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Online training of teachers using OER: Promises and potential strategies

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Abstract

Teacher education nowadays needs a change in vision and action to cater to the demands of changing societies. Reforms, improvements, and new approaches in teacher education are an immediate need. Online training of teachers using OER has emerged as a new approach in this direction. This approach is based on the assumption that online training will facilitate mass training of teachers as per their convenience and ease and will be helpful in filling the huge gap in demand for skilled teachers. The other assumption is that being OER-based training, it will be easy to adapt it to different cultures and languages. Considering these assumptions, the present paper discusses about on-going initiatives of online training of teachers in different parts of the world; focuses on promises of using OER to make online training of teachers more relevant and up-to-date; and suggests potential strategies for effectively using OER for initial training and continuing professional learning of teachers in online settings.

Keywords: OER; Online Teacher Training; Open Educational Resources; Teacher Education

Background

Teacher education has gained special importance these days as teachers' abilities and qualities are more and more being identified as decisive to students' learning. The *11th Education for All Global Monitoring Report* (UNESCO, 2014) makes it clear that good teachers are essential to enhance the quality of learning, and teacher education is important because of its impact upon teacher quality. Teaching is a complex and demanding intellectual work, one that cannot be accomplished without the adequate preparation (Eurydice, 2004). Adding to this, Menon, Rama, Lakshmi and Bhat (2007) suggest:

> The demand for qualified and quality teachers has been continuously on the increase the world over. There has been an unprecedented expansion of school education especially in the developing countries, which has accentuated such a demand. Quite naturally, the teacher education programmes have acquired renewed significance (p. 1).

Echoing the same sentiments, a report from OECD (2005, p. 96) underlines, "teacher education is high on the policy agenda in many countries. Countries are seeking to ensure that teacher education is attractive to high-quality entrants, and that it adequately prepares teachers for the demands of modern schooling". Beside these expectations, teacher education systems have to also take into account the ever emerging changes and challenges emancipating from society, economy and technology.

First and foremost among these challenges is the global shortage of teachers at the primary and lower secondary levels of education. The UNESCO Institute for Statistics projects that 1.6 million new teaching posts will need to be created to achieve universal primary education by 2015. This number will rise to 3.3 million by 2030. At the lower secondary level, which is compulsory in a growing number of countries, 3.5 million new posts will be needed by 2015, and 5.1 million by 2030. The problem is more severe in some areas than others, especially Sub-Saharan Africa. One-third

of countries in the region are suffering from teacher shortages. The need to recruit more primary teachers will intensify in coming days as the region's school-age population grows (UNESCO Institute for Statistics, 2013). The UIS places about 902,000 of estimated 1.6 million positions (about 56%) in Sub-Saharan Africa. The lack of qualified teachers in these developing countries prevents children from receiving an adequate education, and therefore hinders the entire nation from developing culturally, scientifically, and economically (UTHSMUN, 2013). Besides, there are different patterns of teacher shortage in different countries like shortage of teacher in general (all type of schools, all types of teachers), or focused on certain subjects (mathematics, languages, etc.); locations (rural areas, impoverished neighbourhoods) or special kind of schools (special needs) (Musset, 2010).

The second challenge is that demands on teachers are becoming more and more complex. Talking about broader expectations and increasing demands from teachers across the globe, a document of European Commission (2007) illustrates,

> As well as imparting basic knowledge, teachers are also increasingly called upon to help young people become fully autonomous learners by acquiring key skills, rather than memorising information; they are asked to develop more collaborative and constructive approaches to learning and expected to be facilitators and classroom managers rather than ex-cathedra trainers (p. 4).

Similarly, Darling-Hammond (2006) observes,

> Teachers need not only to be able to keep order and provide useful information to students but also to be increasingly effective in enabling a diverse group of students to learn ever more complex material. In previous decades, they were expected to prepare only a small minority for ambitious intellectual work, whereas they are now expected to prepare virtually all students for higher order thinking and performance skills once reserved to only a few (p. 1).

In addition, teachers are also supposed to perform at many fronts like multicultural classrooms, students with special needs, use of information and communication technologies, evaluation, and interactions with the community and the parents (Eurydice, 2004).

