London Review of Education

LONDON REVIEW OF EDUCATION

UCLPRESS

Research article

Creating value from co-designing CoMOOCs with teachers in challenging environments

Eileen Kennedy,[1,*] Chika Masuda,[1] Rym El Moussaoui,[1] Elaine Chase,[1] Diana Laurillard[1]

[1] IOE, UCL's Faculty of Education and Society, London, UK
* Correspondence: eileen.kennedy@ucl.ac.uk

Submission date: 30 May 2022; Acceptance date: 8 August 2022; Publication date: 23 November 2022

How to cite
Kennedy, E., Masuda, C., El Moussaoui, R., Chase, E. and Laurillard, D. (2022) 'Creating value from co-designing CoMOOCs with teachers in challenging environments'. *London Review of Education*, 20 (1), 45. DOI: https://doi.org/10.14324/LRE.20.1.45.

Peer review
This article has been peer-reviewed through the journal's standard double-anonymous peer review, where both the reviewers and authors are anonymised during review.

Copyright
2022, Eileen Kennedy, Chika Masuda, Rym El Moussaoui, Elaine Chase and Diana Laurillard. This is an open-access article distributed under the terms of the Creative Commons Attribution Licence (CC BY) 4.0 https://creativecommons.org/licenses/by/4.0/, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited • DOI: https://doi.org/10.14324/LRE.20.1.45.

Open access
London Review of Education is a peer-reviewed open-access journal.

Abstract

Conditions of mass displacement and other complex crises create a need for widely accessible teacher professional development opportunities. This article reports on the forms of value created for participants through a scaled-up collaborative online peer-sharing experience developed to support teachers in challenging environments to become transformative educators. This is an approach we have conceptualised as a co-designed, massive open online collaboration (CoMOOC), since it uses massive open online course (MOOC) platforms, but extends the concept of a traditional MOOC. The CoMOOC was co-designed with teachers and teacher educators in Lebanon and hosted on two platforms to create an equivalent co-learning experience in two languages (Arabic and English). To assess the impact of the CoMOOC, we adopt a value creation approach to evaluation. This approach considers how educators' perception of their participation in the CoMOOC can support and enhance their professional practice in the long term, creating value for themselves and those affected by their practice (for example, learners,

colleagues and institutions). We present evidence of the forms of value created during and after participation, collected through impact survey responses and interviews with CoMOOC participants.

Keywords teacher professional development; MOOC; impact; value creation; qualitative; mass displacement; digital education; online learning

Introduction: CoMOOCs in challenging environments

In 2021, there were 84 million forcibly displaced people worldwide, 35 million of whom were children (UNHCR, 2022). Access to quality education for displaced communities has become a major global challenge. In 2019, we reported on a five-year research project with the RELIEF Centre to explore how digital technologies could support the demand for education in conditions of mass displacement in Lebanon (Kennedy and Laurillard, 2019a). The RELIEF Centre is a collaboration between universities in Lebanon and the UK, with the aim of improving the quality of life of people in challenging environments in Lebanon and around the world. The Future Education strand of RELIEF explored the potential of large-scale digital technologies to address pressing educational and training needs in the most challenging contexts. We proposed to address the lack of well-trained teachers in refugee communities and other challenging environments by reimagining the massive open online course (MOOC), as a CoMOOC – a codesigned, collaborative platform for knowledge sharing among teachers of refugees and other vulnerable children.

Recognising the 'uncertain quality' (Littlejohn and Hood, 2018: 79) of traditional MOOCs in relation to a number of factors such as platform provider, educators, learning design, and adaptability to context and outcome, we sought instead to co-create high-quality learning experiences through collaborative MOOCs or CoMOOCs, which engaged teachers as co-designers featured in the videos, recruited experienced teachers as mentors, and used a collaborative learning pedagogy. We adopted social and collaborative learning design principles from the 'conversational framework' (Laurillard, 2012), which proposes that the learning experience should engage cycles of communication between teachers and learners, and learners and their peers – in this case, between educators and participant teachers, and participants with each other. As MOOCs attract large numbers and are free to access, there is limited resource to provide individual educator or mentor feedback. A unique feature of the CoMOOCs is their emphasis on peer communication activities, so that the participants themselves become active collaborators, involved in peer knowledge sharing, thus supporting adaptation to local contexts. We used two platforms, FutureLearn (in English) and Edraak (in Arabic), because these two languages were requested by teachers in Lebanon. Since the FutureLearn platform was much more directed to social learning than Edraak, we re-engineered features of the Edraak platform to enable more social learning by embedding discussion forums and external tools such as Padlet (an online pinboard) and Mentimeter (an online quiz tool) within the learning activities. In this way, we achieved the same high-quality learning design with each platform, and we were able to achieve equivalent outcomes in terms of participation rates, engagement in discussion, satisfaction and self-reports of learning. The term CoMOOC therefore refers to the presence of three things: co-design with professionals drawn from the target community; a focus on collaboration in the design of learning activities; and the active engagement of content contributors and participants in peer knowledge sharing. This article aims to evaluate how the CoMOOC model provides value for participants.

Through the RELIEF Centre, we have co-designed and run four English-language and five Arabic-language CoMOOCs for teachers, educators, researchers and community activists, all with high levels of enrolment:

- Community-Based Research (8,000 enrolments)
- Transforming Education in Challenging Environments (26,000 enrolments)
- Teaching Online (46,000 enrolments)
- Blended and Online Learning Design (20,000 enrolments)
- Towards Better Education: Lessons Learned from COVID 19 (2,558 enrolments).

We include the enrolment figures for the CoMOOCs to indicate their reach. Participants come from 167 countries, including 102 low- and middle-income countries. Active engagement in open educational experiences is usually around 50 per cent of enrolment, and our CoMOOCs achieve this and more (for example, the Blended and Online Learning Design CoMOOC shows 79 per cent of enrolments go on to participate). For those who complete, the evaluation surveys and reviews of the CoMOOCs are overwhelmingly positive. Nonetheless, to demonstrate that this approach can positively impact the quality of education in challenging environments, we must go beyond satisfaction levels to understand the value that participants and their colleagues and students have gained from their engagement in the CoMOOCs. In this article, we report on the evaluation stage of our design-based research, presenting our evaluation framework, and the evidence of value that the CoMOOC model creates for participants.

