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MOOC Adaptation and Translation to Improve Equity in Participation

Freda Wolfenden, Simon Cross and Fiona Henry

The Open University, UK

Abstract: There is an urgent need to improve elementary and secondary school classroom practices across India and the scale of this challenge is argued to demand new approaches to teacher professional learning. Massive Open Online Courses (MOOCs) represent one such approach and one that, in the context of this study, is considered to provide a means by which to transcend traditional training processes and disrupt conventional pedagogic practices. This paper offers a critical review of a large-scale MOOC deployed in English, and then in Hindi, to support targeted sustainable capacity building within an education development initiative (TESS-India) across seven states in India. The study draws on multiple sources of participant data to identify and examine features, which stimulated a buzz around the MOOCs, leading to over 40,000 registrations and a completion rate of approximately 50% for each of the two MOOCs.

Keywords: MOOCs, Teachers, Adaptation, India, Capacity Building.

Introduction

The need to improve elementary and secondary school classroom practices across India to raise standards of student achievement is well documented (Beatty & Pritchett, 2012; National Curriculum Framework for Teacher Education, 2009) and the scale and urgency of this challenge is argued to demand new approaches to teacher professional learning (Wolfenden, 2015). Massive Open Online Courses (MOOCs) represent one such approach and one that, in the context of this study, is considered to provide a means by which to transcend traditional training processes and disrupt conventional pedagogic practices. This paper offers a critical review of a large-scale MOOC deployed in English, and then in Hindi, to support targeted sustainable capacity building within an education development initiative - TESS-India. TESS-India (Teacher Education through School based Supportⁱⁱⁱ) is a UK-India teacher education partnership programme led by the Open University and funded by UKAid. TESS-India aims to improve the quality of teacher education in India through use of open practices and technologies across seven states in India: Assam, Bihar, Karnataka, Madhya Pradesh, Odisha, Uttar Pradesh and West Bengal.

Global participant enrolment in MOOCs is impressive and they have rapidly become part of many institutions' portfolio of learning opportunities, meeting multiple aims - professional learning, support for inclusion, pedagogic development, enhancement of brand awareness, and so on (Cross & Whitelock, 2016; Czerniewicz, Deacon, Small and Walji, 2014). There have been doubts that MOOCs developed in the US and Europe will 'provide a significant platform for expanding the higher education needs of developing countries to match the expansion of opportunities in the developed world' (Liyangunawardena, Williams, Adams, 2013, pp. 44-45) and evidence indicates very different user group demographics and completion rates in developing countries (Garrido et al., 2016). In



particular, despite endeavours such as MOOCs4Dⁱ, there has been little traction with MOOCs in the Education Development space, with few MOOCs designed specifically to support capacity building in development contexts. The 'Ebola in Context' MOOCⁱⁱ produced by the London School of Hygiene and Tropical Medicine brought together researchers, health professionals and emergency response workers to develop professional capacity during the West African Ebola crisis, but this was a free-standing learning episode to address an immediate need rather than integral to broader aims and progress.

The TESS-India MOOC was conceived in 2015. Following a pilot iteration the TESS-India MOOC was modified and run on the EdX platform for 6 weeks starting in November 2015 in English. It attracted over 10,000 registrations and 51% of participants completed the course – 81% of completers were from project states in India. Following user feedback the MOOC was offered again in Hindi in November 2016; this iteration attracted over 33,000 participations, 52% of whom completed the course.

TESS-India's overarching aim is the transformation of pedagogic practice in the school system. It is a response to the need to improve the quality of teaching in elementary and secondary schools and a recognition that traditional residential courses and conventional cascade models have not resulted in high quality learning for either teachers or their students (Wolfenden, 2015). The TESS-India solution is to situate teacher learning within school classrooms. This is made possible at scale through the use of Open Educational Resources (OER) and mobile, often locally owned, technology such as low-cost tablets and phones. TESS-India created a large bank of over one hundred original OER adapted (linguistically and culturally) for the local context of each of the seven project states. Movement in teachers' practice is argued to arise from teacher classroom enactment of the pedagogy modelled in the OER, and subsequent reflection prompted by the OER and supported by local experts and peers. To date over 800,000 educators have engaged with the TESS-India OER through a variety of modes and formats: formal accredited courses, informal learning episodes organized by local teacher educators, self-study, and accessing the OER directly from the web or offline from SD cards in mobile devices.