Finally, the third major challenge is quality of training provided by traditional teacher preparation programmes, located within schools of education in colleges and universities. A report from the UK Department for Education and Skills (DFES, 2004, p. 4) points-out, "the quality of training a teacher receives affects their teaching throughout their career". A study by Arthur Levine (2006) expresses a number of concerns about traditional teacher education programmes. Central conclusion of the study is that graduates of teacher preparation programmes are poorly prepared for teaching. Concerns also include low admission standards, fewer high-powered professors, and a disorganized teacher education curriculum. The study further asserts that as education schools sought to gain respect in the world of higher education, they focused on academic research instead of classroom practice and became isolated from K-12 schools where students are taught. As a result, prospective teachers are not given the tools needed to succeed in an environment where student achievement is the fundamental goal (Levine, 2006). Although these assertions have been controversial and are not universally accepted, widespread concern over flaws in teacher preparation has contributed to more discussion of the need to hold teacher preparation programmes accountable for the subsequent classroom performance of their graduates (Hightower, Delgado, Lloyd, Wittenstein, Sellers & Swanson, 2011).

Teacher education systems across the globe are expected to deliver in backdrop of all these expectations, changes and challenges (Misra, 2014). In other words, reforms, improvements, and new approaches in teacher education become imperative. Basically teacher education of today needs new approaches in terms of content delivery and mode of training. The reason is that the present generation of would-be teachers come from different social backgrounds, having different

learning experiences and they should be prepared to work in different educational settings. Online training of teachers emerged as a fit approach to support these new generations of teachers. Unlike a residential face-to-face course, learning online gives them flexibility to choose different learning styles, set own study hours and save money on travel and accommodation. Talking about online teacher training, Butrymowicz (2012) suggests,

> At a time when brick-and-mortar teacher training programs are under fire, the burgeoning world of online teacher training has the potential to help or hamper efforts to improve public education. Internet classes could widen access to the profession and be a solution to teacher shortages.

Some online teacher training initiatives across the globe

Considering the potentials and benefits of online training of teachers, a number of initiatives have been taken across the globe in this direction. Georgia Department of Education offers a badge-based course named, Effective Online Teaching for instructors to master online teaching skills essential for educators to teach 21st century students. This course can be accessed by anyone anywhere and participants may earn a set of self-awarded badges for free or choose to have their work verified. Michigan State University's Virtual University Design and Technology website offers text-based lessons for teachers in topics including pedagogy and best practices, online course content, enlivening techniques, course structure and design, and hybrid courses. The Learning to Teach Online project of College of Fine Arts from University of New South Wales is designed to support time-poor teachers in a practical and easy to access format. This project offers video and PDF-based episodes to examine specific successful online teaching strategies from many different disciplines, offering tips, guidance and pointing out the potential pitfalls to both novice and experienced online teachers. As another initiative, University of Pittsburgh discusses online course planning and design, interaction, giving students' feedback, assessment, getting feedback from students, and new technologies.

Online instructors from Seven Pace University give their advice about being an effective online educator. To get this advice, one has to visit iTunes U's Pace University page and select "Faculty Contributions" to access different useful videos. MERLOT (Multimedia Educational Resource for Learning and Online Teaching) provides a large, peer-reviewed collection of online curricula and other resources, as well as forums and publications aimed at online educators. One can search the MERLOT database for "distance learning" to find links to material to plan and design effective online classes. The Sloan consortium's effective practices site acts as a useful source for educators to share techniques, strategies, and practices in online education that have worked for them. IH Online Teacher Training (OTTI) learning platform provides teachers with online teacher development courses. This platform has courses for every stage of a teacher's career, from an initial pre-service qualification to DELTA level and beyond. A recent initiative in India, "Euro Varsity", a virtual university aims at providing programmes to develop teaching skill sets. It uses the mode of e-learning, so that the teacher trainee can learn from home or any other place at their convenience.

