The Comooc Model for Global Professional Collaboration on Sustainability

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This paper presents a new design for MOOCs for professional development of skills needed to meet the UN Sustainable Development Goals – the CoMOOC or Co-designed Massive Open Online Collaboration. The CoMOOC model is based on co-design with multiple stakeholders including end-users within the professional communities the CoMOOC aims to reach. This paper shows how the CoMOOC model could help the tertiary sector deliver on the UN Sustainable Development Goals (UNSDGs) – including but not limited to SDG 4 Education – by providing a more effective vehicle for professional development at a scale that the UNSDGs require. Interviews with professionals using MOOCs, and design-based research with professionals have informed the development of the CoMOOC model. This research shows that open, online, collaborative learning experiences are highly effective for building professional community knowledge. Moreover, this research shows that the collaborative learning design at the heart of the CoMOOC model is feasible cross-platform. Research with teachers working in crisis contexts in Lebanon, many of whom were refugees, will be presented to show how this form of large scale, co-designed, online learning can support professionals, even in the most challenging contexts, such as mass displacement, where expertise is urgently required.

1 Introduction

This paper presents a new design for MOOCs for professional development of skills needed to meet the UN Sustainable Development Goals – the CoMOOC or Co-designed Massive Open Online Collaboration. UNSDG 4 challenges us to find ways to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. The CoMOOC model addresses SDG 4 by engaging professionals in many fields to share their own practical insights and build com-

munity knowledge of what works that is relevant to multiple SDGs. For example, teachers can share practice to provide quality education (SDG 4), engineers can share knowledge of clean water and sanitation (SDG 6) and affordable and clean energy (SDG 7) or health care workers can share practice related to good health and wellbeing (SDG 3).

Since 2017 researchers at the RELIEF Centre have been collaborating with education stakeholders (including universities and (I)NGOs) in Lebanon on a "Future Education" project designed to offer large-scale online support to teachers who were working in highly challenging circumstances to bring good quality teaching to students in the refugee camps and settlements. Based on an analysis of previous educational interventions of this kind [7] a co-design Theory of Change (ToC) for this type of intervention was developed. The five stages of the ToC (Engage, Develop, Extend, Embed, Sustain) and data is collected to evidence the progress of each stage thereafter. Guided by the ToC, the RELIEF Centre has developed teacher professional development (TPD) CoMOOCs in a way that embeds this new form of TPD into the universities' and NGOs' methods of teacher training, and enables these organizations to take over and sustain the approach in the longer term.

This research has demonstrated that the CoMOOC model is effective to provide the kind of peer learning, support and community knowledge building that is necessary for professionals in all fields in the context of increasing global challenges. To build this case, we present evidence from during the pandemic that the CoMOOC model was effective in supporting educators to move their teaching online and transform their approach to education.

2 The research context

The research reported here comes from a long-term funded project to find digital methods to support educators in Lebanon working in the challenging context of mass displacement. Lebanon, a country with the highest per capita number of refugees in the world, has experienced multiple, complex crises in recent years. While there have been many proposals to use digital technologies to support learners in this context, even those practices considered most promising focus on content delivery directly to the child while bypassing the teacher [10]. Yet, to provide environments that enable children to learn effectively with technology, a teacher is necessary. Delivering content alone is insufficient for learning and the best use of technology is to support cycles of communication between the child and the teacher that foster engagement [6]. Refugee children are particularly vulnerable learners, often suffering from trauma and having missed years of school [9]. These learners need teachers to mediate technology use more than ever.

Digital technologies are usually only understood as having value to students, but digital methods can be of value to teachers' learning too. [8] suggested that MOOCs were well suited to professionals wishing to update their skills and could enable TPD interventions to run at scale. By using digital methods to engage teachers to develop their own digital teaching competencies, digital approaches can complement teachers rather than circumvent them. Conceived in this way, [2] pointed out that digital methods have potential for TPD, within a broader framework of good practice, recognizing that:

> ICT has the potential to genuinely support teacher professional learning because it can bring models of good practice, provide quality resources and encourage dialogue between knowledgeable peers. It can be an impetus or catalyst to re-assess current or heavily embedded practice in teacher development, as it can create energy to review previously held assumptions by offering an alternative approach. ICT can help access difficult to reach locations . . . in remote areas. [2]

