Implementing Technology-Enabled Learning in Indian Universities

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Indian higher education is at crossroads. A new education policy is expected to be adopted soon. A milestone in the history of Indian higher education is in progress. There are several developments that point us towards this direction. While policymakers and administrators are largely concerned about absence of Indian higher education institutions in the top of the international rankings, it is important to note that India is now the second largest higher education system in the world in terms of enrollment (only China has more students enrolled in higher education than India). India, today, has about 50,000 higher education institutions catering to about 36.6 million learners. The Gross Enrollment Ratio is 25.8% (MHRD, 2018). Interestingly, the number of students enrolled is slightly less than the total population of Canada and is equivalent to the population of 86 small populated countries of the world! The size of the system is its strength as well as weakness and there are several efforts in place to further increase the GER to 30% by 2020-21 and increase GER to at least 50% by 2035 (MHRD, 2019a). This is also further supported by the on-going impetus to improve quality in teaching, learning and research. In 2018, according to SCImago country ranking, India stands 5th in research productivity. However, in terms of h-index (that shows some measure of impact), the rank is 21. As per the National Institutional Ranking Framework (NIRF) report 2019, about 70% of contributions come from the top 100 universities (MHRD, 2019b). Interestingly, Indian higher education is dominated by the colleges and standalone institutions, constituting about 98% of the total. In order to improve the quality of teaching and learning, the Government of India has initiated the massive open online course (MOOC) platform — SWAYAM or Study Webs of Active Learning for Young Aspiring Minds. It has also provided a regulatory framework to recognise the credits earned through MOOCs for up to 20%. Alongside these developments, the University Grants Commission (UGC) has approved the 'Quality Mandate' to be achieved by 2022 in its meeting held on May 24, 2018. (UGC, 2018). UGC suggested ten new initiatives to the universities,

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which included "use ICT based learning tools for effective teaching-learning process" as one of these suggestions to achieve the quality mandate. In the past, Government of India through the National Mission on Education through Information and Communication Technologies (NME-ICT) programme has developed one of the largest repositories for open educational resources (OER) in the world, offering learning materials for several disciplines.

In this paper, the focus is on operationalizing the UGC quality mandate by leveraging the knowledge, tools and experiences of the Commonwealth of Learning (COL) – an intergovernmental organization established by the Commonwealth Heads of Governments in 1987 to promote the use of technology to increase access to quality education and training. While in the past, COL primarily focused on promoting open and distance education to democratize access to higher education, since 2015 it also focuses on improving the quality of teaching and learning in all types of education through a new initiative called Technology-Enabled Learning (TEL). Under this initiative, COL has been assisting Commonwealth institutions to systematically implement TEL to improve quality of teaching and learning. It is this approach that has strong alignment to the current needs of Indian higher education. This paper outlines COL's TEL implementation model and proffer contextualized suggestions to adopt TEL in Indian universities.

Technology-Enabled Learning

Technology-Enabled Learning is "the application of some form of digital technology to teaching and/or learning in an educational context" (Kirkwood & Price, 2016). The word enabled refers to facilitation in any learning context. In many western universities, the word 'enhanced' is used, which is value loaded implying technology that enhances learning. While there has been some evidence of technology enhancing learning, it is more important to consider a more inclusive and wider connotation of 'enabling', where TEL makes it possible to serve both existing and potential learners with new opportunities to learn in different ways and with a variety of resources. Thus, TEL is all about different ways to use ICTs to teach and learn. TEL,

therefore, can take broadly two forms: (i) blended learning, and (ii) online learning. While in the United States, 31.6% learners take at least one distance/ online courses, majority of these students take online courses from their campus-based universities (Seaman, Allen and Seaman, 2018). Most learners in the premier universities in the world learn through what is commonly called 'blended learning' in the face-to-face environment. COL's TEL initiative promotes blended learning to move from lecture only teaching strategy to use of diverse active learning methods in teaching in higher education institutions. Blended learning is "the use of traditional classroom teaching methods together with the use of online learning for the same students studying the same content in the same course" (Cleveland-Innes and Wilton, 2018).So, this is thoughtful integration of online tools in classroom teaching. What is important is to recognize that the use of technology is just a tool like the use of presentation tools in a class. It is not about online education or distance education, *per se*. Nevertheless, adopting blended learning requires a change in the mindset of both the teachers and policymakers. Therefore, COL adopts a systematic approach, where the focus is on Policy-Technology-Capacity as pre-requisite for successful TEL implementation. COL's TEL implementation takes a three-phase approach (Fig. 1) to develop institutional capabilities and demonstrate results.
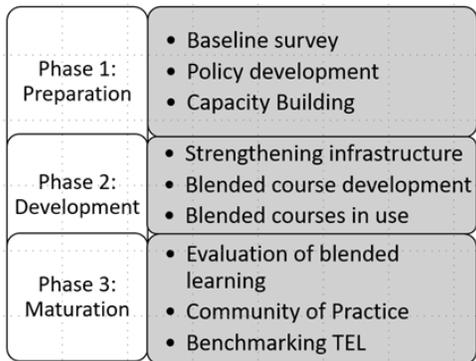