A CoMOOC for transforming education in challenging environments

The data presented in this article relate to the second of our CoMOOCs, co-designed with teachers and teacher educators from schools and universities in Lebanon to address the need for teacher training in contexts of mass displacement and other challenging environments. In such contexts, teachers can find themselves faced with large numbers of students who are refugees, yet have limited training on appropriate ways of responding to their needs. In addition, professionals with no teacher training often move into teaching to plug the gap in provision, and also require professional development support. Official agencies and non-governmental organisations (NGOs) in Lebanon often provide excellent teacher professional development (TPD), but the many actors in this field tend to work in isolation, often with small cohorts of teachers. Many teachers have no access to TPD, and there was a need to join up the disparate TPD practices and reach teachers across Lebanon and those working in places with similar challenges. In response, we worked with educator communities in Lebanon to co-design the curriculum, activities and content for a CoMOOC, which became 'Transforming Education in Challenging Environments' on the English-language FutureLearn platform and 'Educators for Change', or معلمون من أجل التغيير, on the Arabic-language Edraak platform. Each platform attracted participants from countries where these two languages are spoken. For example, the top five recruiting countries on FutureLearn were: the UK (1,365), Lebanon (621), Myanmar (341), the USA (251) and India (134). On Edraak, the top five recruiting countries were: Egypt (7,492), Jordan (2,585), Algeria (1,723), Saudi Arabia (1,515) and Syria (780). Across both platforms, 1,037 participants were recruited from Lebanon.

The process of co-design is detailed in Chase et al. (2019), Pherali et al. (2020) and El Moussaoui (2022). The CoMOOC was organised into four weeks, with three to four learning hours per week:

- Week 1: Educators changing learning environments
- Week 2: Understanding learners in context
- Week 3: Transforming learning for an unknowable future
- Week 4: Digital networks for change.

Our co-designers helped us to identify teachers from the community, many of whom were refugees themselves, to feature in videos in the CoMOOC, sharing their practice with participants, who were in turn invited to exchange their own experiences through discussions and collaborative activities. The CoMOOC thus marked a sharp departure from traditional MOOCs, which tend to broadcast content created by expert 'talking heads' (Mohamed and Hammond, 2018). We created a social learning environment for teachers to share experience and techniques, build collaborative knowledge of how to teach in challenging environments, and adapt these to their own contexts. In Lebanon, we worked with teachers across the public, private and NGO/charity school sectors, whose teachers tended to remain separate from each other. However, the co-design workshops and the online learning environment in the CoMOOC enabled us to bring these groups together, for example, through collaborating and visiting each other's institutions to share infrastructural resources such as internet access. Our co-design partners greatly valued the enduring collaborations that occurred as a result of this process (Akle et al., 2021).

The discussions during the CoMOOC itself were alive with testimonies from teachers in Lebanon and around the world reporting that they valued the learning experience and were able to apply ideas to their practice. The CoMOOC design tackled head-on issues that typically challenge and divide teachers, such as how to teach controversial issues (for example, those relating to the position of Syrian students

within the Lebanese education system). Since the aim was not simply to offer training to teachers, but to make an impact on the quality of education within contexts of mass displacement, we have been conducting an evaluation to build a picture of the impact of the CoMOOC on the participants and their practice. However, evaluating the impact of MOOC participation is a complex and contested issue, and the next section reviews MOOC evaluation research to identify the appropriate model for our study.

Understanding the value of CoMOOCs for teachers and their communities

Research indicates that criteria such as completion rates, tests and assignments are not appropriate for evaluating success in MOOCs (Rabin et al., 2019; Deng et al., 2019). This is because MOOC participants have varying perceptions of what constitutes success. For example, completion may not be the prime objective for many participants who may participate only in selected parts of a MOOC and still meet their personal learning objectives (Littlejohn and Hood, 2018). There is a growing trend in the literature on MOOC evaluations to consider how people actually engage and learn in a MOOC (Kizilcec et al., 2013; Milligan et al., 2013; Phan et al., 2016).

Littlejohn and Hood (2018) propose a typology to understand the complexity of engagement of MOOC learners in-depth. The *conventional* learner follows the course linearly, is motivated to complete and takes part in discussions. The *cautious* learner is willing to complete the course, but more hesitant in discussion forums and struggles to regulate their learning at times. The *invisible* learner is highly regulated and motivated to learn, able to select and adapt their engagement to their own goals, but does not prioritise completing the course or receiving accreditation. Finally, the *socialiser* is less motivated to finish the course, but values collaborating with others in the discussion forums. However, a learner may not conform to a single engagement profile and there is no 'preferred' profile. All four types could be satisfied learners, and participants themselves may be the best judge of the value they gain from a MOOC.

This suggests that traditional metrics such as completion rates do not adequately represent participants' successful learning experiences, or impact on their practices. Instead of applying instructor-focused measures, a more participant-centred measure is necessary for future research (Alturkistani et al., 2020). Therefore, we need an evaluation framework capable of identifying the multiple ways in which MOOCs may accrue value for participants, and gather examples from the participants of how those values relate to their own objectives and contexts. To evaluate the impact of the CoMOOC, an evaluative framework which considers 'value' in more subjective and experiential ways than through the application of standard metrics is necessary. Thus, our research question is: In what ways do participants in challenging environments find value through their participation in CoMOOCs? The next section will consider a framework capable of answering this question.

The value creation framework

Wenger et al.'s (2011) value creation framework (VCF) is an approach to evaluating the value of TPD from the perspective of participants in the tradition of research on learning communities for professional development (see also MacPhail et al., 2014; Parker et al., 2012; Gallagher et al., 2011; Patton and Parker, 2017; Najafi and Clarke, 2008). The VCF is a way of capturing 'the value of the learning enabled by community involvement and networking' (Wenger et al., 2011: 7). The term 'community' in this context refers to a 'community of practice' (Wenger et al., 2002), which involves the development of a shared domain of identity and interest where individuals engage in joint activities and discussions, help each other, share information, and develop a shared repertoire of resources (Wenger et al., 2011). We designed the CoMOOCs to facilitate this kind of community sharing and mutual support, so it is a good fit as an evaluation framework.

The VCF aims to elicit the multiple dimensions of learner context and a broad spectrum of learning outcomes of all stakeholders in social learning. It articulates the complex relations of knowledge used, produced and achieved within the community, from the participant's aspirations and experience to the changes that the participant brings to the community. Such values created in communities and networks are believed to emerge across five different cycles:

1. *Immediate value: Activities and interaction*: the value participants found in community activities and interactions.
2. *Potential value: Knowledge capital*: knowledge capital (personal assets, relationships and connections, resources, collective intangible assets, and transformed ability to learn) that has the potential to be realised later. These values may or may not be put into use.
3. *Applied value: Changes in practice*: applying and adapting knowledge capital to new situations to change their practice.
4. *Realised value: Performance improvement*: the effects that application of knowledge capital has on performance improvement, in terms of what matters to stakeholders.
5. *Reframing value: Redefining success*: reframing the learning imperatives and the criteria by which success is defined. This includes reframing strategies, goals and values.

