

Addressing Apprehensions amongst School Teachers in Predominance of ICT in Pedagogical Process Post COVID 19

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Abstract: Tech enabled pedagogy is undeniably the new paradigm in education at all levels. Inclusion of National Education Technology Forum in the NEP 2020 and the plethora of literary content on the subject are indicators of its significance as it provides phenomenal reach at a fraction of the cost. However, the rapid rate at which absorption of ICT was thrust upon educators due to the sudden emergence of COVID 19 pandemic left a lot to be desired. This research aims to identify the lacunae that impede the flawless absorption of tech in the classroom and offer comprehensive solutions to fill these voids. Some of the problem areas are associated with school management and policies while others are purely personal issues of the educators. Solutions offered include symbiotic mentoring between the younger and older teachers, web-based apps and programs and training, both professional and behavioural. The recommendations, if implemented as envisaged, would greatly improve the quantum and quality of education with far reaching benefits that would propel India into the league of developed nations with a high literacy rate.

Keywords: Apprehension, ICT, Technology, Pedagogy

1. Introduction

Teachers have long been the harbinger of all good habits, knowledge, mannerisms, application of theories, organisational behaviour and more for all mankind. From times immemorial teachers have been revered and the society owes a lot to teachers. The role of the teacher demands a constant process of learning, unlearning and then re-learning. The teacher needs to be abreast with the developments in the area of indigenous technology, various teaching practices and above all amalgamate the two to translate the lessons in the most efficient manner to the students. Thus, an effective teacher is, arguably, one who helps in developing among students the basic skills, understanding, proper work habits, desirable attitude, value judgment and adequate personal adjustment.

The term "Information and Communication Technologies" (ICT) comprises "diverse range of technological tools and resources used to communicate and create, transmit, store and manage information" (UNDP 2000). These technologies include hardware like computers, printers, scanners and software like multimedia objects, videos and animations and many more. Information and Communication Technologies can facilitate not only the acquisition of knowledge but also provide variety of education solutions.

2. Rationale of the Study

The study has to be undertaken to understand the varied reasons behind the apprehensions of the teachers towards using technology for imparting education. Since the transformed methodology of teaching is here to stay as it offers numerous benefits, it is imperative to understand, enumerate and address the problems in this evolution of teaching-learning process so as to make a smooth and quick transition. A quick leap into the transformed classroom will facilitate the teachers and students to move forward unhampered. At the very outset, there is a requirement to

understand that the main determinants of integration of ICT in school education are:

- a) The access to computers or any other Information and Communication Technology for teachers at home and school
- b) The skill training and competency of teachers.

3. Relevant Research Questions

Some of the relevant research questions for the above highlighted objectives are given below:

- 1) What are the emerging trends in technology-based teaching methodologies?
- 2) What inhibits the teacher from using the available modern teaching aids?
- 3) What are the factors affecting ICT access and usage by teachers and students?
- 4) How can we empower the teacher to exploit the available web-based tools?
- 5) How can we reduce the fear or under-utilisation of technology amongst teachers for overall growth?

4. Objectives of the Study

- 1) To identify the emerging trends in technology-based teaching methodologies.
- 2) To study apprehensions amongst school teachers in predominance of ICT in classroom.
- 3) To study the factors affecting ICT access and usage by teachers and students.
- 4) To find out the reasons for acceptance deficit of these tools in teachers.
- 5) To provide suggestions and recommendations regarding optimal usage of ICT by teachers and students.

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5. Operational Definitions

- 1) *Apprehension*: It refers to anxiety or fear that something bad or unpleasant will happen. In this case apprehension refers to reluctance of teachers to use ICT in teaching and learning due to various reasons.
- 2) *ICT*: On a broader basis ICT encompasses any product that stores, retrieves, manipulate, transmits or receives information electronically in a digital format, e. g. personal computers, digital television, email, robots. It also covers any product they are related to facilitate the transfer of information and various types of electronically mediated communications.
- 3) *Technology*: The branch of knowledge that concerns with the creation and use of technical means and their interrelation with life, society, and the environment, drawing upon such subjects as industrial arts, engineering, applied science, and pure science. It can also be defined as a body of knowledge devoted to creating tools, processing actions and extracting of materials.

