A study of Reaction towards PM e-Vidya Program of Teachers and Students across the country

A Research Report

Principal Investigator

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एन सी ई आर टी
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The digital India campaigns has promoted extensive use of ICTs in the teaching learning process. The ePathshala, a joint initiative of Ministry of Human Resource Development (MHRD), Govt. of India and National Council of Educational Research and Training (NCERT) has been developed in November 2015 for showcasing and disseminating all educational e-resources including textbooks, audio, video, periodicals, and a variety of other print and non-print materials.

Students, Teachers, Educators and Parents can access eBooks through multiple technology platform that is mobile phones and tablets (as epub) and from the web through laptops and desktops (as Flipbook). ePathshala also allows user to carry us many books as their device supports. Features of these books allow users to pinch, select, zoom, bookmark, highlight, navigate,share and make notes digitally.

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Table of Contents

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The research study, entitled "A Study of Reactions towards the PM e-Vidya Program of Teachers and Students across the Country," was conducted with the objectives of assessing the availability and accessibility of infrastructure for accessing the PM e-Vidya program and analyzing the feedback of stakeholders (students and teachers) towards its implementation.

First and foremost, I extend my heartfelt gratitude to Prof. Amarendra P. Behera, Joint Director of CIET, NCERT, for his unwavering support, which made this study possible. In this study, data were collected from schools across multiple regions, involving a diverse sample of students and teachers, as the investigator of this research, I would like to acknowledge the contribution of all the participants.

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Rajendra Pal
Program Coordinator
March, 2024

PREFACE

The rapid transformation of education in the digital era has underscored the need for accessible, high- quality, and inclusive learning resources. With advancements in television and radio-based education, initiatives like PM e-Vidya have become crucial in bridging the learning gap, particularly for students in remote and underserved areas. However, despite its extensive reach, little is known about students' and teachers' perception of PM e-Vidya programs, their effectiveness, and areas for improvement.

This research study, "A Study of Reactions towards the PM e-Vidya Program of Teachers and Students across the Country," was conducted to understand the experiences, perceptions, and challenges faced by its beneficiaries. It aims to evaluate the availability, accessibility, and quality of educational content delivered through PM e-Vidya's DTH channels and radio programs.

The need for such a study became evident following the COVID-19 pandemic, which led to nationwide school closures, forcing the government to rethink traditional education models. Launched in May 2020 under the Atmanirbhar Bharat Abhiyan, PM e-Vidya was designed to provide uninterrupted, multimodal access to education, reaching 25 crore school children through television, radio, and online platforms. The initiative includes the "One Class-One Channel" approach, ensuring that students from Classes 1 to 12 receive structured, curriculum-based content developed by NCERT, CBSE, KVS, NIOS, and other educational agencies.

Despite these efforts, there is limited data on how well these resources are being utilized. That is why the objective of this research study was to examine the accessibility, availability and impact of PM e-Vidya channels in various states such as Assam, Jammu & Kashmir, and Odisha. By gathering insights from teachers, students, and school heads, the study aims to inform policymakers, educational planners, content developers, and researchers about the effectiveness of the initiative and recommend strategies for its enhancement.

This research is particularly timely and significant as the expansion of PM e-Vidya from 12 to 200 channels presents both opportunities and challenges in ensuring equitable education for all. The findings will contribute to the improvement of digital and broadcast-based learning, making education more accessible, engaging, and impactful for students across India.

I extend my sincere appreciation to Prof. Rajendra Pal, Principal Investigator, and the entire research team for their dedicated efforts in conducting this study. Their work will serve as a valuable resource for shaping the future of e-learning initiatives in India.

(Amarendra P. Behera)

Joint Director

Chapter I : Introduction

1.0 Introduction

Television and radio have long stood as pivotal educational tools, playing a crucial role in disseminating knowledge and fostering learning across diverse audiences. These mediums have leveraged their extensive reach and accessibility to complement and sometimes substitute traditional educational methods, offering innovative ways to engage learners and expand educational opportunities. This chapter discusses in detail various aspects of television and radio as educational tools, tracing their evolution and examining their current roles in modern education. The focus extends to the PM e-Vidya initiative, a significant digital revolution aimed at enhancing educational delivery through innovative technological means. Here, we delve into the specifics of this initiative, its infrastructure requirements, and the broader implications for educational accessibility and effectiveness.

1.1 TV and Radio as Educational Tools

Television and radio, two of the most powerful forms of mass media, have played an increasingly significant role in education over the years. While they have long been known for their entertainment value, their potential to educate and inform should not be underestimated. In fact, their ability to captivate audiences through engaging visuals and compelling narratives has made them powerful tools for delivering educational content to learners of all ages. As technology continues to advance, these mediums have evolved to offer a diverse range of educational programs, from documentaries that explore scientific phenomena to interactive history lessons and language-learning courses. Their adaptability and accessibility have transformed them into invaluable resources for both formal classroom education and lifelong learning, bridging gaps in knowledge and fostering a deeper understanding of the world around us. Television and radio have transcended their origins as mere sources of entertainment to become potent vehicles for disseminating knowledge and fostering intellectual growth. In the realm of education, their influence is palpable across various aspects of the learning experience.