The creation of value cycles is complex and involves dynamic interrelations, meaning that value creation is not a linear process: one cycle does not necessarily lead to the other, and value creation is not only successful when it reaches the fifth cycle. All value is ultimately subjective and contingent on whether participants perceive that the learning opportunity has enabled them to achieve what they value and hoped to gain from the experience. Moreover, VCF supports the inclusion and triangulation of multiple sources and types of data to document the negotiation and production of value as a result of social learning, rather than just knowledge acquisition (Wenger-Trayner and Wenger-Trayner, 2020). The next section shows how we have applied the VCF within our methodology.

Methodology

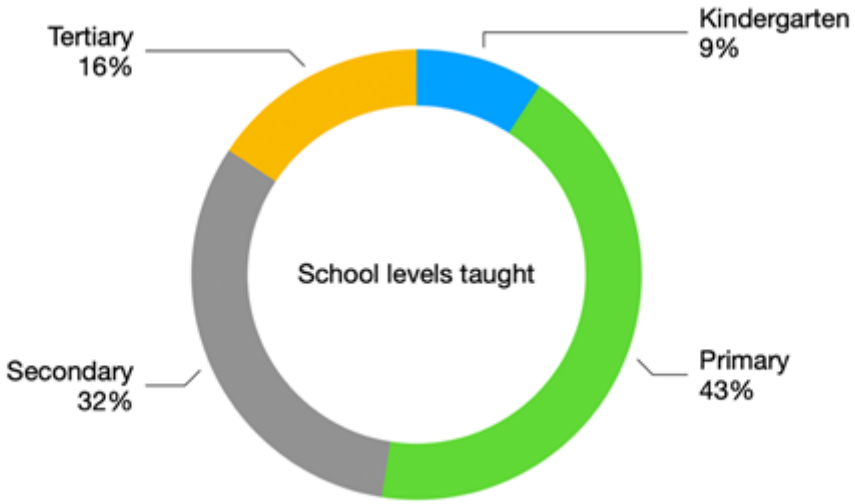
Researchers interested in the impact of MOOCs on professional practice have begun to adapt and apply the VCF for the analysis of MOOC data. In relation to TPD MOOCs, Freeman and Branon (2016) employed the VCF to identify value created by participants in a MOOC on learning differences, using qualitative data from interviews and surveys. Kennedy and Laurillard (2019b) collected both quantitative data (platform analytics and survey data) and qualitative data (survey, discussion forums and interviews) to examine two TPD MOOCs in blended learning using the VCF. Both studies reported value creation across the five cycles, including high levels of immediate value, improvements in knowledge, application of skills and improvements in professional practice.

Other studies have used the VCF in professional development MOOCs, such as Patel et al. (2019), who used mixed methods combining online surveys and interviews, to study the impacts of a healthcare MOOC on preventing blindness. The VCF has also been adapted in studies in other contexts, including assessing values created in learning communities of undergraduate and graduate students (Cowan and Menchaca, 2014; Dingyloudi et al., 2019; Pakala et al., 2019), farmers (Triste et al., 2018), museum volunteers (Hanley et al., 2018), sports coaches (Bertram et al., 2017), teacher learning networks (Van Amersfoort et al., 2019), online communities (Booth and Kellogg, 2015) and to conduct a systematic review of technology-enhanced academic conferences (Spilker et al., 2019).

In this study, we use a combination of qualitative data sources to enable us to dig deeper into the kinds of value created for participants through engagement in a CoMOOC. We show that using the VCF can help illuminate the variety of subjective values gained by CoMOOC participants, and the extent to which the platforms can enhance their aspirations and goals as teachers and educators.

The data we present derive from participant responses to impact surveys embedded in the CoMOOC on both the Edraak and FutureLearn platforms (720 responses, including 74 from Lebanon), and from interviews with participants (a total of 24, including 14 from Lebanon). The majority of survey participants who reported their occupation were either practising teachers (43 per cent) or training to teach (37 per cent). Figure 1 shows a breakdown of the levels taught.

Figure 1. Levels taught by Teacher Survey participants (Source: Authors, 2022)



Most other participants described themselves as having some other relationship with education, for example, in leadership or coordination, or considering a return to teaching or move into education. Few of the survey participants (9 per cent) specified a specific sector (for example, public/private/NGO/charity), but the majority of those who did, taught in NGO/informal or charity sectors (68 per cent). While the survey data provide plentiful examples of immediate value gained through engagement in the CoMOOC, participants were only truly able to apply their learning in practice after the CoMOOC had finished. Therefore, the follow-up interviews provided important examples of what participants valued about the learning from the CoMOOC and the ways in which they were able to apply this learning in practice. Nine interviews were conducted after the CoMOOC (in English or Arabic with the support of an interpreter) with teachers working in Lebanese schools, including informal schools run by NGOs for refugees. Survey participants also indicated they were willing to take part in interviews, and a further 15 interviews were conducted within six months to a year after completing the CoMOOC. All interviews were recorded, transcribed and translated into English by the authors (where necessary) before analysis. Table 1 shows the background summary details of the interview participants. Among these, three participants were interviewed for additional video case study material, which then became part of the CoMOOC content in a later update. Quoted participants are given pseudonyms below and are identified by survey platform or interview site.

Table 1. Interviewee details (Source: Authors, 2022)

Country of residence	Education sector: schools	Other	Site of interview
Lebanon	Private school (4) NGO school (8) University (1)	EdTech NGO (1)	Lebanon (11) Online (3)
Nigeria	-	EdTech company (1)	Online (1)
Japan	Private school (1) NGO school (1)	-	Online (2)
UK	-	Charity (1)	Online (1)
Colombia	NGO school (1)	-	Online (1)
France	-	Student (1)	Online (1)
Philippines	NGO school (1)	-	Online (1)
Uganda	Charity school (1)	-	Online (1)
Saudi Arabia	NGO (1)	-	Online (1)

https://doi.org/10.14324/LRE.20.1.45

Data analysis

A template analysis approach based on Brooks et al. (2015) was adopted for data analysis. Template analysis uses a structured codebook for early development of themes, which are subsequently revised and developed through the process of data analysis. Hence, template analysis can be located between the realist-oriented 'coding reliability' approach (Boyatzis, 1998; Guest et al., 2012) and the constructionist-oriented 'reflexive' approach (Braun and Clarke, 2019). Within this research, a hybrid, bottom-up approach to template analysis was performed, combining inductive and deductive coding (Fereday and Muir-Cochrane, 2006), building on a priori themes derived from the VCF for theme development, but also allowing for data-driven meanings to re-develop the overall themes. Two researchers coded the data, and the coding was checked by a third researcher for reliability. Themes that emerged across the interview data sets are summarised in relation to the VCF in Table 2.