In New York, NYU STARTALK program offers an intensive teacher training programme in Hindi and Urdu. This intensive, three-week blended programme is designed to enhance the knowledge and the skills of current and prospective school, community, and college teachers of Hindi and Urdu. The programme is taught partly online and partly on-site. Participants learn the most up-to-date, standards-based teaching methodologies and are required to develop, observe, and critique classroom procedures, strategies, and teaching techniques. While the ConnectED initiative in America, invests in improving the skills of teachers, ensuring that every educator in America receives support and training in using education technology tools that can improve student learning. Launched

in 2013, ConnectED initiative also aims to provide new resources for teachers from any school to open their classrooms to interactive demonstrations and lessons from world-renowned experts, and to collaborate with other educators worldwide.

Most of these online teacher training programmes, initiated in different parts of the world, work on the assumption that teachers need better tools and training to succeed in their profession and technology can play a central role. These programmes benefit teachers mainly in four ways. First, teachers who have work or family constraints can benefit from online learning. Second, online programmes are convenient for those teachers who live in crowded cities since travel back and forth to campus is no longer necessary. Third, teachers can choose different institutions that offer online programmes since physical distance is not an issue in the virtual environment. Fourth, teachers can obtain a broader perspective on various topics since they are able to interact with other teachers from same region, country or around the globe (Karber, 2001). In addition, An and Kim (2007) report that collaborative practices, recognition of the value of a supportive learning community, and new understanding of how to use online communication technology tools are three other most prominent benefits which teachers perceive about online teacher education programmes. In a nutshell, it can be argued that online teacher education programmes offer a number of opportunities to produce qualified and skilled teachers and above all help them to engage in career long professional learning.

On the other side, online training also faces a number of challenges. First among them is offering online initial teacher training to large number of teachers particularly in developing countries. The second challenge is to keep them professionally update by providing suitable learning opportunities for continuing professional development. And the third challenge is the comparability of the learning materials (text books, courseware, tools, etc) as online training providers have to make sure that the materials being used in the online course equals in quality the traditional one and that it has been well adapted to the online course (Li & Irby, 2008). Agencies promoting Open Educational Resources (OER) are of the view that online teacher training using OER can do well on all these fronts, as underlined in a call from the International Council for Open and Distance Education- ICDE (2013),

> Open, distance and online learning is rapidly expanding in universities and colleges in Africa and Asia, but faculty training has not caught up with the speed of development. Online training of teachers using OERs will facilitate mass training of teacher trainers, which again will facilitate trained teachers in filling the huge gap in demand for teachers in Africa.

This call further highlights, "by using OERs, courseware can be adapted to different cultures and languages". In fact, using and adopting OER seems a fit approach to further boost the existing online teacher training initiatives in terms of training quality and content delivery.

Promises of online teacher training using OER

The Open Educational Resources (OER for both singular and plural use of the phrase) movement has gone from a small, grass-roots effort to a global mission supported by powerful educational, non-profit, and non-governmental organizations around the world (Wiley & Gurrell, 2009). Nowadays, organizations (UNESCO, OECD, European Union, COL, etc.), institutions (Universities, Colleges, etc.), and individuals are engaged in promotion, dissemination, and use of OER (Misra, 2013). In fact, OER has emerged as one of the most innovative teaching and learning practices as well as a cost-effective mechanism to improve the quality of educational offerings by optimizing the use of available resources (ROER4D, 2014). The vision behind the OER movement is that making

educational resources freely available to all is a fundamental right (Conole, 2012). Philosophically, OER are an extension of the open access initiative, as explained by Andersen and Ponti (2014),

> Open access often refers to research articles that are freely accessible online, available for reuse as long as the source is accredited. OER, on the other hand, are teaching and learning materials, such as curriculum and course materials, released under open access license (p. 235).

According to Geser (2007, p. 12), "OER are understood to comprise content for teaching and learning, software-based tools and services, and licenses that allow for open development and re-use of content, tools and services". Whereas, 2012 Paris OER declaration defines OER as,

> Teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions (UNESCO, 2012, p. 1).