6. A Brief Review of Related Literature

Information technology is the need of the hour. Researchers have proven that technology can never replace teachers. However, technology in the hands of adept teachers can be transformational. To understand the need of ICT, the reason behind the aversion and the remedial steps; works on the subject authored by recognised experts in the field in form of books and papers published in periodicals devoted to such subjects is obtained and presented as under:

- 1) (Hamutoglu & Basarmak, 2020), the study emphasizes on external and internal Barriers in integration of Technology in the field of Education. The results of study have shown that external barriers affect the internal barriers directly and positively.
- 2) (AlAmmary, 2012) Most developing countries want to improve education quality while using limited resources efficiently. According to the author, Impediments to students and teachers adopting Education Technology include inadequate ICT infrastructure and computing facilities, technology budgets, and technical support.
- 3) (Handley et al., 1997) The authors talk about the major inconsistencies in teacher and student with respect to the use of these machines. The researchers also believe that the gap between the students' outlook and teachers' perception of technology has widened, making it all the more difficult for teachers to incorporate technology.
- 4) (Yadav, 2015) According to the author Information and Communication Technologies (ICTs) are widely accepted as a modern instrumental tool that enables the educators to modify their teaching methods in order to pique the students' interest and it is a novel medium, a new way of portraying, transmitting and working with information. There is an urgent requirement in India to improve students' learning capacities through the use of ICT.
- 5) (Chhangte, 2016) The authors have highlighted the growth of ICT which has brought in rapid changes in various fields especially in school education because of its appropriateness, applicability and versatility in use for classroom teaching. Having recognized the potential

- ICT in improving the teaching learning process, the authors have tried to bring forth the reasons as to why teachers shy away from technology.
- 6) (Qasem & Viswanathappa, 2016) By training in-service science teachers using a blended learning method, the professor aimed to analyse their attitudes toward integrating ICT into instructional design.
- 7) (Dwiastanti, 2016) According to the author teachers face problems in developing their own technological skills and knowledge as well as self-training in the use ICTs. This lack of capacity development support contributes to teacher laxity in integrating technology in their teaching despite their enthusiasm. This study proposes that new frontiers on technology integration be made available and accessible to both teachers and students for educational purposes to increase access to information

The abundance of literary work on the subject and in-depth analysis therein is conclusive of the fact that ICT is a subject meriting further study and research for its application in the educational field. Thus the researcher proposes to ascertain the current availability, utilisation and applicability of ICT at schools, so as to determine the problems being faced by teachers. Teachers, who are the bedrock of education, not only need to be aware and enlightened of the emerging technologies but also trained and empowered to use it effectively.

