

The WHO-TDR MOOC on implementation science: An evaluation of behaviour change and results

Dr Bella Ross & Dr Michael J Penkunas

EIS2021
February 2021

Outline of today's presentation

Evaluation of a MOOC

A MOOC on implementation research (IR) with a focus on infectious diseases of poverty using Kirkpatrick's Model (Kirkpatrick & Kirkpatrick 2006)

Focus on post-training changes in participant behaviour and professional results

MOOC = Massive Open Online Course

Background

The MOOC

Developed by TDR-WHO for learners in low- and middle-income countries (LMICs)

Evaluation using Kirkpatrick's Model

Examines four levels: 1) reaction, 2) learning, 3) **behaviour** and 4) **results**

Provides a framework for both short- and long-term evaluations

Background

MOOCs as professional development

Increasing in popularity worldwide

Low retention rates in high-income countries (Breslow et al. 2013; Hew & Cheung 2014; Zhengzhao et al. 2015)

Higher completion rates of professional development MOOCs in LMICs (Garrido et al. 2016; Hrdličková & Dooley 2017; Murugesan, Nobes & Wild 2007)

Used for professional development and credentialing purposes (Salmon et al. 2015)

Can increase professional knowledge of a new topic and develop new skills (George et al 2014; Hossain et al. 2015)

Background

Implementation research in LMICs

IR plays a critical role in the delivery of disease control interventions, particularly in LMICs

Implementation research training

Recent growing demand for IR training has led to the development of a range of training programs (Carlfjord, Roback & Nilsen 2017; Chambers et al. 2017; WHO 2019)

The majority cannot be accessed by learners in LMICs

Methodology

Participants

Invited to take part in an anonymous online survey 1-2 years after completing the MOOC

These examined their IR knowledge, how they applied it in their professional practice and perceived benefits to their place of employment

Methodology

Data

Online survey: 43 multiple choice Likert-type and open-ended questions

748 MOOC participants responded to the survey

Analysis

Descriptive statistics calculated for the quantitative survey data

Responses to the open-ended survey questions coded thematically

Demographics

	Gender	Age	WHO Region	Profession	Education level attained	Certificate of completion obtained
MOOC participants	Female: 44% Male: 57%	Between 20-40 years: 77.5%	African Region: 62.4% South-East Asian Region: 17.7% Americas Region: 9.9% Eastern Mediterranean Region: 5.5% European Region: 2.8% Western Pacific Region: 2.2%	Public health researchers: 45% Public health officers: 15.5% General practitioners: 11.1% Students: 11%	MSc degree: 41.5% Bachelor degree: 24.7% PhD: 10.5% Medical Doctorate: 17.1%	Of the total initially enrolled: 30.15% Of those who completed the course: 89.2%
Survey respondents	Female: 44.1% Male: 55.9%	Between 26-40 years: 67.5%	African Region: 69.4% South-East Asian Region: 12.6% Americas Region: 9.6% Eastern Mediterranean Region: 1.6% European Region: 4.1% Western Pacific Region: 2.7%	Public health researchers: 31.2% Public health officers: 17.4% Students: 15.3% Teachers: 11.4% General practitioners: 9.3%	Master's degree: 57.1% Bachelor degree: 25.6% PhD/Doctorate: 17.3%	70.6%

Findings: Behaviour

Summary

The MOOC was successful in targeting learners from LMICs

Respondents' IR knowledge improved to a very large (18.1%) or large extent (50.5%) due to the MOOC

The gained knowledge and skills used frequently in their professional lives

66.5% stated that participation in the MOOC had benefited their place of employment

Findings: Behaviour

Performing role and responsibility differently: Themes

- Research processes
- Understanding and thinking about IR and issues related to research
- Stakeholder and community involvement
- Problem solving
- Leadership
- Involvement in IR projects
- Teaching and training others
- Program development, monitoring and evaluation

Findings: Behaviour

Research processes:

I have by myself completely written an IR proposal which has been funded. The course gave me the idea to include in my proposal participatory action-research and mixed-methods. I do think this played in my favor and made the proposal accepted by [name of organisation]. (Public health researcher, Cameroon, Obtained certificate)

Understanding and thinking about IR and issues related to research:

From the knowledge gained from MOOC, I have changed how I perceived research implementation. (Internal medicine resident, Rwanda, Obtained certificate)

Stakeholder and community involvement:

For all the interventions I plan, I promote the model of district-led-programming (DLP) to allow communities [to] lead the way'. (Public health officer, Uganda, Obtained certificate)

