

Institution: The Open University		
Unit of Assessment: C23 Education		
Title of case study: Transforming professional teacher development in India		
Period when the underpinning research was undertaken: 2008-2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Freda Wolfenden	Professor	2004-present
Simon Cross	Associate Director, QE	2006-present
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Period when the claimed impact occurred: 2014-2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>The TESS-India (Teacher Education through School-based Support in India) project was designed to to strengthen and transform professional development and classroom practice in seven target states in India. Through the use of Open Education Resources (OERs) and the embedding of 'localised' practices TESS-India provided a sustainable and scalable approach to pre- and in-service teacher education, with an emphasis on inclusive, participatory, child-centred pedagogy. This delivered: i) an impact on public policy through the endorsement of the use of TESS-India OERs in teacher education programmes by seven state governments in India and by influencing approaches to professional development of six non-governmental organisations in India, Ghana, and Uzbekistan and ii) an impact on the understanding and learning of over one million trainee teachers, teachers and teacher educators by developing their understanding of active learning.</p>		
2. Underpinning research		
<p>The need to improve elementary and secondary school classroom practices across India to raise standards of student achievement is well documented. It is widely acknowledged that there is a need to develop child-centred practices that position children as active learners. The urgency of this challenge in India has demanded approaches to teacher education and professional learning which can lead to systemic change in classroom practices that is both sustainable and scalable. The TESS-India project aimed to address this challenge and improve the quality of both teacher education and classroom practices across seven states in India (Assam, Bihar, Karnataka, Madhya Pradesh, Odisha, Utter Pradesh and West Bengal).</p> <p>The TESS-India approach to addressing this challenge was initially informed by action research undertaken in Africa between 2008 and 2015. Researchers tested their working hypotheses (Theory of Change) that teaching and learning materials that are freely available and easily adaptable (OERs) could be used to shift the pedagogic practices of teachers and teacher educators if collaborative structures and practices were put in place to enable teachers to adapt and share the OERs for/in their local contexts. Action research examined the practices drawn on in the localisation of OERs. The implications of these localisation practices for subsequent use of the OERs were examined, along with ways in which the OERs could be successfully integrated into teacher education programmes. For example, the disruption of theory-based pre- and in-service programmes through the use of OERs in eight primary schools across four countries in Sub Saharan Africa was examined in one study. The research evidenced: a lack of clarity in how relationships between practice and theory are understood and the implications of this for teaching within teacher education programmes; individual beliefs and values that created barriers to offering student teachers and teachers an understanding of theory and practice as a duality; how local teacher educators and teachers acted to broker pedagogic change within their institutions and linked schools [O1]. An analysis of the factors influencing OER adaptation by</p>		

educators revealed that many educators were reluctant to publicly modify the work of others and difficulties in convincing educators of the validity of their local knowledge which would justify modification of OERs [O2]. Another study focused on teacher education institutions by exploring how and when teacher educators engage with OERs and factors that support, constrain and sustain the development of productive educator identities with OERs such that pedagogy is transformed. Analysis of data drawn from 58 survey respondents, 36 teacher-educator interviews and six institutional stake-holder interviews indicated fragmentary understanding of OERs, dissonances between ways in which individuals use OERs and dominant institutional values and discourses and the structural and cultural factors which act to limit agency with regard to OER use. But for some educators, OERs provided a tool for extending their agency to move towards more participatory practices and this was enhanced by social capital from 'belonging' to extended networks [O3].

The refinement and expansion of the TESS-India approach was informed by action research that took place in India, in collaboration with key TESS-India beneficiaries between 2015 and 2017. Research sought to understand localisation processes and experiences in the Indian context and to explore the potential of MOOCs to enable a scalable approach to pedagogical change in classroom practices. For example, the effectiveness of a large-scale MOOC deployed by the TESS-India project was critically analysed [O4]. Analysis of MOOC platform data, a pre-course survey of 27,000 participants, a post-course survey of 18,500 participant and observations of MOOC facilitators indicated that MOOCs have potential, in less economically developed contexts, to target the skills and capabilities of specific groups of professionals, but that their success demands careful attention to the provision of an enabling structure that opens possibilities for teachers to generate their own solutions to issues of access and support alongside what was formerly provided. In another study, a mixed methods approach involving interviews with 36 'localisers' (teachers and teacher educators), analysis of localisation workshop reports and state endorsed reports was employed to explore the practice of those involved in TESS-India localisation and the ways local actors devised for dealing with this activity. This identified the importance of teacher agency and the barriers to the exercising of this agency [O5].