NEP 2020 on Implementation of ICT in Education

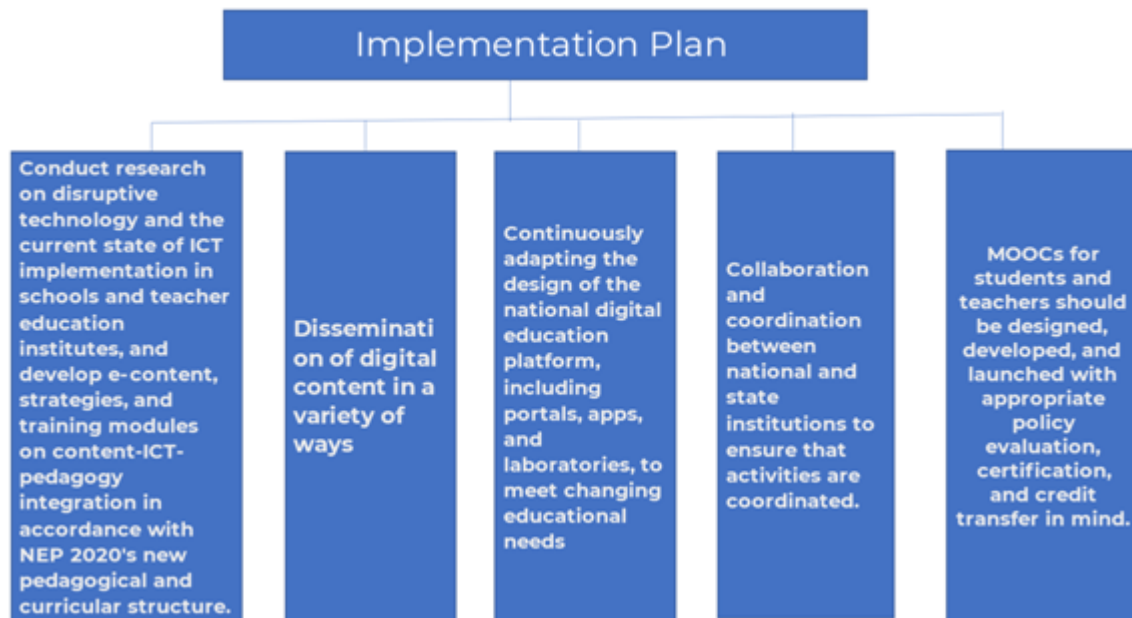
National Education Policy 2020 has been adopted by the Union Cabinet. Two committees were constituted, and their recommendations were included into the new policy. This is a momentous occasions the country has got a new education policy after 34 years. By introducing this overdue policy, the Govt has made sweeping changes in education. The NEP, 2020 emphasised the usage of technology in education. Some of the highlights pertinent to this study are enumerated below:

- 1) A National Educational Technology Forum (NETF) is in the process of being established. The ministry will leverage technology in education planning, instruction, and, most importantly, assessment. E-content will be generated in a variety of regional languages in addition to English and Hindi in NEP, 2020.
- 2) E-courses and virtual labs will be developed in regional languages.
- 3) According to the new policy, the ministry will establish regulations requiring self-disclosure and a minimal human contact in the education sector.
- 4) Additionally, it has prioritised asset growth for the society's most vulnerable sections.
- 5) The new strategy aims to provide schools, teachers, and students with digital devices.
- 6) One of the recommendations of NEP 2020 is to establish a National Mission for Mentoring, with a large pool of outstanding experienced, distinguished senior/retired faculty – including those with the ability to teach in Indian languages – who would be willing to provide short and long-term mentoring/professional support to university/college teachers.

- 7) NEP 2020 recognises the critical nature of
- Adequately utilising technology for online and digital education to solve equality concerns.
 - Optimising and expanding current digital platforms and ICT-based educational initiatives.
 - Pilot studies that are well prepared and adequately scaled to determine the benefits of digital/online education.

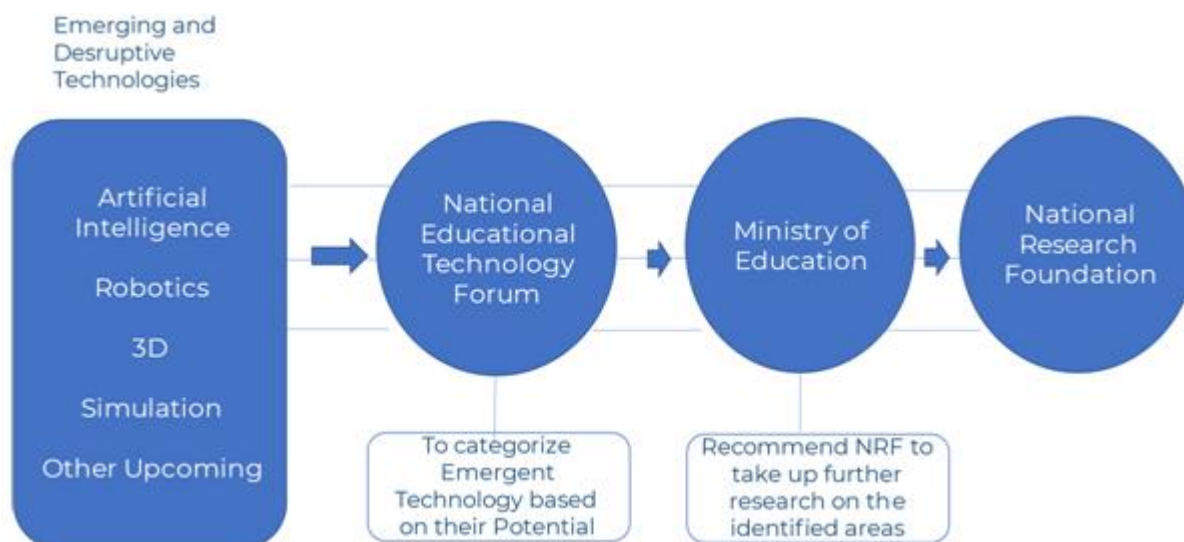
- Utilizing the benefits of technology while being aware of the hazards and dangers.

