Abstract: Learning in fragile states is essential for conflict-resolution, peace-building and development, but represents challenges that relate mainly to educational content, cultural and linguistic sensitivity, on-site infrastructure and appropriate pedagogical models. As the transition from humanitarian aid to development is increasingly fluid, and with education considered to be a major enabler in lifting people living in fragile contexts out of dependence, educational initiatives are needed that address these challenges. This paper reports on a case study involving two refugees living in Dadaab Refugee Camp (Kenya) taking a MOOC offered on the Coursera platform together with the author. The study documents the constraints encountered by these learners, describes temporary solutions adopted as the course evolved, and proposes long-term solutions to be envisaged for MOOCs to provide a viable higher education contribution in fragile environments.

Education in fragile states – charting the territory

Article 26 of the Universal Declaration of Human Rights states that everyone has the right to education which should contribute to the strengthening of respect for human rights and fundamental freedoms, promote understanding, tolerance and friendship among nations, and contribute to maintaining peace. However, wars and natural disasters disrupt the provision of education, as chronic crises and early reconstruction focus primarily on core humanitarian objectives such as food, water, health, sanitation, security and shelter. Faced with formidable challenges in both acute, protracted and complex emergencies, and a global refugee population of over 15 million at the end of 2012, humanitarian actors are obliged to focus on the immediate crises at hand and on core objectives, rather than on the provision of education, especially at post-secondary and life-long learning levels.

And yet, education represents a vital protection mechanism, contributes to political stability, and develops leadership potential in fragile states, so as to manage the transition from conflict to recovery and the transformation from fragility to stability. While the integration of education as an enabling humanitarian action is of relatively recent origin, recognition of the importance of education for refugees has a long history going back to 1951 when the Convention Relating to the Status of Refugees was adopted which outlines in Article 22 the right to primary education for refugees. This was followed, in 1984, by the signing of a Memorandum of Understanding between UNESCO and UNHCR that allocated the responsibility for refugee education to UNHCR. The World Declaration on Education for All (EFA) identified conflict as a major barrier to meeting education needs, especially for displaced persons and refugees. In 2000 the Dakar Framework for Action re-emphasized the barrier that conflict poses to reaching the goals set out in the EFA and launched Education in Emergencies as one of its major programs. Shortly thereafter the Interagency Net-
of the Swiss Agency for Development and Cooperation (SDC) in the Federal Department of Foreign Affairs of Switzerland. The first two approaches in particular, integrate formal, non-formal and informal education; but with formal education being more difficult to provide in fragile contexts, non-formal and informal education is becoming increasingly important, not least as a result of the promise of open learning initiatives in general, and in light of the emerging MOOC paradigm in particular.

One of the first impressions upon setting foot in a refugee camp is that of bare survival. This is closely followed by a sense of awe regarding the extraordinary resilience refugees exhibit in the aftermath of trauma and in the face of protracted displacement from their home communities. Their resourcefulness often masks a sense of hopelessness and lack of purpose with many refugees having spent the better part of their lives in camps. Of the few options available to them - remaining in camp, being resettled either in another part of the country or abroad, and repatriation - for many the silver-lining on the horizon remains the prospect of rebuilding their own communities and societies. Irrespective of which option they prefer, education is by far the only asset they own, and at the same time the most promising prospect for bettering their lives and for improving their livelihoods. Motivation thus drives their desire to learn, especially at the secondary and life-long learning levels. But there is also considerable uneasiness with regard to the sustainability of new educational initiatives; thus, initial contacts with new groups of learners require patience and a willingness to invest in building trust and confidence in the learning community before scaling up the actual learning activities.

