Integrating Scope of National Education Policy 2020 in Teaching-Learning Process using ICT in Jawahar Navodaya Vidyalaya Shimla, Himachal Pradesh

Amit Kumar[1,2]
[1]*Fulbright DAI Scholar, Indiana University of Pennsylvania, Indiana, Pennsylvania, USA*
[2]*PGT(Computer Science), Jawahar Navodaya Vidyalaya Shimla, Himachal Pradesh*

Abstract: New Education Policy 2020 has changed the perspective of every stakeholder in the school education system for transformational reforms to develop an extremely learner centered ecosystem. The policy has been aligned for a holistic development of the students in academic and non-academic areas to inculcate 21st century skills among them and to make them future ready to address real life problems, by touching all the three learning domains of Bloom's Taxonomy using innovative teaching-learning practices. In this paper, the integration scope of NEP 2020 in teaching-learning process using Information Communication and Technology(ICT) in Jawahar Navodaya Vidyalaya Shimla, Himachal Pradesh, has been discussed.

Keywords: NEP 2020, SDG, 21st Century Skills, Flipped Classroom, MOOCs

I. INTRODUCTION

The vision of India's new education system was outlined in the New Education Policy 2020 (NEP 2020), which was approved by Union Cabinet of India on 29 July 2020. The NEP 2020 is the guiding philosophy for transformational reforms in the school education system and making learning holistic, integrated, enjoyable and engaging. The policy is aligned to the United Nation's Sustainable Development Goals (SDG) 2030 i.e. The Global Goals, to build a strong foundation for India to become a global knowledge superpower, with strong foundational pillars of Access, Equity, Quality, Affordability and Accountability. The purpose of NEP 2020 is to recognize, identify and foster the unique capabilities of each student, through holistic, flexible and multidisciplinary curriculum and pedagogy in Schools. The policy is also aligned to sensitize and train teachers to promote each student's holistic development in both academic and non-academic spheres, and equip them with the 21st century skills. The NEP 2020 lays particular emphasis on the development of the creative potential of each individual [1-2].

School Education has a vital role to play in implementation of the NEP 2020 in true spirit, through effective classroom transaction and the teacher as change makers, for adopting student centric creative pedagogy through competency based education to achieve objectives of the policy. At, Jawahar Navodaya Vidyalaya Shimla, Himachal Pradesh, School Administration and Teachers are committed to create a conducive environment that is aligned with the aspirational goals of 21st century education, including SDG Goal No. 4 (Quality Education), while building upon India's traditions and value systems.

In the various subjects, teachers have used innovative pedagogies and strategies to achieve the learning outcomes specified in NEP 2020 through ICT based cross curricular, inquiry-based, discovery-based and analysis-based with interdisciplinary approach. The subject teachers are teaching their subject with optimal student engagement in a joyful manner. Students have been exposed to latest techniques in the education system in achieving the skills required for global citizenship. Inclusive education has also been stressed while implementing all the strategies in the teaching learning process.

II. TEACHING-LEARNING PRACTICES ADOPTED IN JNV SHIMLA AS PER NEP 2020

The skills required by the future workforce, for the Fourth Industrial Revolution, often referred as 21st century skills are learning skills (Critical Thinking, Creativity & Innovation, Communication and Collaboration), Literacy Skills (Information literacy, Media literacy and Technology literacy) and Life skills (Flexibility & Adaptability, Leadership & Responsibility, Initiative & Self-Direction, Productivity & Accountability and Social & Cross-Cultural Interaction). Thus, it is crucial to change the teaching-learning process and integrate the requisite approaches or techniques to develop the desired skills among students, to make them future ready [3].

As per NEP 2020, the teaching and learning should be conducted in a more fun and creative way with collaborative and exploratory activities for students. Experiential learning should be adopted including hands-on learning, art-integration, sports-integration, story-telling/ toy-based pedagogy along with other standard pedagogies during teaching learning process. The importance of active learning and holistic engagement of students has propelled educators to explore new instructional strategies by leveraging the power of Information and Communication Technology.

Various innovative teaching-learning approached has been adopted in JNV Shimla to achieve the objectives of the Competency Based Education (CBE) as per NEP 2020 are:

A. Flipped Classroom Approach

The Flipped Classroom concept facilitates interaction among students, and between students and their Teachers, which helps students to effectively learn to acquire skill, knowledge, and improve their attitude towards learning [4]. Collaborative flipped classroom approach have implemented in JNV Shimla, which one of the highly effective teaching approaches for inculcating key 21st Century skills among students. Innovative ICT Tools like Adobe Creative Cloud, Video Editors, Wakelet and Microsoft Flipgrid are being used to ensure the maximum student engagement and participation in the flipped classroom environment.

Learning Outcomes: Development of 21st century skills like Communication, Creativity, Critical Thinking, Curation, Collaboration and Digital Citizenship.