Firstly, these mediums offer a dynamic and multisensory learning environment. Television, with its visual and auditory elements, brings subjects to life in a way that textbooks alone cannot. Science concepts are vividly explained through captivating visuals, historical events are reenacted, and complex mathematical problems are broken down into understandable steps. This multisensory approach accommodates diverse learning styles, ensuring that students with various preferences can grasp and retain information effectively.

Furthermore, television and radio have the ability to make learning engaging and enjoyable. Educational programs often incorporate storytelling techniques, real-world examples, and relatable characters, which not only make the content more interesting but also help students connect with and remember key concepts. This engaging approach to education fosters a sense of curiosity and a love for learning, traits that extend beyond the classroom and into lifelong learning endeavors.

Accessibility is another hall mark of the significance of television and radio in education. Unlike some digital platforms that require high-speed internet and sophisticated devices, TV and radio are accessible to a broader demographic, including those in rural or economically disadvantaged areas. This accessibility narrows educational disparities by providing quality content to a wider audience, thereby contributing to a more equitable education landscape.

Importantly, these mediums accommodate flexible learning. Students can access educational

programs at their convenience, allowing for self-paced learning that fits their schedules. This flexibility is invaluable for working adults pursuing further education, as well as non-traditional students seeking to balance education with other life commitments.

Additionally, television and radio possess a unique ability to foster cultural and global awareness. They can transport viewers and listeners to different parts of the world, introducing them to diverse cultures, languages, and perspectives. This exposure helps develop a sense of global citizenship and prepares individuals for an interconnected world where cross-cultural understanding is essential.

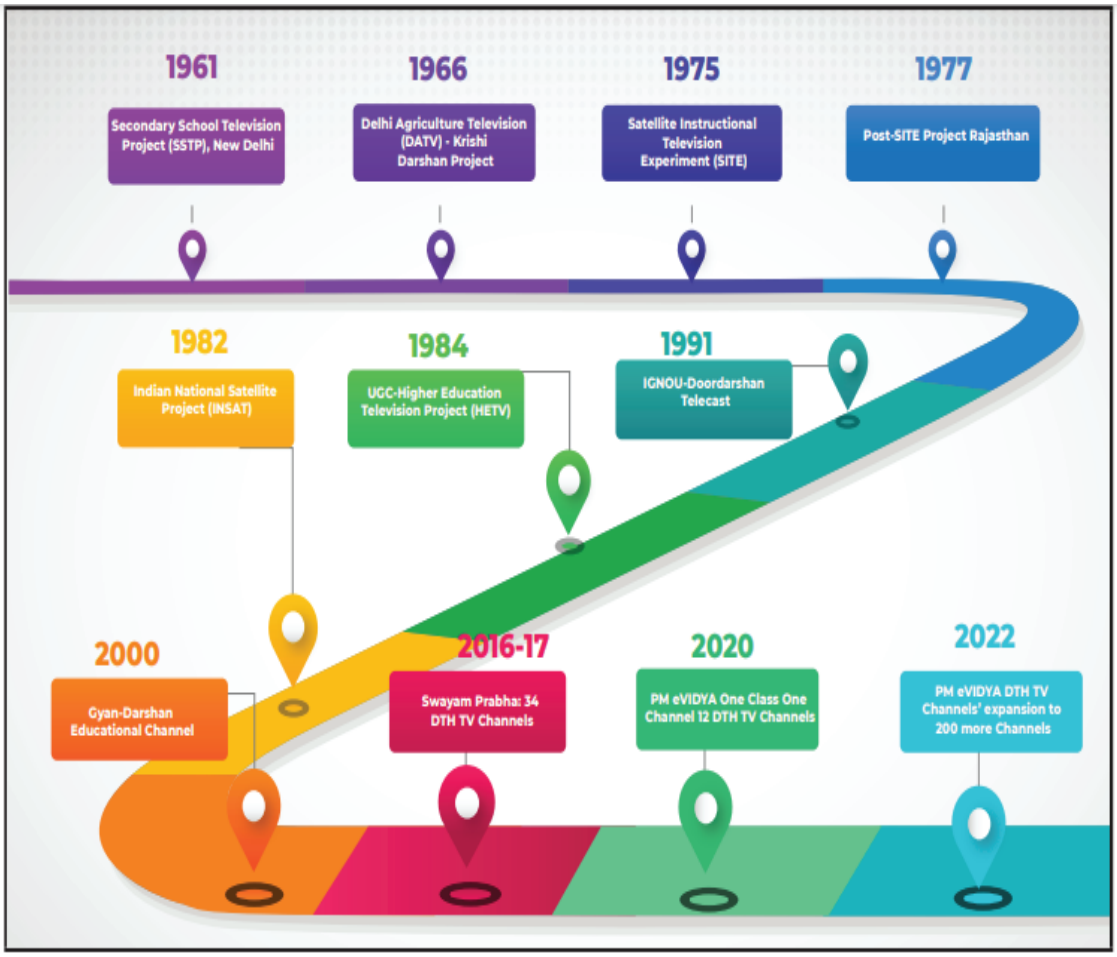
The significance of television and radio in education extends far beyond their entertainment value. They have evolved into powerful educational tools that captivate, engage, and inform learners of all ages. Their adaptability, accessibility, and capacity to enhance the learning experience make them indispensable resources in the pursuit of knowledge and personal growth. In an ever-evolving technological landscape, television and radio continue to evolve and expand their role as catalysts for lifelong learning and intellectual enrichment.