Despite the great promise of virtual learning and mobile technology, motivation to learn remains less sustainable if this initial period of confidence-building is not given the attention it deserves. Experience with all-virtual courses delivered to learners in fragile contexts has shown that learners do not engage regularly, nor sufficiently, with the learning materials and that learning outcomes are often not reached, or that learners simply drop out. The distance in distance learning becomes infinity if all that connects learners in the field to teachers and tutors posted hundreds and thousands of miles away is a computer or mobile interface (Moser-Mercer, Kherbiche, & Class, 2014). Understanding and sharing the realities on the ground, being close to the experience of life in the camp, listening to the people at the receiving end of aid (Anderson, Brown, & Jean, 2012), lays the foundation for learners staying on course and successfully completing a course. While motivation is an integral part of learning in any kind of learning environment, it assumes much greater importance in the refugee context. One of the core humanitarian principles relates to not doing harm; raising refugees’ hopes about an educational initiative that ultimately flounders due to a lack of understanding of life in the field and realities on the ground would definitely violate this core humanitarian principle. Engaging in educational initiatives, developing education offers and piloting education projects in the field must respect not only traditional research ethics requirements, but also International Humanitarian Law. Design, development and implementation of education projects on the ground thus require an intimate knowledge of the legal framework (International Refugee Law, International Humanitarian Law), the ability to benefit from protection offered by a humanitarian organization on the ground, requisite training regarding security in the field, a strong sense of purpose and the willingness to adapt quickly to changing circumstances.

### The case study

#### Materials and methods

During the preparatory visit to Dadaab Refugee Camp in the lead-up to launching the InZone Basic Course (InZone, 2012) for humanitarian field interpreters working for UNHCR in the five camps (Hagadera, Dagahaley, Ifo 1, Ifo 2, and Kambios), the author established an inventory of connectivity options by visiting education centers set up by UNHCR, the Windle Trust for Kenya and the Norwegian Refugee Council. The InZone Basic Course for humanitarian field interpreters, a blended higher education course, combines a short initial period of several days of face-to-face training in the field, followed by several months of on-line learning in a dedicated learning environment built on the pedagogical principles of collaborative learning and expertise development. This course had already been successfully delivered in other fragile contexts in Afghanistan, Sudan and refugee camps in Kenya. Yet, each new context is carefully studied prior to launching the InZone Basic Course as no two fragile environments are exactly alike. Connectivity is considered not merely in its technical and technological expression, but in fragile contexts is very much embedded in organizational hierarchies that determine access options for learners. Studying connectivity options in Dadaab then served the dual purpose of preparing a new edition of the InZone Basic Course and exploring the potential for a MOOC-style course to be accessed in the camps.

In consultation with UNHCR two male refugees, aged between 24 and 28, had been identified as keenly interested in following a MOOC-style course and collaborating with the author with a view to gaining an improved understanding of the potential and constraints of such course offerings. Both refugees had completed secondary education and obtained a 2-year higher education diploma in their respective home countries, one in marketing and management, the other in commerce. They each mastered several languages, one spoke French, English, Kiswahili and Lingala, the other English, Amharic and Oromo. Their level of English was good, although one appeared to express himself better in French than in English. Both were computer-literate and owned basic cell phones. Neither had substantial experience in on-line learning, both had...
been considered too old to qualify for a scholarship to study abroad. Thus, formal and/or informal on-line courses remained the only higher education alternative if they wanted to pursue their education. The author met with them twice in the camp to discuss the case study, obtain their consent for documenting the experience, agree on the type of MOOC to be chosen for the study and to identify any immediate needs in terms of learning materials and internet access that could be met while the author was still in Dadaab.

The author’s suggested course choice was a course offered on the Coursera platform (www.coursera.org) entitled Foundations of teaching and learning. Introduction. The course was developed and delivered by the Commonwealth Education Trust (CET), made reference to contexts of teaching and learning on the African continent, and deemed an appropriate cultural choice; it ran from August 4, 2013 through September 5, 2013, with a one-week extension for peer assessment, bringing the end of the course to September 12, 2013. This and two other course options were discussed with the two refugees, and both agreed that the CET course was a good choice as both had some experience as teachers and felt that such a course would support their future teaching activities, and also because it could be completed in five weeks. This represented an important step in the direction of respecting humanitarian principles and preparing the ground for successful collaboration.