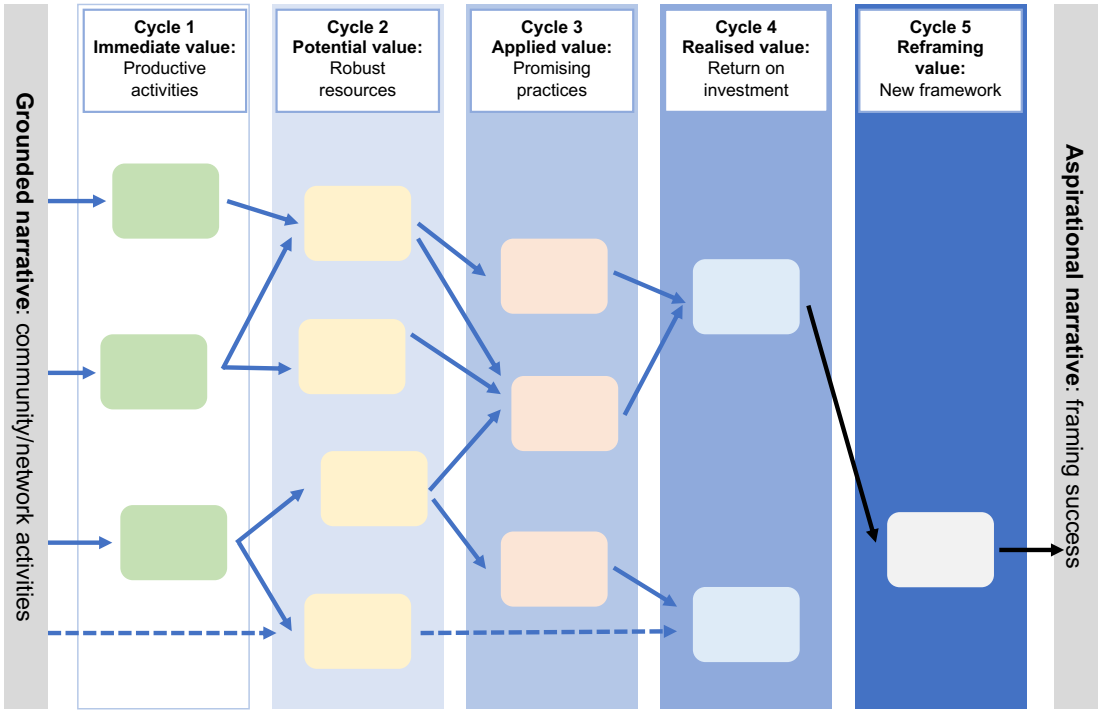
Table 2. Themes relating to the value creation framework across the interview and survey data sets (Source: Authors, 2022)

VCF	Themes and subthemes
Immediate value	1. Pleasure or enjoyment from: 1.1 Social learning 1.2 Having needs met 1.3 Engaging in activities 1.4 Experiencing online learning/CoMOOC design
Potential value	1. Change in attitude or understanding (including self-evaluation) 2. Willingness or plans to put ideas into practice
Applied value	1. Implementing ideas in own teaching, scholarship or professional development 2. Implementing ideas in educating other teachers 3. Implementing ideas in developing online courses
Realised value	1. Improvement in students' learning 2. Improvement in colleagues' learning
Reframing value	1. Change in overall perspective 2. Institutional changes

Thematic analysis is an appropriate method to find similarities and differences across various data types, but it is limited in terms of identifying the relationship between each theme. Thus, in order to complement this approach, value creation stories (Wenger et al., 2011) were constructed to identify the relationship between values developed across cycles. The values can be visualised in a value creation matrix as illustrated in Figure 2. The boxes indicate various values produced within each cycle, and the lines connecting each box indicate the path of different value creation stories. Value creation stories were created for the interviewees using the interview data and impact survey.

The research was conducted under the principles of the British Educational Research Association (BERA, 2018) and was approved by the IOE, UCL's Faculty of Education and Society (University College London), UK. Informed consent was gained prior to participation, and participants were ensured confidentiality and anonymity throughout the entire research process. Direct and indirect identifying information which, on its own or in combination, could enable anyone to identify the participant was excluded from the data.

Figure 2. Value creation framework matrix (Source: Adapted from Wenger et al., 2011)



Analysis of types of value

Immediate value

Immediate value refers to activities and interactions that produce value in and of themselves. Almost all participants expressed their immediate value in the enjoyment, excitement and enthusiasm when they talked about their learning journey. Participants seemed to be genuinely pleased and excited about being introduced to a variety of theories and approaches to transform education. Participants described the course as 'interesting', 'useful' and 'practical'. They also responded positively to the course content being designed with a grass-roots approach, enabling them to hear practical advice from actual teachers working in challenging environments. Many participants noted their excitement at participating in social learning, valuing the exchange of ideas with other participants and being exposed to rich discussions: 'The best part of the MOOC was reading the comments of all the educators from all over the world. I was spending hours ... Two hours! I'm still reading the comments... !' (Lan, online interview); 'I liked the participation of the teachers as I benefited from their experiences in addition to the documents available and also the experiences of the teachers in the videos' (Karim, Edraak).

Participants also mentioned their pleasure in reflecting on the design of the CoMOOC, and engaging in the activities. This also influenced their later practice, since the social learning experience modulates participants' memories of the learning event (Wenger-Trayner and Wenger-Trayner, 2020). A few participants provided examples of how immediate value was not created, such as when teachers were frustrated with the focus on the context of displacement because they were looking for guidance with mainstream teaching. This is a result of the open enrolment and the inevitably wide range of participants, and it can happen despite clear descriptions of the learning content. Happily these cases were not common.

Potential value

Potential value refers to the knowledge capital that the activities and interactions produce. As participants continued to access CoMOOC resources, take part in interactive learning activities, and

engage in meaningful conversations, this accrued their knowledge capital, which changed participants' attitude and perceptions towards teaching. When participants were exposed to real-life stories from other participants from around the world, it encouraged them to envision a global community, and participants became more appreciative of other teachers working in challenging environments with limited resources. Participants' comments in the CoMOOC discussions demonstrated a growing awareness that teachers share similar problems and desire to support learners, whatever their geographical location and educational context.