While concern is often expressed that digital infrastructure is not sufficiently developed to support online learning in many low-income and remote areas where it is most needed, the experience of this project is that it is now possible to reach most teachers and community leaders, if not students, via online methods. At the beginning of the project, we conducted workshops with stakeholders from universities and education-related NGOs in Lebanon. These workshops revealed a strong interest (and experience) in online learning in Lebanon from both NGOs and universities, who were enthusiastic about engaging in the co-design process. The workshops indicated that we would need to create the CoMOOCs in both Arabic and English – English because our university partners taught in English, and Arabic because NGOs working with Syrian refugees requested this to enable their teachers to engage. As a result, we have been working with two platform partners: FutureLearn for courses in English, and Edraak for courses in Arabic. Our ambition has been to create the same high quality, social learning experience across both platforms. In order to achieve this, we worked with Edraak to shift their instruction-focused learning design approach towards social learning and collaboration [4].

The pandemic further exacerbated the need for digital methods training for teachers. Even those teachers who had been sceptical or resistant to teaching online, now needed to look for ways that they could maintain continuity of teaching for their students who could not attend school in person. Since the RELIEF Centre CoMOOCs had already laid the groundwork for responding to this need, we were able to build on it in 3 ways:

- we rapidly co-designed a CoMOOC "*Teaching Online: Be Ready Now!*" in Arabic on the Edraak platform (47,000 enrolments from 2020)

- we re-ran our existing CoMOOC "Transforming Education in Challenging Environments" in English on FutureLearn and in Arabic on the Edraak platfrom (25,000 enrolments from 2019)

- we co-designed a CoMOOC *"Blended and Online Learning Design"* in English on FutureLearn (12,000 enrolments from 2021)

Since then, we have re-designed "Teaching Online" for post-pandemic contexts as "The New Era of Teaching and Learning" which has recently launched on Edraak. The aim of these courses was not only to introduce teachers to digital methods, but importantly to enable them to share with each other the practical knowledge they were rapidly acquiring during the pandemic. The speed at which teachers were adapting their practice meant that a traditional dissemination model from academic institution down to professionals was inappropriate, as teachers were finding out for themselves the best way to move around obstacles, such as poor internet, and home working environments. They needed to learn from each other and collaboratively build teaching knowledge together. This was the aim of the CoMOOCs we created.
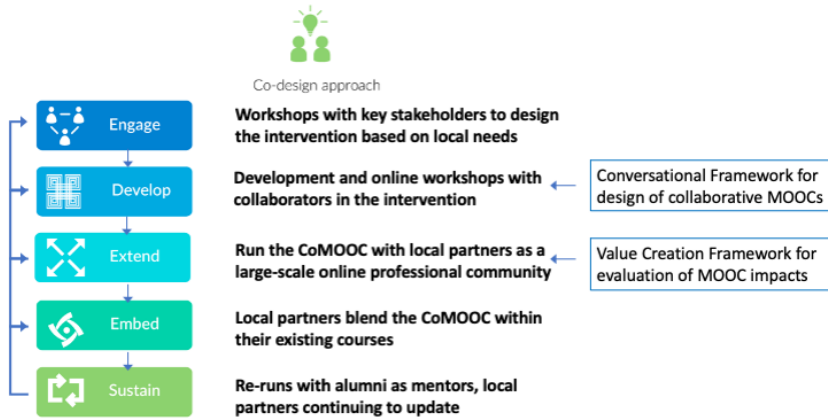
3 The Co-Design approach as a Theory of Change

Our research in Lebanon has aimed to establish a generalizable approach to scaling up teacher professional development (TPD) using co-design to engage professionals such as teachers in developing new knowledge about online methods at a local and global level.

At the commencement of our research in Lebanon, therefore, we created an original ToC to plan implement and evaluate the steps the project undertakes to achieve this, and build up a portfolio of data to evidence the progress of each stage. There are five stages to the ToC illustrated in Figure 1: engage; develop; extend; embed; sustain. The aim is to guide the research and development of the intervention.

Stage 1 (engage): engaging the knowledge and support of local stakeholders to establish a shared vision of what is needed and what is to be planned. This can require a shift in perspective from conceiving of online learning in terms of the provision of digitalized resources, to one that prioritizes social and collaborative learning.