But teachers do not work in isolation, and sustainable shifts in the classroom practices of schoolteachers will only be achieved if there are also changes in the practices of the teacher educators with whom they work (Wolfenden & Murphy, 2015). In India teacher educators are a large, diverse and geographically dispersed group, which includes DIET educators (District Institutes of Education and Training), Block Resource Persons (BRPs), Cluster Resource Coordinators (CRCCs) and Head teachers. Often highly academically qualified, many lack expert practical skills in supporting teachers to enact the participatory pedagogy espoused in policy (National Curriculum Framework for Teacher Education, 2009) and many have few opportunities to support their own professional learning. Engaging with these teacher educators across the seven states was critical for TESS-India success but posed a challenge.

In response TESS-India proposed a capacity building MOOC^{iv} for teacher educators specifically to support implementation of the programme. The MOOC objectives embraced both familiarizing teacher educators with the TESS-India OER and their embedded pedagogy and, crucially, empowering teacher educators with the knowledge and resources to make decisions on when and how to use the TESS-India OER in their work with teachers. The MOOC begins with an introduction to OER and familiarisation with the TESS-India OER. It then moves on to how to help educators

reflect on their practice and learn skills in adaptation and modification of OER to suit the context and needs of the learner. It is designed primarily for teacher educators working in both pre-service and in-service education with primary and secondary school teachers.

In this paper we discuss how key design features of the TESS-India MOOC supported project objectives, the impact of these features on participant experiences and the implications for future use of MOOCs in this way.

Context for the TESS-India MOOC

Across India, as in many other contexts, cascade models are the dominant mechanism for reaching large numbers of professionals. TESS-India aimed to disrupt this approach; cascade models have limited efficacy and perpetuate hierarchies of professionals with front-line workers – teachers and teacher educators, receiving training after mediation by those more distant from the point at which the problem is greatest (Elmore, 1980). A MOOC, with its ability to enrol concurrently very large numbers of learners, has the potential to make available access to equitable learning experiences for participants across systems and locations. It opens the possibility for participants to exercise agency with respect to their professional learning (Edwards, 2015), negotiating their own learning journey to meet their specific professional needs within the assessment framework.

However in designing and delivering the TESS-India MOOC there were few prior experiences of similar MOOCs to draw on, although MOOCs are not new to India. Indeed large numbers of Indian participants have engaged with MOOC offerings from global platforms, and an emerging set of local MOOCs is being deployed to support professional training (Alcorn, Christensen, and Kapur 2015). But evidence suggests participants in these MOOCs are very different to the TESS-India target group; a large proportion of Indian MOOC participants are students enrolled in traditional university programmes who use MOOC study to augment their campus experience. Alcorn and colleagues (2015, pp. 46-47) describe Indian MOOC students as predominately male (~80%), average age 26, working in the IT, business or management sectors (58%) and based in the largest cities. To date there is little evidence of MOOC participation outside the large urban centres and from those engaged in ‘front line’ activities in sectors such as education and health. A rare exception is the horticultural MOOC from the Commonwealth of Learning delivered on mobile phones to gardeners and agricultural students in Uttar Pradesh (Yadav, 2015).

Positioning the TESS-India MOOC within a development initiative exerted a particular pressure on the MOOC course team – a MOOC completion target number was set by the funder. However, not only are innovations known to take hold in a small fraction of cases (Elmore, 1999), but in addition general patterns of MOOC participation indicate that a relatively low proportion of people registering actually complete their MOOC study – ‘a funnel of participation’ (Clow, 2013, p. 3). Working with global average MOOC completion figures indicated the project would need to recruit at least eight times the target completion number (Jordan, 2015) but such high levels of attrition (~90%) would have been unacceptable to the MOOC sponsors on the ground, the state governments. Hence there was an imperative to achieve a robust participant completion rate that exceeded global norms.

Design of the TESS-India MOOC

Contextually Appropriate

The TESS-India MOOC was designed and written by a small team of Indian and UK educators, the latter from the Open University, UK. Critical readers were from both countries, bringing expertise in online learning, professional development and knowledge of the context to the task. Surveys and interviews with sample groups of teacher educators – our core participants – were carried out as part of the scoping for the MOOC. This exercise indicated that a large percentage of potential participants had little prior experience of online learning and far from ubiquitous Internet connectivity, hence few opportunities to develop fluency and confidence in online environments despite their high levels of smart phone ownership. These conditions informed the design and delivery of a pilot MOOC in English, run in mid-2015 with approximately 200 participants drawn from the seven project states in India. Data from pre and post course surveys in the pilot then informed modifications for large-scale delivery at the end of 2015; for example, participants wanted a weekly assessment task and simplifications to some of the language and terms.

The modified MOOC was offered at the end of 2015 in English and attracted over 10,000 participants of whom approximately 51% completed the assessment. In-country field visits during the MOOC indicated that many participants found it difficult to follow and understand the contents in English, for example, 27% of Bihar participants reported challenges in studying in English. In response one of the TESS-India Bihar team translated the main MOOC narrative, activities and assessments into Hindi and sent this Hindi version in weekly instalments to the Principals and faculty at DIETS for them to download and share with participants (DIETS were contact class centres for the MOOC).

