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# Addressing a National Crisis in Learning: Open Educational Resources, Teacher-Education in India and the Role of Online Communities of Practice.

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## Abstract

As submitted.

## 1 INTRODUCTION: THE APPETITE FOR OER IN INDIA

For over a decade open educational resources (OER) have been promoted as a solution to educational exclusion globally. India, long accustomed to open and distance learning, has positively embraced OER (and near-OER, see Harishankar, 2012), standing out amongst Asian countries for the quantity of OER it has published (Dhanarajan & Porter, 2013). Government enthusiasm for OER has contributed to the apparent appetite for openness in India. For example, in 2008 the Indian Government's National Knowledge Commission (NKC) called for a 'national e-content and curriculum initiative' to stimulate the creation, adaptation and utilization of OER by Indian institutions, in addition to leveraging globally-produced OER, with the aim of 'upgrading the quality of, and enhancing the access to, education' (National Knowledge Commission, 2008, p. 108).

Das (2011, p. 14) optimistically observes that 'Indian OER initiatives serve diverse learning communities and [are] set to bridge knowledge gaps between privileged and under-privileged communities'. This paper reports on a study by the UK Open University's OER Research Hub (OERRH), intended to contribute to knowledge about OER's potential to serve under-privileged communities in India by exploring the ways in which OER might be used in India's teacher education system.

## 2 THE CONTEXT

It is difficult to deny that India's school education and teacher-education system needs improvements both in the quantity and in the quality of its provision, with a shortfall of at least 1.33 million teachers and clear evidence of falling educational standards. For example, the 2012 Annual Status of Education Report (ASER) on school registrations and standards in rural India suggests that the 2010 Right to Education (RTE) Act has improved school facilities and increased school registrations but is accompanied by 'an alarming degeneration' (ASER 2012, p. 1) in the quality of learning, evidenced in a 'dramatic' fall in reading and mathematics standards and a 'national crisis in learning'.

The need to improve the practice of India's teachers is widely voiced. In January 2013 The Times of India (Gohain, 2013) reported that over 99% of Bachelor of Education (BEd) graduates failed to pass the Central Teacher Eligibility Test (CTET) which, under the RTE Act is mandatory for becoming a teacher for classes I to VIII in any central government school. Deeming the situation 'appalling' the Business Standard (Majumdar, 2013) expressed alarm that 'quite a high percentage of the BEd graduates who applied for the test are already elementary school teachers with a two-year Diploma in Teacher Education (DEd) from District Institutes of Education and Training (DIET) or their equivalent'.

The OERRH study is largely focused on the District Institutes of Education and Training (DIETs), which deliver much of India's teacher-education provision. Interviews and focus groups with DIET Principals, teacher-educators and trainee-teachers studying for the Basic Teacher Certificate (BTC) at three Uttar Pradesh DIETs have allowed for a more nuanced understanding of the context in which TESS-India is operating, and of the challenges facing teachers and teacher-educators in India, than is possible from statistics alone.

### 2.1 Case study 1: TESS-India

The main focus for the OERRH study is the UK Open University-based TESS-India (Teacher-Education through School-Based Support in India) project. Department for International Development (DFID)-funded TESS-India aims to use OER both in training new teachers and in improving the practice of existing teachers. TESS-India builds on the success of its sister project TESSA ([www.tessafrica.net](http://www.tessafrica.net)) (see Wolfenden, 2008), which brought together teachers and teacher educators from across sub-Saharan Africa in creating a bank of OER in four languages to support school-based teacher education. Like TESSA, TESS-India intends to use OER in helping teacher education institutions to deliver quality teacher training, at scale and speed, to both new and existing teachers. TESS-India is working in partnership with Indian States and partner education

institutions to create the biggest collection of freely available, high quality, teacher education resources in India, co-written by UK and Indian academics and available both in print and online.

### 3 THE POTENTIAL OF OER FOR INDIAN TEACHER EDUCATION

The OERRH research has confirmed the potential for OER to be used within India's education system, identifying possible benefits that include:

- Contributing to ICT-focused professional development for teachers and teacher-educators;
- Broadening the range of the curriculum;
- Allowing teachers to make lessons more engaging for hard-to-retain pupils;
- Encouraging teachers and teacher-educators to reflect on their practice in the light of information about pedagogies that are different from their own habitual approach.