The Government has laid out a time-bound road map for the implementation of the policy and also worked out budgetary sanctions. From the perspective of this study, it is necessary to elucidate the five-pronged approach in implementation of NEP 2020. The same is shown below:



It is evident from the Implementation Plan that technology is set to play a pivotal role in the education sector in the future. While the other points are self-explanatory, a word about disruptive technology is felt necessary. The diagrammatic

representation below lists out these disruptive technologies and the steps involved in their absorption in the field of education (Cook, 2020) :



Note. From "The SAGE Encyclopedia of Children and Childhood Studies", by Cook, D. T. (2020). Private Schools. <https://doi.org/10.4135/9781529714388.n480>

There is no denying that any tool depends on the hand that wields it. It is therefore essential that alongside beefing up infrastructure and provisioning devices for the under privileged, the strengthening of Human Resource is also carried out. The envisaged targets in the improvement of educational processes and outcomes would then be comfortably achieved.

Impact of COVID 19 on Pedagogical Process in Private Schools as PER the CSF Report

- 1) Pedagogical Techniques Employed by Teachers to Continue Teaching Students during the Pandemic

Live video lectures and their recordings have been the predominant mode of teaching in the post pandemic scenario. According to the CSF Report on "Impact of Covid 19 on Private Schools" 67% teachers use digital tools for learning management/ online education everyday (Cook, 2020). A few other pertinent statistical data is listed below:

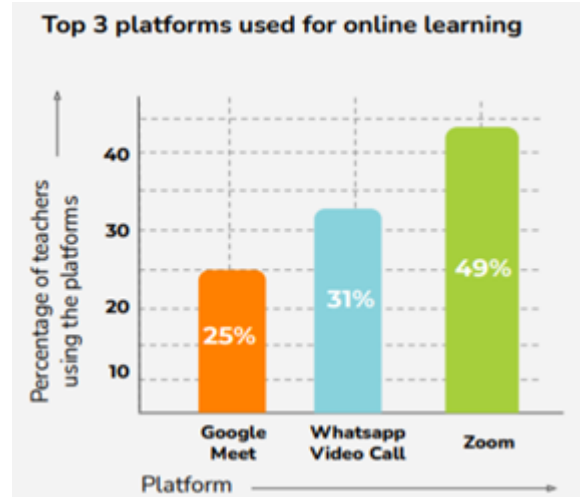
- a) Approximately 15% of the private schools are conducting classes through paid applications or using supplementary platforms such as Byju's, Vedantu, Topper, etc. indicating that the capacity to utilize paid digital content and platforms is still limited.
- b) More than 50% of the schools are conducting live video lectures and nearly 75% sharing recorded video lectures
- c) Approximately 70% of schools are conducting subjective online tests.
- d) Approximately 35% of schools have opened their labs to teachers so that they can teach their students by demonstrating live lab classes.
- e) 66% teachers report that student attendance before and after lockdown has remained same, 22% see an increase in regularity and 12% report a decrease.
- f) Approximately 40% of teachers reported that students are unable to clear their doubts virtually.
- g) To encourage higher engagement levels from students and parents, Approximately 50% of schools are focusing on extracurricular activities such as online cultural events and virtual games.
- h) More than 50% of urban schools communicate regularly with their students through doubt classes, revision classes, and unit tests.
- i) Approximately 80% of the rural schools have connected with their students at least once to take revision classes, doubt classes, and tests.