Following this experience the project secured funder agreement to offer the MOOC again in a Hindi version. The Bihar version of the MOOC was used as the starting point for creating the EdX Hindi MOOC. This process began with a workshop involving government nominated experts from the three project states speaking Hindi, together with their peers from Odisha. During the workshop the group generated a set of common Hindi terms for use throughout the MOOC to ensure consistency, for example Hindi terms for ‘facilitator’, ‘pedagogy’ and ‘summative assessment’; they agreed to a set of phrases and words to remain in English and undertook collaborative translation of previously untranslated resources together with refinement of the existing translation. Through participation in the workshop a sense of ownership of the MOOC developed across these four project states but also surfaced tensions in views around the MOOC forums. Some experts were reluctant to allow participant experimentation in the MOOC forums, even suggesting official reprimands for those who posted ‘gibberish or irrelevant information’, illuminating the extent of the ontological shift needed to practice more inclusive participatory learning (Wolfenden, 2015).

The size of the TESS-India MOOC was subject to much deliberation. Evidence suggests four weeks as the optimal length but most drop out occurs in the first two weeks (Jordan, 2015; Perna, Ruby, Boruch, Wang, Scull, Ahmad & Evans, 2014), so in view of the context and perceived importance of support, six weeks was chosen to enable scheduling of at least three face-to-face classes in each location (Safford & Stinton, 2016). We were also cognizant that almost all participants would be in

full-time employment and MOOC study was designed to occupy no more than four to six hours each week.

Project states (excluding Karnataka) have relatively low levels of educational achievement, high levels of poverty and weak infrastructure, including limited Internet access. In recognition of these bandwidth constraints, no videos were employed for teaching within the MOOC and the number of external links was minimized. An awareness of the limitations of the devices used to access the MOOC also influenced design, for example, webpages had a maximum word limit and were made to work effectively on small screens. Only one learning space was formally utilized (EdX platform) to reduce the potential for information overload and a clear learning path was signposted throughout the activities. Finally, in line with the project philosophy, an open-source platform was selected and all content had an open licence to support dissemination, sustainability and to offer future partners the flexibility to adapt the content.

Pedagogy and Assessment

Project data suggested most teacher educators were familiar with the theory of learner-centred pedagogy but had little practical experience with this approach; their personal learning experiences were within highly didactic settings and lectures dominated their own teaching. Thus it was essential that the MOOC modelled for teacher educators the pedagogy of the OER, engaging them as active contributors in a culture of participation and enabling them to experience the giving and seeking of support (Edwards, 2005).

A task oriented design was adopted; each week's study centred on learning activities rooted in a local context, reflecting authentic challenges faced by teacher educators and which aimed to be personally meaningful and rewarding for participants (Fischer, 2014). Activities involving 'communication' – posting comments on forums in response to specific questions, consulting colleagues or giving and receiving feedback occupied a similar proportion of study time. Reflection was a key element, with participants being encouraged to draw on and make sense of their experience each week. Expected learning time was given for each activity and the distribution of different types of activities is shown in Figure 1.

The range of possible assessment tasks was constrained by the affordances of the platform; the use of quizzes tends to dominate assessment in MOOCs and while these are useful in monitoring progress, we wanted to employ more dialogic forms of assessment reflecting the overall pedagogic approach. Thus MOOC assessment tasks incorporated forum contributions and peer-reviewed tasks alongside quizzes. The peer review tasks required participants to compose a 200-word response to a structured task: for example how they would use a TESS-India OER with teachers. After submitting their response a participant then received responses from two other participants and was asked to compose and send peer feedback on each response (50-100 words). Responses were allocated randomly as they were submitted. Participants who successfully completed all assessment tasks (six) and answered the pre-course questionnaire were eligible for a Certificate of Completion (this was issued at no cost to participants).

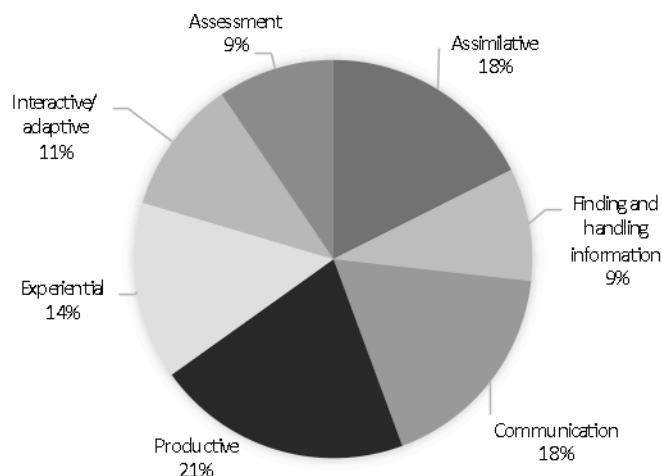


Figure 1: TESS-India MOOC distribution of activity type (drawing on Rienties et al, 2015)