Stage 2 (develop): this process includes negotiating the curriculum and learning design for the CoMOOC, identifying what and whom to video among the partners, editing videos, and developing written text, discussion prompts and interactive

Figure 1: The Co-Design approach for the Theory of Change for educational inter-
ventions, in five iterative stages with nested frameworks for design and evalua-
tion

and collaborative online exercises. The Conversational Framework informed this
stage, as the basis for social and collaborative learning design of the CoMOOC.

Stage 3 (extend): running the CoMOOC multiple times to extend the professional
development activities that had previously been run for small groups of teachers
to many others in need of them through large scale online learning. Here co-
design includes stakeholders moderating the discussion on the CoMOOCs and
analyzing digital data. The Value Creation Framework provided the methodology
for evaluation of the CoMOOC.

Stage 4 (embed): embedding the CoMOOCs in existing local provision of courses
for teachers, by supporting co-design partners to blend them into professional
development courses or workshops they are running.

Stage 5 (sustain): ensuring that partners are invested in the continued running
of the courses to achieve their own outcomes, by updating them as needed, and
taking the role of mentor to assist the educators (for example, in *Blended and Online
Learning Design*, we have 42 alumni contributing high quality discussions and
support).

4 Evaluation Methodology

To judge the nature of the impact of the CoMOOCs we needed an evaluation framework that would recognize the different kinds of value that participants might derive from it. For this we chose the Value Creation Framework or VCF [11] as an appropriate test of the type of community of practice we were trying eventually to build [3]. The VCF collects data to document five cycles of value created in teacher professional development activities:

- **Immediate value** refers to activities and interactions that produce value in and of themselves, such as finding oneself in a community of like-minded professionals

- **Potential value** is the knowledge capital (learning) produced through engagement with the CoMOOC.

- **Applied value** is the value gained from applying what has been learnt to participants' own professional contexts.

- **Realised value** is the value for others that results from the application to practice – that is, improvements in learning in participants' classes, or their colleagues' improvements in teaching with technology as a result of sharing what was learnt in the CoMOOC.

- **Reframing value** is the redefinition of strategies and values through their new understanding, occurring both at individual and/or at institutional levels.

Our aim was to test the extent to which the CoMOOCs were sufficient to achieve the full range of value creation. We collected data from in- and post-course surveys, follow-up interviews (in the case of *Transforming Education in Challenging Environments*). These data sources are presented in Table 1 below. In addition, we supplemented these data with participant contributions to discussions and activities in the CoMOOCs e.g. posts to Padlets (digital pinboards embedded as collaborative learning activities in the CoMOOCs).

These contributions were analysed using a template analysis approach based on [1]. A structured codebook was development based on the VCF which was subsequently revised and developed through the process of data analysis of the three CoMOOCs.

Table 1: Numbers of survey respondents and interview participants per CoMOOC

CoMOOC	In-course experience survey responses	Post-course impact survey responses	Follow-up impact survey responses	Follow-up interview participants
Transforming Education in Challenging Environments	1025	735	–	24
Teaching Online: Be Ready Now!	–	2711	518	–
Blended and Online Learning Design	–	1150	–	–

5 Findings

5.1 Immediate value

Participants overwhelmingly responded positively to the social learning environment we constructed for the courses. FutureLearn prides itself on its social learning environment, based on Laurillard's Conversational Framework (CF) [6]. We also drew on the CF to co-design multiple social and collaborative learning elements in the CoMOOCs, adapting these to both platforms. For example, on Edraak, we pinned the discussion beneath the content units, and embedded collaborative activities using Padlet and Mentimeter (a polling tool) into the units. On FutureLearn, discussion already took place underneath the content steps, but we added links out to Padlets and Mentimeter. Across all three CoMOOCs, participants told us they valued these aspects of the learning experience highly:

> I found that participants want to share their learning experiences and also I think that this is very important for teachers as teachers work in isolation they close their doors in their classrooms so unfortunately rich experiences are not shared however MOOCs offer them this window (Transforming Education in Challenging Environments)
>
> Tools, templates and sharing made this course a fantastic learning experience (Blended and Online Learning Design)
>
> Reading other people's comments gives me sometimes answers to some problems or questions that concern me, and making my own comments helps me to have a more interactive learning experience (Teaching Online: Be Ready Now!)