The foregoing statistics in the CSF Report clearly bring out the vast and necessary dependence on ICT that has been brought about by the isolation that was forced due to the pandemic after 2019. These statistics help quantify the otherwise felt need for the formal acceptance of the evolved learning process and its institutionalization.

2) Major Pedagogical Techniques Employed by Teachers Post Pandemic

There has been an incorporation of teaching techniques in the period which was both innovative and cost effective and utilised the existing resources that were originally designed for other purposes such as social media propagation, corporate meetings, business process outsourcing. The five major elements that constitute these techniques are:

- a) Sharing content and assignments via messaging apps.
- b) Create study groups (for students who are lagging in syllabus, or conducting revision or doubt clearing sessions).
- c) Reaching out to students via telephone calls.
- d) Sharing previously recorded video lectures.
- e) Using video call apps to deliver live lectures.



Note. From "The SAGE Encyclopedia of Children and Childhood Studies", by Cook, D. T. (2020). Private Schools. <https://doi.org/10.4135/9781529714388.n480>

3) Parents' Concerns Over Online Education

Identical to the teachers, the parents who were accustomed to traditional method of teaching in the physical class room also had concerns regarding the Quality of instruction being received by their wards in the digital space. Some of these concerns were:

- a) Whether the Teacher is able to pay individual attention to my child's needs (personalisation of content or approach).
- b) Is there a better syllabus coverage?
- c) Lack of physical presence of a teacher leads to child not receiving personal attention (e. g., with doubts and clarification).
- d) Students are not attentive and sincere in a home-based learning setup.
- e) Concern over use of unfair means in online tests.
- f) Lack of proper tracking of child's progress and assessment in the online class setup.

Common Barriers in use of ICT

Following two major barriers can be held responsible for the reluctance of teacher in use of technology:

- 1) Due to school management and policies and
- 2) Due to personal reasons.

1) Due to school management and policies

- a) Introducing Information and Communication Technologies Takes Time: The time-consuming process of introduction and development into mainstream of ICTs prevent school management to explore technology. To make effective use of ICTs, instructors must be given adequate time to develop new abilities, examine their integration into their existing teaching practises and curriculum, and plan any additional lessons that may be necessary. This restrains the "time bound" school management.
- b) Substantial Planning: Introduction, up-gradation or development of ICTs require substantial planning. The creation of and participation in teachers' professional development activities also requires effort and planning. Regular monitoring and evaluation of these activities,

and establishment of feedback loops is imperative, in order for professional development to be effective and targeted to the needs of teachers.