A repeatedly identified challenge for India's teachers is the tension between families' desire for children to stay at home, working and looking after siblings, and the government's drive to achieve 100% school attendance. Chandana Goswami, a Lecturer at the Raebareli DIET, explains that:

Registration for school is not the same as attendance. The figures may show growing registrations but the reality is different. The biggest challenge for teachers is getting children to attend school and engaging students in rural areas when their families resist education. Many parents don't understand the efforts being made by NGOs and governments to educate their children....For them, education is secondary to working. (Interview, 13 May 2013)

Teacher-educators at Lucknow DIET offered an insight into a further problem for teacher-educators - a disparity between teacher-educators' and trainee teachers' ICT skills. One explained:

BTC trainees are typically very well qualified, with professional qualifications...and go into teaching because a job is almost guaranteed....If a person is overqualified and you're teaching them basic things it's difficult to arouse interest...Many know ICT better than we do. (Focus group, 14 May 2013)

The OERRH research revealed that some teacher-educators are already making informal use of OER, in the shape of Wikipedia, to overcome this challenge. One teacher-educator at Harpur DIET commented:

I use Wikipedia for getting more information about a subject. I can then provide a better lesson for the student teachers. Sometimes we have to teach outside our subject area. Then Wikipedia is good...for getting you going in a new field. (Focus group, 9 May 2013)

Trainee teachers at Harpur DIET (Figure 1) also pointed to Wikipedia's value for helping increase school attendance, one explaining that 'if we can use Wikipedia to make our teaching more interesting we are more likely to keep the children in school'.



Figure 1: A micro teach at Harpur DIET

Lucknow DIET Principal Lalita Pradeep offers a further perspective on the potential of OER within the Indian teacher-education system, commenting that 'OER offer exposure to others' ideas and allow professional development to be delivered in imaginative ways'. Pradeep explains that:

Teacher-educators need exposure to good practices from here and abroad, but in most instances they don't get it. If they were connected, and used the Internet and OER...they would have a direct link with the rest of the world and with new ideas and ways of teaching.

A wealth of online teaching and learning materials are already freely available to India's teachers. However, TESS-India Academic Director Steve Hutchinson warns that 'quality is more important than quantity and that it is essential for OER to be of a very high standard if they are to be used for teacher education'. He adds that most of the existing teacher education OER are in the English language and designed for an audience outside India, and that a key focus of the TESS-India project in the remainder of 2013 is the transculturation of the OER created for TESS-India by UK and Indian writers, ready for their use in each of the seven states with which TESS-India is working.

Transculturation involves adapting materials to suit a local context and can include changing the language, pedagogical approach, content and imagery, and the cultural and geographical references featured in resources. Harishankar (2012, p. 228) suggests that 'for OER to succeed in a multilingual country like India, the linguistic localisation becomes a useful incentive.' Lucknow DIET Principal Lalita Pradeep looks beyond language barriers, stressing that 'the TESS-India resources need to be very contextualised so teachers feel they are relevant to their profession, job or setting'. Ivins (2012, p. 219), in a study of the localization of OER in Nepalese rural communities, confirms that 'localization unlocks the power of OER' and 'must involve locals' and that 'a community of practice bolsters localization'.

#### **4 BARRIERS TO OER USE IN THE INDIAN TEACHER-EDUCATION SYSTEM**

All is not entirely rosy, though, in terms of the likely adoption of OER by teacher-educators and teachers in India and the OERRH research revealed various perceived and actual barriers to the use of OER.

##### **4.1 Lack of ICT equipment and skills and a change of attitude towards ICT**

TESS-India, like the TESSA project before it, will be delivering OER in both print and digital formats. The initial rollout of materials can therefore be achieved independently of any digital infrastructure in the DIETs. However, the full potential of the OER as adaptable learning materials is dependent on teachers and teacher-educators having ICT skills and access to an Internet connection and ICT equipment.

The ICT facilities of the three DIETs visited varied greatly. For example, Harpur DIET currently has just one PC (with an Internet connection), located in the Principal's office. Harpur DIET Principal Dr Nita Asthana, comments:

We are very limited in the computers and resources we have available. The faculty have very limited ICT capabilities too and have many professional development needs for ICT training. The Lecturers here are very well qualified, many with PhDs, but I don't think many of them are using the Internet. (Interview, 9 May 2013)

The Raebareli DIET is better equipped, with an Internet-connected PC in the Principal's office and a 'Computing Lab' that can be used to deliver ICT training (see Figure 1).



**Figure 2: the Raebareli DIET Computing Lab**

Lucknow DIET is the most well-equipped of the three DIETs visited, with Internet-connected PCs, data projectors in every classroom. However, even here the potential for OER use is not straightforward as the teacher-educators still have limited ICT skills. A teacher-educator at Lucknow DIET revealed that she finds it difficult to teach trainee teachers who are more ICT-skilled than she is, commenting that ‘they expect me to be as good as them because I’m the lecturer but I have nothing new I can show them’.