Alignment of approach as per NEP 2020: Promotion of multilingualism and the power of language in teaching and learning; life skills such as communication, cooperation, teamwork, and resilience.

(i). Video Tutorial Creation by Students

Students of Class XI and XII in JNV Shimla are being trained to use Video Editing tools for e-content creation. Students are being sensitized about licensing, copyright and IPR issued before being trained on ICT Tools for e-content creation. As a short term goal, Department of Computer Science is working to create video tutorials pertaining to Python Programming under "For the students, by the students" initiative and my long term goal is to develop OERs for the whole curriculum of Computer Science for Class XI and XII, which includes Cyber Security & Awareness, Computer Networks, My SQL and Advanced Python Programming, so that the resources may be extended to the larger community of students and teacher in India. The prime motive of this approach is to inculcate 21st century skills among the learners to make them future ready.

(ii). Collaborative Flipped Classroom using Wakelet

To initiate the process, a topic is introduced in the class and divided the students into groups so that they may work collaboratively on the sub-topics. The students are sensitized about exploring the right e-content while taking care of the copyright issues and licensing, to develop Digital Citizenship among the students. The students start their team work and individual team member take responsibility to contribute as per his or her forte. All the team members explore the Internet for the relevant e-content pertaining to the sub-topic assigned to their group through communication and curation. Then, students work their way out to figure out the solutions to the problem by critical thinking and then apply their creativity with fellow students. The team leader adds the group members as contributors to organize the e-content in the group Wakelet collection on the subject. Further, the students work in collaboration on the common Collection created for the sub-topic assigned to their group. Teacher remains one of the contributors to each group collection in order to monitor the progress and also be a facilitator to the students during the entire process. All the collections are kept in private visibility mode for the development phase. Eventually, students presented their findings and learning, through their Wakelet collections to the class in the presence of the mentor teacher. Then, the teacher bridges the learning gaps to conclude the topic. Later, the visibility mode of the collection is changed to public so that the wonderful work of the students may be shared across the community [5].

(iii). Flipped Classroom using Flipgrid

Flipgrid is being used in the teaching-learning process for implementing Flipped Classroom approach by empowering every voice in the class, in student centered learning environment to build empathy. Flipgrid is used to initiate a discussion with fellow educators or introduce a topic to students. Teacher introduces a topic or initiates a discussion by screen recording, uploading a video or recording Audio with Video. Students also submit their Video responses. Teacher can give feedback on every response from students using an inbuilt rubric based on performance and idea. It is an effective ICT tools for Students' Engagement as it is dedicated platform to create and share video resources without any distraction like commercial elements. Further, this tool also quenches the thirst of students to demonstrate their creative skills through Audios or Videos using various ICT gadgets [6].

In view of promoting multilingualism and the power of language in teaching and learning and developing life skills such as communication, cooperation, teamwork, and resilience; inline with NEP 2020, students are encouraged to present their comprehension in any language (Hindi, English or their mother tongue).

B. FOSS based MOOCs in School is association with IIT Bombay

Massively Open Online Courses (MOOCs) allows the students to use the ICT to learn anytime anywhere, learn as per their pace & interest and learn from the best resources in the subject [8-9]. JNV Shimla is established as the first ever Resource Centre of Spoken Tutorial Project of IIT Bombay at School Level in the Himachal Pradesh, to train students of JNV Shimla and surrounding institutions on various Free and Open Source Software (FOSS) based ICT Tools. Blended learning technique is being used in the classroom to bridge the learning gap between Bright and Supportive Learners. The self-paced

learning allows Supportive students to comprehend the concept at his own pace and gives a chance to the bright Learners to use their time productively for learning beyond text book. E-learning workshops (in both Online and Offline mode) are being conducted for the students in JNV Shimla to teach Computer Basics, Database Management and Programming skills according to CBSE curriculum in association with Spoken-Tutorial Project IIT Bombay. Students are being evaluated through Online Tests being organized remotely by Spoken Tutorial, IIT Bombay for Certification.

C. SDGs in Classroom

It is extremely important to expose the students to the global challenges for developing awareness, competence, knowledge, skills, and attitudes for environmental protection through Education [7]. United Nation Sustainable Development Goals 2030 have been introduced in the Classroom transactions and STEM based teaching have been imparted in the classroom. Students are being exposed to the global issues like Climate Change and importance Clean and Green Energy Sources to mitigate the same. Teachers of JNV Shimla have been receiving trainings on SDGs from various reputed organizations working on the Global Goals like UNESCO, IIT Bombay, Microsoft and International Society for Technology in Education (ISTE). Events for advocating SDGs like Student Solar Ambassador Workshop and Raise your Voice for Environment Protection, are being organized regularly in the school successfully in School to enhance student comprehension about SDGs and possible way to address the challenge. JNV Shimla is also participating in the Global Schools Program for continuous integration of SDGs in Classroom.