1.2 Evolution of Educational Television

The history of television in education dates back to the early days of television broadcasting in the country. Television, one of the most significant inventions by mankind was designed and developed by J. L. Baird in 1927. It is an audio-visual device used for dissemination of information, entertainment and education. Television has also passed through generations of transformations along with developments in electronics, information and broadcasting technology. In present times, television has evolved into smart television due to technological convergence with computer technology. Television broadcasting has also undergone paradigm shifts from analogue to digital and community antenna to DTH besides the latest developments designated as IP TV.

In India, television was put up for demonstration at an exhibition in Madras (now Chennai) in January 1950 and the first transmitter of India was installed in the Electronics and Telecommunications engineering department of the Government Engineering College, Jabalpur, on 24 October 1951. Television was first used in Srinagar in a house, which was a huge milestone for the TV industry. Wider use of television in India started with the experimental telecast in Delhi on 15 September 1959 with a small transmitter and a make shift studio. Encouraged by UNESCO, India started using this medium for educational purposes. Television has played a significant role in enhancing access to education and delivering educational content to a wide and diverse audience in India.

The following timeline briefly captures the journey of educational television in India.



Here's an overview of the history of TV in education in India:

(i) Secondary School Television Project (SSTP), New Delhi (1961): In 1961, educational programs began to be included in the regular television schedule. Introduction of the Secondary School Television Project, aimed at improving the quality of education in Delhi schools. It includes TV lectures for students of Class XI. These programs covered a range of subjects, including science, mathematics, and social studies. Educational content was primarily produced in collaboration with educational institutions and experts.

(ii) Delhi Agriculture Television Project (1996): In 1966, the Delhi Agriculture Television (DATV) Project, known as Krishi Darshan, was initiated to communicate agricultural information to farmers in selected villages of the Union Territory of Delhi.

(iii) Satellite Instructional Television Experiment (1975): The Satellite Instructional Television Experiment (SITE) was a groundbreaking project launched in 1975. SITE is commissioned, one of the largest techno-social experiments in India. It covers 2330 villages in six states: Rajasthan, Karnataka, Odisha, Bihar, Andhra Pradesh, and Madhya Pradesh. It aims to study rural communications, the role of television in education, and societal change.

(iv) Post-SITE Project, Rajasthan (1997): The Post-SITE Project was initiated in 1977, targeting villagers in Rajasthan as a continuity project following SITE. The main objectives of the SITE continuity project were to:

* Familiarize the rural masses with improved and scientific know-how about farming, the use of fertilizers, and the maintenance of health and hygiene;

* Bring about national and emotional integration;

* Make rural children aware of the importance of education and a healthy environment.

(v) Indian National Satellite (INSAT) Project (1982): The project was launched with the primary objective of making rural masses aware of developments in agriculture, health, and hygiene. INSAT programs are introduced for different age groups of school children. It used satellite technology to broadcast educational content to rural and remote areas of India.

(vi) The UGC-Higher Education Television Project (1984): The Higher Education Television Project (HETV) began in 1984 to improve education for university students. It's known as the 'Countrywide Classroom' and offers one-hour English-language programs on various subjects. These programs aim to enrich education and reach a broad audience, including undergraduates and teachers. The initiative involves collaboration between the University Grants Commission (UGC) and INSAT. To ensure quality content, it relies on an inter-university Consortium for Education Communication (CEC) and various Mass Communication Research Centers.

(vii) IGNOU-Doordarshan Telecast (1991): The IGNOU-Doordarshan telecast began in May 1991, primarily for distance learners. Initially, it aired on Monday, Wednesday, and Friday from 6:30 to 7:00 A.M. through Doordarshan's national network, offering tele-counseling to students in remote areas attending open universities. Due to its positive reception, the program's frequency was increased to five days a week, and it has become highly popular.

