

Relevant Implementation Of The Concept Of 'Digital Pedagogy' In School Education In India Seeking Utmost Importance In New Normal Teaching Learning Mode

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Abstract

The after Covid school education in India has rapidly transformed into a digital or virtual one. Although there is a lot of infrastructural obstructions regarding this, but the tremendous effort of government or non government franchises will cope up the situation very soon. As per parents, teachers or pupil concern, the pedagogical issues regarding preparation or delivering the module are found to be neglected. As a result, interest, attraction or engagement of students fall much behind the expected benchmark. So digital pedagogy should be introduced as a remedy of the current problem stated here.

Keywords : digital pedagogy, online learning, e-ethics, pedagogical issues.

Introduction

The whole World, including India, is witnessing a radical change in the education system in the aftermath of Covid 19. On December 1, 2019, the first Covid 19 was identified in China's Wuhan Province. Although the WHO first officially confirmed the Covid 19 case on 8 December 2019. The first Covid 19 was identified in Kerala on 30 January 2020 in India. Till this date, more than one crore Indians have been infected in covid 19, but in most cases they have recovered quickly. Although the mortality rate is quite low (about 1.48%), the panic of Covid 19 has spread widely across the country. Its impact has spread to the economy, agriculture, trade, education and the overall livelihood of Indians. On 24 March 2020, the Government of India was the first to issue a nationwide lockdown to protect the countrymen from Covid. Although the work of unlocking has started step by step from June 1, the educational institutions have not been able to get full mobility yet. As a result, the concept of a new teaching-learning has started to be applied in the new normal teaching-learning situation. This is known everywhere as online teaching learning.

Background

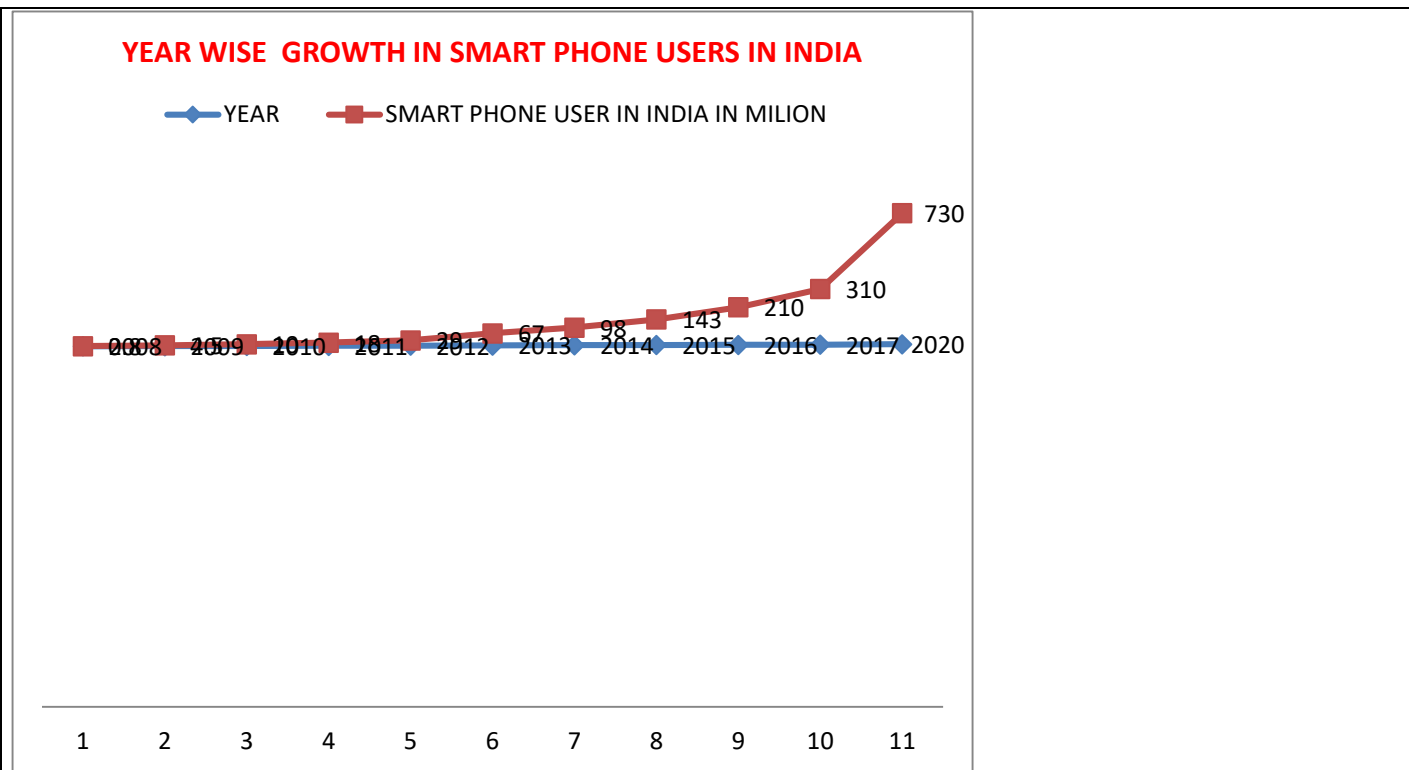
Although the online teaching-learning system is not a new concept. This mode has been observed for a long time in self-motivated, self directed, experienced students, usually associated with distance learning in e-learning management. As a result, Malcolm Knowels's principles of andragogy have been widely used. But now teaching-learning management is being conducted through online classes using various online platforms using mobile internet especially in all government, private, primary, secondary, higher secondary schools spread across remote areas of India. This measure has been taken in the management of public-private education in various government-private schools by being compelled to do so in special circumstances. Due to the presence of different classes of people across the country, huge population, lack of domestic electricity connection, lack of mobile technology, inadequacy of internet connection, financial inconsistency, geographical isolation, etc., online teaching learning is not possible to spread to remote areas even at government level. Besides, it should be kept in mind that there are 320 million students studying in India which is part of the second largest education system (1st China) in the World. This education is conducted through about one and a half million schools including government and private schools. According to the 2017-18 survey report of the Ministry of Rural Development, 36% of schools do not have electricity. 87% of government aided primary schools do not have any internet system. Although about 42% of internet users live in urban areas, only 15% of internet users can be noticed in rural areas. However, under the National Digital Literacy Mission through the Digital India program, 420.60 million Internet users were targeted in India in 2019, which is the second highest in the World. It is expected that by 2023, about 500 million Internet users will be created in India. In addition,