Having already inspected the learning material for the CET course, as well as those for the other options, prior to arrival in Dadaab, the author was aware of the fact that learning materials were composed of a total of 16 video-lectures of between 9 and 14 minutes each, of additional web references and PDF-files, including 4 quizzes, and that the course required on-line peer-assessment of a total of 6 essays as well as one’s own two essays. The author knew that the video-lectures represented an insurmountable obstacle for fragile contexts and negotiated with Coursera and CET to download all video-files while still in Kenya, and to be allowed to furnish the two refugees with these learning materials on a USB key prior to the official launch of the course. This represented yet another important step in respecting humanitarian principles, as the two refugees were keen to take this course in order to obtain a course certificate to further their own livelihoods, and it was thus critical that the author not do any harm by pursuing this project merely from the perspective of an educational pilot.

It was agreed that the two refugees would follow the course either on their cell phones or via access to a computer in the UNHCR compound while the author would participate and document the case study from a high connectivity environment, that there would be regular contact between the two refugees and the author in order to resolve any issue that would represent an insurmountable obstacle for completing the course, without such support infringing upon the honor code that all participants of the course were expected to abide by. It was also agreed that a debriefing session would be scheduled once the course had concluded, so as to allow the author to review the different challenges encountered during the course and discuss with the refugees the implementation of some of the implemented and proposed solutions in greater detail.

Results

Based on fairly extensive experience with virtual learning in fragile contexts the author anticipated the learners’ challenges to fall essentially into three main categories: 1) technological (T), 2) cultural (C), and 3) linguistic (L). For the purpose of this case study, technological challenges are defined as comprising any and all technical and organizational constraints that complicate access to the learning platform, or make access entirely impossible. Cultural challenges refer to dimensions of learning content, learner exchanges (forums) and of intellectual approach that prevail in the learning environment. Linguistic challenges relate to the level of proficiency required in English (the course chosen for this case study did not offer subtitles in other languages) to work with the learning materials and to satisfy the criteria laid down by the course organizers for assessing learning outcomes (essays).

It was decided to track each challenge in a running log, record the temporary solution that was found to swiftly resolve each problem as time was always of the essence, and to propose more long-term solutions with a view to preventing future problems from arising whenever MOOC-style courses would be offered to learners in fragile contexts. Table 1 presents challenges in a chronological order, as they arose during the case study. This presentation format was chosen bearing in mind that producers of MOOC-style courses will often take a more linear approach to course development, and being able to identify challenges as they will present themselves chronologically may help producers identify more closely with how learners navigate the course. Each challenge is coded following the categories identified above.
<table>
<thead>
<tr>
<th>Challenge/constraint</th>
<th>Interim solution adopted for case study</th>
<th>Final solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video lectures (T)</td>
<td>Negotiate advance copies, save on USB key, forward key to learners.</td>
<td>Less reliance on video lectures, use of short podcasts produced for low-bandwidth environments and with variable pixel choices, as even at 8 frames/s, a static speaker can be viewed without problems; store files on local servers (e.g. Nairobi for the Horn of Africa); distribute files ahead of time to select locations.</td>
</tr>
<tr>
<td>Signing up for course – signature track (T)</td>
<td>Local support through UNHCR was needed to register participants for signature track. The first essay assignment had to be manually submitted to Coursera staff for recording in the course learner database.</td>
<td>E-mail template, cell phone picture (self-picture), cell-phone photo functionality for ID. MOOC platforms should develop alternate ways of learner identification and re-identification, possibly in collaboration with humanitarian organizations on the ground.</td>
</tr>
<tr>
<td>Readings/videos (T)</td>
<td>Skip if not mandatory for assignments.</td>
<td>Create database of all course files as local back-up for reference and/or include all materials on USB keys.</td>
</tr>
<tr>
<td>URLs (T)</td>
<td>Skip if not mandatory for assignments.</td>
<td>Preference should be given to screenshots, rather than interactive work with URLs. Allow learners to take advantage of burst connectivity to explore URLs.</td>
</tr>
<tr>
<td>Quizzes (T; C; L)</td>
<td>Back-up file of all quizzes negotiated with course provider and made available locally; randomization of answers to multiple choice questions during retakes of the same quiz were signaled to learners.</td>
<td>Non-interactive static document; create different versions of each quiz for retakes; Wording of questions must be much clearer (no double-barreled questions, no focus on shades of meaning whose comprehension relies on highly advanced levels of language proficiency).</td>
</tr>
<tr>
<td>Peer assessment (T; C)</td>
<td>Assess only one essay at a time; no satisfactory temporary solution was found.</td>
<td>May create anonymity problems in fragile contexts; search for other pedagogical tools to achieve similar learning objectives (e.g. use of problem-case scenarios).</td>
</tr>
</tbody>
</table>
### Criteria for peer assessment (L)