Overall, the research revealed four important messages for stakeholders who have a responsibility for developing sustainable and scalable approaches to transforming classroom practice of primary and secondary school teachers:

1. Teacher education programmes can drive pedagogical change in schools and sustain it using OER and MOOCs - shifting how theory is used in practice. Teacher educators play a key brokerage role across communities, as do teachers within schools.
2. Key success factors for the integration of OERs into teaching practice are the accommodation of local cultural and institutional practices and the agency of teachers in determining OER use.
3. It is important for teachers to be supported to adapt OERs to their local contexts through tools and processes that create communities and identity.
4. External networks are valuable in supporting educators to use OER to transform practice.

3. References to the research

The underpinning research has been funded by DFID, Hewlett Foundation Trust, The Allan and Nesta Ferguson Trust and ROER4D. O1, 2, 4, & 5 were peer reviewed.

- O1. Murphy, P., & Wolfenden, F.** (2013) Developing a pedagogy of mutuality in a capability approach: Teachers' experiences of using the Open Educational Resources (OER) of the teacher education in sub-Saharan Africa (TESSA) programme. *International Journal of Educational Development*, 33(3), 263-271. <https://doi.org/10.1016/j.ijedudev.2012.09.010>
- O2. Wolfenden, F.** (2012) OER production and adaptation through networking across Sub-Saharan Africa: learning from TESSA. In J. Glennie, K. Harley, N. Butcher, & T. Van Wyk (Eds.), *Open Educational Resources and Change in Higher Education: Reflections from Practice*, 91-105. https://www.oerknowledgecloud.org/archive/pub_PS_OER_web.pdf

- O3. Wolfenden, F., Auckloo, P., Buckler, A., & Cullen, J.** (2017) Teacher educators and OER in East Africa: Interrogating pedagogic change. In C. Hodgkinson-Williams, & P. B. Arinto (Eds.), *Adoption and impact of OER in the Global South*, 251-286. ROER4D
<https://doi.org/10.5281/zenodo.600424>
- O4. Wolfenden, F., Cross, S., & Henry, F.** (2017) MOOC adaptation and translation to improve equity in participation. *Journal of Learning for Development*, 4(2), 127-142.
<https://jl4d.org/index.php/ejl4d/article/view/209>
- O5. Wolfenden, F., & Adinolfi, L.** (2019) An exploration of agency in the localisation of open educational resources for teacher development. *Learning, Media and Technology*, 44,3,327-344. <https://doi.org/10.1080/17439884.2019.1628046>

4. Details of the impact

The TESS-India project was designed to strengthen and transform professional development and classroom practice in seven target states in India: Assam, Bihar, Karnataka, Madhya Pradesh, Odisha, Uttar Pradesh and West Bengal. At the core of the TESS-India approach was an Open Educational Resources toolkit to support the professional practice-based learning of primary and secondary teachers of Literacy, Maths, English and Science (www.tess-india.edu.in). In addition to the toolkit, a six-week task-based MOOC was designed which utilised a 'hybrid' support model combining online support through course forums with face-to-face support through regular contact sessions in the seven target states across India.

The key beneficiaries of the TESS-India Project are: State Resource Groups comprising teacher educators, leading teachers and teaching education stakeholders; teacher educators in District Institutes of Education and Training (DIETs) and local teacher advisers (called Block Resource Coordinators (BRCs) or Cluster Resource Centre Coordinators (CRCCs)). The TESS-India project team has worked with these key beneficiaries in order to: 1) write, refine, prepare, film, translate and localise the OERS within the toolkit. 2) persuade each state government (State Council of Education, Research and Training - SCERT) to officially approve the materials and mandate their use 2) identify opportunities to embed the materials in teacher educator programmes across India 3) identify NGO partners to collaborate with in order to extend the reach of TESS-India in teacher education programmes.