- c) Incorporation of Models of Effective Teaching Practices in Successful Teacher Professional Development: ICT becomes a key driver of success only with an on-going professional development at the school level. Using available ICT facilities, focuses on the resources and skills directly relevant to teachers' everyday needs and practices. Effective teacher professional development should be in consonance with the classroom environment as much as possible. "Hands-on" instruction on use of Information and Communication Technology is necessary where ICT is deemed to be a critical component of the teaching and learning process. In addition, professional development activities should incorporate effective practices and behaviours that encourage and support collaboration between teachers.
- d) Assessment Methods: The teachers get motivated only with encouraging results. Thus, introduction of any technology loses its worth in the absence of assessment methods. Therefore, professional development should include methods for evaluating and modifying pedagogical practices that expose teachers to a variety of assessment methods.
- e) Pedagogical Issues: Numerous modifications must be made to maximise instructors' usage of ICTs. Changing pedagogies, revamping the curriculum and assessment, and granting schools greater autonomy all contribute to optimising ICT use. Teachers can use ICTs in as 'constructivist' a manner as their educational philosophies allows when appropriate enabling variables are in place.
- f) Utilising ICTs as tools for Information Presentation is of Mixed Effectiveness: The effectiveness of ICTs as presentation tools (through television, overhead and LCD projectors, electronic whiteboards, and guided "web-tours" in which students examine the same information on many computer screens) is viewed as mixed. While such uses of ICTs can often help students grasp difficult topics (particularly through the use of simulations), they can also reinforce traditional pedagogical approaches by diverting attention away from the content being spoken or exhibited and toward the technology being used.
- g) It's Optional: In most schools web-based technology is an optional way of pedagogy. The culture of compliance is deep rooted, particularly in the Indian schools. Teachers tend to blindly follow the seniors without questioning and thus the practice of "thinking out of the box" seems non-existent. The mindset that a teacher who spends maximum time to explain things with physical or physical (models) teaching aids is always successful is also a huge stumbling block.
- h) Lack of Knowledge Sharing: Lessons learned via the implementation of ICTs in education are not shared. As the adoption of ICTs to improve education is frequently part of a larger change or reform process, it is critical to identify, promote, and spread effective uses of ICTs.
- i) Lack of Support for Professional Development: 'Communities of practise' can be an effective means of assisting teachers in their professional growth. The existence of official and informal communities of practise, as well as peer networks, can be critical tools for advancing ICT-related initiatives and activities in education. The usage of ICTs can facilitate the establishment of such support mechanisms. Additionally, teachers must be exposed to extensive, on-going ICTs in order to evaluate and select the most appropriate resources. However, the development of relevant pedagogical practices is prioritised over technical proficiency of ICTs.
- j) Budget and Policies: Most Government aided schools do not have an exorbitant budget to invest in technology. Funds provided to them seem to just suffice for basic infrastructural needs. Private funded schools, on the other hand, are clueless or confused on the kind of technology that they have to invest in. With the continuously changing technological arena investment and up-gradation by the schools is a recurring and expensive affair. The Government's policies are not so much in favour of the use of technology, especially in the field of education. A change in age old policies to balance tradition and technology is the need of the hour.
- k) Lack of Research: Computers is a perfect example of "oversold and underused" commodity. No development in the research work, lack of communication and not sharing information with the broader community of teachers has an adverse effect on the adoption of technology in the field of education.

2) Due to Personal Reasons

- a) Fear: Adopting new technology can be daunting on a multitude of ways. Whether it's a fear of relinquishing control, a perception that one has the necessary abilities, or a concern about one's digital footprint, privacy, or cyber-bullying, many teachers are fearful.
- b) Students are More Sophisticated in their Technology Use Than Teachers: There appears to be a disparity in comfort levels between students' knowledge and use of ICTs and teachers' knowledge and ability to use ICTs in the majority of cases. This indicates that teacher inexperience and skill limitations may frequently be a significant issue impeding teachers' effective use of ICT in education.
- c) Low Self-Efficacy: Even the motivated and somewhat skilled teachers' lack a strong sense of belief in their own ability to learn and teach with the help of web based technology.
- d) Subject Knowledge: Subject knowledge of teachers has an effect on how ICTs are employed. The way in which ICT is incorporated in lessons is impacted by the teacher's understanding of their subjects and their ability to utilise and relate ICT resources to them. Effective use of ICT is enhanced by teacher content mastery and an awareness of student comprehension. The evidence indicates that when teachers apply their expertise of both the material and how students comprehend it, their use of ICT has a more direct impact on student accomplishment.
- e) Testing: Teaching and conducting assessments based on these ICT platforms are totally different ball games. Conducting assessments are a major hurdle to most teachers.
- f) Consumerism: Worldwide, specifically more so in the Indian scenario, teachers themselves have only used computers for entertainment and social interaction. Most societies view reading as educational while anything

technological is viewed as purely a means of entertainment. This is called consumerist mentality or stereotypical approach.

- g) Lack of Leadership: It is seen that the Heads of the schools tend to worry more about managing the equipment rather than pushing for change. This is a major setback in the path of implementation and up-gradation of web-based technology. Security issues, viewing inappropriate sites, cyber bullying etc. are a stronger factor in the minds of the Heads of Institutions.
- h) Inconsistent Paradigms: The sheer number of devices connected to the computer threatens teachers most. The use of these devices to start a chapter or to conduct classes intimidates them. Teachers who are well versed with chalk, board and paper for the teaching learning process, find it near impossible to do the same using multiple equipment connected to the computer.
- i) Personal Experience: Most of the times teachers seem to be more comfortable with instructional means and modes that they have watched while growing or practiced throughout their career. Even simple things like YouTube, twitter and other social media seem to psych them up. The schools also need to share the blame as they do not encourage the use of platforms like blogging, connecting various branches of the same school for knowledge sharing, conducting online discussions etc. Thus, teachers find themselves alienated from these professional tools.
- j) Humility: Some teachers find it hard to accept that their ability to understand the child's problem and their methodology to explain to solve the problem is incoherent and unclear. Thus, the first step towards change, i. e., to accept the need for it, is itself missed out.