Clements and Pawlowski (2012) see OER as resources for the purpose of learning, education and training that are freely accessible. This includes literature and scientific resources (open access for education), technologies, and systems (open source for education), and open content (actual learning materials/contents) as well as related artifacts (such as didactical materials or lesson plans). However, definitions differ as to whether OER consists only of digital resources, whether it constitutes resources produced specifically for educational purposes and whether these resources should be in the public domain. Therefore, conceptually we can say that the distinguishing feature of OER when compared to other resources is the freedom with which it may be used, reused and repurposed thanks to its open license (Camilleri, Ehlers & Pawlowski, 2014).

The argument to promote OER supported online teacher training is based on the assumption that this type of training will facilitate mass training of teachers and will be helpful in filling the huge gap in demand for skilled teachers, particularly in developing countries. The other assumption is that being OER-based training, it will be easy for teachers across the globe to adapt these resources to different cultures and languages. Talking about the benefits of using OER for teacher training, Misra (2012, p. 3) argues, "use of OER for various teaching learning purposes can support teachers in many ways like making their teaching meaningful; accelerating changes in the traditional teaching learning process; and developing a culture of independent study among their students". In a different note, the use of OER for online training of teachers will be a right approach to fulfill the vision of the OER movement where it is highlighted that the purpose of using OER in education is to enhance learning, notably a kind of learning that enables the development of both individual and social capabilities for understanding and acting (OECD, 2007).

Advocating for the use of OER in online teacher training and perceived benefits, Park (2009) suggests that OER training will help teachers to learn how to use OER according to its license status, and realize that the commons of open educational resources is vast and global, open to be adapted, derived, and remixed with other OER on the Internet. This training would enable teachers to see open courseware as part of a larger world of open materials and communities, rather than as an institutional initiative. While Misra (2012), suggests that OER can play a very significant role to prepare teachers to excel in their teaching profession and develop among them a number of competencies and practices for the benefit of teaching learning processes. Considering these promises, some institutions have already started to offer OER based online training for teachers. For example, The Community College Consortium for Open Educational Resources (OER) assists faculty who are developing online courses for community or junior colleges in finding and utilizing free online textbooks, learning modules, and creative commons resources for distance learning courses. Institute for the Study of Knowledge Management in Education (ISKME) offers teachers a collaborative professional development model centred on engagement with Open Educational Resources (OER).

Since 2009, ISKME has trained over 1,500 teachers from 25 countries in its programme focused on collaborative innovation and social learning using open curriculum and open teacher-led approaches. This programme focuses on developing and iterating on a model for professional learning for teachers that positions ISKME-facilitated peer-led engagement with OER as an innovative strategy for supporting creative collaborative practices for teaching and learning. Whereas Faculty of Education of University of Cambridge provides a register of OER providers in the teacher education area, links to OER search engines, and other aggregate sites. This initiative allows people to find a good number of OER related to teacher education resources. Similarly, The African Teacher Education OER Network is encouraging understanding, use, and sharing of Open Educational Resources (OER) to support teacher education and development in Africa.

Down south, the Teacher Education in Sub-Saharan Africa (TESSA) research and development network that was initiated in 2005 attempts to bring together teachers and teacher educators from across sub-Saharan Africa. The key objectives of TESSA are: to create a network of African universities working alongside The Open University, UK and other international organizations to focus on the education and training needs of teachers in Sub-Saharan Africa; to support the exploration and development of school based modes of teacher education in which teachers develop their competencies and skills to meet the need of pupils in their own classrooms; and to design and build a multilingual Open Educational Resource (OER) bank, modular and flexible in format, that is freely available to all teacher educators and teachers in the region. The unique feature of this initiative is that all TESSA materials are "Open Educational Resources" (OER) and available in digital format from the TESSA website and also on CD-ROM. This means these materials can be freely downloaded, adapted, translated and integrated with other materials in courses and programmes for teachers and teacher educators at no cost.