(viii) Gyan-Darshan (2000): The Ministry of Human Resource Development, Information & Broadcasting, Prasar Bharti, and IGNOU launched Gyan Darshan (GD) jointly on 26th January 2000 as the exclusive Educational TV Channel of India. It began as a two-hour test channel and expanded to 24-hour daily transmission by January 26, 2001. Gyan-Darshan offers diverse indigenous and foreign content, including curriculum-based and enrichment programs. The channel covers various regions through cable TV and aims to extend terrestrial transmission.

(ix) SWAYAM PRABHA (2017): Swayam Prabha was inaugurated on 07 July 2017. Swayam Prabha is a group of 34 DTH TV channels devoted to telecasting quality educational programs 24 hours a day, 7 days a week. It operates using the GSAT-15 satellite. Swayam Prabha hosts new content daily for at least (4) hours. This gets repeated 5 more times a day, allowing students to choose the time of their convenience. The channels are uplinked from BISAG (Bhaskaracharya Institute of Space Applications and Geo-Informatics), Gandhinagar. The contents are provided by NPTEL, IITs, UGC, CEC, IGNOU, NCERT and NIOS. The INFLIBNET Centre maintains the web portal.

(x) PM e-Vidya (2020): The COVID-19 pandemic emphasized the importance of television and digital technology in education as schools were closed, and online learning became a necessity. Educational content was broadcast on television to reach students lacking internet access. "PM e-Vidya" is a government initiative in India aimed at promoting digital learning and providing online education resources to students. It was launched by the Ministry of Education as part of the "Atmanirbhar Bharat Abhiyan" in May 2020. The initiative includes various components to facilitate digital learning, such as the provision of e-content and educational channels on television, online courses, and digital infrastructure improvements for schools and colleges. It is designed to ensure continued education and skill development for students and learners across the country.

(xi) PM eVIDYA DTH TV Channels' expansion to 200+ Channels: With the successful implementation of PM eVIDYA initiative especially the 12 DTH TV channels branded as One Class One Channel; the Government of India, as per the Budget 2022-23 announcements, has decided to expand the 12 DTH TV channels to 200+ channels to enable states and UTs to provide quality supplementary education in regional languages.

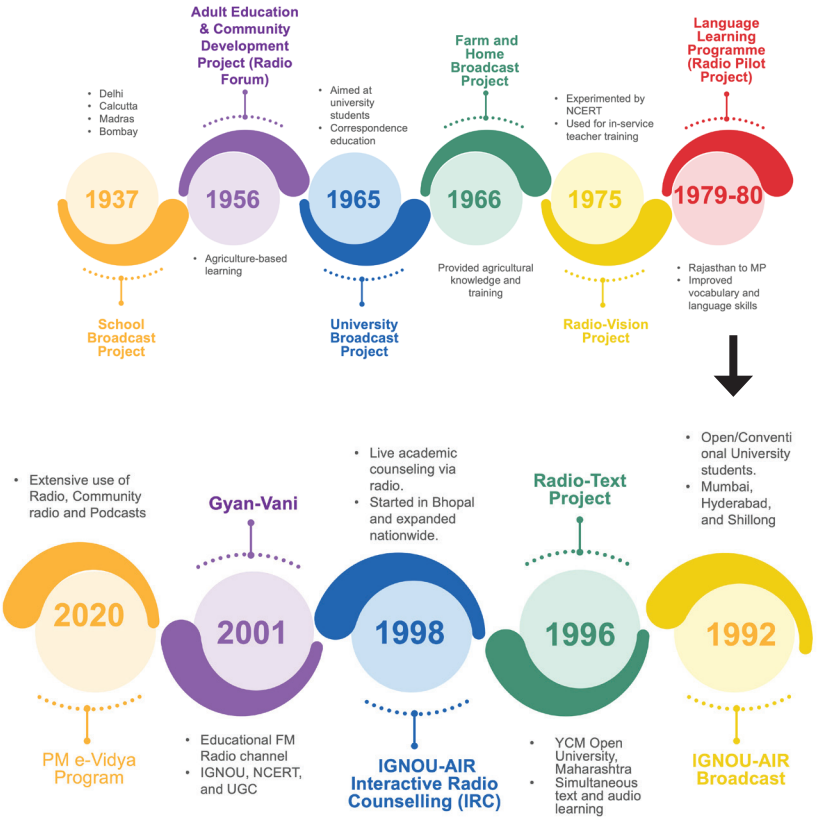
The history of TV in education in India reflects the evolving landscape of educational technology and its role in expanding access to quality education. Television has been a valuable medium for delivering educational content to a diverse and geographically dispersed population, and it continues to play a role in India's education ecosystem alongside digital platforms. The growing interest in television as an educational tool has multiple reasons driving it forward. Firstly, established educational television programs designed to enhance literacy development among both children and adults have achieved remarkable success in achieving their intended educational outcomes. Secondly, television's accessibility makes it a potent medium for reaching learners who may have been excluded from traditional literacy programs. This accessibility pertains not only to the technology itself but also to the content it delivers. Furthermore, viewers possess an innate familiarity with television content and often associate it with enjoyable experiences due to its entertaining nature. Lastly, the emergence of advanced visual technologies, such as video recording and playback, video disks, and multimedia computer technology, has paved the way for more interactive and customizable televised instruction. This adaptability allows educators to tailor televised learning experiences to cater to the diverse needs and learning styles of their students.

