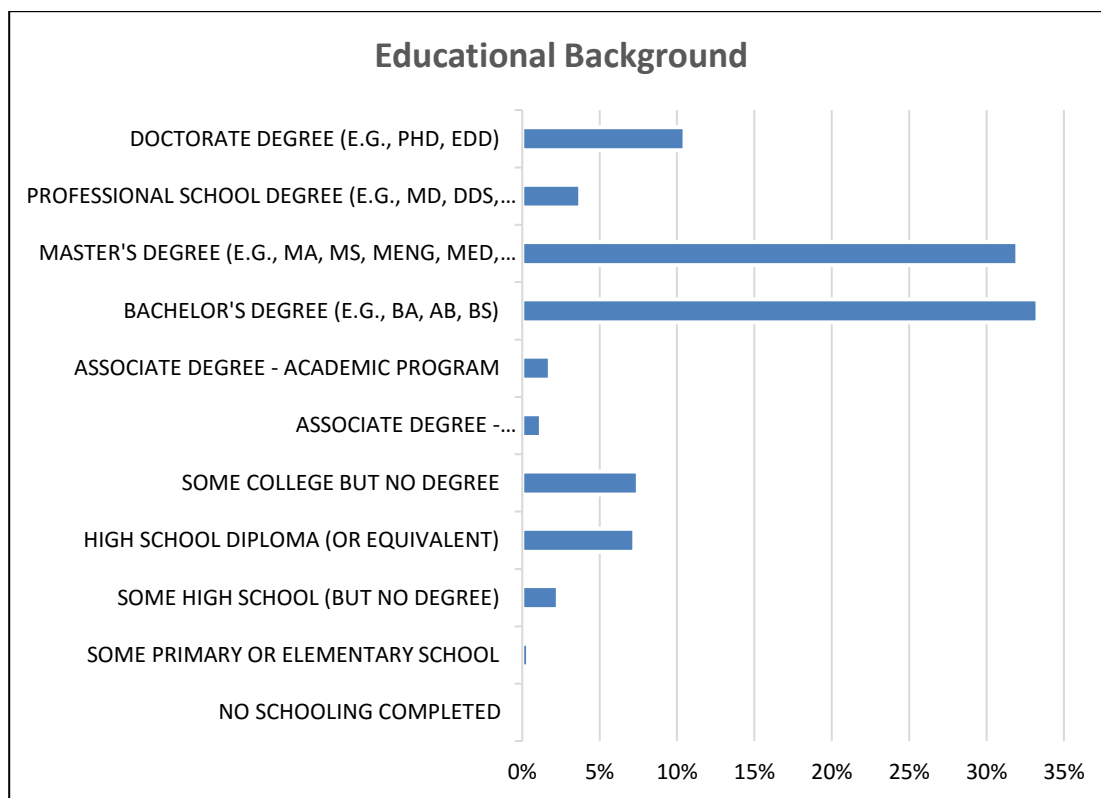
A total of 27 MOOCs are currently complete, active or pending. Our cumulative data on MOOC registrants, active participants, and completions are found in Appendix 1. To date there have been over 1.6 million registrations, 800,000 users accessing archived MOOC courses and over 400,000 participants active in live courses.



These learners are participating from locations around the world, notably with high levels of interest in Brazil and India.



Demographic surveys indicate that many of the participants already have achieved a Bachelors or Masters degree. Other survey data collected shows that many are motivated by professional learning needs, opportunities for career advancement, and life-long learning experiences.



As noted later in this report, our current research initiatives include exploration of the relationship between the self-reported intentions of the learners and their achievement in the MOOC courses.

New Approaches/Pedagogy

INQ101x

Last year, a team from OISE offered *Teaching with Technology and Inquiry* (INQ101x), an EdX MOOC designed for in-service teachers interested in learning how to integrate technology and inquiry into their own practice. The course was co-led by Professor Jim Slotta and Rosemary Evans, principal the University of Toronto School, and included a rich showcase of interviews and examples, as well as knowledge building activities to support authentic learning.