As another notable initiative, The TESS-India project is working towards improving the quality and quantity of teacher education in India. Initiated in November 2012, the project focuses on the professional development of teacher educators and teachers in the states of Bihar, Madhya Pradesh, Uttar Pradesh, Odisha, Karnataka, Assam and West Bengal. Considering that participatory teaching and learning practices are crucial to an enhanced classroom experience, this project mainly aims to encourage student-centered, active teaching and learning pedagogies at both elementary and secondary school levels across India. This programme also provides opportunities for continuous improvement of teacher professionalism, as well as improving the quality, relevance, and accessibility of resources. All these different initiatives establish two things: first, online training of teachers using OER offers various possibilities, and second, such types of programmes need to be advocated more to make higher impact on teacher education. The reason is that OER is a people driven initiative and has limited institutional support or backup. Whereas the established culture of academic and higher education institutions does not particularly foster the creation, sharing and re-use of OER (Geser, 2007).

Potential strategies for online teacher training using OER

A Report of the Working Group on Open Access and Open Educational Resources in India observes that "faculty development and teacher training is widely seen as the primary area that needs to be addressed in order to attain the benefits of extended access and quality through OER" (NKC, 2007, p. 5). Considering the benefits attached to online training of teachers using OER, it becomes imperative that main stakeholders and policy providers of teacher training, namely International organizations/institutions (UNESCO, COL, WORLD Bank, ICDE, European Union, etc.), governments, teacher education institutions, and teachers themselves must come together to offer and

promote online training of teachers using OER. This will certainly be a mammoth task requiring specific policies and interventions at different levels. In this backdrop, following specific strategies may be of some help to policy planners, organizers of existing OER based online teacher training initiatives, and all those who would like to use the potential of OER for improvement of teacher education:

(i) Making OER a part of initial teacher training curriculum

Initial training of teachers is instrumental for effective utilization of OER for teaching learning tasks, as suggested by Daanen and Facer (2007),

> If educators are to shape the future of education (and not have it shaped for them by external technical developments) it is crucial that we engage with developments in digital technologies at the earliest stages. We need to understand what may be emerging, explore its implications for education, and understand how best we might harness these changes (p. 4).

But studies show that OER are not yet known to all educators, and teachers lack awareness of how to best use OER for various educational purposes (Hoosen & Butcher, 2012; Arendt & Shelton, 2009). Chances for this lack of knowledge about OER and its application for various educational purposes are more for teachers taking initial teacher training from face to face mode teacher training institutions. Considering this scenario, the international agencies and governments are required to make efforts to introduce OER as part of existing teacher training curricula, particularly in developing countries. It can be assumed that understanding and knowledge about OER at an initial stage of their professional training will help teachers to use it throughout their careers for personal and professional development.

(ii) Establishing repositories of OER teacher training materials

In present circumstances, teachers are required to find and adapt efficient measures for learning about and using OER, which are bound to grow well beyond what they may envision today (Misra, 2012). But it is not always easy for teachers to search and find useful OER related to various aspects of teacher teaching. There are many reasons behind it, as observed by a research from JISC (2013) that main difficulties in finding open educational resources are lack of consistent metadata, use of differing APIs by repositories, lack of clear licensing information (so it is difficult to distinguish open educational resources from other digital content) and broken links. To overcome these problems, agencies and institutions at national and international levels are supposed to make efforts to develop local, regional and global repositories of OER teacher training material for teachers who are at different stages of their careers. These repositories will help teachers to search useful teacher training OER at one place and use them for their personal and professional development at different stages of their academic journey. Beside teachers, these repositories will also help teacher educators and teacher training institutions to identify useful OER and employ them for training of teachers in online settings.

(iii) Using OER based courseware for teacher training purposes

Like any traditional courseware, OER-based courseware also includes different types of contents and activities as part of larger learning modules or complete courses, depending on different educational needs. Traditional and OER-based courseware are both copyrighted unless someone decides to, in the context of OER, waive all their rights in which case it would fall into public domain. The main difference is that traditional courseware works on all rights reserved license terms, whereas, OER based courseware, uses a set of open licenses with creative commons licenses being

the ones most frequently used. Therefore, use of OER-based courseware presents a number of professional learning opportunities for teachers, like resources for classes/ self-directed learning/ training, web sites that offer interactive tutorials, material such as live classes conducted over the Internet, and videos for individual use or as part of classes (Jing, 2005). Keeping these benefits in view, different governments and organizations (UNESCO, OECD, European Union, COL, etc.), may suggest teacher training universities/colleges/ institutions to identify suitable OER-based courseware and deploy them as an integral part of the theoretical and practical tasks of teacher training.

