

Enhancing Teacher Capacity for Implementation of Blended Learning in Teacher Education – A case of Odisha, India

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Abstract

The covid19 pandemic has caused for closing of all institutions imparting face-to-face teaching globally. In India, the University Grants Commission (UGC) instructed all its institutions running regular courses to opt blended mode of teaching. In this connection, implementation of Blended teaching and assessment was a new challenge for the teacher education institutions. The teacher education institutions offering Elementary and Secondary teacher education courses started working as guided by the UGC. CEMCA, New Delhi and Ravenshaw University, Cuttack collaboratively empowered teacher educators from Odisha to implement Blended Learning in their pre-service teacher education classrooms. The objectives of this paper was to identify blended learning skill sets needed by teacher educators in Odisha and to design, organise and evaluate blended learning training programs for teacher educators of Odisha. Through a baseline study, the training needs of the teacher educators, their perception towards different components of blended learning and the skill level of ICT integrated online teaching was identified. Based on the baseline study, a series of capacity building programs were designed and conducted through online at three phases during September to October 2021. These programs dealt with areas of Integration of ICT Tools in Teaching Learning; OER, Techno-pedagogy and Online Assessment; and Design and Development of Lessons for Blended Learning. 105 teacher educators participated in the workshop. Participants of the capacity building program found the program useful to enhance their technological – pedagogical and content skills – with the workshops / demonstrations and hands-on experience. The teacher educators further reported that the skill set learned during the training was useful to design courses that implemented blended learning. A major theme that emerged from this study was

the need for institutional policy on blended learning so as to empower teacher educators to implement blended learning.

Keywords

Techno-pedagogy, ICT, Blended Learning, Teacher educators

Introduction

The covid19 pandemic has been caused for closing of all institutions imparting face to face mode of teaching globally. In India, the University Grants Commission (UGC), in its 547th meeting held on 29th May 2020 instructed all its higher education institutions running regular courses to opt blended mode of teaching in which 40% of the syllabus will be taught in online and 60% of the syllabus will be taught through offline mode. In the month of May 2021, UGC released its concept note on Blended mode of Teaching and Learning for feedback from stakeholders (Available at: https://www.ugc.ac.in/pdfnews/6100340_Concept-Note-Blended-Mode-of-Teaching-and-Learning.pdf Accessed on 13 Apr 2022). Ratifying the usage of online strategies and empowering teachers to create a blend of online and offline mode of course delivery, the UGC has acknowledged the need for and importance of using blended learning strategies in the education system of India. Govt. of Odisha on dated 26th May 2020 in the video conference of all Vice-Chancellors of State public universities unanimously decided to introduce 'Blended Learning' in the form of 'Guided Self-Study' covering 25 per cent of the syllabus both at Under-Graduate (UG) and Post-Graduate (PG) level from the next academic session i.e. 2020-21 as per the modalities. It put much emphasis on teacher educators' ability to develop self-guided e-contents for the students and making it available in dedicated online portal.

In this connection, implementation of Blended learning and assessment was also an innovation for the teacher education institutions of the state of Odisha. The teacher education institutions offering elementary and secondary teacher education courses also started working as guided by the UGC in the blended learning concept note and instructions of the Govt. of Odisha to develop e-contents for dedicated portals and to deliver ICT integrated blended learning.

Theoretical Foundation

Garrison & Vaughan (2007) identified a key characteristic of blended learning as the thoughtful fusion of face-to-face and online learning experiences. This key feature also lends itself in the definition of blended learning as envisaged in this study and as defined by Cleveland-Innes (2018) - *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*. On surveying the related literature on blended learning, a very useful framework to identify, structure and implement blended mode of learning was identified - the TPACK framework (Mishra, & Koehler, 2006; Koehler, & Mishra, 2009). This framework in its essence aims at helping educators integrate technology into the classroom practice by focussing on their technological, pedagogical, and content knowledge. This study aims to use this framework to identify the skills needed to plan, develop, and implement the blended learning mode of learning in teacher education program. Figure 1 presents a comprehensive view of the TPACK Framework.