Steps in Achieving Meaningful Technology Use

1) Symbiotic Mentoring

Symbiotic mentoring is a relationship between graduate students in college of education and elementary teachers in a rural school. Symbiotic Mentorship is a two-way process where the young graduate or young educational professional learns from the experiences of the teacher who is there in the field, about the nuances of teaching, content building, class structuring and management of the school and students.

The teacher in the same time frame while imparting instruction can absorb technology from the younger student who is not only more exposed to technology from a younger age but has also just been through a structured programme as part of his curriculum in Graduate School in handling or utilizing technology for imparting instruction.

In this process of give and take both will benefit in a symbiotic relationship where the practical aspect of teaching learning process and the practical aspect of employment of technology will be shared by both parties.

a) Vision

"A vital step towards meaningful technology use is to create a vision of how to use technology to accomplish important educational goals" (Ertmer, 1999, p.54). Mentors or graduate students modelled technology integration in the

teacher's classroom, allowing the older teacher to observe how technology can be used and managed in their own environment. It is not the case that teachers do not want to use technology, but rather that they lack the ability to "see" and "manage" the various ways in which technology can be used in their classroom. Therefore it becomes important to demonstrate techniques that they need to learn to give them a clear and achievable vision.

b) Access

Teachers required assistance with technological support. Mentors aided teachers in repairing machines, loading software, navigating printing issues, and locating necessary hardware. This increased teachers' access to technology in the classroom.

The classrooms lacked sufficient computer equipment, machines were inoperable and required repair, software was sometimes not loaded and ready to use, and printers were not always available. Technical support was provided at the district level, and the district technologist may not come very frequently for repairs. Mentors assisted teachers with technical issues throughout the mentoring relationship and taught them how to troubleshoot their own machines.

c) Time

Teachers require time for experimenting with computers. Managing Teacher's schedules is not easy. Teachers were less willing to participate in professional growth at the end of the day when they were exhausted. The Symbiotic mentoring allowed the graduate students and teachers to learn "just in time." Teachers can interact with the mentors in their own classrooms and utilise their own equipment in their environment where they need the assistance of the mentors in the same timeframe of the class.

d) Assessment

Teachers require opportunities to learn new strategies for evaluating students in the virtual classroom or the 'technology implemented classroom'. Rubrics, electronic portfolios, process-oriented feedback, and performance tasks can all be used to assess students' performance. Teachers must have the opportunity to draw on the mentor's experiences to learn new strategies for designing and evaluating projects.

e) Professional Development

Technology training is frequently more concerned with basic operation than with curriculum integration. Teachers require ongoing opportunities to model the type of learning experiences we are asking them to create using technology. (Ertmer, 1999; Fabry & Higgs, 1997; OTA, 1995). Teachers must receive pedagogical training through observation of technology-enhanced lessons, curriculums, and classrooms, and also consultation opportunities with mentors in technology integration. (Brunner, 1992). Computers and other classroom technologies must be integrated into the daily curriculum if technology is to be made an effective educational resource in helping students achieve their educational goals. Training opportunities allow teachers to build skill and confidence in the use of technology (Haugland, 1999).

2) Scope of Teacher Training in Secondary Areas to Support Remote Learning

The afore discussion clearly brings out the need for professional training of the teachers in the field of technology integration into the classroom for all activities related to the process of imparting instruction, managing the classroom, assessing classroom performance, assisting weaker students, conducting tests and examinations and providing feedback to students and parents. These constitute the primary or core area of concern and the importance of mentors in this process has already been discussed. However, there are certain secondary areas minor or actionable points that can be implemented to assist the teachers in faster preparation for the class at hand and make their life easier.