In this evolving landscape, television is no longer merely a source of entertainment but a powerful ally in the quest for improved literacy skills and enhanced educational outcomes. As we explore the educational potential of television and video, we unlock new avenues for learning and teaching. This shift in perspective signifies television's transformative role in education, promising to bridge gaps in literacy skills and empower learners from all walks of life. With the right content and thoughtful integration into educational strategies, television stands poised to make a significant contribution to the cultivation of essential literacy skills and the advancement of education as a whole.

1.3 Evolution of Educational Radio

The history of radio in education in India is a fascinating journey that dates back to the early 20th century. Radio has played a significant role in spreading knowledge and education to remote and underserved areas of the country.

The following timeline briefly captures the journey of educational radio in India.



Here's an overview of the key milestones in the history of radio in Indian education:

i) School Broadcast Project: This project was commissioned in 1937 and the target group was School students. This program started in Delhi, Calcutta, Madras and Bombay. In the beginning, the school program was not strictly governed by the curriculum. With the passage of time and the acquisition of more experience, the AIR tried to make its radio broadcasts more curriculum-oriented, but in the absence of common syllabi and timetables in schools, even within the same state, it could not succeed in its aim.

(ii) Adult education and community development project (Radio Forum): Commenced in 1956, the Villagers of 144 villages in the vicinity of Poona (in Maharashtra state), were the main beneficiaries of this project. This agriculture-based project was originally designed and tried out in Canada. With the help of UNESCO, it was tried in 144 villages of Poona and was named as ' Radio Forums Project' (defined as a listening cum-discussioncum-action group). The members of the forum could listen to a thirty-minute radio program on some agricultural or community-development program, then discuss and decide regarding its adoption in their own village. This project was a great success. Many action programs were planned and put into practice.

(iii) University broadcast project: This project for University students was initiated in 1965, with an aim to expand higher education as widely as possible among the different strata of society. The Programme consisted of two types- 'General' & 'enrichment'. The general programs included topics of public interest and enrichment programs supported by correspondence education offered by universities in their respective jurisdictions. School of Correspondence Studies, University of Delhi, and the Central Institute of English and Foreign Languages, Hyderabad are well known for the preparation and broadcast of their programs through AIR.

(iv) Farm and Home Broadcast Project: This project commenced in 1966 and again targeted at Farmers and villagers. These broadcasts were designed to provide information and advice on agricultural and allied topics. The aim was to educate the farmers and provide them assistance in adopting innovative practices in their fields as per the local relevance. The experts also conducted occasional farm radio schools, which proved to be very effective.

(v) Radio-Vision Project (1975): The Radio-Vision Project introduced a new dimension to educational broadcasting by combining radio with visual aids such as charts, slides, and printed materials. Spearheaded by the National Council of Educational Research and Training (NCERT), it was primarily used for in-service teacher training, helping educators improve their teaching methodologies. The visuals are presented in the form of still film strips, charts, slides, models, etc, while the explanation is given through recorded narration. Radio-vision has its own advantages: It is economical It can cater to different categories of learners It is easy to produce such programs at the institutional level or at the learning centers It provides visual support to the concept that is taught.

(vi) Language Learning Programme: The project, popularly known as the 'Radio Pilot Project' was started in 1979-80 jointly by AIR and the Department of Education Government of Rajasthan, with an aim to teach Hindi to School children as the first language in 500 primary schools of Jaipur & Ajmer districts on an experimental basis. The project was found useful in improving the vocabulary of children. With its success, a similar project was repeated in the Hoshangabad district of Madhya Pradesh with some modifications but had limited success.

(vii) IGNOU-AIR Broadcast: In collaboration with IGNOU, AIR stations of Mumbai, Hyderabad, and Shillong started radio broadcasts of IGNOU Programmes in January 1992. The main target group of this project was students of Open / Conventional Universities. Shillong started this but discontinued it later on. Therefore presently it is being broadcast from AIR Mumbai (Every Thursday and Saturday from 7:15 AM-7:45 AM) and AIR Hyderabad (Every Tuesday, Thursday & Saturday from 6:00 AM - 6:30 AM) only. This program is still popular in the respective region.

(viii) Radio-text: The Radio-Text Project was an innovative initiative that integrated radio broadcasts with computer networks, enabling simultaneous text and audio-based learning. This project was successfully tested at Yashwantrao Chavan Maharashtra Open University (YCMOU) and highlighted the potential of multimedia learning in education. The teaching end is normally an FM radio station having a data broadcast facility through a computer network. The main points of the radio broadcast are sent through textual mode to the receiving end via a computer network. The learning end has a radio listening facility as well as a computer screen to receive the textual data. Since audio and text are broadcast simultaneously, the learner at the receiving end gets high-quality and low-cost teaching.