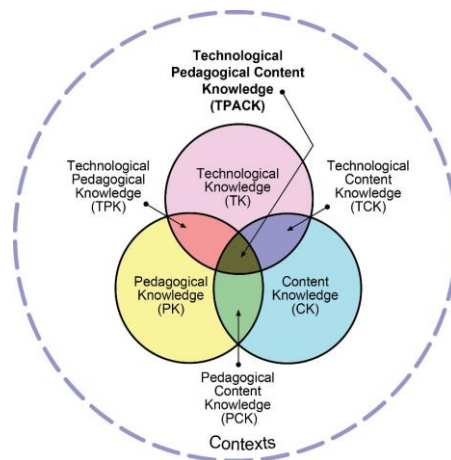


Figure 1: TPACK Framework (Koehler, & Mishra, 2009)

The TPACK framework identifies three basic forms of knowledge – pedagogical, content and technological knowledge along with its intersecting points: pedagogical-content; technological-pedagogical; technological-content and technological-pedagogical-content knowledge. For the purpose of this study, the investigators aimed at strengthening the intersecting points of knowledge i.e., technological-pedagogical; technological-content and technological-pedagogical-content knowledge of the teacher educators of Odisha as a starting point in the capacity building program.

Apart from this framework, the research also draw sfrom the Complex Adaptive Blended Learning System (CABLS) while planning the implementation of capacity building program for teacher educators in Odisha. At the heart of the CABLS model is the learner but each component along with its sub-systems interact with each other. The six components within the CABLS

model includes the learner, teacher, content, technology, learning support and the institution. The CABLS framework (Figure 2) is designed to “facilitate a deeper, more accurate understanding of the dynamic and adaptive nature of blended learning” (Wang, Han, & Yang, 2015).

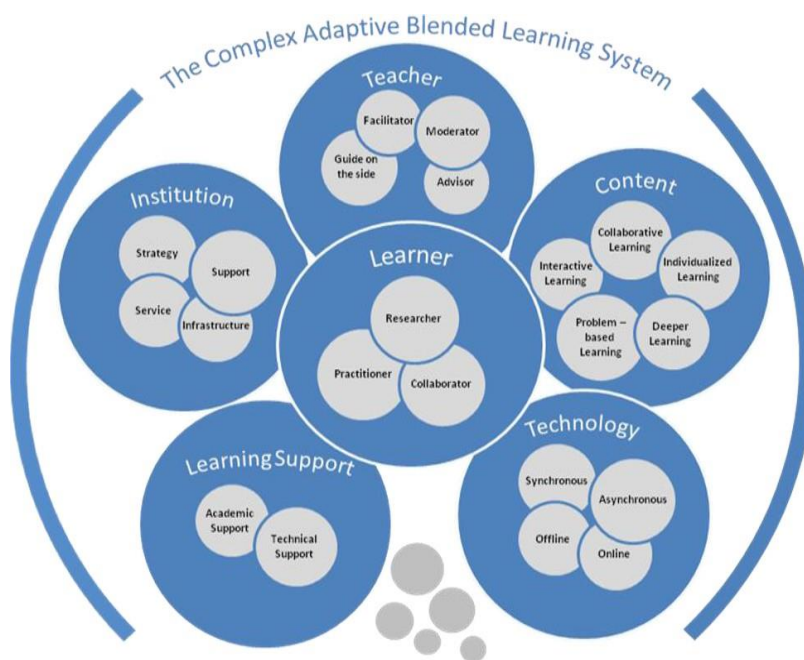


Figure 2: The Framework of Complex Adaptive Blended Learning Systems (CABLS) (Wang, Han, & Yang, 2015)

Using these two theoretical frameworks, the capacity building program for implementing blended learning was conceptualized. The United Nations defines *capacity-building* \ as the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world (Accessed from: <https://www.un.org/en/academic-impact/capacity-building> on 13 Apr 2022). In the pandemic times, teachers and teacher educators across the world have had to adapt and thrive in an online mode, necessitating them to upskill, reskill and conduct classes in an online teaching learning environment. WHO also discusses advancement of knowledge and skills amongst practitioners also one of the hallmarks of capacity building. Bergeron et.al (2017) call the engagement in such activities as capacity building interventions. Capacity building interventions could take many forms (Caron and Tutko (2009) including providing technical assistance, in-depth consultations, virtual and in-person training sessions, online learning options to name a few.

Status of Teacher Education in Odisha

The state of Odisha is the 11th populous state in India and has the third largest population of Scheduled Tribes in India. (Available at stscodisha.gov.in; accessed on 13 Apr 2022).