Support

Knowledge of the participants and our previous experience in distance teaching indicated that particular attention should be paid to the forms of support offered to participants. We opted for a blended support model. Within the MOOC platform support is available from peers and facilitators through the course forums, feedback on the peer-reviewed assignments, and the framing of the activities themselves. But much of this interaction is asynchronous and sporadic. To complement this online support, participants in project states were allocated to local contact classes, meeting weekly or fortnightly throughout the period of the MOOC in DIETs and other Teacher Education institutions or in secondary schools. Contact classes were intended to serve a dual purpose; to enable participants to study as part of a group in a more synchronized fashion (Li, Verma, Skevi, Zufferey, Blom & Dillenbourg, 2014) while also offering online study facilities for participants without personal access to a PC or the Internet. Each class was led by a local facilitator — educators who had successfully completed an earlier version of the MOOC. Extensive facilitator guidanceⁱ (English and Hindi versions) and training was provided. During MOOC delivery facilitators received weekly student data updates to inform planning of the contact sessions (Slade and Prinsloo, 2015). This was more limited during the Hindi MOOC due to the logistics of extracting data for such a high number of participants. Attendance at the classes was voluntary but facilitators were strongly encouraged to make regular contact with the participants in their group.

Blended models of MOOC study are not uncommon but our model is unusual in two ways; firstly, the MOOC was not offered within a formal programme at a campus-based institution to augment or provide part of an existing course (Cutrell et al, 2015; Sandeen, 2013). Secondly, contact classes were organised and quality assured by the project rather than being purely user initiated and supported.

The Study: What Supported Participant Engagement and Completion?

Methodology

Data sample: Enrolment was open to a global audience for both TESS-India MOOCs and registrations came from 135 countries including 73 ‘global south’ countries. In project states the TESS-India team

worked closely with state agencies such as the SCERT (State Council for Education, Research and Training), to encourage enrolment amongst the relevant constituency of teacher educators and other teaching professionals. For example in Bihar articles were published in several local newspapers alerting readers to the course and start dates. In both MOOCs over 95% participants were from India. The MOOC was aimed primarily at teacher educators but in several states key stakeholders were keen for head teachers, teachers and trainee teachers to participate alongside teacher educators. In both MOOCs over 90% of participants who completed the pre-course survey described themselves as part of this wider group, with a slightly higher percentage of teachers and trainee teachers in the Hindi MOOC.

Data generation: This paper draws on multiple sources of data including MOOC platform data. In addition, participants were requested to complete a pre-course survey (approximately 6200 responses for the English MOOC and 21,000 for the Hindi MOOC) asking about expectations and motivations for undertaking the MOOC, together with demographic data - country of residence, age range, gender, prior academic and professional qualifications, and type and location of employment. A post-course survey was also offered but not mandatory (approximately 2500 responded to the English MOOC and around 16,000 individuals responded to the Hindi MOOC) and focussed on participant MOOC experiences and changes in professional practice perceived to have arisen from MOOC engagement. Both surveys were offered in the language of the associated MOOC, comprised mainly of closed questions and were completed online, frequently during contact classes. State officials, using a structured observation schedule to record the kinds of activities and approach of the facilitator, monitored a sample of contact classes in each project state. Finally each project state team completed regular reports on the running of the MOOC. Informed consent was obtained for data use from participants.

Data analysis: Data from the pre- and post-surveys were merged and combined with information about course completion and certificate eligibility. Records were anonymised and then analysed using SPSS v.22. There remain a limited number of cases in which students gave different identifying email addresses in the pre- and post-surveys. These cases were excluded from analysis that involved both pre- and post-survey data.

Findings and Commentary

The participants: There were 10,236 registered participants on the English medium TESS-India MOOC and 33,909 on the Hindi version. Approximately 60% responded to the pre-course survey in both MOOCs. Of this group, in the English medium MOOC over 40% also responded to the post-course survey, and in the Hindi version almost 80% responded to the post-course survey. Analysis of the English medium MOOC shows that in all but one district there was no significant difference in the proportion of women and men who responded only to the first survey and those who responded to both surveys. The exception was Madhya Pradesh where proportionally fewer men compared to women completed both the pre- and post-surveys. As would be expected from educators, participants were well qualified academically (almost half had a Masters degree or another post-graduate teaching certificate or diploma), but in many other respects did not confirm to the common profile of a MOOC user in India (Alcorn et al, 2015). There were some differences between the two cohorts; women comprised a slightly higher percentage of the respondents in the English language version (45% compared to 41%) and a much larger proportion of the Hindi MOOC participants were located in

rural or semi-rural areas: 39% in the English language version compared to 65% of known participants in the Hindi MOOC.

