Global digital social learning as a strategy to promote engagement in the era of COVID-19

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Abstract
Aims and objectives: To assess formative and summative milestones in a digital course and the reach to low- and middle-income countries of a Massive Open Online Course focussing on supporting nurses dealing with an emerging pandemic.

Background: The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has ravaged the globe and increased the need for timely and accurate information from reliable sources. Access to reliable and accurate information, as well as support, is important in achieving health systems strengthening. Using a Massive Open Online Course format, an educational resource aimed at large-scale interactive participation via the Internet, and participants were engaged in a course focussing on nursing in a time of crisis and involved using social learning principles.

Design: Observational descriptive study.

Method: Routinely collected data were collated during the period of 18 May–18 July 2020 focused on both formative and summative milestones in the course. Data were separated and classified by income in accordance with the publicly accessible 2020 World Bank Open Dataset.

Results: During the 2-month period of observation (18 May–18 July 2020), 10,130 individuals from 156 countries enrolled in the course. More than 51% of participants were Active Learners. Thirty per cent completed over 90% of the course content by the end. There was widespread distribution of learners in low- and middle-income countries across Asia, Africa and Latin America.

Conclusion: The COVID-19 pandemic has underscored the importance of reliable and valid information sources. The use of Massive Open Online Course format can facilitate dissemination.

Relevance to clinical practice: In the context of a dynamic global pandemic, leveraging digital resources to allow access to reliable information and resources is important. Incentivising participation through recognition of learning is important. Engaging in a social learning platform also has the power for reflection, promotion of resilience and capacity for health systems strengthening.

Keywords
COVID-19, global health, Massive Open Online Course, social learning
1 | INTRODUCTION

Globally, the importance of higher education in healthcare is greatly valued. For instance, registered nurses with baccalaureate degrees are associated with significant reductions in mortality and iatrogenic injury achieved through improved healthcare performance (Aiken et al., 2014). However, access to quality educational curricula is often limited, especially in low- and middle-income countries (LMICs). The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) COVID-19 pandemic has ravaged the globe and increased the need for timely and accurate information from reliable sources. The importance of engaging learners in a global context is increasing in importance as shown in the current COVID-19 pandemic, but the resources allocated to higher education in LMICs are often insufficient to meet demand. Many strategies have been implemented to share information globally, and the internationalisation of higher education has been a defining factor over recent generations (Beaman & Davidson, 2020). Although many students aspire to travel to obtain opportunities for education, resource issues hinder access. Moreover, the flight of human capital (aka ‘brain drain’) becomes a concern when students do not return home, which challenges the internationalisation of education, questions some of the ethical principles of recruitment, and compels more innovative and just models for local access to education in LMICs (Beaman et al., 2018). Moreover, COVID-19 has abruptly halted the movement of both students and also development teams across the world requiring the need to pivot and recalibrate approaches (Beaman & Davidson, 2020).

Travel to foreign countries to undertake research, education or clinical service can provide students with a range of valuable outcomes, including personal growth, language skills and cultural understanding (Sherraden et al., 2013). Significant challenges to the effective, equitable and ethical implementation of these experiences have been well documented. We know that access to education is not equitably distributed, contributing to adversely impacting on a range of social and health outcomes. Concepts of collaboration, communication and understanding across nations are crucial factors in driving a global health agenda, improving health and achieving health equity (Beaglehole & Bonita, 2010). There are multiple pathways to achieving these goals, but it is necessary to understand the fundamental social, economic, environmental and political determinants of health and the factors that help and hinder engagement and participation. Considering these goals within the concept of experiential learning and social engagement is useful strategies. Reflection and engagement are critical in developing competent health professionals. Drawing on Kolb’s theoretical perspectives of experiential learning, this requires learners being actively engaged; reflecting on the experience; leveraging analytical skills to interpret; and developing solving skills in order to adopt new ideas (Long & Gummelt, 2020).

This level of engagement is particularly important in health systems strengthening which is an important goal of the World Health Organization (Witter et al., 2019). There are six building blocks for health systems strengthening: service delivery; health workforce; information; medical products, vaccines and technologies; financing; and leadership/governance. Developing a competent and confident workforce goes beyond purely technical information to creating an environment for reflection, comparison and strategy (Tomblin Murphy et al., 2019). The ability to not only access expertise and resources but also share experiences with peers is important in professional development.