The low ICT skill level of teacher-educators in the three DIETs visited indicates that any introduction of OER needs to be accompanied by ICT training. Lucknow DIET Principal Lalita Pradeep confirms that:

There is a great need for CPD in using OER. Almost half the teacher-educators here are not using email, despite persuasion...Basic capacity building is highly required allowing teacher-educators to choose and evaluate OER according to their needs and the needs of their students, to reuse and adapt, and to feel ownership.

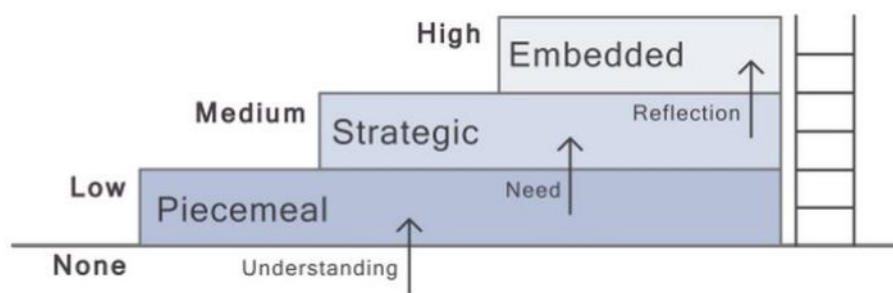
Pradeep adds that a change of attitude towards the ways in which ICT might be employed is also needed. She explains:

Many of the teachers have the ICT skills but don’t use them for professional development. They need to look beyond Facebook and email and social networking...before we can realise the potential of OER here and elsewhere.

#### **4.2 Resistance to openness in a hierarchical society**

The OERRH study also highlighted a possible incompatibility between the ‘spirit of open’ (Perryman, 2013) that many suggest characterises the global OER movement and India’s deeply hierarchical caste-based society. This, in turn, may have implications for the extent to which OER’s full potential can be realised.

Wild (2012) proposes a three step model to represent different levels of educators’ engagement with OER (Figure 3), where low engagement involves educators using and sharing resources with no adaptation, medium engagement involves educators integrating OER into core teaching materials and ‘tweaking’ them to meet their own needs, and high engagement involves producing and sharing OER and becoming an advocate for OER use.



**Figure 3: The OER Engagement Ladder © 2012 Joanna Wild, CC-BY**

Getting beyond a low-engagement, piecemeal use of OER is important to the resources' potential being fully realised and requires a fluid, democratic approach to knowledge ownership and resource-sharing. Lucknow DIET Principal Lalita Pradeep comments that 'we need the capacity to adapt OER when needed as when you adapt something you get a feeling of ownership'. However TESS-India's Steve Hutchinson suspects that:

The true openness associated with OER adaptation may not align well with India's hierarchical caste-based culture where there are quite rigid notions about who owns (and should own) the knowledge and who should share it. The adaptation possibilities offered by OER bring the pedagogical approach to life...but it remains to be seen whether educators from all levels of the Indian education system will buy into the full potential of OER.

### 4.3 A deficit view of India's teachers and teacher-educators

Many of the people interviewed for this study, academics, DIET principals and teacher-educators alike, suggested that lack of teacher and teacher-educator motivation could be a hard to remove barrier to OER use in India. TESS-India's Steve Hutchinson cautions, however, that public attacks on teachers and teacher-educators as apathetic, unreliable, poorly skilled and unmotivated could act as a self-fulfilling prophecy, 'a deficit view that is in danger of being self-perpetuating'. Hutchinson explains:

If nobody believes in the teachers, why should they believe in themselves and in each other? There are some exceptional teachers in India and it's important not to forget this...We need to show teachers that we value them and give them autonomy over their own professional development. We need a system that allows teachers to be inspired by each other. This will increase teacher motivation and the potential for OER to be effective in raising educational standards and in training more teachers. (Interview, 15 June 2013)

The OERRH research visits showed numerous examples of teacher-educator innovation and creativity. Figure 4 shows a puppetry teacher at Lucknow DIET demonstrating a teaching aid created by a trainee teacher from recycled materials. The challenge remains, though, of how to repeat this creativity in the context of OER.



**Figure 4: Puppetry teacher at Lucknow DIET**

## **5 EMPOWERMENT, MOTIVATION AND TRANSFORMATIVE DEVELOPMENT THROUGH OER-USING COMMUNITIES OF PRACTICE**

The identified barriers to OER use amongst India's teachers and teacher-educators may paint a pessimistic picture of the likely impact of the TESS-India project. However, evidence from diverse examples worldwide and from the Teachers Communities of Learning (TCoL) and Subject Teacher Forum (STF) projects in Bangalore, India, suggests that communities of practice (Wenger, 1998) could offer one way of ensuring that OER have maximum impact on the country's teacher education system and that the identified barriers to OER use are minimised.