Over 90% of participants who responded to the pre-course surveys indicated that this was their first experience with a MOOC; for many this was their first experience of online learning, and for a few their first serious engagement with computers. Research in Europe with participants with high levels of digital competence indicates that past enrolment in MOOCs is a good proxy for MOOC participation and completion (Castano-Munoz, Kreigns, Kalz & Punie, 2016). Our experience offers a different perspective; in this context we observed high levels of MOOC completion from participants with much lower levels of digital competence and no prior experience of MOOCs. MOOC completion was measured by eligibility for a Certificate of Completion. There was little difference in the completion rate across the two MOOCs, with just over 50% of enrolled participants being eligible for a Certificate of Completion in both versions. As would be expected known participants on the Hindi MOOC were predominately from the Hindi speaking project states (Bihar, Madhya Pradesh and Uttar Pradesh) whilst in the English MOOC 81% (4229) were known to be from one of the seven project states. As far as we are aware no incentives or promotions were offered to encourage participant completion.

Unexpectedly there were several thousand participants in the Hindi MOOC from the state of Odisha. Here the state language is Oria and for these participants access to learning in the MOOC was enhanced through the provision of a local version of the MOOC in Oria. The translation was collaboratively created by three members of the TESS-India State Resource Group (SRG). In addition to peer reviewing within the group, the final translated version was reviewed by an esteemed academic with previous familiarity with TESS-India materials, and critically read by the Deputy Director of the SCERT. This senior educator involvement facilitated validation of the translated version by the state authorities and their subsequent support in distributing this version in hard copy to each DIET (District Institution of Education and Training) and publishing on the state website in PDF. Contact class observations and facilitator reports indicate that this Oria version was much used in the contact classes, with participants using their peers or 'Google translate' to translate their assessment responses prior to posting on the EdX MOOC website.

There was no discernible difference in completion rates (as measured by eligibility for a Certificate of Completion) between those living in a city (75% were eligible), rural area (75%) and urban locations (78%) in the English MOOC. Those who described themselves as living in 'semi-urban' and 'semi-rural' locations showed a slightly higher rate of completion (85%); their result, however, may in part be because these two terms are less clear and fewer respondents chose these options. In the subsequent Hindi MOOC survey the categories were updated with just four options: 'city', 'town', 'small town' and 'village.'

Access: Power supply, computer access and connectivity were considerable issues for many participants; for example, around 75% of Hindi MOOC participants said that Internet connectivity had been a challenge while studying in the MOOC. For some participants these barriers proved too great and caused them to withdraw from the MOOC. Individual access to a computer was rare in contact classes. Even in venues with functioning facilities often only one or two laptops served the entire class. But participants and facilitators responded creatively: in venues without electricity facilitators used printed copies of the MOOC pages, some facilitators acquired Internet 'dongles' with

multiple SIMM cards for different networks to maximise connectivity during the contact classes, others carried laptops to the classes – in rural Bihar a facilitator took access to his participants, driving to schools and BRCs with his own laptop and dongle, and a number of participants invested their own funds to purchase smart phones and laptops or to buy credit for their personal mobiles, while others visited Internet cafes. Data from the Hindi MOOC indicates that smartphones were the most common technology used by participants to access the MOOC.

Support: Over the duration of the English MOOC 590 contact classes were offered across the seven project states, and participants in these states who completed the MOOC attended an average of over five classes (5.8). In the Hindi MOOC the number of classes was much larger – averaging 30-40 per week in each of the four states. Contact class numbers ranged from five to 110, with an average of 37 participants, and lasted between 90 minutes and three hours. They were perceived to play a crucial role in MOOC engagement, as a Bihar facilitator commented, “Contact class has been the backbone of the MOOC” and completion rates for participants in locations with contact classes were very high, for example, in Odisha over 90% of those who responded to the pre-course survey completed the MOOC (English version).



Figure 2: A Hindi MOOC Contact Class (December 2016)

Facilitators were often undertaking this role for the first time and many took personal pride in supporting completion in their group, contacting participants individually and posting updates and photographs online following each class. Analysis of the English MOOC survey responses show weak to medium correlations between overall satisfaction with the MOOC and a range of indicators relating to in-class facilitator support, receiving helpful feedback and the value of attending classes for motivation and discussing online content with others. But the financial and time costs for travel to the contact classes limited attendance for some participants and caused them to withdraw.