One of these approaches is service learning, but access, quality and equity remain important questions. Service learning is an experiential approach to education, in which students provide a service to a community, and in doing so, both parties learn from one another (Sigmon, 1979). A literature review of GSL experiences found that measures of success focussed exclusively on the participating students, rather than the host communities. Most often, visits are by students from high-income countries to communities in LMICs, with reciprocal visits a rarity (Beaman et al., 2018). Given the resources required to prepare for and train visiting GSL students, scholars have questioned whether such visits, particularly those of shorter duration, provide any sustainable benefit to the host community. There are numerous practices that GSL programmes can undertake to mitigate the negative impact, including close attention to partnerships and student preparation, and a robust plan for data collection and analysis on all stakeholders (Crabtree, 2013; Lattanzi & Pechak, 2011; McKinnon & Fealy, 2011). Effective and ethical implementation of GSL involves significant institutional investment of time and resources. Even then they are not widely scalable and implicitly power relationships and differentials persist due to resources as well as social, political and economic factors. Exploring other mechanisms for knowledge exchange and building social networks are warranted particularly in the context of societal upheavals, such as the current COVID-19 pandemic. Certainly, exploring digital methods can be pivotal in creating networks, providing information and
education, undertaking research, creating shared understandings and minimising counter-productive disruptions.

Internet access has been emancipatory in many ways, particularly with regards to education, even if access is limited to mobile devices. Massive Open Online Courses (MOOCs) are educational resources aimed at large-scale interactive participation via the Internet (Burd et al., 2015). Coursera, Udacity and edX were trailblazers in developing MOOCs and have been disruptive in the higher education sector. Unlike traditional programmes of study in higher education, MOOCs commonly have no application process, and the course operates on an open-source learning platform and is free to access if no specific measure of educational attainment is provided (e.g. a certificate or degree). The mode of delivery is generally asynchronous, the pace of learning is commonly student-led and the pedagogy promotes collaborative, social learning. Many of these courses are facilitated by high-ranking universities, and although the business model varies, access to the learner is not impeded by cost or geography. FutureLearn is a digital education platform founded in December 2012 in the United Kingdom. The company is jointly owned by The Open University and SEEK Ltd. FutureLearn uses a social constructivist approach to pedagogy (Shi & Cristea, 2018) (Laurillard, 2013). Building on the theoretical principles of Piaget and Vygotsky, this approach facilitates learning through student's active engagement in learning material, peer engagement and reflection (Woo & Reeves, 2007).

With healthcare systems across the world going through unprecedented upheaval, straining under the volume of patients, and struggling with a lack of reliable resources, the Johns Hopkins School of Nursing's course, in collaboration with Jhpiego and the Johns Hopkins Center for Humanitarian Health and endorsed by The Global Network of WHO Collaborating Centers for Nursing and Midwifery, explored how nursing can respond to the challenges posed by low resources and high societal uncertainty in the wake of the pandemic. COVID-19: Effective Nursing in Times of Crisis is a 2-week course that requires about 2 h of study per week (Johns Hopkins University., 2020). The course is designed for nurses and other healthcare professionals who want to learn more providing effective care in the context of resource limitations and the COVID-19 pandemic. Learners are able to interact with experts in the field and share their experiences using the principles of social learning. The course covers the key characteristics of COVID-19 and their effects on vulnerable populations, the role of leadership in responding to public health crises, what palliative care currently looks like, and how we might work towards recovery, looking specifically at what lessons can be learned from humanitarian and crisis settings. This course enabled the full benefits of studying online with no financial cost. This meant that learners received unlimited access to this course, including articles, videos, peer reviews and quizzes and a PDF Certificate of Achievement with the Johns Hopkins University logo. The success of the programme led to the Bangladesh government moving materials to their MuktoPaath platform as part of their COVID-19 response. Although there are multiple MOOCs available, understanding access from LMICs and determining the value of this form of building workforce capacity requires an investigation of process indicators and distribution across countries.