TESS-India Academic Director Steve Hutchinson suggests that 'today, the massive rise in the use of social media shows people collaborating and communicating in unprecedented ways and we can learn from this when we think about how to use OER to improve Indian teacher education'. Indeed, BTC trainees in India are already using Facebook to communicate about their training, for example the Uttar Pradesh 2012 BTC Facebook group (213 members) ([https://www.facebook.com/groups/511713148876190/?ref=br\\_tf](https://www.facebook.com/groups/511713148876190/?ref=br_tf)) and the BTC 2010 Sangharsh Morcha group (783 members) (<https://www.facebook.com/groups/btc2010saharanpur/>). TESS-India plans to develop a web portal giving access to all of the OER produced by the project, allowing the teacher education community to comment on, adapt and refine the resources, and to add new OER. The community will be able to rate new and revised resources using a 'Like' system and a reputation management system will allow resource contributors to build their status within the community.

### **5.1 Case Study 2: The Subject Teacher Forum programme and the Teachers Communities of Learning**

Two projects implemented by Bangalore-based NGO IT for Change show how a community of practice can be used to nurture informal, transformative learning amongst educators and support the collaborative creation of OER. The Subject Teacher Forum programme (STF) pilot, which ran in 2011 and 2012, spanned over 800 high schools with government-provided ICT facilities, across 14 districts of Karnataka. The programme operates on an 'enhanced cascade' model (IT for Change, 2012). State level workshops developed 240 Mathematics, Science and Social Science high school teachers as 'resource persons' who subsequently trained around 2,000 teachers from over 800 schools, using DIET ICT labs. The workshops covered ICT skills, the use of public educational software tools and discussions about educational policy and digital pedagogy. They were complemented by mailing groups and a web portal (<http://RMSA.karnatakaeducation.org.in>) through which teachers discussed their discipline in addition to creating and sharing OER. The STF project is now being extended to cover additional disciplines and schools.

The 'Teacher Communities of Learning' (TCoL) project is a more intensive programme, covering fewer schools than the STF (20 primary schools in total) but working with all teachers in those schools on ICT skills development, the creation of OER and the integration of ICT into the classroom. Between 2010 and 2011 IT for Change implemented online learning communities for teachers in these schools, giving them the opportunity to network with and seek help from each other, to share resources, and to critically engage with education policy and practice.

IT for Change Programme Associate Ranjani Ranganathan points out that the STF and TCoL communities emphasise to teachers the value of working together to share knowledge and create resources. She explains that the teachers 'learned from each other new ways of teaching and the value of peer-support and after participating in regular workshops they began developing working relationships with each other and collaborating to produce lesson plans and teaching activities'. (Interview, 10 May 2013) Dr Sanjaya Mishra, Director of the Delhi-based Commonwealth Educational Media Centre for Asia, agrees that communities of practice are integral to the successful delivery of OER in India, suggesting that 'building a culture of sharing' is a key challenge as sharing is not embedded in Indian society. He explains that 'OER are more likely to work in India if we focus on developing communities of practice within the education sector, especially amongst teacher-educators in the DIETs, as the basis for resource-generation, ICT skills-development and other forms of CPD' (Interview, 9 May 2013). The success of the STF and TCoL projects indicates that building communities of practice for teacher-educators can help empower them and develop the motivation to be proactive in creating and using OER and in the coming months IT for Change will be working with TESS-India to deliver ICT skills development workshops in participating states.

## 6 FURTHER THOUGHTS AND CONCLUSION

It is clear that the dynamic between India's education system and OER is complex, affected by centuries-old societal divisions and by the digital inequities that are widespread across India, in common with many Commonwealth nations. The OERRH study has thus far established a baseline view of teacher and teacher-educator attitudes towards OER and openness and has gained an understanding of the context in which the TESS-India resources will be delivered and of possible barriers to the use and reuse of OER, in addition to exploring the ways in which communities of practice might be used for knowledge and resource-sharing and creation. The OERRH research findings should also prove valuable to other existing and forthcoming Commonwealth OER projects. The next phase of the OERRH research with TESS-India will focus on the transculturation workshops to be held in India in late 2013. In addition, a pan-India survey of OER use in education is scheduled for early autumn 2013 and will allow for a broader view of attitudes towards OER and openness amongst educators and learners in India and of the potential of OER as a means to transformative learning, citizen empowerment and social inclusion.

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