Participants also supported each other through MOOC forums and assignment feedback. The post-course questionnaire for the English MOOC shows that most participants who completed the MOOC had previous experience of providing peer feedback (86.2%) although only 14.7% did this 'quite often.' Almost all respondents (96.3%) said that during the MOOC they provided peer feedback at least once, which means that for around 10% of participants, the MOOC may have provided their first opportunity in delivering peer feedback to colleagues. This is not to say, however, that participants did not find the activity challenging: 23.4% admitted to finding it 'very challenging' and 39.3% found it 'challenging.' No statistically significant differences at the $p = .05$ level were found between men and women in respect to their participation in providing peer feedback during the MOOC or the degree of challenge this presented. On occasion, participants were disappointed by the brevity of the peer feedback they received, despite guidance being provided and an unanticipated challenge arose when participants received peer feedback in an unfamiliar language.

During the MOOC delivery a third strand of participant generated support emerged. This took multiple forms, for example in Assam a DIET Principal recruited a 'computer friendly person' from the community to provide support for himself and members of his staff. In several states facilitators and / or participants utilised social media, creating WhatsApp, Facebook, Share-it and Google groups. Many of these groups were 'invisible' to the project team but we are aware of over a dozen WhatsApp groups in each MOOC iteration, in which participants reminded each other of deadlines, class times, shared ideas and asked for advice. Typically, comments focused on giving procedural information on the classes or giving encouragement to participants:

This is to inform all the registered participants of MOOC that the contact class for week 5 will be organised on 24th Dec at 10am in DIET Bhind. All registered participants are requested to attend. (Lead Facilitator, Bihar).

Dear all facilitators, please focus on completion of week three as it is going to end tomorrow. Forward this message as much as you can to reduce drop out.'

(Lead facilitator, UP).

All Moocers note, Dec 14 at 11.00 at night, make sure your 3rd week assignment is done today, otherwise you will be out of the course. If there is anything you have to understand, you can come to the DIET today before 11 am (Facilitator, UP)^{vi}.

And in several examples seen by the researchers, some participants used social media to answer each other's queries sometimes through the sharing of activity and solution screenshots, particularly for the 'drag and drop' and peer-review type activities. Some participants used social media to share their experiences of the MOOC as the examples in Figure 3 following illustrate:

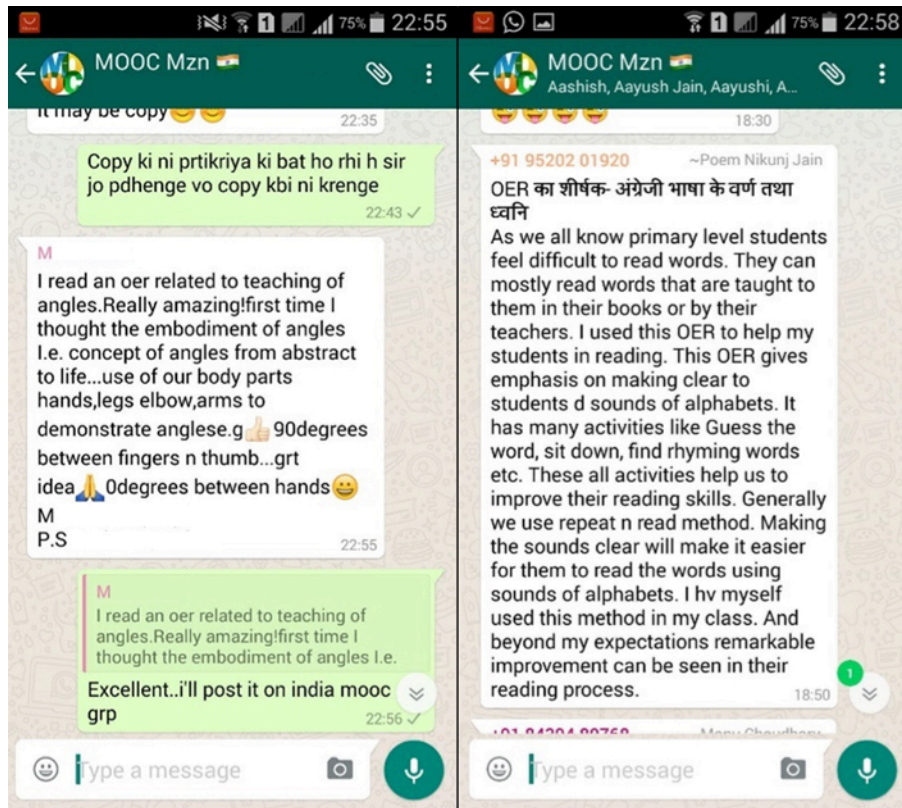


Figure 3: Examples of WhatsApp messages during the Hindi MOOC

Participants and facilitators also used these social media groups to share photographs of the contact classes and some of these peer networks and communities have survived 'post- MOOC'.