Given the potential of leveraging MOOC platforms to provide not only clinical education but build workforce capacity in a global health crisis, our objective was to determine the distribution of learners globally. In addition, we sought to ascertain the level of engagement over a 2-month period since FutureLearn at Johns Hopkins Nursing was initiated following the 2020 global outbreak of COVID-19.

2 | METHOD

Routinely collected data were collated during the period of 18 May–18 July 2020 focussing on both formative and summative milestones in the course. As the data were de-identified and publicly accessible, this study was exempted from IRB review. The STROBE guidelines informed the reporting of the data. Administrative data were downloaded from the FutureLearn platform. Country data were based on the IP locations of joiners collected at the time of their enrolment on this course run. FutureLearn defines the following attributes of individuals who join the course:

- **Joiners** are the number of currently existing enrolments made for that specific course run. This includes educators, admins alongside learners who currently have accounts on the platform.
- **Leavers** are users (of any role) who have chosen to no longer be a part of the course. Leavers remain represented in the number of Joiners. Also presented as a percentage of joiners.
- **Learners** are users (of any role) who have viewed at least one step, at any time, in any course week. This includes those who go on to become Leavers. Also presented as a percentage of Joiners.
- **Active Learners** are those (of any role) who have completed at least one step at any time in any course week, including those who go on to become Leavers. Completion varies by step type, with some requiring additional user interaction (e.g. ‘mark as complete’) while others are completed through submission (Assignment, Review) and question attempts (Quizzes & Tests). Also presented as a percentage of Learners.
- **Social Learners** are those (of any role) who have posted at least one comment on any step. Also presented as a percentage of Learners.
- **Learners with 50% or more step completion** represent users (of any role) who have successfully completed 50% or more of the steps contained within the course.
- **Learners with 90% or more step completion** represent users (of any role) who have successfully completed 90% or more of the steps contained within the course. For a course, that contains Tests or Quizzes: these are considered ‘marked as complete’ when a learner has attempted each question at least once.

We undertook initial data analysis and visualisation in Microsoft Excel. Data were separated and classified by income in accordance
with the publicly accessible 2020 World Bank Open Dataset. The general engagement of learner behaviour was summarised quantitatively through the FutureLearn classifications above and final data visualisation was performed for Joiners within the course.

### RESULTS

During the 2-month period of observation, 10,130 individuals from 156 countries enrolled in the course (Table 1). More than 51% of participants were Active Learners. Thirty percent completed over 90% of the course content by the end. There was widespread distribution of learners in LMICs across Asia, Africa and Latin America (Figures 1, 2 and 3). We were encouraged to see the involvement from high population density countries including India, Indonesia, Pakistan, Brazil, Nigeria and Egypt where COVID-19 spread has been particularly problematic since the beginning of the pandemic. The majority of participants were in the 18–25 age range (36%), suggesting that early-career clinicians comprised an important proportion of the overall cohort (Table 2).

### DISCUSSION

As part of the rapid response to the COVID-19 pandemic, we were pleased to see a speedy enrolment of learners and more specifically a high retention rate based on normative data (FutureLearn, 2014).

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| Learner category          | Count | Percentage |
|---------------------------|-------|------------|
| Joiners                   | 10,130|            |
| Leavers                   | 352   | 3.5%       |
| Learners                  | 6,999 | 69.1%      |
| Active Learners           | 5,255 | 75.1%      |
| Returning Learners        | 3,296 | 47.1%      |
| Social Learners           | 1,237 | 17.7%      |
| Learners with ≥50% step completion | 3,430 | 49.0% |
| Learners with ≥90% step completion | 3,061 | 43.7% |
| Run Retention Index       | 0.618 | 61.8%      |
| Fully Participating Learners | 3,438 | 49.1%      |