Fig. 1: Phases of TEL implementation

Phase 1: Preparation

This phase is about clarification and preparation for a deep engagement to institutionalize TEL in the teaching and learning practice. Normally several rounds of discussion take place to agree on the activities to be completed under different phases. The TEL implementation Handbook (Kirkwood, & Price, 2016) forms the basis of initial discussions and assist the collaborating institution to start preparing for the baseline survey. The baseline survey helps in collecting data to understand the context as well as preparedness of the institution for TEL implementation. The baseline study covers the use of technology by teachers and students for teaching and learning, and there is also a technology infrastructure audit to create an inventory of hardware and software available as well as to identify the strength, weaknesses, opportunities and threats to the institution in the context of TEL implementation. The findings of the baseline study are presented in a workshop to the senior management and staff of the institution to help visualize a scenario of TEL implementation, leading to the development of a draft TEL policy. The University/Institution then takes this to its different decision-making bodies for approval. In order to promote the TEL policy, COL facilitates a workshop to help with the orientation of groups of TEL champions on the use of technology and blended learning. The activities in phase 1 helps buy-in from different stakeholders and clarify expectations about outputs and outcomes.

Phase 2: Development

As an outcome of the Phase 1, there is a clarity on the infrastructure, as well as capacity in the institution. COL provides the necessary advice to strengthen the infrastructure (learning management system and open access repositories, in particular) and provides expertise to build local capacities to use these technologies. The major focus in Phase 2 is to institutionalize the TEL policy by developing some blended courses and offer these to students. COL supports a blended course development workshop and provides a mentor to oversee the course development process. The development of courses follows the COL's *Guide to Blended Learning* (Cleveland-Innes and Wilton, 2018). There are also various templates to assure quality of the courses developed. So, at the end of Phase 2, there is a group of teachers who have experience in developing and delivering blended courses.

Phase 3: Maturation

Sometimes, this phase runs concurrently along with Phase 2. However, primarily, this phase is focused on evaluation of the TEL implementation by measuring student learning outcomes from the blended courses and documents the teacher pedagogical changes. In addition, COL promotes use of the Community of Practice amongst the TEL implementing institutions, to leverage the power of community learning. In this

phase, the TEL implementing institutions are encouraged to voluntarily use the Benchmarking Toolkit for TEL (Sankey and Mishra, in press) and compare their TEL implementation with similar institutions in the Commonwealth. The benchmarks also help assess their progress and develop plans for institutionalizing TEL.

As a result of TEL implementation, institutions develop and make available more courses for blended delivery, more teachers use technology for teaching and more learners use technology for learning. Indian universities may adopt this systematic approach and work towards the UGC quality mandate by adopting TEL. In order to contextualize TEL implementation in Indian universities, the following sections highlight some of the key issues.

Assessing Institutional Readiness

Wherever we emphasize the use of technology for teaching and learning, issues related to access to technology for both learners and teachers come up in the beginning. Many a times, these are assumptions about lack of technology and prejudice towards effectiveness of technology for teaching and learning. So, we start with understanding how teachers and learners use technology for teaching and learning and in their daily life. Such an approach help clarify the basic issue of access and mostly bring in challenges related to capacity, bandwidth, etc. to the forefront for the institutional leaders to develop appropriate strategy. Interestingly, most of the connectivity issues in educational institutions in India have been taken care of by the National Knowledge Network as over 1,600 institutions are already connected to this highly reliable network supporting teaching, learning and research. Also, majority of learners, today, in Indian universities are born after liberalization and advent of the World Wide Web. They are millennials, who are digital natives and are ready to embrace technology for teaching and learning.

Policy Development

The baseline data should help develop appropriate policy for institutionalization of TEL. COL focuses on developing policy through a consultative process, where teachers of the university help draft policy statements that are appropriate, relevant and feasible. TEL policy is a commitment of the university that clarifies to all stakeholders how ICTs will be used to improve teaching and learning. Some of the key issues

covered in a typical TEL policy includes infrastructure availability and support; teaching, learning and assessment; capacity building and reward; and quality assurance and monitoring. A detailed discussion on policy issues can be found on TEL implementation handbook (Kirkwood and Price, 2016). In the Indian context, though, it is also important to make clarity related to credits and workload, as in blended learning scenario some of the activities takes place online. In Malaysia, 30-60% of course content is delivered online in a blended course (Ministry of Education Malaysia, 2014). So, a course with one credit could have anything from 4.5 hours to 9 hours of online engagements in Indian universities. The meaning and scope of online engagements needs to be clarified in the policy, especially to help teachers design blended courses accordingly. Such online engagements could be reading online interactive and non-interactive materials, watching online videos, interacting in discussion forums, doing self-test exercises, working on group projects online, synchronous online lecture sessions with teachers and/or external experts, etc. Additionally, developing guidelines to support blended learning and using OER also help support policy implementation.