according to the data of 2020, about 376.1 million social network users have been targeted in India. Of these, about 300 46.2 million internet users have been identified as Facebook users on social networking sites. However, the number of active mobile internet users as of January 2020 is 629 million. Monthly average data consumption in India is around 11830 MB. Leading mobile activity belongs to YouTube Video browsing as of 2019. As per IMAI reports in 2009, 37% of students aged 16 to 24, 34% of people aged 25 to 34, 20% of people aged 35 to 44, 10% of people over 45, 14% of students aged 12 to 15 years, internet users can be noticed. Online Teaching, Video Learning, Audio Video Tutorials, Government of India's **Shala Shiksha, Shala Darpan, Moocs, E Pathshala, Ndl, Shodganga, Vidyan, Swayamprabha DTH Channels, Teleducation** in all schools, universities, government education management attempts are being made to give another dimension to digital learning in India. Through private company managed APP management like BYJU'S, VEDANTU, UPGRAD, STUDYIQ, UNDEMY, MERITNATION etc also provide a huge boost up in this context. So it is undeniable that in the near future, online teaching-learning is going to be recognized as one of the most important components of the education system as a backbone of the learning system. The geographical, technological, and socio-economic barriers to online learning are expected to be quickly addressed through public-private digital initiatives. We will shed light on the issues of pedagogical planning regarding digital teaching learning that need to be addressed.