(iv)   Producing OER for teacher training in different local languages

The majority of producers of resources and OER projects are located in English-speaking countries in the developed world (OECD, 2007). The production of OER in English, therefore, creates a barrier to guaranteeing the universal use or understanding of content (Cobo, 2013). Rossini (2010) adds,

> The language barrier should be added as an enormous socio-cultural barrier, since the vast majority of OER is in English and based on Western culture, limiting relevance outside Western culture. This further carries the risk of consigning developing countries to be placed in the role of consumers (p. 21).

This clearly indicates that OER in regional and local languages will be more useful to fulfill teaching learning needs of teachers. Initiatives like TESSA and TESS-India (Buckler, Perryman, Seal & Musafir, 2014) have some teacher training materials available as OER in various languages but much more is needed on this front. In addition to these regional initiatives, stakeholders must come forward to motivate and pursue experienced teachers and researchers, particularly from developing countries, to adapt and develop useful OER for teacher training based on local content, culture and language. These locally and indigenously adapted and produced OER will certainly help a large number of teachers to participate and get benefit of online teacher training activities.

(v)   Initiating OER based continuing professional learning among teaching community

Continuing Professional Development (CPD) of teachers has become a major policy priority within education systems worldwide. Highlighting the importance of CPD, a report from OECD (2009) observes,

> No matter how good pre-service training for teachers is, it cannot be expected to prepare teachers for all the challenges they will face throughout their careers. Education systems therefore seek to provide teachers with opportunities for in-service professional development in order to maintain a high standard of teaching and to retain a high-quality teacher workforce (p. 49).

Echoing the same sentiments, Donaldson (2011) Review of Teacher Education in Scotland suggests "teachers should have access to relevant high quality CPD for their subject and other specialist responsibilities" (p. 75). OER based online training can help teachers a lot in this respect. For this purpose, stakeholders are required to come forward to undertake initiatives to train and motivate teachers to use a variety of quality approaches, tools and procedures which may be applied to OER (Camilleri, Ehlers & Pawlowski, 2014) for their continuing professional learning purposes. These OER driven initiatives will help teachers to learn on a continuing basis and keep them update as per social and professional requirements of the teaching profession.

(vi)   Promoting OER supported online learning communities for teachers

All over the world, different communities, associations and organizations are working to improve teacher training practices. Parallel to these, OER supported online learning communities have also

been established for teachers under different initiatives like TESSA, TESS-India and The African Teacher Education OER Network. These establishments are supposed to act as a connecting link for teachers to fulfill their teaching learning needs by using online OER materials. It is supposed that these OER learning communities will act as a forum and open platform for teachers to learn, collaborate and promote their profession. Considering these benefits, it is essential and urgently needed that different national and international organizations and educational establishments come forward to promote these online OER learning communities among teachers. Besides, OER experts and organizations will also support teachers at different schooling levels to join, contribute and promote these communities. Concerned teacher education agencies must also run campaigns, advocating for and advising teachers that association with these online learning communities will help them to showcase their expertise and experiences for the development of new OER for teacher training and sharing many useful professional practices on a collaborative basis.

Conclusion

OER are seen as a means to help people across the globe to acquire the competences, knowledge and skills needed to participate successfully within the political, economic, social and cultural realms of society (Geser, 2007). Regarding the possibility of using OER at various levels of education, Perraton (2010) observes,

> As one of the constraints on the development of open and distance learning is the need to invest in the development of teaching materials, there is a case for the sharing, or cooperative development, of materials. They can be used both for open and distance learning and as resources within conventional teaching institutions (p. 8).

Online training of teachers using OER is an extension of these viewpoints in particular for promoting innovation and bringing qualitative and quantitative improvements in existing teacher training practices and approaches. We can hope that implementation of proposed strategies for OER supported online teacher training will help teacher education providers in different countries to produce proficient, competent and skilled teachers, and these teachers will ultimately ensure the maximum benefit of open educational resources to improve teaching-learning processes and above all to help learners to reach their fullest potentials.

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