The support model for the MOOC experienced by participants can be represented in Figure 4 below:

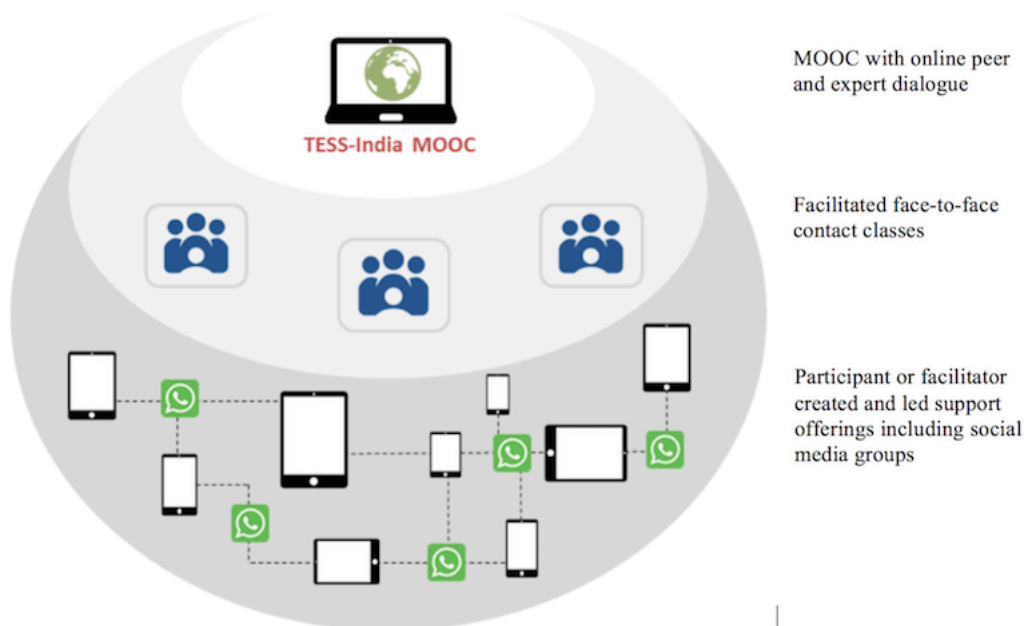


Figure 4: TESS-India MOOC support model

Perception of personal value and learning: Feedback from contact classes indicated that a number of participants struggled in the first two weeks; the notion of online study was novel and many were not convinced it was relevant to their work. But across the states this changed when participants successfully completed the assignments in Weeks 1 and 2 and encountered the TESS-India video OER in Week 3. As one facilitator commented, “after each weeks’ work their confidence in doing the course would increase and they would in turn become more engaged in it”. (Facilitator, Bangalore)

Those participants who completed the MOOC reported overwhelmingly positive experiences, for example, 73% described their overall MOOC experience as very good and 23% as good, while in the Hindi MOOC, the corresponding figures were 81% and 17%. This means that that 96% and 98%, respectively, rated their MOOC experience as either very good or good in the English and Hindi MOOCs. A high percentage (96%) of respondents reported that the English MOOC was very useful or useful whilst a similar proportion (98%) participating in the Hindi MOOC agreed or agreed somewhat that it had been useful in their professional role. Also, for almost all participants, the MOOCs helped to improve the effectiveness of teaching (98%, English MOOC) and the use of a more learner-centred pedagogy in their teaching (98%, Hindi MOOC). One particularly strong correlation was between satisfaction with the MOOC and usefulness for professional learning. Project reports substantiate this, “participants are finding the course interesting and meaningful to their own situation” (Assam MOOC Report). Just under half of those who responded to the pre-course survey listed gaining a Certification of Completion as a ‘main reason’ for taking part in the English MOOC. Historical ways of recognising learning within a highly hierarchical system may have accorded value to the Certificate of Completion.

A theme through all participant feedback was an appreciation of the value of exchanging ideas with their peers, this practice was new for many participants and was reported to enhance understanding of the OER and participatory pedagogy. The MOOC attempted to position all participants as having something of value to contribute and as one participant commented, “the MOOC has promoted peer learning and support without any competition and encourages collaborative learning”. Movement towards more participatory ways of teaching and learning is on-going and long term but there is evidence that the MOOC experience began to challenge participants’ previous views that teacher-created material is always of higher value than peer, or student, generated contributions and that learning is restricted to knowledge of specific facts. Whilst the TESS-India focus was on project implementation in India, the open global nature of the MOOC was important; participants reported appreciating reading different points of view from peers in other countries.

Following completion of the Hindi MOOC the post-course survey responses indicated that approximately half of the respondents had used the Key Resources and OER on more than two occasions. Reported changes in practice included (Post-course survey – Hindi MOOC):

Slow learners are also participating in class.