The CoMOOC provided participants with new knowledge, skills, tools and support to work towards transformative education practices: 'I enjoyed learning about transformative teaching and I will use some techniques in my workplace. Doing this course I gained more confidence and I will share some ideas with the teachers I work with' (Sam, FutureLearn); 'I learnt a lot, especially the second week's Bronfenbrenner's ecological systems theory and the different types of teaching approaches that I haven't known before. After knowing other situations, I became aware of the reality of [my] situation [in Myanmar] and I can go on teaching my kids despite the current closure of schools. So I have to say, my emotional and mental statements are somehow uplifted' (Kyi, FutureLearn).

For some participants, the CoMOOC affirmed their own practice, helping them recognise that they were already incorporating transformative approaches in their own teaching. With these new insights, the CoMOOC improved participants' sense of professional identity, boosted confidence and acted as an incentive to do more: 'I learned how to turn my role as a teacher into a transformative thinker because, this type of teacher practises creatively and ... they also seek to develop the ability to think critically and creatively such as decision-making and problem-solving and raise the level of self-confidence of teachers and learners alike' (Mirna, Edraak); 'Through the lens of ecological systems theory and transformative education, I am now more conscious of the kind of interventions that we would want to introduce' (Lara, FutureLearn).

Many participants expressed their desire to apply the values they developed in the CoMOOC. The most frequent comments were related to the use of digital tools that were introduced in the CoMOOC, for example, Padlet: 'Padlet will be on my top list for future lesson planning' (Mariam, FutureLearn); 'I can use Padlet with students to show their participation ... like you used in this course' (Ahmad, Edraak).

Participants also noted that they would be more mindful of incorporating the theories and ideas they learned from the CoMOOC, most commonly Bronfenbrenner's ecological system theory and the conversational framework. For example, a programme development adviser explained: 'When supporting the field workers of the NGO I'm working for, I can use the ecological system approach and the transformative approach to help the field workers working directly with the children to improve their approach to children's challenges solving' (Cheney, FutureLearn).

However, this value is still 'potential' because it has yet to be applied to participants' practice. These expressions of intention demonstrate the translational process from potential to applied value.

Applied value

There were four sub-themes which illuminate the ways in which participants translated their potential value into applied value. The first theme was the teachers' implementation of ideas in their own teaching, scholarship or professional development. As a corollary to the intentions mentioned above, participants reported using both digital tools and the transformative education philosophy in their teaching: 'I'm using the ideas of transformative approach to plan for a support programme for teachers and students' (Hayma, FutureLearn); 'I am using Padlet in teaching and I used it with my students in reading, writing and polling' (Laila, Edraak); 'I have already used some of the resources in my work – the quiz PowerPoints and Mentimeter being just 2' (Dani, FutureLearn); 'Everything that I learned from this course I can use, especially the part about educational technology; I am using that in my class' (Mona, interview Lebanon).

Wenger-Trayner and Wenger-Trayner (2020) argue that applied value can come not just from potential value, but from the creative experience of engaging in practice – for example, attempting to solve a problem. The Covid-19 pandemic hastened many participants' application of digital methods in their teaching, and their experience of the CoMOOC online design influenced their practice when they created their own online courses: 'I would feel like I'm engaged, like I'm more participative. I would take notes, feel like 'OK. That's something I would add to a course if I have to design one'. I never thought I would have to design so soon' (Sarah, online interview).

Teachers were also implementing approaches to help learners express themselves in challenging circumstances. For example, Maya (online interview) who works with vulnerable children in Lebanon noted that she had started using art to help her learners communicate. Halifa (FutureLearn) noted that she was now 'more encouraged to talk about controversial topics in class'.

After the CoMOOC, participants described how they continued researching topics that were most relevant to them. Examples include reading more about the conversational framework, Bronfenbrenner's ecological system theory, the Syrian conflict, and specific digital tools. David used his experience to gain entry to an advanced international development programme: 'I applied to the programme because doing this MOOC reminded me of my greater purpose. ... I can make the connection between how taking this MOOC has positively impacted my life' (David, online interview).

The second sub-theme was implementing ideas in educating other teachers. Many interviewees were experienced professionals who were teacher-trainers, and they reflected on how they had passed on the knowledge they acquired from the course to a large number of teachers in their own community. For example:

- an NGO teacher in Lebanon teaching approximately 40 organisations how to use digital tools introduced in the CoMOOC, including the Learning Designer (Yana, online interview)
- a teacher in Lebanon prepared training material on digital tools for 24 teachers and 13 school principals (Rima, online interview)
- a teacher-trainer in Nigeria developed a digital resource guide based on the CoMOOC for over a hundred teachers in the community, and taught under-resourced schools to make the most of available materials such as cardboard, inspired by the CoMOOC (Abiodun, online interview).

In Myanmar, where responses to the education crisis are very challenging, a participant was using the action research profiled in the course: 'I'm attempting to use participatory action research with a group of teachers in Myanmar to explore the ways in which they can improve their own well-being, continue their professional development and seek out opportunities to use their education expertise to address Myanmar's education crises' (Charlie, FutureLearn).

The third sub-theme was implementing ideas in developing online courses. A number of participants reported applying the CoMOOC design principles in developing online courses during the pandemic. For example, Sarah, from Colombia, designed an online course in partnerships with multiple humanitarian organisations for teachers in Latin America, adapting the design of the CoMOOC, including its approach to participant engagement and techniques for translating theoretical knowledge into practical knowledge.

Evidencing increased confidence in their own understanding, participants volunteered to become mentors in subsequent runs of the CoMOOC, which enabled them to apply what they learnt by supporting others. For example, Yana joined as a mentor for the second run of the CoMOOC, which helped her realise the importance of facilitation in online courses. Applying this knowledge to her practice, Yana developed a short online course to train teachers to become facilitators in an online course.

Realised value

When the application of knowledge results in value for others – students or colleagues – the value becomes 'realised'. Participants in the CoMOOCs were able to share their perceptions of improvements to others' learning and teaching experiences as a result of the knowledge and skills they developed. Although the data sample of the realised value was relatively small, interviewees noted improvements in students' performance and well-being. For example, Sarah incorporated digital tools into group activities and reported a subsequent improvement in students' sense of autonomy in their learning, as well her own small group management experience.

Maya used a creative approach inspired by the CoMOOC with her class, and she noted the impact on her students' behaviour: 'I asked them to draw what respect means to them after having read a story about the subject. I posted their drawings in class and used them as a reference whenever I faced any kind of misbehaviour ... This has helped me shape some of the students' behaviours and instil new values' (Maya).