Findings: Results

Summary

80.1% had passed on knowledge gained from the MOOC to colleagues or peers

66.5% felt that participation had benefited their place of employment

29.4% had modified or implemented changes in their professional practice

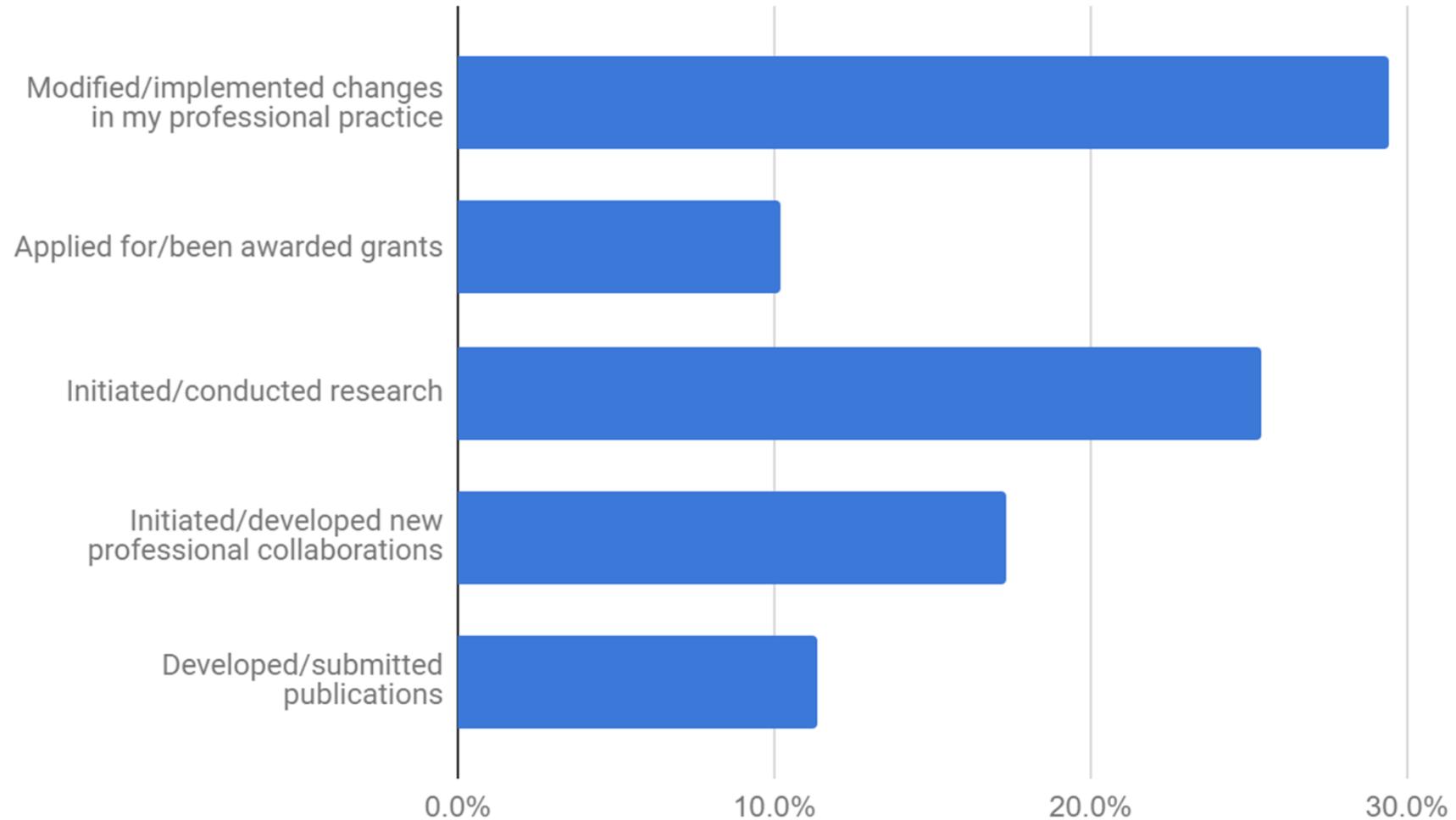
25.4% had initiated or conducted research

17.4% had initiated new professional collaborations

11.4% had developed or submitted publications

10.2% had applied for or been awarded grants

Findings: Results



Findings: Results

Benefits to workplace: Themes

- Improved work quality, efficiency or productivity
- Contribution to research activities and collaboration
- Teaching, training, supervising, mentoring or advising students or colleagues
- Application of the knowledge and skills gained
- Enhanced knowledge
- Sharing knowledge with others
- Professional recognition of individuals or institutions
- Appreciation of or interest in IR
- Research funding