The overall outcome of this work with beneficiaries is that 26,028 sets of OER have been distributed as print, SD card, CD/DVD and pen drives. The TESS India Massive Online Open Course (MOOC) has extended the reach and impact of the TESS-India approach enhancing digital literacies and building teacher communities. Through 2015-17, two iterations of the TESS-India MOOC (in Hindi and English) attracted over 43,000 registrations, with approximately 95% of these from India including the 7 target states, and with a completion rate of over 50% (higher than the average of 12% for MOOC completion) [C1]. Data from the TESS-India YouTube channel indicates that there were 13,700 subscribers and over 3 million views (26/11/20). More specifically, the TESS-India project has had an impact on:

- i) **public policy** through the endorsement of the use of TESS-India OERs in teacher education programmes by state governments and by influencing approaches of non-governmental organisations in and beyond India to teacher professional development.
- ii) **the understanding and learning** of trainee teachers, teachers and teacher educators by developing their understanding of active learning.

The scale and quality of this impact has been recognised through two major awards. In 2015, TESS-India won the Bond Innovation award, with judges commenting how the project was using 'innovation through decentralisation to address a stubborn challenge. In March 2017, TESS-India was awarded the Guardian University Award 2017 in the 'International Projects' category. The judges gave the following comments in support of their decision: "*We think this project is outstanding in its innovative and impactful teaching and learning approach. In terms of impact, the initiative contributes to development of new forms of teacher education, using web based, globally available technology*".

Influenced teacher education policy through state endorsement of TESS-India OERs.

The success of TESS-India OERs and MOOC has led to changes in public policy, specifically how teacher education is conceptualised and delivered in key states in India –moving away from cascade models towards professional learning, situated in the school classroom and supported by various local experts. A 2018 independent evaluation of TESS-India activity concluded that it has demonstrated an “*innovative and path-breaking approach to professional development of the teacher community*” and ‘*it has been successful in influencing teacher education activity in alignment with the current thinking in the country*” [C1]. State endorsement of TESS-India approaches to teacher education can be evidenced by the inclusion of specific TESS-India activities in Teacher Education Annual Work Plan and Budgets which SCERTS submit to the National Ministry for approval and once approved are then transformed into ‘Orders’. For example in Madhya Pradesh, following government approval, the SCERT issued orders in 2016 and 2017 to use the TESS-India OER in all Teacher Education Institutions and purchased micro-SD cards containing the TESS-India OERs for all 286,000 elementary teachers at a cost of 1,432 lakhs (approximately GBP1.5 million) [C2]. In Uttar Pradesh, the activities agreed in the 2015/16 Annual Work Plan included capacity building of all teachers and teacher educators on the use of the OER and three training programmes utilising the TESS-India OERs were incorporated into the pre-service curriculum for courses offered by 75 DIETs (District Institutes of Education and Training) in the state reaching 10,00 teachers and teacher educators per year [C3]. Four states (Assam, Odisha, Bihar and Madhya Pradesh) have integrated the TESS-India OER into pre-service programmes which are using the resources for lesson planning, practice teaching and project work. In five states (Assam, Odisha, West Bengal, Karnataka and Madhya Pradesh) the TESS-India OER have been integrated into large-scale in-service teacher education programmes [C1]. In Bihar, in addition to embedding the OER materials in a 2-year pre-service teacher education programme the OER have been mapped to four set textbooks to aid teacher use of the OER [C4].

Influenced approaches of NGOs to teacher professional development

The TESS-India OER have been utilised by several NGOs and community organisations in their work with teachers. For example, in 2015, STIR (an NGO working across India and Uganda) integrated the materials into a project with teachers designed to improve teacher motivation through the use of micro-innovations in their classrooms [C5]. In July 2015 TESS-India materials were also integrated into a training module for 100 UNICEF ‘intervention schools’ that was designed to promote student-centred and activity-based learning in classrooms [C6]. The National University for Educational Planning and Administration has integrated the TESS-India Leadership OER into the national programme for school leadership training to support ontological shifts in practice (February 2014) [C7]. In 2020 the OU entered into a collaboration agreement with the large Indian NGO, Gurushala, to develop an online course based on the TESS-India materials. The course is called ‘Teaching English in Secondary School’ and there are 4 modules, each with 12 hours of teacher learning. Beyond India, the TESS-India OER are heavily utilised in the ‘Transforming Teacher Education and Learning (T-TEL) programme which aims to transform programmes of initial teacher education in all public colleges of Education in Ghana. TESS-India resources are incorporated into training materials for College Tutors and handbooks to guide Student Teachers during their three teaching practice periods. T-TEL was highlighted in the DFID Education Policy (2018) for its high quality open digital teaching resources [C8]. Finally, funded by the Global Partnership for Education’s Knowledge and Innovation Exchange (KIX), a teacher professional development programme in Ghana, Honduras and Uzbekistan is adapting the TESS-India model (2020) [C9].