INQ101x applied Knowledge Community and Inquiry model (KCI; e.g., Slotta, & Najafi, 2013) in the MOOC context with more than 8000 registered participants. Participants created and applied a collection of annotated resources for teaching with technology and inquiry, and a subset of

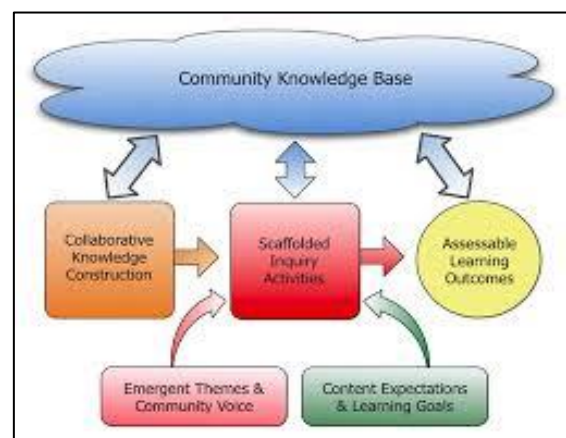


Image from Slotta, J. D., & Najafi, H. (2013). Supporting collaborative knowledge construction with Web 2.0 technologies. In *Emerging Technologies for the Classroom* (pp. 93-112). Springer New York.

participants opted to collaboratively design a lesson plan, working in small groups and receiving feedback from the wider community. Two live events in the last week of the course allowed learners to discuss their questions with the course instructors and with master teachers who had contributed to INQ101x. During the course, 120 active design groups were formed. More than one thousand annotated resources were submitted to the resource collection.

This MOOC provided a rich source of data for research undertaken over the past year, and was the basis for publications, conference presentations and a graduate thesis.

On-Demand

Over the past year, two MOOC series have been offered in a self-paced format on a new Coursera "on-demand" platform. iOS Application Development is a four part certificate program that was funded through an advance from Coursera, and developed by a team of experts lead by Prof. Parham Arabi from the Faculty of Applied Science and Engineering. As well, Bioinformatics I and II comprise a two-part series developed by Prof. Nick Provar from Cell Systems Biology also delivered in this mode.



Effective June 30, 2016, the on-demand model became the only supported platform for *all* Coursera MOOCs being offered. The Open UToronto team has been working with instructors who wish to migrate to the new model and several more of our MOOCs will become available on the new platform in fall 2016. The on-demand format supports rolling intake by cohort decreasing the pressure on the instruction team and improving the sustainability of the courses.

Specialization Series

Market research undertaken by our MOOC partners shows that many learners are interested in the possibility of following through a sequence of linked MOOC courses to achieve a credential. This has been demonstrated in the initial response to the iOS application development specialization and the Bioinformatics series described above. For example, the iOS certificate program is comprised of 3 courses plus a capstone project.



Notably, the new iOS application specialization attracted over 100,000 visitors to the introductory description and had over 22,000 active learners who have completed some portion of the course. Bioinformatics I also had over 100,000 visitors and over 35,000 active learners.

A third series on the topic of *Faculty Development for Health Professions Teachers* is being developed by a team from Medical Sciences, led by Dr. Marcus Law and Dr. Karen Leslie. Three of six short courses have already been developed and launched on the EdX platform, which offers a self-paced option on its main platform.

Research

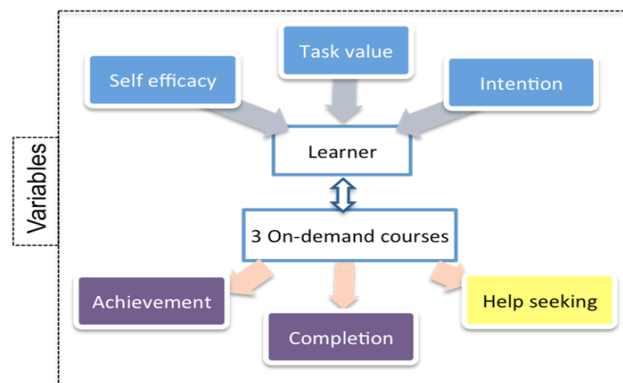
Current Projects

The Open UToronto team supported a number of research studies over the past year, contributing significantly to the growing body of literature in this domain. We have built upon our previous work in the area of instructor experiences and design intentions, now moving into the area of learner motivation, intention and achievement in the on-demand format. We are among a few early leaders evaluating the student experience in self-paced MOOCs. In an interview following our MOOCapalooza event, Dr. Carol Rolheiser, Director of the Centre for Teaching Support & Innovation, shared some thoughts on the influence of our work in this area.