Case History

In the 21st century, ICT information and communication technology has emerged as one of the best learning aids in the education system. ICT's main job is to create, collect, consolidate, process and process information. Subsequently, the education system has been greatly improved by integrating ICT with instructional technology. In the case of formal education, management of smart board, mimeo board, classroom PC, smart classroom etc. is now well known. Besides, in the case of non-formal education, the use of Computer Assisted Learning, Computer Mediated Communication, Computer Assisted Assessment, Computer Assisted Instruction, Computer Based Training, Computer Management etc. can be noticed. Informal education includes the use of TV, mass media, e-books, educational videos, online courses, podcasts, wikis, blogs, forums, World-wide-web, learning portals, social networks, etc. In addition, computer assisted learning management is being adopted for students with special abilities in the field of inclusive education. The use of speech-to-text, sensory enhancer, voice analyzer, space synthesizer, screen reader, smart board, digital book, voice recognition software, Braille magnifier, light signal, etc. can be noticed. In addition, arrangements have been made to provide education through electronic media, microphones, various audio-visual electronic gadgets, etc. In this case, we have gradually entered the era of mobile learning by going beyond the era of multimedia era web infancy era and second generation web. As a result, opportunities for self-service, self-improvement, self-expression have increased in the case of experienced motivated learners. Blended, mobile, online, offline, synchronous, or asynchronous learning has been introduced in the field of e-learning. But all this is nothing more than the use of technology as a supportive element in distance education or general education. But in the post-Covid New Normal Situation, a question arises as to whether the general direct teaching method is going to be replaced by online Internet-based teaching-learning in the future. According to the report of Aurn, India's e-learning market has grown from US\$ 247 million in 2016 to US\$ 1.96 billion in 2021. Moreover, the number of e-learner has increased from 1.6 million to 9.6 million in the last 5 years. In addition to the 630 million Internet users in 2020, the number of users in rural areas has increased by 75%. Mobile video content has grown by 63% in the last one year. Year wise smart phone users in India is reflected in following table-

YEAR	SMART PHONE USER IN INDIA IN MILION
2008	0.8
2009	4.5
2010	10
2011	18
2012	29
2013	67
2014	98
2015	143
2016	210
2017	310
2020	730



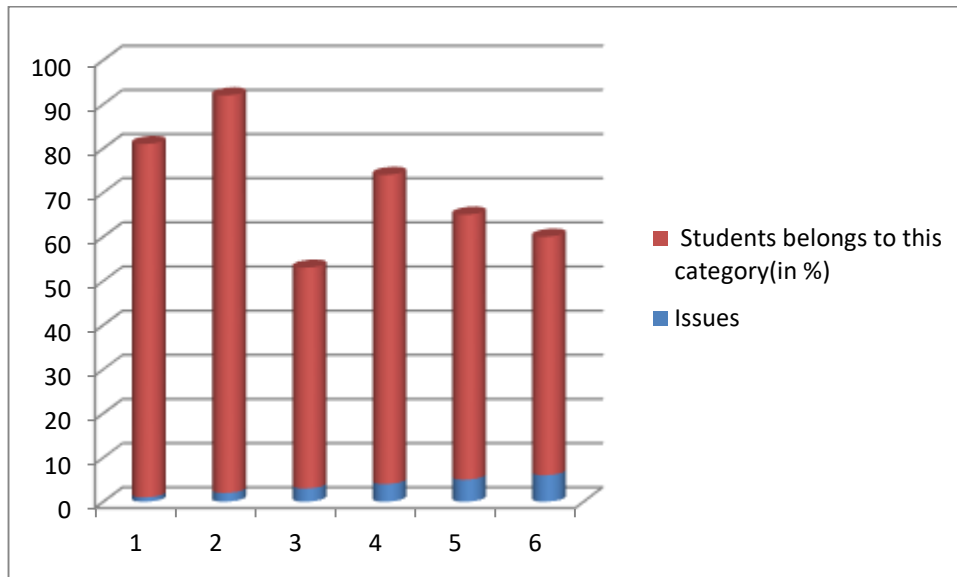
Further more, the cost of general education for 1.1 million government schools and 0.4 million private schools for teaching 260 million 12 grade students increased by 165% between 2006 and 2014, while the cost of technical education increased by 96%. Needless to say, e-learning reduces the cost of education in a precise way. Schools up to class 12 enroll 17 million students a year, requiring an additional financial support of 60 billion US dollar in resource management. So Digital learning management can be adopted to reduce the cost burden of an additional 2 million teachers.