Developed trainee teachers’, teachers’ and teacher educators’ understandings of active learning

The TESS-India OER have reached over 1 million teachers across 7 states in India through a variety of means [C1] including: micro-SD cards distributed to 286,000 teachers in Madhya

Pradesh; state sponsored school improvement programmes such as 'Shaala Saddhi' in Madhya Pradesh involving 25,000 schools; within in-service programmes delivered by the Sarva Siksha Abhiyan (SSA) focussing on 10,000 Maths and Science teachers in Odisha and 170,000 Maths, Science and English teachers in Madhya Pradesh and the use of TESS-India Language and Literacy OER with 235,000 elementary teachers in the Padha Bharat Badhe Bharat (Storytelling) initiative in Madhya Pradesh as part of a national early reading directive. Evidence indicates that engagement with the OERs has had a significant impact on classroom teachers understanding of how to engage children in active learning experiences. For example, 2018 data from videos, classroom observations, lesson plans and interviews with a sample of 21 pre-service teachers, teachers and teacher educators in Madhya Pradesh, Odisha and Bihar indicate changes in classroom practices where teachers are utilising activities and drawing on ideas from the TESS-India OERs [C10]. All the practitioners report changes in their own practices through generating lesson plans with a wider range of activities for their pupils involving new, creative uses of different locally available resources. For example, one teacher from Odisha said: *"By using the key resources students became active and took interest to share questions. There was less gap between pupils and me. It gives me more ideas to make my class more creative and successful"*. Furthermore, the whole sample consistently talked about how these changes had led to greater pupil engagement indicating that they understood how changes in their practice impacted directly on the active learning of the children. Comments include: *"Students attendance is getting better day by day due to their interest with the introduction of TESS-India materials"*; *"Children are not scared to talk to the teachers as they were before"* and *"The materials help in arousing children's curiosity and allows them to do things as it encourages teachers to conduct activities"* and *"the child's fear of the teacher has gone away through the strategies suggested in the OERs and videos"*. The TESS-India model for systemic change centres on relational change in the practice of teacher educators and teachers. Movement in the practice of teacher educators is therefore important for sustainable change. DIET faculty have used the resources extensively in their pre-service teacher training and encouraged student teachers to use the resources for lesson planning, practice teaching as well in their project work. One outcome of this is that, informed by their observations of student teachers, teacher educators have enhanced their own understanding of active learning. For example, one teacher educator from Madhya Pradesh shared: *"The [...] techniques seen in the videos have influenced my thinking and led to a lot of change in me. It has changed the way I had previously thought classrooms should be like and I looked at them differently. I also realized that I needed to change a lot as a Teacher Educator"* [C10].

5. Sources to corroborate the impact

- C1.** Evaluation Reports. Impact on public policy and practitioner understanding and learning. DFID and independent consultant.
- C2.** Government documents. Impact on public policy. Madhya Pradesh and Indian government (One letter is in Hindi language).
- C3.** Report. Impact on public policy. TESS-India representative in Uttar Pradesh.
- C4.** Email. Impact on public policy. Employee of Save the Children, India.
- C5.** Teacher education resource materials. Impact on public policy. STIR.
- C6.** Report. Impact on public policy. TESS-India representative in Bihar. (Some content is in Hindi language).
- C7.** Staff development resource. Impact on public policy. National University of Educational Planning and Administration, India.
- C8.** Policy document. Impact on public policy. DFID.
- C9.** Report. Impact on public policy. KIX.
- C10.** Interview focus group and observation data. Impact on practitioner understanding and learning. Teachers and teacher educators in Madhya Pradesh, Odisha & Bihar.