[[Watch Interview with Carol Rolheiser: How MOOC data influences new research and pedagogical opportunities](#)]

Our current study, under the leadership of Carol Rolheiser as Principle Investigator, looks at the significance of self-efficacy, task value and intention, in relation to achievement and help-seeking behaviours.



Excerpt from AERA Poster 2015

This study is currently in the data collection phase, with findings to be share in the coming academic year.

Conference Presentations

In addition to a number of local presentations, members of the UToronto Team, including Stian Haklev and Hedieh Najafi have presented at a number of key conferences where MOOC research has been profiled, including:

- [2016 Coursera Conference](#) - Netherlands
- [Annual Conference of Educational Research](#) - Washington DC
- [Learning With MOOCs 2](#) - Columbia University, New York
- [International Conference of the Learning Sciences](#) - Singapore
- [DANCE: Discussion Affordances for Natural Collaborative Exchange Talk Series](#) - Carnegie Mellon University

Recent Publications

Najafi, H., Rolheiser, C., Harrison, L., & Håklev, S. (2015). University of Toronto instructors' experiences with developing MOOCs. *The International Review Of Research In Open And Distributed Learning*, 16(3). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/2073>

Harris, J., Heikoop, W., Van Beek, A., & Wallace, J. (2015) Teaching and Advanced Engineering MOOC: Lessons Learned. *Proceedings of the Canadian Engineering Education Association (CEEA 2015)*. Retrieved from <http://library.queensu.ca/ojs/index.php/PCEEA/article/view/5840>

Works in progress

Najafi, H., Rolheiser, C., Harrison, L., & Håklev, S. (In press). Variations in the pedagogical design of Massive Open Online Courses across disciplines.

Najafi, H., Rolheiser, C., Harrison, L., & Håklev, S. (In preparation). Learner motivation, intention, and achievement in on-demand courses.

Najafi, H., Slotta, J., Haklev, S. (In preparation). Fostering reflective practice in a teacher professional development MOOC.

For a full listing of publications, poster and conference presentations see Open UToronto [MOOC Research and Evaluation](#).

Appendix 1 – Cumulative MOOC Data to July 2016

SESSION-BASED MOOC Activity Summary Data - July 06, 2016

Activity and Completion Stats	Total MOOC Registrants	Active Participants*	Completed for certificate	Registrants completing certificate	Active registrants completing certificate
Complete					
Learn to Program: The Fundamentals	80,000	75450	8240	10%	11%
Neural Networks for Machine Learning	49550	15903	1398	3%	9%
The Social Context of Mental Health and Illness	23491	8193	1423	6%	17%
Aboriginal Worldviews and Education*	20966	8860	3381	16%	38%
Learn to Program: Crafting Quality Code	53974	17224	3352	6%	19%
Statistics: Making Sense of Data	48687	19757	2825	6%	14%
Introduction to Psychology	77608	41708	3691	5%	9%
Behavioural Economics in Action	43042	20019	1154	3%	6%
Our Energetic Earth	10857	4732	458	4%	10%
Bioinformatic Methods I	21072	13396	1540	7%	11%
Library Advocacy Un-shushed	5,197	1519	363	7%	24%
Bioinformatic Methods II	9,529	4058	1036	11%	26%
Wind, Waves and Tides: Alternative Energy Systems	11,795	2648	617	5%	23%
Death 101: Shaping the Future of Global Health	3,915	880	179	5%	20%
Teaching with Technology and Inquiry	9,163	1207	297	3%	12%
Second Offering					
Learn to Program: The Fundamentals	66510	56397	7839	12%	14%