Case Analysis

Then there is a need to build a clear idea about digital pedagogy, which includes digital literacy, digital ethics and digital responsibility, among individuals involved in education, such as teachers ,students and parents. By the way, according to 2011 data, 90% of people in India are still digitally illiterate. However, the Government of India, under the National Digital Literacy Mission, has made great strides in introducing Internet systems throughout India, both public and private, at a very fast rate. The key question now is whether all the pedagogical qualities that have been developed so far in the teaching of the student through direct contact in the classroom are being observed in the case of online teaching-learning. It has been said earlier that online teaching learning through mobile is being encouraged more and more by teachers and education managers of public and private schools. This is why the trend of watching the most YouTube videos among mobile internet users in India is going to be noticed. We are often producing some online videos or teaching learning materials to students at the school level through various public-private management. The student is watching them attentively through his parent's mobile. Sometimes they are forced to submit the assignments associated with it quickly. Because most of the states in India have not yet started direct class management till the ninth grade, they have assumed that they will be given credit for performing these classes which will help them to improve in the next class. In addition, teachers are trying to complete their scheduled syllabus by uploading short online videos. But the sad truth is that in most of the videos or online classes that we are preparing for the students, the concept of digital pedagogy or the digital application of general pedagogy is very rare. As well as the fact that the students are really attached to this online class or that their participation is a hundred percent question is also quite questionable. In this context Azim Premji University , Bangalore made an survey with 1522 teachers of 398 schools in 5 different state of India. The survey report indicates the remarkable facts as follows.

Issues	Students belongs to this category(in %)
1. No emotional connection with teacher	80
2. Impossible to asses	90

3. Unable to complete home tasks	50
4. Parents are not satisfied	70
5. Regular class attendance problem	60
6. Inadequate resources	54



Suggestive Measures

Now the question may arise that with a virtual platform, how is it possible for us to ensure the participation of students as like as the direct participation in the realistic classroom situation? At the same time, the question about knowledge construction through self learning are found to be neglected in many cases . In almost all cases, when we learn from parents that most of the students are using mobile phones much longer than before (91% increase in the last one year),but the teachers are not getting the response that they are getting from the students in natural direct contact settings. There is no doubt that online teaching learning materials are modern and engaging enough to be rich in information. It is safe to say that there is still a lack of attention-grabbing, active participation, knowledge-building, concept-building , content-exploration, experiential learning and active performance, confirmation of learning step-by-step through digital learning situation. It is imperative for students at the school level to accomplish this task through online digital learning. In addition, teachers need to focus on ethical issues so that students do not fall prey to mobile usage, health problems, mental retardation, interest in anti-age issues, reluctance to learn due to monotony, digital delinquency, etc. most of the time. Now we may affirm that the art and science of managing e-learning or online teaching-learning management on a digital platform by combining learning goals and ethical issues is called digital pedagogy.

Pedagogical & Instructional Measures:The foundation of digital pedagogy is to establish a relationship between learning theory and instructional planning. Behaviorists, Constructivists And Cognitivists have presented multiple learning theories at different times. The practical application of these learning theories is the Instructional Strategy. When the renowned behaviorist Skinner built the first teaching machine in the 1950s, it was used to guide the practical application of optimal learning theory. In this case, the positive feedback of the student at each step helps him to take it to the next level step by step. This is how program instruction and instruction of technology are created. Further changes in instructional technology can be observed after the discovery of cognitive learning theory. While not limited to stimulus responses, the emphasis in this instruction is on relevant information about the student and the necessary information about the environment and the solution of environmental issues. Thus the system design approach to instructional planning has been invented. Since the introduction of Constructivist Theory, emphasis has been placed on Collective Learning, Group learning and Social Contracts. But the main purpose of all planning and learning theory is to change behavior and build knowledge. So in building digital pedagogy we must first aim at building the right stimulus by which we can get the desired response. In order to build the right stimulus, it is essential to first analyze the students before creating digital online teaching learning material. In order to pedagogical analysis , the teacher must first systematically break down the curriculum, which must be done in order to select a fancy teaching strategy subject to specific instructional situations. According to Shulman, in this work, the teacher must first learn about pedagogical knowledge, content knowledge, and procedural knowledge. In addition, through the acquisition of pedagogical content knowledge, it is possible for the teacher to master the learning strategies and