Students are now eager to do things on their own and have started coming every day.

I noticed great changes like students now help each others [*sic*] to solve a problem.

Students started taking interest and their concepts are becoming more clear. Attendance is also increasing.

An important learning outcome for participants was developing competence and confidence in using technology:

I had very limited knowledge about computers and no knowledge about internet. I was afraid if I will be able to do this course. But I got registered and now I have completed the MOOC and I am feeling very proud. (teacher, Odisha)

and "... this MOOC has eradicated their myth of not being able to pursue and complete an online course'. (facilitator, Bihar) The MOOC experience has stimulated further interest in online study with reports of participants subsequently engaging in online courses and MOOCs. There was a noticeable drop in the number of technical queries to the course team during the Hindi MOOC, indicating improved skills of local leaders and facilitators in responding to participant issues and queries, as this quote from a facilitator in Madhya Pradesh illustrates:

Being a MOOC facilitator, it was a great challenge for me to meet out the expectations of the participants. I had a basic understanding over access internet but do not have knowledge of practicing an online course. I took this opportunity as an individual task and buy a cell phone on which I can easily access internet. I share this with my trainee teachers and not only guide them but learn myself too and we completed the course successfully. Indeed, we enjoy this journey of learning and the entire course.

The goal of this study was to understand more about participants' engagement with the MOOC. Much of the data is from participants who successfully completed the MOOC and we have little data on those who opted out at various points during the six weeks. But given the relatively high percentage of participants who completed we suggest experiences reported here are helpful in designing and delivering similar MOOCs.

Concluding Thoughts

The TESS-India MOOC offered an innovative way to support professional development within a large-scale change project, disrupting traditional cascade models. Utilising a MOOC in this way for learning specific professional skills promoted a democratic approach in which all participants have space to contribute, congruent with the pedagogies advocated in policy. It developed a collective sense of shared endeavour for participants and was highly cost efficient, particularly when available in the dominant language. Research identifies key constraints on MOOC uptake and completion in developing countries as including awareness of MOOCs, access to IT infrastructure, relevance to country context, and perception of personal value and personal factors (Alcorn et al, 2015; Pompe, nd). These were relevant here but we suggest 'support for study' is also critical.

We attribute success — in terms of participant completion and changes in subsequent classroom teaching — to a blend of the digital and physical learning spaces, which help collapse the global into the local. Our findings challenge previous research (Milligan & Littlejohn, 2014), which found little transfer of learning to on-the job practices for health professionals participating in MOOCs. Project designed attributes such as the authenticity of the study and assessment tasks, the provision of contact classes with trained facilitators and consideration of technology access, combined with local adaptations initiated by participants to meet particular contextual needs. Imaginative user owned solutions were found to overcome infrastructure and access challenges and tools, such as social media harnessed by participants in self-generated support groups. Through the combination of the MOOC platform, contact classes and social media, the MOOC bridged local and distributed learning, creating

a hybrid space focussed on a shared 'domain of practice' (Wenger, 1998) in which participants could begin to 'learn to be' (Brown, 2005).

There has been much scepticism about the usefulness of MOOCs to support sustainable development. The relative success of the TESS-India MOOC (in both English and Hindi) indicates contextualised or localised MOOCs have potential in less economically developed contexts to target skills and capabilities of specific groups of professionals. But success demands careful attention to the provision of an enabling structure that opens possibilities for participants to generate their own solutions to issues of access and support alongside what was formerly provided. Creating such spaces for experimentation and innovation is not always easy, particularly in a context where historically flows of information and learner activity have been highly monitored and controlled.

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Authors

Freda Wolfenden is a Professor of Education and International Development at the Faculty of Wellbeing, Education & Language Studies, School of Education, Childhood, Youth and Sport, The Open University, United Kingdom. Email: Freda.wolfenden@open.ac.uk

Simon Cross, is a Lecturer, Learning and Teaching Innovation at the Institute of Educational Technology, The Open University, United Kingdom. Email: simon.j.cross@open.ac.uk

Fiona Henry is a Lecturer, Primary at the Faculty of Wellbeing, Education & Language Studies, School of Education, Childhood, Youth and Sport, The Open University, United Kingdom. Email: fiona.henry@open.ac.uk

Notes

i <http://www.moocs4d.org/>

ii <https://www.futurelearn.com/courses/ebola-in-context>

iii. www.tess-india.edu.in

iv TESS-India MOOC <https://www.edx.org/course/enhancing-teacher-education-through-oer-oecx-tess101x-0>

v <http://www.open.edu/openlearnworks/course/index.php?categoryid=45>

vi All social media messages translated from Hindi