

This is a post-print of the document published in:

Ruipérez-Valiente, J. A., Jenner, M., Staubitz, T., Li, X., Rohloff, T., Halawa, S., ... & Reich, J. (2019). Macro MOOC Learning Analytics: Exploring Trends Across Global and Regional Providers. In LAK '20: Proceedings of the Tenth International Conference on Learning Analytics & Knowledge (pp. 518–523).

DOI: <https://doi.org/10.1145/3375462.3375482>

<https://dl.acm.org/doi/abs/10.1145/3375462.3375482>

© 2020 ACM

Figure 2: Distribution of level of education in percentage per provider and region.

Figure 3: Distribution in percentage of gender per provider and region.

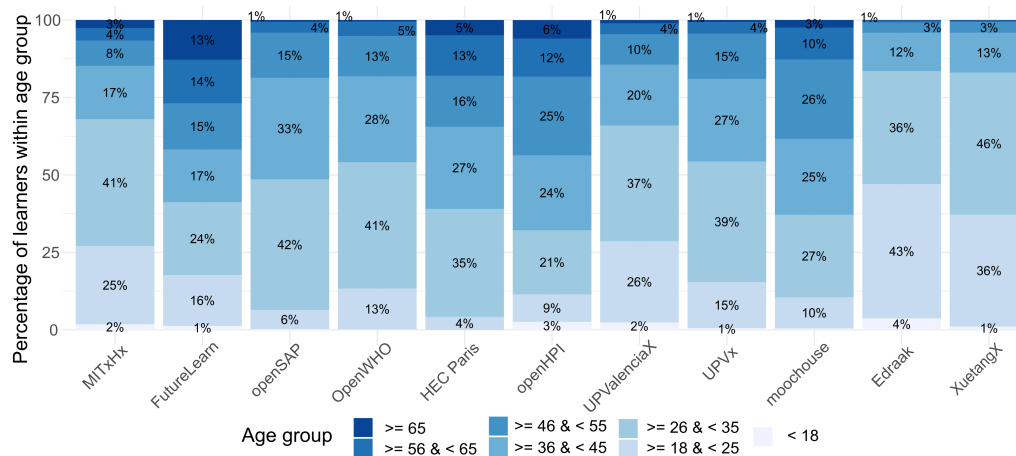


Figure 4: Distribution of learners in percentage within each age group by provider.

across learners proves that MOOC providers can generate interest across a wide audience of diverse prior education levels. While there is value in understanding goals and motivations of well-educated individuals conducting lifelong learning in MOOCs, we should aim to understand how some of these providers are reaching less educated learners that might not otherwise have access to high quality education. The goal would be to learn from the providers who recruit the widest range of learners as one important step towards understanding best practices in widening access to education. All of these are elements related to the global issue of designing more equitable and inclusive online learning experiences.

A number of factors might be affecting the demographic differences we find across MOOC providers, such as the concentration of certain topics in the course catalog, instructional design, language of instruction or geographical location. We know each learner has their own motivations and goals for taking a MOOC, yet in aggregate we can also look for patterns to learn from as education researchers, especially when using a common dataset with millions of records distributed across platforms. More research is needed in macro learning analytics from MOOC providers to fully appreciate the influence these factors are making in the learners that register to these courses and the quality of their learning process. By understanding learners at the macro level, it may be possible to further increase learning outcomes and performance for MOOC providers at platform and individual levels too.

This study used a set of common metrics between different platforms. To expand on this work we had to ensure we could understand, and accurately analyse, the differences in how each platform collects key operational metrics. Additional future steps include linking these headline demographics datasets to a deeper exploration of in-course behaviours and processes. This will initially include alignment to the activation, progress and completion that each individual learner makes when taking courses with the providers in this study. It is anticipated the further research will unearth local and global patterns in how learners learn and explore what factors may lead to higher levels of interaction and engagement. These results are at a preliminary stage, but we share them

with an enthusiasm for the potential of conducting learning analytics at a macro scale, while encouraging the community to perform more large scale studies through partnerships between researchers and institutions to advance the field forward.

ACKNOWLEDGMENTS

We would like to thank support from the MIT-SPAIN “la Caixa” Foundation SEED FUND. The first author acknowledges support from the Spanish Ministry of Economy and Competitiveness through the Juan de la Cierva Formación program (FJCI-2017-34926).

REFERENCES

- [1] Lori Breslow, David E Pritchard, Jennifer DeBoer, Glenda S Stump, and Andrew D Ho. 2013. Studying learning in the worldwide classroom research into edX’s first MOOC. *Research & Practice in Assessment* 8 (2013), 13–25.
- [2] SB Buckingham Shum. 2012. UNESCO Policy Brief: Learning Analytics (No. November). *UNESCO Institute for Information Technologies in Education*. Retrieved from www.iite.unesco.org/publications/3214711 (2012).
- [3] Isaac Chuang and Andrew Ho. 2016. HarvardX and MITx: Four years of open online courses—fall 2012–summer 2016. (2016).
- [4] Tawanna R Dillahunt, Brian Zengguang Wang, and Stephanie Teasley. 2014. Democratizing higher education: Exploring MOOC use among those who cannot afford a formal education. *The International Review of Research in Open and Distributed Learning* 15, 5 (2014).
- [5] Hendrik Drachler and Marco Kalz. 2016. The MOOC and learning analytics innovation cycle (MOLAC): a reflective summary of ongoing research and its challenges. *Journal of Computer Assisted Learning* 32, 3 (2016), 281–290.
- [6] Anthony Hunt and Sue Tickner. 2015. Cultural dimensions of learning in online teacher education courses. *Journal of Open, Flexible, and Distance Learning* 19, 2 (2015), 25–47.
- [7] René F Kizilcec, Andrew J Saltarelli, Justin Reich, and Geoffrey L Cohen. 2017. Closing global achievement gaps in MOOCs. *Science* 355, 6322 (2017), 251–252.
- [8] Zhongxiu Liu, Rebecca Brown, Collin Lynch, Tiffany Barnes, Ryan Shaun Joazeiro de Baker, Yoav Bergner, and Danielle S. McNamara. 2016. MOOC Learner Behaviors by Country and Culture; an Exploratory Analysis. In *EDM*. 127–134.
- [9] Justin Reich and José A Ruipérez-Valiente. 2019. The MOOC Pivot. *Science* 363, 6423 (2019), 130–131.
- [10] José A. Ruipérez-Valiente, Sherif Halawa, and Justin Reich. 2019. Multiplatform MOOC Analytics: Comparing Global and Regional Patterns in edX and Edraak. In *Proceedings of the Sixth (2019) ACM Conference on Learning @ Scale (L@S’19)*. Article 3, 9 pages.
- [11] José A Ruipérez-Valiente, Sherif Halawa, Rachel Slama, and Justin Reich. 2019. Using multi-platform learning analytics to compare regional and global MOOC learning in the Arab world. *Computers & Education* (2019), 103776.
- [12] George Veletsianos and Peter Shepherdson. 2016. A systematic analysis and synthesis of the empirical MOOC literature published in 2013–2015. *The International Review of Research in Open and Distributed Learning* 17, 2 (2016).