learning materials for the students depending on their age. Note that it is advisable to have the opportunity to select the student's pedagogical needs in the introducing session from the multiple inputs provided by the student on the online. A teacher must divide the units and sort the sub-units into word files or excel files in the order of the subject. The prerequisites for each sub-unit should be determined by writing the content required for each sub-unit very briefly. This prior knowledge of the students needs to be arranged in the form of a yes no cochineal format which must be presented to the student before accessing it in digital or online teaching learning. The teacher has to select the appropriate lesson by verifying the answers given by these cochlear implants. That is why a teacher has to prepare at least four different complexity level alternative teaching models while constructing the main module, each with different teaching methods. At each step the objective of giving necessary instructions for the sub unit has to be recorded. The name of the correct method is to name the learning material, test or select the question paper, demonstration, virtual management worksheet etc. Content-centric examples need to be compared to explain and construct the necessary questions. One of the key components of digital pedagogy is feedback or assessment. To do this, you need to create a Criteria Reference Test online under at least six criteria. In this way, by using computer management continuously, it is possible to keep the progress of the students in a computerized way, which can be converted into Excel sheets and represented through various comparative charts. In this way the process of ensuring appropriate learning stimulus and learning experience can be performed. In addition, after verifying the questions with the basic requirements for verifying the information about the student and verifying all the information about the virtual online environment, one has to select the learning medium such as mobile, audio video CD device, telephone conversation, computer laptop operated internet system etc. Just as in the case of direct teaching in the classroom, we manage the problem of teaching students of different standards at the same time. Online modules must be provided. In this way, the students who are lagging behind pass the level of difficulty from simple to complex in a given time and master all the learning plans very quickly through online management. Thus an equity or balance prevails among the students. According to Constructivist Theory, the impact of social perspectives on students in online learning needs to be virtually implemented. In many cases, in the case of online teaching-learning, teachers continue to provide online teaching in a demonstration or lecture method that denies the effects of the social context, which leads to monotony among students. As a result in most cases students cannot engage with the content and no feedback is received from them. Online group learning, online collaborative learning, experimental learning, online response system, virtual laboratory method etc. play an important role in this. According to Lev Vygotsky or Albert Bandura's theory of social constructivism, peer learning and group learning is one of the most important issues in knowledge formation within the zone of proximal distance. So in the case of online teaching learning, the teacher will present the content in a short period of time like normal direct class teaching without going to demonstrations or lectures for a long time or exposing any excel power point etc. And create a proprietary digital response system in this regard through which students' answers will come up on collective social media or web platforms. In this case, he can use the platform of SMS, MMS, WhatsApp messages, voice calls, video calls, Ping etc. He will ensure in the forum by coordinating the students' replies by distinguishing between the correct and incorrect shots. The next step will be to present the virtual laboratory in front of the students and use the demonstrations with all the simple equipments. At the end of the entire lesson, he will carefully build his pre-built online module in PowerPoint or Word. The work that will be allowed to be built at home for the student needs to be web-based for sure. In this case, in many cases, it is seen that the teachers create some paper-writing projects for the house or provide some questions, which the students create at home and submit them to the teacher. On the contrary, if a teacher uploads the works to the students on YouTube or any other digital platform, other teachers can select the quality of his work from there and spread it in different fields. Students can create some video tutorials on their own by explaining all the content by their own causal relationship. They can create some video or audio-visual tutorials that teachers can take as homework and use on a variety of digital platforms. These will encourage the students in active participation. Further more these will help the student in maximum retention of the knowledge. Teachers can encourage teachers and students to participate in a variety of online quizzes to verify the quality and encourage students. There are many quizzes available online that can be accessed online and offline. So the principles of general pedagogy can be modified to suit the digital platform by modifying them slightly so that teaching on a digital platform will be a perfect replacement of direct classroom teaching.