(ix) IGNOU-AIR Interactive Radio Counselling (IRC): Started in 1998 for students of Open / Conventional Universities, this project is also very successful. In order to bridge the gap between Institutions and learners by instantly responding to their queries and also to provide Academic Counselling in the subject area, IGNOU in collaboration with AIR Bhopal started this project in May 1998 as an experimental program for one year (Sharma, 2002a). With the success of the experiment, it was extended to 8 other AIR stations (Lucknow, Patna, Jaipur, Shimla, Rohtak, Jalandhar, Delhi, and Jammu).

(x) Gyan-Vani (Educational FM Radio Channel of India): This project was launched in the year 2001 and again the target group is students of Open / Conventional Universities. Gyan Vani (Gyan = Knowledge, Vani = Aerial broadcasting) is an Educational FM Radio Channel of India, a unique decentralized concept of extending mass media for education and empowerment, suited to the educational needs of the local community. It is operating presently through Allahabad, Bangalore,

and Coimbatore FM stations of India on test transmission mode. The network is slated to expand to a total of 40 stations by June 2002. Gyan Vani stations will operate as media cooperatives, with day-to-day programs contributed by different Educational Institutions, NGOs and national level institutions like IGNOU, NCERT, UGC, IIT, DEC, etc. Each station will have a range of about 60- KM radius, covering the entire city /town plus the surrounding environs with extensive access. It serves as an ideal medium for addressing the local educational developmental and socio-cultural needs.

(xi) PM e-Vidya Program- The PM eVIDYA initiative, launched on May 17, 2020, under the Atma Nirbhar Bharat Abhiyaan, aims to provide equitable education across all regions, including remote areas. It includes six key components: DIKSHA, PM eVidya TV channels, Community Radio & Podcasts, IIT-PAL, Inclusive Classrooms, and MOOCs. Focusing on community radio and podcasts, CIET and AIR Gyanvani broadcast educational programs through 400 stations—18 Gyanwani FM, 132 All India Radio, and 257 Community Radio stations. These programs are also available as podcasts on Jio Saavn and iRadio, ensuring wider accessibility for students.

These educational radio projects highlight the effectiveness of radio as a medium for delivering quality education and training to underserved and remote populations. The history of educational radio in India has been marked by a journey of innovation and adaptation. Over the years, radio has emerged as a significant contributor to the education system in the country, making quality education more accessible and inclusive. It has served as a powerful medium for disseminating knowledge, promoting literacy, and bridging geographical gaps in learning. The inception of educational radio projects in India marked a pioneering effort to use radio as an educational tool. These initiatives provided a platform for delivering curriculum-based content, reaching both students and teachers across the nation. Over time, the content evolved to cover a wide range of subjects and cater to diverse educational needs.

One of the most notable contributions of educational radio in India has been its ability to extend education to remote and underserved areas. It has played a crucial role in reducing disparities in access to quality education, especially in regions with limited infrastructure. By providing valuable lessons and enrichment programs, educational radio has empowered learners who may not have had access to formal educational institutions.

Furthermore, the adaptability of radio as a medium has allowed it to remain relevant in the digital age. Despite the prevalence of television and the internet, radio continues to find its niche in educational initiatives. Its cost-effectiveness and simplicity make it a viable option for reaching a wide audience, including those with limited access to technology. Educational radio remains a powerful voice in the journey towards a more informed and educated society.

1.4 The Role of TV and Radio in Education

1. **Bridging the Digital Divide:** In regions with limited internet access, TV and radio serve as crucial tools for bridging the digital divide and ensuring that education is accessible to all.

2. **Easy to use:** TV and radio are user-friendly and do not require extensive technical skills or internet connectivity, making them accessible to a wide range of learners.

3. **Access to Quality Content:** One of the primary roles of TV and radio in education is to provide access to quality educational content. Educational programs can reach a broad and diverse audience, making learning materials accessible to people of diverse backgrounds and ages.

4. **Flexibility:** TV and radio offer flexible learning options that can be accessed at the learner's convenience. The programs are available throughout the day through repeat telecasts, ensuring accessibility to a wide range of learners at their convenience. They also allow learners to choose content that aligns with their interests and learning goals, enabling personalized learning experiences. This flexibility accommodates various schedules and allows self-paced learning.

5. **Interactive lessons:** Educational programs on TV and radio often incorporate interactive elements, such as animation, graphics, music, voice modulation, etc, allowing learners to engage actively with the content.

6. **Sensory Engagement:** These mediums engage multiple senses, including auditory and visual, enhancing the retention of information and making learning more immersive.