D. Mind Mapping

Mind Mapping is a learning technique which uses a non-linear approach, using which students create visually captivating diagrams having a central theme flowing to inter-related peripheral branches, to record their learning [10]. Students of JNV Shimla are trained to use various Mind Mapping tools like Free Plane, Free Mind etc. for recapitalization of subject matter. Students use their critical thinking and creativity skills to enhance their comprehension level in all subjects. Mind Map has proven to be a technique for comprehensive memorization of difficult topics.

E. Art Integrated Teaching-Learning

As per NEP 2020, art integrated teaching-learning has been implemented in JNV Shimla using Adobe Creative Tools where students have been trained to use various innovative ICT Tools like Adobe Spark, Adobe Premier Rush etc. The students are allowed to unleash their digital literacy, creativity and critical thinking skills in various subjects. Student creates banners, videos, web pages and presentation to express their understanding on various topics. The integration of Art, Images, and Videos in Interdisciplinary teaching-learning process creates a joyful learning environment.

F. Experiential Learning

As per guidelines of NEP 2020, Vocational Education is an integral part of teaching learning process at JNV Shimla. Students are developing digital skills, communication and collaboration through skills based subject i.e. Front Office Management, Typography and Computer Applications and Information Technology. Further, students who are looking to groom themselves for service Industry are being trained in Food production under vocational curriculum of CBSE.

III. ASSESSMENT PRACTICES ADOPTED

Multiple methods of assessment like MCQs, Quiz, Puzzles, short answer and long answer problems, portfolios, presentations, group projects, open ended questions, reflective assignments are being used in JNV Shimla with minimum stress on the students, as per guidelines of NEP 2020. Teachers are preparing CCT based competency based questions to assess the students.

IV. PROFESSIONAL DEVELOPMENT OF TEACHERS

As per NEP 2020, teachers and faculty are the heart of the learning process and their continuous professional development, positive working environments and service conditions; are some important factors for the constructive transformation of the education system. Teachers at JNV Shimla have been participating in the professional development programmes organized by NCERT (Diksha, Nishtha), CBSE, IIT Bombay, Navodaya Leadership Institutes (NLI), Microsoft, Adobe, Google and other reputed educational organizations regularly in order to enrich their teaching skills and disseminate the educational content in effective manner during classroom transactions.

V. CONCLUSION

NEP 2020, is being implemented in Jawahar Navodaya Vidyalaya Shimla to create a student centric learning environment for overall development. Innovative Teaching-Learning Pedagogies, Art Integrated learning and experiential learning has been implemented with an interdisciplinary approach to develop the key 21st century skills among students to prepare them for the future jobs. Students have also been exposed to the global challenges by bringing SDGs in Classroom. Furthermore, the students are taken to the highest level of learning in Bloom's Taxonomy and they are unleashing their creative potential using Information Communication and Technology in a fun learning yet productive environment. Every effort is being made to touch Bloom's three learning domains: the cognitive, affective, and psychomotor, for holistic development of students.

VI. REFERENCES

[1]. CBSE (2020), "21st Century Skills- A handbook", Central Board of Secondary Education, New Delhi, May 2020

[2]. National Education Policy 2020, [Online] Available: https://www.education.gov.in

[3]. World Economic Forum, "The Future of Jobs Report 2018", [Online] Available: https://www.weforum.org/reports/the-future-of-jobs-report-2018/

[4]. Christopher Nwosisi, Alexa Ferreira, Warren Rosenberg, Kelly Walsh (2016), "A Study of the Flipped Classroom and Its Effectiveness in Flipping Thirty Percent of the Course Content", International Journal of Information and Education Technology, Vol. 6, No. 5, May 2016, pp. 348-351

[5]. Collaborative Flipped Classroom Using Wakelet (2020), [Online] Available: https://blog.wakelet.com/2020/03/09/collaborative-flipped-classroom-using-wakelet/

[6]. Carrie Taylor, Timothy Hinchman, "Strategies for Using Flipgrid in the Education", US-China Education Review B, January 2020, Vol. 10, No. 1, 26-31, doi: 10.17265/2161-6248/2020.01.003

[7]. Klaudia Zwolinska, Sylwia Lorenc and Radosław Pomykała, "Sustainable Development in Education from Students' Perspective—Implementation of Sustainable Development in Curricula", Sustainability 2022, 14, 3398. https://doi.org/10.3390/su14063398

[8]. Dr. Deepak B. Phatak, "ADOPTING MOOCS FOR QUALITY ENGINEERING EDUCATION IN INDIA", Proceedings of the International Conference on Transformations in Engineering Education (ICTIEE), 16-18 January, 2014

[9]. Anurag Jagetiya, Rama Krishna Challa, G. Prashanthi, "MOOCs: Education for All– On-Going Development in India", IEEE 6th International Conference on MOOCs, Innovation and Technology in Education (MITE), 2018, pp. 31-36

[10]. Evangelin Arulselvi, "Mind Maps in Classroom Teaching and Learning", The Excellence in Education Journal, Volume 6, Issue 2, Summer 2017