e- ethical measures :Another important part of digital pedagogy is the ethical issue that we will call digital ethics in this case. In building digital ethics, teachers must first adopt Paolo Freire's critical pedagogy theory in order to create awareness, independence, authority, power, richness, and ability in students. Instead of focusing on the surface meaning of a subject matter, students focus on the underlying meaning of the subject, such as social perspective, ideology, personal conscience, and so on. Most emphasis is placed on community and collaboration. As well as a sharp trend in mobile usage among students, the teacher should encourage students to use Google's energy saving mode to reduce mobile usage unnecessarily, raising awareness of the amount of energy wasted on daily social sites from various online servers and simulations or gamification. Teachers need to be aware of how feedback is created in students' minds. At work, the teacher can show some promotions and videos at the beginning or end of each tutorial or at the break of each step for some time, such as energy resource conservation, environmental awareness, and mobile addiction prevention. In addition, teachers must ensure that they are licensed to use Creative Commons when distributing or transmitting audio, audio visual or any other online educational information during video sharing. Students need to be made aware of the copyright provisions of this Creative Commons license. As well as conditional access, ACM Code of Ethics Professional Conduct and adherence to the rules should be advised. Students use each user's own name, maintain honesty and credibility with others, take care of copyright, do not discriminate against

anyone, give due respect to intellectual property, respect the privacy of others, respect matters of personal contact and trust, establish mutual respect. We need to focus on the issue, not insulting or personally attacking anyone, not giving messages in the way of religious, political and commercial advertisements, maintaining the quality of education, etc. In addition to this, students should be encouraged to participate in all the national or state digital activities in India. Teachers need to be well-informed about all the online educational competitions that Google or various multinational companies have and teachers need to be aware of those issues.

Inclusive Measures : Inclusion is an important issue in online teaching and learning. Assistive technology must be applied in each module, especially in the case of e-learning for differently able students. In the case of open online teaching-learning modules, the font used in each text must be large enough, the language must be clear, the use of unnecessary complex symbols or mathematical relationships must not be used. Modules need to be designed to use a variety of assistive technological tools, including speech recognition, automatic magnifiers, Braille converters, voice enhancer and so on.

Conclusion

Digital pedagogy is a new term in the field of education in India which is not yet widely used. As a natural trend, direct teaching-learning management is going to change to online teaching learning soon. All teachers in India need to be aware of this. The online teaching-learning modules that teachers are building, especially in the field of education, need to be suitable for all types of students subject to student standards. It is essential to have the facility to verify the student's prior knowledge, to manage the student's progress, to perform the task through the use of direct virtual laboratory, full feedback module, appropriate system of reinforcement. Besides, it is essential to build a complete digital framework for assessment. At the same time it is necessary to build a database consistently from the pre-primary stage to retain the information of the students. The Central Government and various State Governments have already completed the task of building student databases up to higher secondary level in the states of Rajasthan, Haryana, Himachal Pradesh etc. through Shala Shiksha, Shala Darpan. This work is now being expedited in various states including West Bengal. This database is not just for capturing information; Attempts are being made to integrate the continuous progress of students, continuous class management of teachers, administrative management of the school, planning-budgeting-audit etc. The NCF 2005 and the new Education Act, which is set to be rolled out nationwide from 2021, places considerable emphasis on ICT. For a long time, arrangements have been made to train teachers on e-learning, online teaching, learning, use of ICT, etc. Teaching with the help of ICT, EDUSAT management has long been introduced in all government and private universities from primary to secondary to higher secondary level. Many government universities in India have not yet properly introduced ICT management and most of the government or private school teachers in the country are not skilled enough about technical management. Digital literacy has not yet reached most households in the country. It was not possible to complete the electricity connection to every rural houses. Mobile internet technology could not be spread in all the houses. Yet we need to keep in mind that the education system that the next generation is going to face is entirely online teaching-learning management. At present in India, the number of Education APP users has increased by 218%, the average internet usage has increased by 91%, the number of Internet users studying from 1st to 5th grade has increased by 32%, and the number of Internet users from 6th to 8th grade has increased by 15%. Many may think that this will reduce the teacher's responsibility, work load and work opportunity. But the demand for teachers with digital pedagogy knowledge to effectively build and present online teaching-learning models will never be less. Therefore, it is necessary to build databases, build collaborative TLMs, build collaborative modules, build educational management as well as increase the training and dissemination of digital pedagogy with utmost importance at the public and private educational management system all over the India.

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