Participants who were teacher-trainers noticed their trainee teachers applying new knowledge in their classrooms. Some participants received positive feedback from their teachers who used digital

tools, saying that students are more engaged in learning, improved their learning outcomes and are more willing to express their opinions because of the anonymity of the digital tools.

Participants who developed online lesson plans or courses reported the impact on a wider audience. For example, online resources developed by an online interviewee, Sophia, during the lockdown have now been made available to twelve thousand schools and organisations across the UK. Sarah is currently developing an online course that will 'impact the entire region' in Latin America, and another online interviewee, Lewis, created teacher training courses to be delivered to at least 50 Philippines universities. Moreover, participants who shared the CoMOOC with other community members have observed their colleagues participating in the CoMOOC. Wenger-Trayner and Wenger-Trayner (2020: 97) argue that realised value can be difficult to see because it can take time to materialise and 'the effects of learning are diffuse and complex', but without it, 'learning remains hopeful change at best'. So, they suggest supporting participants to identify the positive and negative effects of realised value, as this can help provide the range of evidence that is needed.

Reframing value

Reframing value refers to the redefinition of strategies and values, both at individual and/or at institutional levels. In terms of redefining instilled values, one teacher-trainer noted that training teachers on digital tools often makes them 'appreciate their role in making teaching more interactive' (Yana). The pandemic has led to a widespread reframing of digital education, and participants in the CoMOOC observed this institutional change. Yana noted that many organisations were investing more money to provide Wi-Fi in their schools because teachers were asking the schools to improve the digital learning environment. Similarly, Rima reported that her institution was incorporating online learning in their schools, and many teachers were seeking out additional training. The CoMOOC was able to support this reframing process.

Value creation stories

Template analysis is an effective method to extract common themes across multiple data sources. However, it cannot offer an in-depth insight into how a given participant, in a given context, was able to develop and improve their practice as a result of the accumulation of value created through the CoMOOC. It is also difficult to understand the relationships between each theme. Hence, a value creation story was developed for interviewees to better understand the rich experiences of the values created in the CoMOOC. Due to space limitations, the next sections present two examples of value creation stories, which further illuminate cycles of value creation for CoMOOC participants both within and outside Lebanon.

Yana's value creation story

Yana is an operational manager at a charitable organisation that aims to combat educational inequality by delivering educational technologies to underprivileged children in Lebanon. Yana had worked as a teacher for four years. When Yana was a teacher at an NGO, she participated in a blended learning training programme, where teachers were asked to participate in the CoMOOC and meet every two weeks to reflect, discuss and practise the course content with other colleagues in person. Yana enjoyed the immediate value of the social learning experience both virtually and physically, and she was especially inspired by the potential value of the digital tools introduced in the course. The combination of CoMOOC and the face-to-face learning amplified Yana's knowledge capital, confidence and motivation.

The learning journey had a profound impact, to the extent that Yana reframed her career ambitions around her course experiences, from being a teacher to training teachers on how to use technologies at schools run by an NGO. Yana is currently realising the value of this knowledge by developing a digital toolkit, training nearly 40 organisations across Lebanon and having a major impact on educational practice:

> now we are working to provide them, as the MOOC did for us, to provide us with the tools. They showed us how we can use this tool, and this is what I am doing now. To show them, to show the teachers how to use the tools and apply it in their classroom.

Abiodun's value creation story

Abiodun is an experienced and influential educational advocate in Nigeria who is engaged in developing mathematics apps, training teachers on how to use educational technologies, and teaching mathematics to children through television and radio programmes. Abiodun joined the CoMOOC because he was interested in transformative education. Unlike Yana, who was inspired by a particular content of the course, Abiodun's value creation story illustrates how the CoMOOC reframed his intrinsic motivation in a more indirect way, which enabling him to realise his new knowledge and help transform education in Nigeria. Participating in the CoMOOC helped Abiodun to reflect and reaffirm his existing transformative approaches, which in turn increased his motivation. Abiodun recalls the learning experience:

> Transformative education has been a passion to me, even though I didn't know it was called transformative education. I have always been interested in improving the performance of students and improving the skills of the teachers. So, coming across the course online gave me the framework and a philosophy behind what I was already doing. It strengthened my resolve to do it even more.

With this inner drive, Abiodun realised the value of the course by initiating various projects that are transforming education in Nigeria. For example, in cooperation with an electronics company, Abiodun is developing a plan to train all mathematics teachers in his district and establish teacher training laboratories across the country. Abiodun is also supporting the government to reframe their own twenty-first-century educational policy for the part of Nigeria affected by the activities of Boko Haram. Although Abiodun is continuously updating his knowledge and skills from many sources, the CoMOOC influenced Abiodun to initiate transformative projects, which are now making a significant impact on his community.

Discussion

The above findings show that participants were able to cultivate various types of values during and beyond the course. However, this is not to say that participants were able to apply the types of value without any difficulties. The interviewees encountered various obstacles when applying the potential value in their own context. For example, when applying digital tools, limited internet access, lack of IT resources, lack of IT skills of older students and parents, lack of own skills, lack of school support, and unmotivating teaching environment were all barriers mentioned by the interviewees. For instance, Maya, who teaches vulnerable children in Lebanon, was interested in using the digital tools in her classroom, but a lack of internet, resources and IT skills of parents all hindered her from applying the tools. Maya also felt that she was unable to apply some of the ideas discussed by other participants who were situated in more resourceful environments than she was.

Nevertheless, when participants were hampered in applying the knowledge due to *extrinsic* factors, many somehow found an alternative way to apply the knowledge and skills over a longer time span. For example, although Maya could not use the digital tools in the classroom, she still shared information with colleagues who taught in a more resourceful school, and incorporated other ideas such as using creativity to discuss values with learners. Similarly, Abiodun used different approaches when working with low-resourced schools. Sophia could not apply the knowledge straightaway since she was not teaching at the time, but she was able to apply the knowledge several months after completing the CoMOOC when she started developing online courses.

While participants will not have experienced the CoMOOC in the same way, these examples and stories of value creation illuminate the rich varieties of value that participants were able to discern and articulate. This shows that the approach, design and content of the CoMOOC aligns closely with what participants want to achieve through their roles as educators working in complex circumstances around the world. Hence the CoMOOC has enhanced participants' capabilities (what they aspire to be and do in relation to teaching and learning) and supported them to achieve these aspirations. The CoMOOC worked as a key positive conversion factor in this process, while also enabling participants to creatively circumnavigate those factors that were inhibiting their aspirations to facilitate transformative ways of educating. Participants' reports of reframing value show that they are telling others about what they learnt and having an impact on others' practice, all of which demonstrates the multiplier effect of an online learning collaboration such as this.