The Government of India has identified as many as 18 districts from Odisha as educationally backward districts (Accessed from <http://164.100.24.220/loksabhaquestions/annex/176/AS290.pdf> on 13 Apr 2022) . In the state of Odisha, there are three IASEs, 13 Colleges of Teacher Education for Secondary level Teacher Education programme and 31 DIETs, 33 ETEIs, four BITEs and three Secondary Training (ST) schools for Elementary level Teacher Education programmes (Available at: <http://scertodisha.nic.in/admissions/>). Apart from this, 10 multidisciplinary colleges and 10 universities also run Secondary level Teacher Education programme. In order to keep up with the UGC regulations on Blended learning, the state government has introduced ‘Blended Learning’ in the form of ‘Guided Self Study’ covering 25 per cent of the syllabus both at Under-Graduate (UG) and Post-Graduate (PG) level from the academic session i.e. 2020-21. As follow up actions many State Universities and Autonomous colleges of Odisha organized workshops, orientation programs on development of e-learning resources, use of e-learning resources and face the challenges confronted by the teachers during teaching. But the fact was there was no or little preparation of the teachers for Blended Learning with ICT integration, thus, teachers throughout the state looked for support for ICT integrated teaching, designing of lessons best fit to blended approach and appropriate assessment tools of blended learning. This study aims to fill the gap that teacher educators of Odisha felt in the absence of a formal training program initiated by any State University to address the blended teaching learning needs of teachers and students of Odisha.

Objectives of the Study

Basis the theoretical framework and the status of teacher education in Odisha (especially with reference to Blended Learning) this study had the following objectives:

1. To identify blended learning skill sets needed by teacher educators in Odisha.
2. To design and organize blended learning training programs for teacher educators of Odisha.
3. To study the efficacy of the capacity building programs for implementing blended learning in Odisha.

Methodology

This study was undertaken by using descriptive survey methods. Initially, through a baseline study, blended learning skill sets of teacher educators of Odisha was identified. Based on the identified learning skill sets, blended learning training

programs for teacher educators of Odisha was designed and organized in three phases. A reaction scale was used to understand the efficacy of the capacity building programs for implementing blended learning in Odisha.

Population and Sample

All the teacher educators working in the state of Odisha comprised the population of the study. The baseline study opted convenient sampling procedure. They constitute of 203 teacher educators from the institutions like, IASEs, CTEs, DIETs, ETEIs, BITEs, University Departments of Education, Department of Education of various colleges of Odisha. The participants are only from govt. institutions as there is no private institution running teacher education programme in the state. However, 105 participants participated in the workshop conducted through online mode. Hence, endline study consisted 105 teacher educators of Odisha.

Tools Used

The following two questionnaires were used for the present study.

1. A questionnaire for baseline study
2. A five-point reaction scale for endline study

The questionnaire for baseline study had 3 sections. The first section was about the demographic profile of the participants like, age, experience, gender, designation, subject of teaching and type of the management in which s/he is working. Second section dealt with readiness of the participants in ensuring and checking the participation of students, checking of students' progress, ability to get students' feedback and integration of different activities in online teaching. Third section dealt with ICT integration in online teaching which includes items like, participants' exposure to online collaboration tools, e-Portfolio, eBook, video, audio resources to different platforms, use and accessibility of tools, educational games, padlet, flipgrid, etc. The piloting of the Questionnaire was done for checking the appropriateness of the language of the items, ambiguity and feasibility of the tools to the target group. Accordingly, necessary modifications were made. Finally, the Online Survey Questionnaire had three sections.

A five-point reaction scale was used for endline study ranging from strongly agreed to strongly disagreed. Initially, there were 60 items covering aspects like, ICT integration in online teaching, use of online collaboration tools, educational games, etc. The piloting of the Questionnaire was done for checking the appropriateness of the language of the items, ambiguity and feasibility of the tools to the target group. Accordingly, necessary modifications were made. Finally, the scale consisted of 33 items.

Data Collection

In the baseline study Google form was used to administer the questionnaire to collect information from 203 teacher educators of Odisha. The respondents were given 15 days duration to fill up the online questionnaire. After the workshop, five-point reaction scale for endline study Google form was used to administer the tool to collect information from 105 teacher educators of Odisha. The respondents were given 15 days duration to fill up the Google form.

Keeping in mind the objectives of the study, the responses of teacher educators have been analysed by using descriptive statistics such as, frequency and percentage.