7. **Supplementing Classroom Learning:** They are valuable supplements to classroom learning. They can reinforce classroom lessons, provide visual aids, and offer in-depth explanations of complex topics. Educational broadcasts can enhance students' understanding and retention of subject matter.

8. **Diverse Content:** TV and Radio provide a diverse range of educational content, including formal curriculum-based lessons, vocational education, mental health programs, physical education, enrichment programs, adult education, documentaries, interviews, and live sessions, catering to various learning preferences.

9. **Lifelong Learning:** TV and radio are not limited to traditional classroom settings. They support lifelong learning by offering educational content for adults and individuals seeking to acquire new skills or knowledge at any stage of life. This promotes continuous personal and professional development.

10. **Inclusivity:** These mediums can bridge educational gaps and promote inclusivity. They reach remote areas where access to formal education may be limited. Moreover, they can cater to learners with disabilities, providing closed captioning and audio descriptions for the visually and hearing impaired.

11. **Cultural and Global Awareness:** Educational programs on TV and radio can introduce learners to different cultures, languages, and global perspectives. They help foster cultural understanding and prepare individuals for a globally interconnected world.

12. **Cost-Effective:** Radio, in particular, is a cost-effective means of delivering educational content, as it requires minimal infrastructure and is accessible to people with basic radio receivers.

1.5 Genesis of the PM e-Vidya Programme

The use of television and associated technologies in education is not a new phenomenon as television has been used as a medium of disseminating knowledge since the 60s, the years when television was introduced in our country. With the modest beginning of the Secondary School Television Project in 1961 for the secondary school students of Delhi, the use of the medium of television has witnessed various developments along with the evolution of television technology. In recent times, the use of television as an effective medium has received further impetus with the Government of India's move to support educational activities of school children during the ongoing crisis caused by the outbreak of

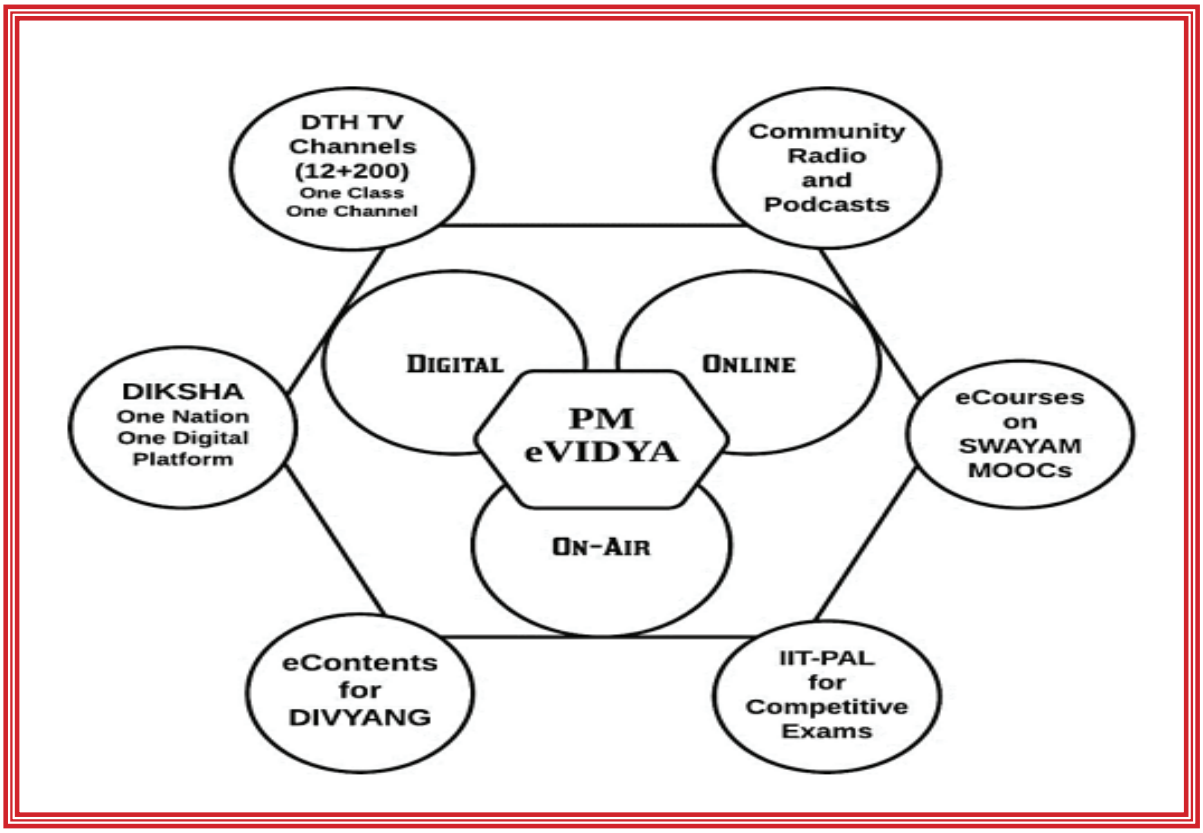
COVID-19 pandemic. The aim of the move was to help the children and teachers continue the learning and teaching activities during the months-long closure of schools and educational activities due to the lockdown. It was with the above backdrop that PM eVIDYA initiative was announced by the Hon'ble Finance Minister, Government of India on 17th May, 2020 as part of *Atma Nirbhar Bharat Abhiyaan* or Self-Reliant India Movement announced by the Hon'ble Prime Minister on 12th May 2020. As part of the Hon'ble Prime Minister's appeal for *Aapda me Avsar* in the difficult times of the pandemic and in order to attain the goals of *Aatma Nirbhar Bharat Abhiyan*, the Hon'ble Finance Minister exclusively mentioned that the aim of the initiative was to ensuring learning for all, with equity, so as to cover all students at all levels of education and in all geographical locations, even in the remotest parts of the country. The initiative comprises six key components: DIKSHA (Digital Infrastructure for Knowledge Sharing), PM eVidya TV channels, Radio, Community Radio & Podcasts, IIT-PAL (educational content for IIT aspirants) for IITJEE/NEET preparation, Special e-Content for Children with Special Needs (CWSN), and SWAYAM (Study Webs of Active–Learning for Young Aspiring Minds) online Courses on MOOCs (Massive Open Online Courses). With the successful implementation of PM eVIDYA initiative especially the 12 DTH TV channels branded as One Class One Channel; the Government of India, as per the Budget 2022-23 announcement, has now expanded the 12 DTH TV channels to 200 more channels to enable states and UTs to provide quality supplementary education in regional languages.