Findings: Results

Improved work quality, efficiency or productivity:

Implementation research improves the work which increases productivity for my organization. Better research questions have been developed and implemented which has led to improvement of quality of services we provide. (Student, Ghana, Certificate not obtained)

Contribution to research activities and collaboration:

It has enabled extension of new professional collaboration research partners and nations especially in the field of IR to our institute. (Public health researcher, Papua New Guinea, Obtained certificate)

Teaching, training, supervising, mentoring or advising students or colleagues:

I am mentoring junior colleagues in my place of work and together we will increase productivity and efficiency . (Public health researcher, Nigeria, Obtained certificate)

Discussion

Changes in behaviour and results

Respondents cited clear changes in both professional behavior and results due to the MOOC

MOOC as professional development in LMICs

Our findings suggest that the use of a MOOC as a training platform for IR for learners in LMICs, where implementation challenges are encountered often, is an ideal standalone learning tool or one that could be combined with other training formats.

References

- Breslow L, Pritchard DE, DeBoer J, Stump GS, Ho AD, Seaton DT. Studying learning in the worldwide classroom: Research into edX's first MOOC. *Research Practice in Assessment*. 2013;8:13-25. doi:10.19173/irrodl.v18i5.3080
- Carlfiord S, Roback K, Nilsen P. Five years' experience of an annual course on implementation science: an evaluation among course participants. *Implementation Science*. 2017;12(1):101.
- Chambers DA, Proctor EK, Brownson RC, Straus SE. Mapping training needs for dissemination and implementation research: lessons from a synthesis of existing DI research training programs. *Translational Behavioral Medicine*, 7(3), 593-601. 2017. doi:10.1007/s13142-016-0399-3
- Garrido M, Koepke L, Andersen S, Mena A, Macapagal M, Dalvit L. An examination of MOOC usage for professional workforce development outcomes in Colombia, the Philippines South Africa. Seattle: Technology Social Change Group; 2016 Apr 8.
- George PP, Papachristou N, Belisario JM, Wang W, Wark PA, Cotic Z, et al. Online eLearning for undergraduates in health professions: a systematic review of the impact on knowledge, skills, attitudes and satisfaction. *Journal of Global Health*. 2014;4(1). doi:10.7189/jogh.04.01040
- Hew KF, Cheung WS. Students' and instructors' use of massive open online courses (MOOCs): Motivations and challenges. *Educational Research Review*. 2014;12:45-58. doi:10.1016/j.edurev.2014.05.001
- Hossain MS, Islam MS, Glinsky JV, Lowe R, Lowe T, Harvey LA. A massive open online course (MOOC) can be used to teach physiotherapy students about spinal cord injuries: a randomised trial. *Journal of Physiotherapy*. 2015; 61(1):21–27. doi:10.1016/j.jphys.2014.09.008
- Hrdličková Z, Dooley G. AuthorAID capacity development impact study. 2017 (Summary Report). Available from: <https://www.inasp.info/AuthorAIDstudy>
- Kirkpatrick D, Kirkpatrick J. *Evaluating training programs: The four levels*. Berrett-Koehler Publishers. 2006.
- Murugesan R, Nobes A, Wild J. A MOOC approach for training researchers in developing countries. *Open Praxis*. 2007;9(1):45–57. doi:10.5944/openpraxis.9.1.476
- Salmon G, Gregory J, Lokuge Dona K, Ross B. Experiential online development for educators: The example of the Carpe Diem MOOC. *British Journal of Educational Technology*. 2015;46(3):542–556. doi:10.1111/bjet.12256
- World Health Organization. Implementation research platform. 2019. Available from: <https://www.who.int/alliance-hpsr/implementationresearchplatform/en/>. Accessed 7 Oct 2019.
- Zhenghao C, Alcorn B, Christensen G., Eriksson N, Koller D, Emanuel E. Who's Benefiting from MOOCs, and Why. *Harvard Business Review* [Blog post]. 2015 Sep 22. <https://hbr.org/2015/09/whos-benefiting-from-moocs-and-why>

Acknowledgements:

TDR, Pascal Launois & Dermot Maher

Questions or comments:

- Bella Ross bella.ross@monash.edu
- Michael J Penkunas: mike.penkunas@unu.edu