

Flipped Classroom model to achieve Higher levels of educational objectives of Bloom's Taxonomy

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Abstract

To achieve the aspirational goals of NEP-2020 through the integration of technology for improving the quality of Higher education, teachers must embrace ICT-empowered methodologies for the teaching-learning processes and assessments. Blended Learning using Flipped Classroom model can be used to achieve Higher levels of educational objectives of Bloom's Taxonomy. This strategy, in the context of Indian Higher Education, can be a boost to shift from traditional methodology which is teacher-centred to learner-centric methodology to produce active learners. By using a short video or a MOOC or some other digital resource as self-learning in flexible mode, the face-to-face passive traditional classrooms can be transformed into interactive co-learning environments to develop higher-order skills amongst learners. The 21st century skill-oriented learning environment will lead to holistic development of students.

Keywords: Flipped classroom, blended learning, Bloom's taxonomy, learner-centric, active learning

Introduction

The purpose of education is to empower students for their all-round development, and this is achieved through learning which is the basis of education. With learning, the learner becomes knowledgeable, develops skills, habits, attitude, aptitude and hence a personality. With technological developments taking place around the world, it is not surprising that the process of teaching and learning is also witnessing a big transformation. NEP-2020 has also strongly emphasised the need to integrate ICT into the education system, especially in teaching-learning and assessments (MHRD, 2020).

The available technologies are being embraced in educational innovation to enhance traditional teaching and learning. The "flipped classroom" is a technology-empowered learning model

which has the potential to totally change the process of teaching-learning. The widespread corona pandemic and subsequent closure of schools, colleges and universities throughout the world have further brought this interactive learning model to the forefront. (Bakhshi, A.K. 2020)

Globalisation, easier access to technology, and the emergency of COVID-19 have shown that the 21st century skills cannot be provided to learners through the traditional teaching and learning models (Jamil et al., 2022; Shahrill, Noorashid, et al., 2021). Further, the corona pandemic has forced a redesign of the teaching-learning processes towards the adoption of virtual platforms and digital resources (Arora and Srinivasan, 2020).

The flipped classroom reverses the concept of the traditional classroom

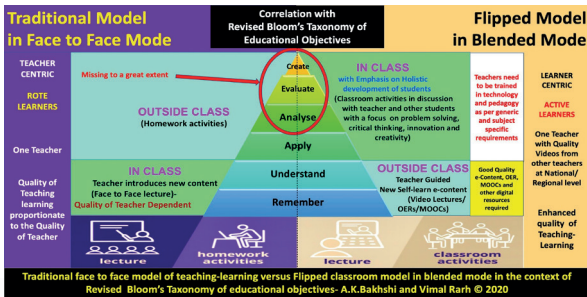
by focusing class time on students' understanding through interaction rather than on the passive lecture component and thus aims to promote student learning and achievement.

The flipped classroom model was proposed by Bergmann and Sams, two chemistry teachers at a High School in Colorado, USA (Bergmann & Sams, 2012). In this methodology, online videos of their lectures were provided to the students for self-learning to acquire the basic knowledge of the concept. This was followed by in-class, teacher-guided active engagement of learners to promote in-depth understanding. Methodologies like Flipped learning along with emerging innovative technologies are key tools for the future development and improvement of education leading to the holistic development of students. (Latorre, et. Al, 2021)

In order to measure the educational outcomes of flipped learning, the revised Bloom's Taxonomy of Educational Objectives can be utilised, which has six levels: remember, understand, apply, analyse, evaluate and create. Of these, remembering and understanding can be categorised as Lower Order Thinking Skills (LOTS) while others can be grouped as Higher Order Thinking Skills (HOTS).

In the traditional classroom, there is more emphasis on LOTS inside the class while for HOTS, students are left to work on activities outside the classroom on their own. In contrast, in the flipped classroom model, learning is flipped. Here students, through self-learning at home, can acquire LOTS before the class with the help of a short video or a MOOC or some other digital resource and when they come to the class, they can achieve higher cognitive levels of learning through interaction with other students and teachers present in the class. In this model of learning the role of the teacher is to encourage students to think and discuss and motivate them in solving problems while students play the role of active learners. This model, therefore, unlike the traditional model, focuses more on encouraging thinking, innovation and creativity and not on rote learning (Bakhshi, A.K., 2020b). The flipped model helps to create an active learning environment where teachers can facilitate students' self-learning through reflective (problem-oriented) and reflexive (self-oriented) practices (Hibbert, 2013). The shift from traditional teaching-learning to Blended Learning using Flipped Classroom model can, therefore, be used to achieve higher cognitive levels of learning as per Bloom's Taxonomy. (Fig.1).

Fig-1: Traditional face-to-face model of teaching-learning versus Flipped classroom model in a blended mode in the context of Revised Bloom's Taxonomy of educational objectives



The comparison of the traditional model of teaching-learning with flipped

classroom model is given in the table.