Improving Infrastructure

Access to technology in Indian universities can be said to be fair. Most have dedicated IT department or the Computer Science departments to take care of the internal network and support computer systems in the university. In order to effectively implement TEL, it is important to improve the network bandwidth, reliability of the network and availability of relevant software to teach using technology. COL recommends setting up of a learning management system (LMS) and an open access repository. Both can be installed and managed on local server or on a cloud using open source software. The repository helps sharing of educational material developed by teachers in the university to a wider audience, while the LMS is used to offer courses only to the enrolled learners of the university using the resources stored in the repository. Such an approach is useful to bring traffic to the university website and build institutional reputation as a knowledge creator and improve its Webometrics ranking. The management of TEL infrastructure is also an important issue that require competent and enthusiastic human resources to support teachers in developing and offering blended courses. In the context of improving infrastructure, teachers need centralized access to technology facilitation centre to develop new

learning resources. Under the Pandit Madan Mohan Malviya National Mission on Teachers and Teaching, the Government of India is supporting Teaching and Learning Centres in universities to set up world-class technology infrastructure for supporting teaching and learning. It is important to have such centres (albeit in much lower scale) in the university adopting TEL. Our experiences show teachers need easy access to technology at the time of their need. Many of the technologies are now available online too that can be used; what teachers need is just-in-time support that can be provided through such centres.

Capacity Building of Teachers

Capacity building is the third dimension of COL's TEL implementation model (Policy-Technology-Capacity). Without adequate capacity, quality suffers. So, from the beginning it is important to involve teachers in policymaking and sensitizing them about the advantages of TEL. Regular capacity building helps teachers to remain updated about new developments and implement good practices in their teaching and learning. At present in India, there is a huge emphasis on capacity building for use of technology in teaching and learning. However, it is important also to go beyond workshops and training programmes to focus on tangible outputs and outcomes – actual online/ blended courses developed and offered. COL's approach is to link capacity building with actual course development. Thus, training becomes just-in-time and the skills developed in training are implemented to develop and offer blended courses. Teachers use courses using the blended course development template and assure its quality using the blended course learnability evaluation checklist. The capacity building also should focus on both pedagogy as well as technology aspects to help teachers understand the current trends and take their own decision to appropriately use relevant pedagogical approaches and technology tools to help learners achieve the learning outcomes. We have observed in several TEL implementation projects that teachers appreciate appropriate design and technology that makes their life easier. In the process, teachers develop short video clips for their teaching, and use available OER in their subject to save their time.

Research on Student Learning

The implementation of blended learning can help teachers adopt a scholarly approach to TEL and undertake action research projects to improve their teaching as well as publish research findings in peer-reviewed journals. While the outcomes of many TEL implementation show mixed results in terms of improvement in student learning, we have found that courses that are designed well with higher levels of student engagements (discussion forum, practice tests, videos etc.) shows better student learning. However, it is common that learner satisfaction in all blended courses are always high. The LMS used for teaching blended courses provide rich data on students' engagement over a period. This area of study is called learning analytics, which also requires supportive policy for ethical use of data from the LMS.

Community of Practice

The draft new education policy 2019 recommends setting up of a national educational technology forum "for the free exchange of ideas on the use of technology to improve learning, assessment, planning and administration" (MHRD, 2019a). While this is a very laudable initiative, it is much bigger than the role that a Community of Practice (CoP) performs. Within the COL model of TEL implementation, the goal of CoP is to empower the teachers to effectively use TEL for delivering courses and programmes in their institutions. The purpose is to assist teachers in participating institutions to share, collaborate to solve problems, and undertake action research to improve the quality of learning for their students. The CoP helps develop a network of trusted experts in integrating technology in teaching and learning, who can be tapped by members of the CoP whenever needed. As such the CoP stimulates new thinking, facilitates discourse and debate on topics of significant importance to the community and generates knowledge through social co-construction. In the context of Indian universities, development of a CoP will strengthen TEL integration and the UGC quality mandate.

Benchmarking of TEL

COL has developed a toolkit for benchmarking of TEL to help institution analyze their TEL implementation. There is a set of criteria and descriptors to review TEL implementation objectively and develop an action plan for continuous improvement. It also helps institutions to compare their results with other similar types of institutions and develop strategies to improve. India has different types of universities: unitary, affiliating, central, state, deemed to be and private. So, the TEL benchmarks will help compare similar types of universities while implementing TEL.

A Call for Action

The purpose of this paper is not to outline the COL approach to TEL implementation. Its main objective is to proffer a plausible approach to achieve the UGC quality mandate 2022 through effective use of ICTs. We hope that adopting already tested pathways would help Indian universities reach their goals faster as the environment is highly supportive of improving digital skills of learners and teachers to prepare the workforce of the future. Whatever may be the new education policy, it is imperative that Indian universities focus on strengthening TEL by embracing a systematic approach to educate digital natives. Every stakeholder in the system has responsibility to rethink the current approaches and focus on TEL. However, university leaders and policymakers need to take appropriate decisions to make things happen in the right directions as outlined in this paper. It is a national call for action.

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