Lack of clarity in defining different criteria upfront and lack of consistency in application of these criteria by learners.

- The quality of the language cannot be dissociated from the notion/criterion of readability and content. Learners in fragile contexts come from oral traditions and their written language skills are often wanting.
- Ensure that English is not graded.

- Instructions must be clear and not intimidating; in challenging connectivity environments time spent on-line is costly and instructions must be well-tested in advance and applied consistently.
- Search for other pedagogical tools to achieve similar learning objectives.

### Desktop and mobile approach (T)

Learning environment did not scale to mobile devices.

- Anticipate what scales to cell phones and advise learners accordingly.

- Scale to cell phones (responsive design), limit functionalities in the learning environment that will be used in a mobile rather than a desktop context; feature important content prominently.

### Forums (T; C; L)

Chaotic organization of forums makes participation for those in fragile contexts impossible; these forums are not visible/readable on cell phones; require extensive and regular connection time with questionable contribution to learning outcomes.

- Ignore if connectivity is poor.
- Only one comment posted by one of the two refugees during the CET course, and only after both learners had obtained access through UNHCR desktop computers.

- Structured forums; threads should not be freely created by learners; impose forum and thread format/labeling to clearly relate to assignments/discussion points. This requires advance planning and close moderation.
- Content tagging (produce tag cloud) may shorten connection time requirements and steer learners to relevant content faster.

### Pedagogy (C; L)

Learners in fragile contexts come from traditional teaching cultures; transition to new pedagogical models can be abrupt and disorienting.

- Running commentary offered by researcher on specific pedagogical dimensions allowing learners to anticipate problems and supporting them in finding solutions.

- Careful adaptation to modern forms of learning; there has to be a transition from teaching to learning, with more content provided up-front and learner autonomy progressively increased as the course evolves.

### Connectivity (T)

Limited, irregular, subject to interruptions, costly.

- Ensure back-ups are created with the help of local support; learners used course USB provided by the researcher to back-up and “carry” their course when not connected.

- Ensure that each learning activity fits into a 10-minute learning space; write recommendations for creating back-up versions of activity uploads to guard against data loss.

- Respect video/podcast constraints, produce to low-bandwidth and/or multiple-bandwidth standard, offer different pixilation formats that respect download speeds for different fragile contexts. Store back-up files locally (computer lab, if available) as MOOC platforms often do not open in fragile contexts or on mobile phones, even when located in 3G networks.
MOOCs in fragile contexts
Barbara Moser-McCormack

Time-zone differences >

Deadlines unclear (T; L)
Negotiated directly with support from Coursera, manually transmitted refugees’ essays to Coursera for direct uploading to peer assessment section.
Indicate deadlines more clearly for different time-zones; include time-zone functionality on platform.