Some participants preferred not to take part in the discussion (e.g. "Sometimes other people's comments are not helpful and waste time" (Teaching Online), and did not value others' contributions, but this was not the majority experience. For example, 74 % of participants on Transforming Education found discussion helpful or very helpful for their learning.

6 Potential Value

Participants of all three courses regularly commented about how much they had learnt during the CoMOOCs. For example, in Teaching Online, 80 % of participants reported that they were more confident about being able to integrate the six learning types from the Conversational Framework into their teaching. Participants commented in the discussions and post-course survey on the most valuable things they learned, e.g.:

> I became more aware of using modern technology and integrating it with the educational process, and I saved time and effort in distance learning (Teaching Online: Be Ready Now!)
>
> it helped me better understand what is out there in terms of the tools and practices of teaching and learning online... The hands-on nature of this course allowed me to gain some experience using some digital tools such as the learning designer. I have also gathered new ideas and tips on digital tools that will help me design my online courses (Blended and Online Learning Design)
>
> I am teaching through online and this course helped me to realize more about the students' background why some of them were not actively participating in the class (Transforming Education in Challenging Environments)

While participants' learning was visible, it was more important for us that they were able to apply their learning to their practice. The next section shows that they were able to do this.

6.1 Applied Value

Within the CoMOOCs, discussions were designed in such a way that participants were able to share how they were applying the ideas to their context. Throughout the CoMOOCs, comments indicated that participants were making connections with the content and their practice. For example, responses to a discussion in *Transforming Education in Challenging Environments* enabled us to see that the participants could understand concepts and apply them to the context of education in

all manner of challenging environments around the world. For example, a teacher in Egypt shared how she was working with the family of disengaged students; a teacher in Brazil shared how she was delivering language classes for refugees; a teacher in the UK shared how exploring the impact of the economic climate on children in her class helped her tackle hostility to immigrants. In post-course surveys, teachers also described how they could apply the ideas to their teaching:

> 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 (Transforming Education in Challenging Environments)
> I work within the youth program at the United Nations Fund, the Syria office, so I will transfer information to the youth group that I work with, especially with the partner associations (Teaching Online: Be Ready Now!)
> I have learnt a lot about blended and online teaching and learning. I've learnt that in online teaching, we do not just lecture students, but we can rather engage them and make them collaborate with each other in order to be more active learners just like in F2F learning (Blended and Online Learning Design).

6.2 Realised Value

We designed the learning activities in the CoMOOCs in ways that encouraged the teachers to show how they are applying the ideas in their practice. For example, discussions invited participants to share their teaching ideas and learning designs. However, we rely on participants reporting back to us whether their own students' learning improved after they implemented the ideas, or their colleagues benefited from the ideas they shared from the courses. This data is the most difficult to access, principally because this activity occurs after the CoMOOC has happened and we no longer have direct access to participants. There were reports of realized value in follow-up surveys in *Teaching Online: Be Ready Now!* and *Transforming Education in Challenging Environments*, but teachers seem to prefer to share examples of what they learned or plan to do rather than examples of how their students have benefited. This may be because they do not have a research orientation to their classrooms. Or it might be that they do not believe they have something significant enough to report. Nevertheless, some participants were reporting that their students responded better in class after they implemented some of the ideas and that their colleagues were enrolling on the CoMOOCs themselves and implementing the ideas in their own practice:

Interviews with participants conducted sometime after the CoMOOCs are a more effective way of collecting this information because they allow for the interviewer to tease out concrete examples, and have yielded some excellent examples. For example, we have accounts of teachers who have shared the ideas with other teachers in organisations throughout the Middle East, Far East and South America. Some of this material has been published in [5]. However, we need a better approach to capturing real impact data like this at the scale that is commensurate with the number of participants.

As a way of working towards this, we recorded videos with teachers who had completed *Transforming Education in Challenging Environments* to create a step within the CoMOOC called "How Teachers are Using this MOOC". In the video, two teachers, Lea and Mariam describe how they have used the ideas to calm a child with challenging behaviour, and to advise teachers about the ways they could use technologies. We embedded a Padlet within the step to try to capture other examples, and teachers have begun posting there, e.g.:

> I learnt some tools: Padlet, Mentimeter, Kahoot!, etc. . . . I practiced these tools while I delivered the training to teachers in Myanmar. Among these tools, I usually use Kahoot!, wheel of name for making some quizzes then sometimes I use the Mentimeter for voting. Most of my participants were happy and participated actively in the lesson and they didn't have a boring time. As a result of these, I am sure to utilize these tools in the future for delivering training and lesson planning.
>
> . . . the course . . . exposes us to realistic problems that we suffer from in our schools in our Arab world. In Egypt, we suffer from a very high density in the classroom, as well as a lack of material capabilities, which means teachers . . . can use strategies that suit these numbers to achieve high efficiency and effectiveness in learning
>
> I used entertainment such as playing a game . . . to learn English words, and I was impressed with their learning and their insistence on winning. Honestly, after using the technology I saw the development that happened in my class

By embedding the kinds of examples of realized practice that we are looking for, we hope to encourage participants to become teacher-researchers, following through their use of innovative practice with data gathering in their classrooms. Further work is required to find ways of collecting and curating these examples at scale.

6.3 Reframing value

Reframing involves redefining educational strategies and values. Participants in all three CoMOOCs gave us accounts of how they had changed their own approach as a result of their experience, as well as transforming how the approach taken by their institutions. The theories of transformative education in *Transforming Education in Challenging Environments* had a major impact on how participants approached education:

> 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, to analyze the education performance of the children and find out mitigating solutions (Transforming Education in Challenging Environments)
>
> 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 in the project. (Transforming Education in Challenging Environments)
>
> I found it valuable to see how educators in a different part of the world (Lebanon) were meeting challenges. These insights can transfer to the country I work on, Myanmar. I am also involved in an international advisory group to a political group in Myanmar, and i will suggest that they take the course. (Transforming Education in Challenging Environments)

Another instigator of such change was participants' engagement with the Learning Designer tool, which was a tool we embedded in each CoMOOC as a way for teachers to represent and share their learning designs with each other. Participants told us that this had changed their approach to teaching and learning and were already or planning to share this with their colleagues, for example:

> … the learning design[er] and some of the digital tools I've come across in this course could help me plan and deliver a workshop for teachers for my small education consulting company. (Blended and Online Learning Design – comments)
>
> i will benefit from the learning designer to plan my sessions and I will try to practice blended learning in my class (Teaching Online: Be Ready Now!)
>
> I'm particularly excited about the Learning Designer tool. It's really useful to have an overview of all the activities we plan for our classes and a good way to help our students to plan and manage better their learning process. (Blended and Online Learning Design – comments)

Many participants noted that their approach to online and distance education had been radically changed, for example:

> I used to think that distance education was not possible, and the course and training changed that (Teaching Online: Be Ready Now!)

> Because education has become an urgent necessity due to developments in circumstances, and education can be open to many countries and take experiences and knowledges from all cultures (Teaching Online! Be Ready Now!)

7 Conclusion

This paper has presented the Theory of Change underlying the CoMOOC model along with an evaluation of the different forms of value it has created for participants. The paper has shown that the CoMOOC model is effective in engaging education professionals in meaningful, social learning at scale so that teachers working in crisis contexts are able to learn with and from each other to build community knowledge together.

The CoMOOC model works because it eschews a top-down approach to education, which has been typical of MOOCs designed by university educators and based on university courses. Instead, researchers co-design the content with professionals, positioning practicing teachers as experts in videos and using their reflections to co-create the CoMOOC content. Social and collaborative learning activities are then designed around the content to support participants to engage actively and contribute their own insights from practice. This extends the collaboration to involve not just the co-designers but all the participants in the CoMOOC. A shared online space is created to include a global community of educators.

The co-design Theory of Change demonstrates that by engaging co-designers from the outset and developing content together based on their local knowledge, it is possible to achieve the necessary buy-in from co-designers to embed CoMOOCs within their existing practices. This results in a sustainable scaled up solution to reach many more educators to meet the global need for teacher training.

The CoMOOC model can thus help to address one of the biggest challenges facing us, that is providing quality education in the face of disruption caused by global crises. This includes the pandemic, but is not limited to it – crises are sadly a constant feature of contemporary life.

We propose that the CoMOOC model to reach and support professionals in other professional areas, such as medicine and health care, social care, engineering, construction and other fields where new practical knowledge is needed and

participants will benefit from learning with and from each other. In this way, the CoMOOC model can speed up the learning that is required to address United Nations Sustainable Development Goal 4 (education) and all of the other UNSDGs.

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