Table-1: Comparison between Traditional Model of Teaching-learning with Flipped Classroom Model

Traditional Model of Teaching-Learning	Flipped classroom model
Face to Face mode, no use of ICT	Use of ICT (multimedia in video for easy understanding of concepts through visuals, animations, simulations etc.)
IN CLASS: Teacher introduces new content (Face to Face lecture)- Quality of Teacher Dependent model	OUTSIDE CLASS: Teacher Guided New Self-learn eContent is learnt by students at their own pace in the form of Video Lectures/OERs/ MOOCs etc.
OUTSIDE CLASS: Homework activities like problem-solving of Lower Order Thinking Skills; many students face difficulty. Higher Order Thinking skills missing to a great extent	IN CLASS: Emphasis on Holistic development of students. Higher Order Thinking skills are nurtured through classroom activities, discussion with teacher and other students with a focus on problem-solving, critical thinking, innovation and creativity
Teacher-Centric	Learner-Centric
Produces more Rote-Learners	Produces more Active-Learners who have a control over their learning
Teacher as an Information provider	Teacher as a facilitator in Self-learning through reflective and reflexive practices
Face-to-face passive traditional classrooms	Interactive co-learning environment
One Teacher providing all information	One Teacher along with Quality Videos, or MOOCs or OERs from other teachers at National/Regional level
Quality of Teaching-learning is proportional to the Quality of Teacher with limitations of face-to face method.	Enhanced quality of Teaching-Learning
Difficult to nurture 21 st Century skills amongst students	21 st Century skills can be nurtured for holistic development of students

Challenges for India

In the Indian Higher Education context, the Flipped classroom model is at a very preliminary stage and has not yet been institutionalised. This is evident from the feedback of 73,954 participants from across the country in various training programs conducted at GAD-TLC of the Ministry of Education, SGTB Khalsa College, Delhi University from July 2016

till March 2022 in offline and online modes (NMTT Portal, 2022). The database reveals that though the level of awareness about the blended mode of learning has seeped into the majority of these teachers, however because of the inertia amongst other constraints, the flipped model is being used only by a minuscule proportion of teachers, which according to the database is 148 (\approx 2 per cent). It is therefore evident that greater awareness

needs to be created about the advantages of this blended model.

Learning through flipped classrooms, no doubt, offers immense advantages and that is why it is gaining increasing acceptability throughout the world. The Government of India has already launched last year Rs. 9,000 crore plan to digitise education delivery and popularise flipped learning in the country. However, as with any new approach, there are some inherent challenges involved in flipping a class. One big challenge is the development of high-quality video lectures and other online instructional materials for the students as per their curriculum (Rarh. V, 2018). All this online instructional material should be available in different regional languages. Further, teachers also need to be professionally trained to embrace this new blended approach of interactive teaching and learning to

enable students to acquire HOTS. This has also been strongly emphasised in NEP-2020 (MHRD, 2020).

India has one of the largest systems of education in the world with 15 lakh schools and 50,000 higher educational institutions and to adopt the flipped classrooms model in such a system, teachers at all levels need to be empowered for this new approach. This will be a big challenge as the present teachers themselves have learnt through the traditional talk and chalk method of teaching and learning. Further, the students need to have access to the necessary technologies as well as be motivated to actively take part in this flipped model. Despite these challenges, the flipped classroom model is worth pursuing as it can prove a big game changer in improving students' achievement in terms of acquiring higher order learning skills.

References

- Arora, A.K. and Srinivasan, R. (2020), "Impact of pandemic COVID-19 on the teaching-learning process: a study of higher education teachers", *Prabandhan: Indian Journal of Management*, Vol. 13 No. 4, doi: 10.17010/pijom/2020/v13i4/151825.
- Bakhshi, A.K. (2020), *The creativity crisis in the Indian education system*, *Education times*, December 30, 2020, <https://www.educationtimes.com/article/careers-offbeat/80014858/the-creativity-crisis-in-the-indian-education-system#:~:text=Avoid%20excessive%20use%20of%20the,of%20original%20ideas%20and%20plans>
- Bakhshi, A.K (2020b), *Flipped Classroom for 21st -century learning needs*, *Education Times*, 1 July 2020, <https://www.educationtimes.com/article/editors-pick/76728031/flipped-classroom-for-21st-century-learning-needs>
- Bergmann, J. and Sams, A. (2012), *Flip Your Classroom: Reach Every Student in Every Class Every Day*, *International Society for Technology in Education*, Eugene.
- Hibbert, Paul. (2013). *Approaching Reflexivity Through Reflection: Issues for Critical Management Education*. *Journal of Management Education*. 37. 803-827; 10.1177/1052562912467757.
- Jamil, H., Ramli, H. M., & Leong, E. (2022). *Advocating blended learning for university undergraduate level mathematical instruction beyond COVID-19*. In S. A. Abdul Karim & S. A. Husain (Eds.), *Engineering and Sciences Teaching and Learning Activities: New Systems Throughout COVID-19 Pandemics* (pp. 33-45). Springer International Publishing. https://doi.org/10.1007/978-3-030-79614-3_4
- Latorre-Coscolluela, C., Suárez, C., Quiroga, S., Sobradriel-Sierra, N., Lozano-Blasco, R. and Rodríguez-Martínez, A. (2021), "Flipped Classroom model before and during COVID-19: using technology to develop 21st century skills", *Interactive Technology and Smart Education*, Vol. 18

No. 2, pp. 189-204. <https://doi.org/10.1108/ITSE-08-2020-0137>

MHRD (2020), *National Education Policy-2020, Government of India*. Retrieved from https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

NMTT Portal, 2022; *Teaching Learning Centre, under PMMMMNMTT scheme of Ministry of Education, GOI at SGTB Khalsa College, DU*; <https://nmtt.gov.in/centres>; Date of access 14 November, 2022.

Rarh, V. (2018). *Developing e-content for massive open online courses (MOOCs): An experience of Teaching-Learning Centre*. In N. Varghese, A. Pachauri, & S. Mandal *India higher education report 2017* (pp. 192-213). SAGE Publications, Inc., <https://dx.doi.org/10.4135/9789353280338.n8>

Shahrill, M., Noorashid, N., & Keasberry, C. (2021). *COVID-19: Educational practices and responses in Brunei Darussalam*. In P. Le Ha, A. Kumpoh, K. Wood, R. Jawawi, & H. Said (Eds.), *Globalisation, Education, and Reform in Brunei Darussalam* (pp. 325-354). Springer International Publishing. https://doi.org/10.1007/978-3-030-77119-5_16