As part of our design-based research approach to developing, evaluating and refining the CoMOOC, we are gradually adding more content and activities to amplify the value to participants. Incorporating these long loops of value creation back into the social learning space can inspire others and help them imagine new possibilities (Wenger-Trayner and Wenger-Trayner, 2020). For example, we have created a video step featuring former participants discussing what they are doing with what they learnt, encouraging current participants to report their own applied and realised value. The evidence presented here demonstrates that the CoMOOC model can be effective in scaling up transformative TPD, creating value for participants in multiple ways. We can now use this model to address specific crises and emergency situations, and to reach other professional communities beyond teaching.

Conclusion

We have presented an evaluation of the CoMOOC model that demonstrates the different forms of value that engagement in a CoMOOC can accrue for participants. Participants' experience of the immediate value of taking part in an online learning community, learning from peers working in environments like their own, is a powerful endorsement of the co-design process and pedagogy at the heart of the CoMOOC. The reports of knowledge capital gained and applied to local practice, alongside evidence from participants of the value produced for those they teach or work with, also validate of the capacity of CoMOOCs to reach teachers and equip them with the skills they need. Value creation stories are able to show how these values are threaded through participants' experience. This rich detail, together with the substantial evidence of reframed value as participants use their learning from the CoMOOC and transform TPD and online and blended learning in their own institutions, localities and regions, demonstrates the multiplier effects of a CoMOOC on teaching practice.

The findings from this research have implications for institutions interested in offering open, online, professional development opportunities. Moving beyond a 'talking head' MOOC to the social and collaborative online learning environment of a CoMOOC is a creative endeavour, less about creating additional resources than about making the most of the digital environment by focusing on learning design. We recommend that institutions consider how this kind of learning may fit with their mission. For example, a CoMOOC model may be more effective for an institution that aims to support professionals to meet the United Nations Sustainable Development Goals (United Nations, 2015). While this creates a more complex project, CoMOOCs can produce effective, collaborative learning experiences that break down institutional boundaries and create new opportunities for exchange and dialogue to address the world's most pressing problems.

Funding

Funding was provided by ESRC ES/M010082/1 Future of HE: Centre for Engaged Global Higher Education, ES/T014768/1 Centre for Global Higher Education 2020–2023, ESRC ES/P008003/1 RELIEF and ES/W007835/1 RELIEF 2.

Acknowledgements

This article is based on research conducted by the RELIEF Centre Future Education team, including contributions from Tejendra Pherali, Mai Abu Moghli and Maha Shuayb, along with our valued co-designers and partners in Lebanon. Part of the research appeared in Chika Masuda's dissertation for the MA in Education and Technology at UCL, London, UK.

Declarations and conflicts of interest

Research ethics statement

The authors declare that research ethics approval for this article was provided by UCL IOE ethics committee. The authors conducted the research reported in this article in accordance with BERA standards.

Consent for publication statement

The authors declare that research participants' informed consent to publication of findings – including photos, videos and any personal or identifiable information – was secured prior to publication.

Conflicts of interest statement

The authors declare no conflicts of interest with this work. All efforts to sufficiently anonymise the authors during peer review of this article have been made. The authors declare no further conflicts with this article.

References

Akle, B., Al Halabi, F., Tutunji, S. and Zeitoun, S. (2021) 'Transformative education'. Paper presented at the Presentation at Working Through Crisis RELIEF Conference 2021. Accessed 26 September 2022. https://www.relief-centre.org/rcc2021-transformative-education.

Alturkistani, A., Lam, C., Foley, K., Stenfors, T., Blum, E.R., Van Velthoven, M.H. and Meinert, E. (2020) 'Massive open online course evaluation methods: Systematic review'. *Journal of Medical Internet Research*, 22 (4), e13851. [CrossRef]

BERA (British Educational Research Association) (2018) *Ethical Guidelines for Educational Research*. 4th ed. London: BERA. Accessed 26 September 2022. https://www.bera.ac.uk/researchers-resources/publications/ethical-guidelines-for-educational-research-2018.

Bertram, R., Culver, D. and Gilbert, W. (2017) 'A university sport coach community of practice: Using a value creation framework to explore learning and social interactions'. *International Journal of Sports Science & Coaching*, 12 (3), 287–302.

Booth, S. and Kellogg, S. (2015) 'Value creation in online communities for educators'. *British Journal of Educational Technology*, 46 (4), 684–98. [CrossRef]

Boyatzis, R.E. (1998) *Transforming Qualitative Information: Thematic analysis and code development*. Thousand Oaks, CA: Sage.

Braun, V. and Clarke, V. (2019) 'Reflecting on reflexive thematic analysis'. *Qualitative Research in Sport, Exercise and Health*, 11 (4), 589–97. [CrossRef]

Brooks, J., McCluskey, S., Turley, E. and King, N. (2015) 'The utility of template analysis in qualitative psychology research'. *Qualitative Research in Psychology*, 12 (2), 202–22. [CrossRef] [PubMed]

Chase, E., Kennedy, E., Laurillard, D., Abu Moghli, M. and Pherali, T. (2019) 'A co-design methodology for blended teacher professional development in contexts of mass displacement'. In *Teachers in Crisis Contexts: Promising practices in teacher well-being, teacher management, and teacher professional development*. INEE, 63–66. Accessed 26 September 2022. https://inee.org/sites/default/files/resources/Promising%20Practices%20TPD.pdf.

Cowan, J. and Menchaca, M. (2014) 'Investigating value creation in a community of practice with social network analysis in a hybrid online graduate education program'. *Distance Education*, 35 (1), 43–74. [CrossRef]

Deng, R., Benckendorff, P. and Gannaway, D. (2019) 'Progress and new directions for teaching and learning in MOOCs'. *Computers and Education*, 129, 48–60. [CrossRef]

Dingyloudi, F., Strijbos, J. and De Laat, M. (2019) 'Value creation: What matters most in Communities of Learning Practice in higher education'. *Studies in Educational Evaluation*, 62, 209–23. [CrossRef]

El Moussaoui, R. (2022) 'Collaborative learning in MOOCs'. RELIEF Centre, 2 March. Accessed 1 September 2022. https://www.relief-centre.org/blog/collaborative-learning-in-moocs.