Identification of blended learning skill sets

Following are the key highlights of the results of the baseline study:

- 48.8% of participants were either not sure or disagreed to the statement that participation in online discussions helps in providing better learning experiences. Hence, *training for teacher educators related to how to organize online discussions is essential.*
- Nearly 17% of the respondents were undecided or disagreed to the statement that teacher should explore new teaching strategies that combine in-person and online learning. Hence, *training for teacher educators related to how to explore new teaching strategies that combine in-person and online learning is essential.*
- 36.5% of participants were either not sure or disagreed to the statement that online activities that teachers use like, online quizzes, discussion boards, etc.

can result in learning that would be difficult for students to achieve without technology. Hence, *training for teacher educators for exploring online quizzes, discussion boards, etc. is essential.*

- Nearly 30% of the respondents were undecided or disagreed to the statement that online technology is essential to ensure that each student has learnt the materials before moving on to the next lesson. Hence, *training for teacher educators for exploring online technologies is essential to ensure that each student has learnt the materials is essential.*
- 18% of the respondents were undecided or disagreed to the statement that ability to integrate online technology in teaching will help teachers to combine online and in-person activities to encourage students to become self-regulated learners. 28.5% of the respondents were undecided or disagree to the statement that ability to integrate online technology in teaching will help to decide when it is better to interact with students-in-person and when through online. Nearly 30% of the respondents were undecided or disagree to the statement that ability to integrate online technology in teaching will help to evaluate the strength and limitations of specific online activities for students. Hence, *training for teacher educators to integrate online technologies in teaching and evaluation.*
- 22.6% of the respondents were undecided or disagreed to the statement that as teacher educators, they can see students' learning progress while using online and offline assessment results. 23.7% of the respondents were undecided or disagreed to the statement that as teacher educators, they can use technology tools to check student participation in online activities. Hence, *training needed for teacher educators how to use technologies to see students' participation and their learning progress.*
- 35% of the respondents were undecided or disagreed to the statement that as teacher educators, they can evaluate the effectiveness of instruction for students with special needs. Hence, *training for teacher educators how to use technologies to evaluate the effectiveness of instruction for students with special needs is needed.*
- Nearly 25% of the respondents were undecided or disagreed to the statement that as teacher educators, they can use technology that organizes and displays student assessment results. Hence, *training for teacher educators is essential on how to use technologies to organize and display student assessment results.*
- 29.5% of the respondents were undecided or disagreed to the statement that as teacher educators, they can use online tools to make sure that students learn the material before moving to the next lesson. Hence, *it is essential to add this topic in the workshop, so that all the teacher educators will be able*

to ensure maximum participation in their classes.

- Nearly, 25% of the participants were not confident on their ability to develop a set of online and offline resources to give students choice in how they learn. Hence, *training for teacher educators is essential on how to create repositories of online and offline resources.*
- 21.2% of the participants were not confident on their ability to assist students in interacting well during online discussions. 22.6% of the participants were not confident on their ability to get quick online feedback from students in a variety of ways using text, audio or video. 23.7% of the participants were not confident on their ability to communicate online with students while still maintaining professionalism in student-teacher relationships. Hence, *training for teacher educators is essential on how to communicate using text, audio or video.*

The skill deficiencies as responded by the teacher educators are as follows.

- 34.9% of the respondent do not know or know little about the use of learning Management System like Moodle, Canvas and Google Classroom. Thus, *there is an emergence of the exposure of teacher educator for the use of LMS.*
- 56.6% of participants know little or do not know the use of e-Portfolio. Thus, *there is a need to expose the participants to the use of e-Portfolio for students.*
- 24.6% of participants have little or no exposure to online collaboration tools. Thus, *there is a need to expose teacher educators to the online tools and making them to satisfactory or well or proficient level.* No doubt individual factors affect a lot of making teachers proficient in collaboration of online tools.
- 24.7% of the participants either know little or do not know the use of the eBooks/eTextbooks. Thus, *there is a need to acquaint teacher educators with the use of eBooks/eTextbooks.*
- 59.1% of the participants know little or do not know the use of online video/ audio resources, like, vimeo, NROER, etc. *They need exposure to online resources like, vimeo, NROER, etc.*
- 34.5% of the participants know little or do not know, how to share their

own lecture in *YouTube channel*. Thus, as it is a basic skill for teacher to deliver online teaching, participants need to be acquainted in this particular skill.

- 49.3% of the participants do not know or know little on making video contents through screen capture tools. Thus, the *participants need to be acquainted in making video contents through screen capture tools*.
- 54.7% participants responded that they know little or do not know the availability of educational games/simulation in online. Thus, the *participants need to be acquainted with educational games/simulation*.
- 56.6% of the participants do not know or know little about the use of accessibility tools/apps for students with special needs. Thus, *there is a need to make them skilled in use of tools/apps for the students with special needs*.
- Majority of the participants were unable to use Padlet and Flipgrid. Thus, *there is a need to make them skilled in use of tools like, Padlet and Flipgrid*.