Time management (C; L)
Refugees indicated that they had little time to take the course. Workload of 3-6 hours/week is a maximum. By indicating potential constraints immediately and offering solutions in advance, the trial-and-error approach could be limited to a minimum. Taking the course alongside the refugees as a registered learner was essential for the researcher in terms of anticipating problems and solving them before refugees stumbled over them.

Financial constraints (C)
Cost of signature track; Cost of connectivity (related to download volume).
Negotiated scholarships with Coursera. Offered to purchase additional credit on cell phone subscription (top-up). However, one cannot top up cards of other subscribers from abroad.
Negotiate expected data volume with telecom providers. Estimate total download and upload volume per learner for entire duration of course in order to submit scholarship requests to funding agencies. This approach has worked for InZone courses delivered to Kakuma Refugee Camp in 2012/13.

Summative evaluations: The two refugee learners achieved very good results in the 4 quizzes and on their two essays. Each of the 4 quizzes was made up of 10 questions, with one point awarded for each question answered correctly. The two learners achieved an average score of 8.25/10 on the 4 quizzes. In addition to one quiz per week, two essays of about 700 words each had to be submitted for peer and self-assessment. Essays were graded on a scale from 1-10, with one being the lowest and 10 the highest score. Each essay had to be assessed by three peers and ultimately self-assessed for the final score to be computed as an average of the points awarded by all four assessors. The average score for the 4 essays assessed during this course for the two refugee learners was 8.5/10.

Learning support: Regular e-mail communication was deemed most efficient in providing remote learning support to the two refugee learners. During the 4.5 weeks of the course, the researcher received a total of 21 e-mail messages from the two learners and sent out a total of 26 e-mail messages (replies, encouragements and inquiries about learning progress); the researcher also exchanged a total of 23 e-mail messages with the UNHCR community services officer who ensured contact with the refugees on the ground. The refugee learners themselves worked on average 6 hours over the duration of the course with the UNHCR community services officer on locally resolving signature track, web cam, and assignment upload problems and implementing the solutions suggested by the researcher. Both learners also spent on average 8 hours over the duration of the course with other refugees in the camp with whom they would discuss essay topics and share their newly acquired knowledge.

The debriefing session was carried out via Skype and scheduled to follow the official release, on the Coursera platform, of the course results. The debriefing session was hosted by the supporting community service officers of UNHCR to allow learners to rely on good connectivity for the duration of the session, which lasted one hour and a half. The debriefing topics had been sent to the learners ahead of time in an effort to remain efficient in a low-connectivity environment.
Debriefing questions related to the three main categories of challenges - technological, cultural and linguistic - and were designed to solicit additional information that would be useful to complement the information logged throughout the course.

With regard to technological challenges, more precise information was supplied as to the use of mobile devices compared to that of desktop computers. Both learners used their cell phones 75% of the time to complete work on the course. The phones in use were not smartphones and the screen display thus very small and ill adapted to managing learning activities. Neither had access to one of the few computer labs (secondary schools, Youth Education Project - YEP-Centers) distributed in the various camps that make up Dadaab and thus could not engage with the learning material after work hours. It had thus been necessary for the author to negotiate access to a desktop computer in the UNHCR compound to allow the refugees to compose essays and take quizzes, as this was where both refugees had day jobs. In light of the fact that transport back to the actual camps is organized immediately after the work day ends, only short lunch breaks could be used to gain access to a desktop computer, leaving all additional course-related work to be carried out on cell phones. This had significant financial implications as telecom access cost is almost prohibitive for refugees. Their recommendation was for course providers to use applications such as WhatsApp Messenger, a cross-platform mobile messaging application that allows for the exchange of messages without having to pay for SMS, or to use Skype in order to circumvent high mobile access charges. It emerged clearly that without the delivery to the field of pre-loaded flash drives containing all required learning and assessment materials, refugees would not have been able to stay on course, as the Coursera platform did not load properly on cell phones due to slow download speeds. An additional advantage for locally available course material was highlighted by both refugees: learning materials downloaded by anyone in the camp was always liberally shared locally so that for the cost of one download a larger number of interested and motivated learners could be reached.