- Creating online content such as pre-recorded videos, study material documents, etc.
- Familiarising them with the use of video conferencing tools such as Whatsapp video calls, Zoom, Skype, Google Meet, etc. for conducting live classes and providing necessary hardware/ software/ bandwidth and data packages (particularly in rural areas).
- Sharing content/ study material/ assignments using cloud storage & messaging tools using online tools (such as WhatsApp, Google Drive, etc.) to share content.
- Behavioural training on how to communicate with parents regarding online education effectively.
- Behavioural training on how to handle students during online class.

7. Result and Discussion

It can be asserted without an iota of doubt that technology is the principal factor remodelling the way we teach and learn in the present day. More and more institutions; private and public, primary and higher education; are absorbing technology in growing measure. It is necessary to provide timely intervention and support to the teachers so that the impediments in absorption of technology do not become the proverbial 'Achilles Heel' that puts the brakes on the opportunity to provide quality education to every last child in our country, regardless of his location or monetary status. Implementing the proposals made through this paper would go a long way in developing the desired human resource that is essential for transforming our great nation into a developed country and a world leader.

Research has shown that teachers need both of the following:

- Ongoing curriculum support in order to be able to incorporate technology into the curriculum in meaningful ways (Ertmer, 1999).
- In-service training in the use of technology applications and Professional Development.

8. Conclusion

ICTs are seen as important tools to enabling and facilitating the move from traditional 'teacher-centric' teaching styles to more 'learner-centric' methods. Today's 'Knowledge Economy' demands a highly skilled, well educated work force that has the ability to work independently and

creatively. Thus, it becomes imperative that the teachers need to be provided with innovative learning opportunities and resources to succeed in the demanding work environment and take on the challenge of teaching using digital platform instead of the traditional method of classroom instruction using board and chalk. The intelligent and creative use of technology by the teachers can lead to providing equitable learning opportunities to the underserved/ marginal segment of society, thereby empowering learners across various segments.

The study leads to the following conclusions:

- Symbiotic Mentoring or Mentoring Partnership is road for implementation of ICT integration as it is cost effective and time efficient and do not require an excessive amount of resources.
- Developing online content such as pre-recorded videos, study guides, and other materials.
- Conducting live classes via online video conferencing tools such as WhatsApp video calls, Zoom, Skype, and Google Meet
- Behavioural training on how to communicate effectively with parents regarding online education.
- Utilizing cloud storage and messaging tools to share content/study materials/ assignments (such as WhatsApp, Google Drive, etc.)
- Conducting behavioural training on how to interact with students during an online class.
- While live classes are conducted using a variety of tools and software, the Ministry may launch a new robust software in the interim.

9. Recommendations of the Study

The proposals submitted in the preceding paragraphs can be summarised in the form of point recommendations as follows:

- Make the undergraduates conversant with teaching media by including a suitable portion in their curriculum and then utilising them for Symbiotic Mentoring.
- Introduce a robust software that provides all the tools necessary for imparting quality education and standardise it for all educational institutions.
- Put together a core team of motivated and committed individuals to tackle day to day problems faced by the teachers at school level.
- Behavioural training on how to communicate effectively with parents regarding online education.
- Behavioural training on how to handle students during online class

Certain additional minor actionable points are as follows:

- Developing online content such as pre-recorded videos, study guides, and other materials.
- Conducting live classes via online video conferencing tools such as Whatsapp video calls, Zoom, Skype, Google Meet etc.
- Utilizing cloud storage and messaging tools to share content/study materials/assignments (such as WhatsApp, Google Drive, etc.)

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Author Profile



Renu Awasthi is a PhD Student at MLS University, Udaipur, Rajasthan. She is a highly motivated individual having an excellent academic record which includes a gold medal in her B Ed course as university topper. She has a teaching experience of almost a decade at various schools across India, from remote

Assam to National Capital Region, owing to her husband's career in the Indian Air Force, which has mandated her to relocate frequently. During her time, in the field of education, she encountered technophobia amongst the teachers and other impediments to transitioning from a traditional classroom setting to one that incorporates technology. Consequently, she decided to research the subject so as to comprehensively address the issue. She is particularly passionate about higher education and student affairs.