Organization of blended learning training programs

Using a constructivist inquiry based approach and the Technological- Pedagogical – Content Knowledge framework the capacity building program for implementing blended learning was developed. This program was held for a duration of nearly 45 days with sessions spanned across various content areas that will develop the skill sets of Teacher Educators of Odisha.

Session 1	Session 2	Session 3
Integration of ICT tools in teaching learning	OER, Techno-pedagogy and Online Assessment	Design & development of lessons for blended learning
Using Google Tools including use of YouTube Channel, Use of PPT, Creation of Audio and Video Contents, Introduction to LMS: Google Classroom/Moodle	Understanding of OER: searching, using, creating; Open Licenses - Creative Commons; Understanding of techno pedagogy; Use of Online Assessment tools: Google form, HotPotatoes, etc	Concepts of Blended Learning; Preparing of Blended Learning Lesson plan; Developing contents for blended learning.
14 - 18, September 2021	05 - 09, October 2021	26 -30, October 2021

Figure 3: Summary of the Capacity Building Program for Implementing Blended Learning

Apart from these training sessions, the participants in the capacity building program had access to an LMS where content and videos were uploaded, access to WhatsApp Groups, Synchronous and Asynchronous learning environments.

One of the major themes of the capacity building program was understanding the role of institutional policies and the role of Head of Institutions where blended learning was to be implemented.

Efficacy of the capacity building programs

The key highlights of the endline study is as follows:

- 95% participants felt the usefulness of the topics covered in the workshop.
- 93% agreed with the practical, hands-on approach of the workshop.
- 95% felt the resource persons were effective instructors and they had no hesitancy in approaching them whenever they needed.
- 92% found the content in the LMS was accessible across devices and useful.
- 88% of the participants agreed that they were in a position to create blended learning lessons accessible to diverse students.
- 84% agreed about their ability to use flipped learning strategies to create effective blended learning lessons.

- 79% were confident regarding their ability to segregate lessons for online and offline lessons.
- 86% of the participants agreed that they were able to strengthen their pedagogical and technological knowledge; while 87% participants agreed they were able to integrate appropriate technology for their content and pedagogical initiatives.
- 73% were either undecided or disagreed that they would be able to get institutional support in terms of not giving additional responsibilities, etc.
- 63% of participants were undecided as they were not sure if their HoD/ Principal would be supportive of their initiatives in creating and running blended courses.

Conclusion

Means, Bakia, & Murphy (2014) shared five purposes for blended instruction in school education. They suggest these five purposes have the ability to broaden the access to instruction in the classroom by helping teachers facilitate small-group and one-to-one teacher-led instruction; serving students with diverse needs, providing opportunities for productive practice (additional resources that are so designed to provide corrective feedback), adding variety to instruction so as to enhance student engagement, and lastly, supporting learning of complex and abstract concepts by leveraging technology. The five purposes of blended instruction in school education include broadening access to instruction; facilitating instruction; helping students with diverse needs; giving students opportunities to practice; providing scaffold to strengthen student engagement. Teacher education institutes aim to help preservice teacher education students become better classroom facilitators and therefore, teacher education programs must include the systemic changes we wish to implement and see in the school education scenario.

Capacity building programs in teacher education have the potential to act as agent of change. In an old research paper, but extremely relevant to the present context of study, Harris (2009) studied the impact staff development and student performance. He found a significant (high) relationship between teachers that are trained and re-trained with academic performance. Gupta (2019) showed a positive affect of training on the knowledge acquisition and on the skills to use e-learning tools by teacher educators.

On merging the two threads of potential of blended learning in school education and that of impact of capacity building programs on student performance, there is an urgent need to formulate the capacity building programs for teacher educators in India – especially in light of the UGC regulations and the needs of students.

Capacity building programs cannot have much impact unless there is a sustained effort by institutions and heads of the institutions to allow teachers to continue what was learnt in these programs – and therefore a very important thread that emerged from this program was the need for institutional policies on promoting blended learning. The Constitution of India has placed “education” in the concurrent list – meaning – the central government and state government are in a partnership to implement educational policies to strengthen the foundation of education. Therefore, policies instituted by the Central Governing Bodies, need to be ratified within the State Governing Bodies with either suitable modifications or as such to ensure smooth implementation of the policy. The institutional policy, of any University has to reflect the guidelines of the Central Government and that of the State which have been adapted to suit the local population and community – it is only in the presence of a strong yet inclusive and flexible policy that capacity building programs would bear the fruit.

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