With regard to cultural challenges, refugees indicated that at times the level at which the course was pitched was rather high, but that this was often more a question of contending with linguistic challenges, such as dealing with shades of meaning in answering quiz questions, or composing essays within the framework of an intellectual culture that was not their own, and also due to the fact that their written proficiency in English did not match their oral proficiency. One challenge both referred to as being considerable was the shift from a teacher- to a learner-centered pedagogical model. This was most pronounced when they were asked to generate ideas instead of staying in receptive mode. Both mentioned that the learning materials, while sometimes referring to the global south, still were anchored in the global north and that considerable effort had to be expended at times to transform examples to the African context in general, and to their fragile context in particular. One way both learners managed to cope was to engage in local discussions with other teachers in the camp, thus creating their own small discussion groups. This allowed the researcher to raise the dimension of peer support and peer tutoring and to assess the extent to which her own involvement in the course and the support that had been provided was considered too extensive, adequate or insufficient. The author’s support and mentoring remained deliberately limited to anticipating and solving problems of access and the meeting of deadlines, to providing regular email or text message encouragement with regard to completing assignments and quizzes, and to regular short messages that signaled that she was there to provide assistance if need be. While contact was very regular during the first 10 days of the course due to significant access problems described in Table 1 above, refugees became increasingly autonomous knowing that technical issues would be promptly identified by the researcher and resolved in time for them to meet deadlines. During the debriefing, however, it emerged that although the researcher’s overt support decreased, both refugees clearly indicated that having a reliable support/mentoring system was decisive for their motivation to complete the course. Constructing such support systems was considered an essential ingredient to rendering MOOC-style courses accessible for refugee learners. Clearly, having thousands sign up for a course and accepting drop-out rates of up to 90% and more, would not represent an ethically acceptable practice in a humanitarian context. Relying solely on the ingenuity of learners, as appears to be common practice with MOOCs that are not framed by a socio-constructive pedagogical model, is clearly not in keeping with responsible education in emergencies.

Moving forward

MOOCs are disruptively innovating higher education around the world. Most platforms are configured for course delivery to learners in highly developed countries, and pedagogical models depend heavily on the notion of “re-creating” a live classroom experience by segmenting live lectures into bite-size portions as streaming media. They are predominantly offered in English and largely reflect Western intellectual and cultural traditions. With informal education models representing an important educational alternative in fragile contexts, a careful analysis of learners’ needs and the development of context-appropriate solutions will go a long way towards leveraging these informal education offerings in higher education in emergencies. In order to serve students living in fragile contexts with limited and often interrupted connectivity, MOOCs that aspire to engage learners from these environments need to consider offering suitable engagement tools such as lower resolution versions of videos and/or podcasts of short duration, facilitating the use of offline
burst connectivity tools that download the minimum text-only information during connection, allow offline reading and composition of replies, and then manage upload interaction in a second burst. They need to be built around responsible pedagogical models that engage learners to interact with each other on the ground, that leverage non-mainstream intellectual approaches, are offered in several languages (English and at least one other local language), allow learners sufficient time to engage asynchronously with the learning material, provide for the design of learning materials with a view to re-use in local and other fragile contexts, and deploy significant efforts to ensure learner retention through peer mentoring and tutoring. Such courses should be configured for short periods of time, such as 4–5 weeks, so as to maintain motivation by setting achievable goals. Linguistic diversity would enhance cultural expression and promote cross-cultural communication, the lack thereof being often at the root of conflict. While fragile contexts and zones of active conflict feature a diversity of learners, similar to what would be found in any other context, the humanitarian dimension of conflict zones requires that design, development and delivery of education respect International Humanitarian Law. Accountability is an essential pillar of any and all education initiatives in emergencies: Once a course is launched, not one refugee should be left behind.

References