Fereday, J. and Muir-Cochrane, E. (2006) 'Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development'. *International Journal of Qualitative Methods*, 5 (1), 80–92. [CrossRef]

Freeman, S.B. and Branon, S. (2016) 'What's the value of a learning differences MOOC-Ed?' NC State University William and Ida Friday Institute for Educational Innovation. 13 April. Accessed 26 September 2022. https://www.fi.ncsu.edu/resources/whats-the-value-of-a-learning-differences-mooc-ed/.

Gallagher, T., Griffin, S., Ciuffetelli Parker, D., Kitchen, J. and Figg, C. (2011) 'Establishing and sustaining teacher educator professional development in a self-study community of practice: Pre-tenure

teacher educators developing professionally'. *Teaching and Teacher Education*, 27 (5), 880–90. [CrossRef]
Guest, G., MacQueen, K.M. and Namey, E.E. (2012) *Applied Thematic Analysis*. Thousand Oaks, CA: Sage.
Hanley, J., Baker, S. and Pavlidis, A. (2018) 'Applying the value-creation framework to a community museum volunteer project: Implementing a digital storytelling programme at the Mudgeeraba Light Horse Museum'. *Annals of Leisure Research*, 21 (1), 74–94. [CrossRef]
Kennedy, E. and Laurillard, D. (2019a) 'A MOOC value creation methodology'. Centre for Global Higher Education: Events. Paper presented at the CGHE seminar, 28 February. Accessed 11 September 2022. https://www.researchcghe.org/events/cghe-seminar/a-mooc-value-creation-methodology/.
Kennedy, E. and Laurillard, D. (2019b) 'The potential of MOOCs for large-scale teacher professional development in contexts of mass displacement'. *London Review of Education*, 17 (2), 141–58. [CrossRef]
Kizilcec, R.F., Piech, C. and Schneider, E. (2013) 'Deconstructing disengagement: Analyzing learner subpopulations in massive open online courses categories and subject descriptors'. In *Proceedings of the Third International Conference on Learning Analytics and Knowledge*. [CrossRef]
Laurillard, D. (2012) *Teaching as a Design Science*. New York: Routledge.
Littlejohn, A. and Hood, N. (2018) *Reconceptualising Learning in the Digital Age: The [un]democratising potential of MOOCs*. Singapore: Springer.
MacPhail, A., Patton, K., Parker, M. and Tannehill, D. (2014) 'Leading by example: Teacher educators' professional learning through communities of practice'. *Quest (National Association for Kinesiology in Higher Education)*, 66 (1), 39–56. [CrossRef]
Milligan, C., Margaryan, A. and Littlejohn, A. (2013) 'Patterns of engagement in connectivist MOOCs'. *MERLOT: Journal of online learning and teaching*, 9 (2), 149–59. Accessed 26 September 2022. https://jolt.merlot.org/vol9no2/milligan_0613.pdf.
Mohamed, M.H. and Hammond, M. (2018) 'MOOCs: A differentiation by pedagogy, content and assessment'. *International Journal of Information and Learning Technology*, 35 (1). [CrossRef]
Najafi, H. and Clarke, A. (2008) 'Web-supported communities for professional development: Five cautions'. *Contemporary Issues in Technology and Teacher Education*, 8 (3), 244–63. Accessed 1 September 2022. http://www.editlib.org/p/25320/.
Pakala, K., Tucker, K.M.B. and Schauer, S. (2019) 'Work in progress: First-year engineering college students: Value created from participating in a living/learning community'. Paper presented at the ASEE Conference & Exposition, Tampa, FL, 15 June.
Parker, M., Patton, K. and Tannehill, D. (2012) 'Mapping the landscape of communities of practice as professional development in Irish physical education'. *Irish Educational Studies*, 31 (3), 311–27. https://doi.org/10.1080/03323315.2012.710067.. [CrossRef]
Patel, D., Leck, A., McCormick, I., Kennedy, E. and Parsley, S. (2019) *Value Creation Framework to Assess MOOC-Based Learning: Pan-Commonwealth Forum*, 9 (3), 1–8. Accessed 1 September 2022. http://oasis.col.org/handle/11599/3259.
Patton, K. and Parker, M. (2017) 'Teacher education communities of practice: More than a culture of collaboration'. *Teaching and Teacher Education*, 67, 351–60. [CrossRef]
Phan, T., McNeil, S.G. and Robin, B.R. (2016) 'Students' patterns of engagement and course performance in a massive open online course'. *Computers & Education*, 95, 36–44.
Pherali, T., Moghli, M.A. and Chase, E. (2020) 'Educators for change: Supporting the transformative role of teachers in contexts of mass displacement'. *Journal on Education in Emergencies*, 5 (2), 147–75. [CrossRef]
Rabin, E., Kalman, Y.M. and Kalz, M. (2019) 'An empirical investigation of the antecedents of learner-centered outcome measures in MOOCs'. *International Journal of Educational Technology in Higher Education*, 16 (1), 1–20. [CrossRef]
Spilker, M., Prinsen, F. and Kalz, M. (2019) 'Valuing technology-enhanced academic conferences for continuing professional development: A systematic literature review'. *Professional Development in Education*, 46 (3), 482–99. [CrossRef]
Triste, D., Vandenabeele, M. and Lauwers, L. (2018) 'Communities of practice for knowledge co-creation on sustainable dairy farming: Features for value creation for farmers'. *Sustainability Science*, 13 (5), 1427–42. [CrossRef]
UNHCR (United Nations High Commissioner for Refugees) (2022) Refugee Data Finder. Accessed 29 March 2022. https://www.unhcr.org/refugee-statistics/.

United Nations (2015) 'Transforming our world: The 2030 agenda for sustainable development'. Accessed 26 September 2022. https://sdgs.un.org/2030agenda.

Van Amersfoort, D., Korenhof, M., Nijland, F., Latt, M. and Vermeulen, M. (2019) 'Value creation in teacher learning networks'. In A. Littlejohn, J. Jaldemark, E. Vrieling-Teunter and F. Nijland (eds), *Networked Professional Learning: Research in networked learning*. Cham: Springer, 187–206.

Wenger, E., McDermott, R. and Snyder, W.M. (2002) *Cultivating Communities of Practice: A guide to managing knowledge*. Vol. 8. Boston, MA: Harvard Business School Press.

Wenger, E., Trayner, B. and De Laat, M. (2011) *Promoting and Assessing Value Creation in Communities and Networks: A conceptual framework*. Rapport 18. Heerlen: Ruud de Moor Centrum.

Wenger-Trayner, E. and Wenger-Trayner, B. (2020) *Learning to Make a Difference: Value creation in social learning spaces*. Cambridge: Cambridge University Press.