The Social Context of Mental Health and Illness	18364	9460	1005	5%	11%
Behavioural Economics in Action	5334	642	408	8%	64%
Library Advocacy Unshushed	3,033	781	232	8%	30%
Death 101: Shaping the Future of Global Health	1,538	252	na	na	na
Third Offering					
Behavioural Economics in Action	9,770	2178	340	3%	16%
In Progress/Planning					
Getting Started with Web Mapping and GIS					
Web Map Design and Analysis					
A Solid Course: Understanding Solids for Everyone					
The City and You					
The Art and Science of Relationships: Understanding Human Needs					
Sub-Totals Session Based	573,395	305,264	39,778	7%	13%
Browsing Archives (aggregate)	817,671				
Total Session Based	1,391,066				

*watched at least one video or took a quiz

Appendix 2 – Cumulative MOOC Data on all Archive Usage to June 2016

Data on participation in MOOCs available in archive mode up to point of sunset on June 30, 2016 is as follows.

ARCHIVED COURSES - Coursera summary data for archived courses

Title	Registration at end of Session	Total Registration to Date	Archive Users
Learn to Program: The Fundamentals*	80,000	198381	118381
Neural Networks for Machine Learning	49550	180803	131253
The Social Context of Mental Health and Illness	23491	34060	10569
Aboriginal Worldviews and Education**	20966	37527	16561
Learn to Program: Crafting Quality Code	53974	130001	76027
Statistics: Making Sense of Data	48687	163487	114800
Introduction to Psychology	77608	173008	95400
Wind, Waves and Tides	11795	19959	8164

Bioinformatic Methods I	21072	32951	11879
Bioinformatic Methods II	9529	14293	4764
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Behavioural Economics in Action	43042	50349	7307
Our Energetic Earth	10857	16194	5337
Library Advocacy Unshushed	5197	6068	871
Death 101	3915	4769	854
Teaching with Technology and Inquiry	9163	12577	3414
Second Offering			
Learn to Program: The Fundamentals	66510	227054	160544
The Social Context of Mental Health and Illness	18364	33534	15170
Introduction to Psychology	26268	34448	8180
Behavioural Economics in Action	5334	26595	21261
Library Advocacy Unshushed	3033	4226	1193
Death 101x	1538	2111	573
Third Offering			
Behavioural Economics in Action	9770	14939	5169
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Archive Users	599,663	1417334	817671

Appendix 3 – Cumulative Self-Paced MOOC Data to June 30 2016

Both Coursera and EdX data on self-paced course activity are provided.

Self-Paced/On-Demand - Summary data on offerings commencing January 2015

	Total Visitors	Total Active Learners	Completed Course	Pursuing Verified Certificate
On Demand - Coursera				
Bioinformatic Methods I (Live: January 11, 2015)	105,395	35524	1134	514
Bioinformatic Methods II (Live: February 23, 2015)	37,297	7,807	308	102
iOS App Specialization (Suggested series of 4 courses - can be taken individually)				
Introduction to SWIFT programming (Live: September 14, 2015)	56,081	22,512	1742	2005
iOS App Development Basics (Live: November 03, 2015)	33,714	9,603	913	1055

App Design and Development for iOS (Live: February 02, 2016)	17,090	3,357	368	893
Build Your Own iOS App (Live: April 11, 2016)	3,480	148	52	745
Self-Paced - edX				
Health Professional Teaching Skills 1 - Foundational (Live: February 16, 2016)	2,379	595	338	54
Health Professional Teaching Skills 2 - Strategies (Live: April 04, 2016)	1,116	156	125	29
Health Professional Teaching Skills 3 - Professionalism (Live: June 20, 2016)	518	88	20	9
Behavioural Economics in Action (Live: April 04, 2016)	16,315	5,328	232	225
Total	273,385	85,118	5,232	5,631
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TOTAL (Aggregate Session Based and On Demand)	1,664,451			