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FIGURE 1 Distribution of learners across Asia [Colour figure can be viewed at wileyonlinelibrary.com]
Equally gratifying was the engagement from residents of LMICs who have limited access to educational resources and support, particularly in a pandemic where many international aid organisations have had to retract in person engagement. Educational opportunities through FutureLearn and other digital platforms represent access to timely, evidence-based curriculum that can transmit information to clinicians globally as it becomes available. This show of demand for immediate COVID-19 response education underscores the importance of ensuring adequate digital access globally. Certainly in times of crises such as the COVID-19 pandemic, where many lives are at stake with little time to respond to patient needs, access to both the internet and to brokers of safe and reliable information are equally critical (Ahmed et al., 2020). Some have even argued that free access to educational material is a human right—which presents a challenge in light of the fact that many world-leading educational institutions are privately owned and regionalised to Western nations (Reglitz, 2020). Academic institutions should reconsider where to draw the line between ownership of educational materials and extending these resources for public good. While the academicians who develop these resources—contents including evidence-based curriculum and original hypotheses—may have limits on the presentation of this information outside of their institution, the institution should consider the opportunity to use open-source platforms such as FutureLearn to benefit those worldwide with little recourse. Most LMICs do not have world-leading institutions, or resources to make educational material available locally, especially in a timely manner such as during a highly acute pandemic.

Our study possessed several limitations. First, we did not have all information that would have assisted in a greater understanding of target audiences for FutureLearn coursework besides age. More specific information about individual learners would be ideal, but would also come into conflict with Western ideals to make the Internet of Things de-identifiable. Second, it was unclear which parts of coursework were not completed in different time points that added up to completion rates between 30%–90%. We would benefit from better understanding whether certain educational components were most often skipped by the majority of learners so we could target for improvement or removal from the curriculum. Third, we have no data on the prior levels of educational attainment by learners, or their professions. Better understanding whether the learners are exclusively nurses or had backgrounds in other healthcare degree fields would be helpful to better understand our target audience. Finally, we do not have the ability to assess the impact of this course on clinical practice, health outcomes or behaviour change.
Future studies may seek to compare course participation rates based on digital access. Increasingly, the importance of social networks in leveraging social change and collaboration is recognised. As forces of nationalism and populism seek to contact the world, courses such as these can open the world up to multiple perspectives (Wright et al., 2020). The course specifically targeted nurses, and it was surprising to see a number of individuals engaged in the course and with each other from a range of professional backgrounds including teachers, pharmacists and physicians. These perspectives were gleaned from the course comments and discussions to specific learning exercises as no specific sociodemographic data specific to profession were collected. In the current COVID-19 pandemic, many individuals have been jolted into engaging with an online environment and it is likely that the role of digital education will increase in prominence and accessibility (Beaman & Davidson, 2020). Many who have been sceptical of the quality and appropriateness of online education have been surprised by the uptake in the pandemic as this report has shown.

**TABLE 2** Percentage of enrollees by age range

| Age range | Percentage of enrollees |
|-----------|-------------------------|
| <18       | 3%                      |
| 18-25     | 36%                     |
| 26-35     | 27%                     |
| 36-45     | 14%                     |
| 46-55     | 8%                      |
| 56-65     | 4%                      |
| >65       | 1%                      |
| Unknown   | 6%                      |

**FIGURE 3** Distribution of learners across Africa [Colour figure can be viewed at wileyonlinelibrary.com]
5 | CONCLUSION

As the world continues to grapple with the present COVID-19 pandemic and seeks to provide access to verifiable and actionable information, MOOC technology with content from credible providers offers a useful media to engage participants in social learning and engagement. As in all pedagogical modalities, the quality and impact of material are likely to be more impactful if it is based on sound conceptual and theoretical principles. Refining these approaches has significant implications for leveraging an approach to international understanding, health systems strengthening and improving global health.

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AUTHOR CONTRIBUTIONS

Davidson PM, RN, PhD involved in study conception, data analysis and interpretation and manuscript preparation. Lin CJ involved in study conception, data analysis and interpretation and manuscript preparation. Beaman, A., MPH involved in study conception, data analysis and interpretation and manuscript preparation. Jackson D, RN PhD AO involved in data analysis and interpretation, and manuscript preparation. Reynolds NR, MS, NP, RN, PHD involved in study conception, data analysis and interpretation and manuscript preparation. Padula WV. PhD involved in data analysis and interpretation, and manuscript preparation.

DATA AVAILABILITY STATEMENT

Data are available on request.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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