1.6.0 The PM e-Vidya Initiative: A Digital Revolution in Education

The PM e-Vidya initiative set out to revolutionize the educational landscape of India by harnessing the power of digital technology, online resources, and television broadcasts to reach every corner of the country. Some of the purposes of PM e-Vidya are given below:

- To provide multimodal access to learning resources by unifying all efforts related to digital/online/ on-air education.
- To develop and collate, curate eContent (Audio and Video) from Class 1 to 12 in various regional languages also based on NCERT and state's curriculum.
- To conduct feedback studies for feed-forward purposes.
- To conduct a research study in order to explore the efficacy of the PM e-Vidya initiative.

PM e-Vidya Program is designed to achieve the three cardinal principles of Education Policy viz., access, equity, and quality. The objective of this effort is to take the best teaching-learning resources to all, including the most disadvantaged. It seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy.



The PM e-Vidya initiative encompasses six key elements designed to enhance education and learning in India:

1. **Digital Infrastructure for Knowledge Sharing (DIKSHA):** Digital Infrastructure for Knowledge Sharing (DIKSHA) portal and mobile app created by MHRD, Govt. of India is a storehouse of a large number of eBooks and e-Contents created by States/UTs and National level organizations. DIKSHA is a digital platform that provides access to a wide range of educational content, including textbooks, quizzes, videos, and interactive lessons. It serves as a central hub for teachers, students, and parents to access educational resources.

2. **Swayam Portal:** SWAYAM is a program initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy. Swayam is a platform that facilitates hosting of all the courses, taught in classrooms from Class 9 till post-graduation to be accessed by anyone, anywhere at any time. There are about 1.5 crore students enrolled in these courses.

3. **Swayam Prabha TV Channels:** SWAYAM PRABHA DTH channels. These channels can be accessed through DD, Dish TV and the Jio TV app. There are 200+ DTH channels to enable states and UTs to provide quality supplementary education in regional languages.

4. **Extensive Use of Radio, Community Radio, and Podcasts:** CIET produces high quality audio programs with effective media treatment such as, apt music, sound effects and involvement of seasoned and refined artists of good repute in the media world. Programs are mainly produced in Hindi, English, Sanskrit and Urdu. The programs are produced under two major categories that are given below-

Curriculum based audio programs from classes 1 to 8. These programs are based on the chapters of NCERT textbooks and mainly produced in teaching mode in an interesting manner so that the pupil can learn with joy. These programs have been found to be very effective during COVID-19 pandemic as schools are closed for a long time. School children are greatly benefited by these programs. This series is called "Dhwanishala".

Enrichment, infotainment and edutainment programs- CIET produces good quality enrichment programs to fill the gap areas in the curriculum. These programs are produced in almost all possible audio media formats such as documentary, feature, magazine, talk, interview, music and docudrama etc. These programs cover a very wide spectrum and themes. This series is called "Umang".

5. **Special e-Content for Children with Special Needs (CWSN):** Content for Children with Special Needs especially for the Visually and Hearing impaired learners. PM e-Vidya ensures inclusivity in education by providing specialized e-content tailored to the needs of children with special needs (CWSN). This content is designed to make learning more accessible and accommodating for all students.

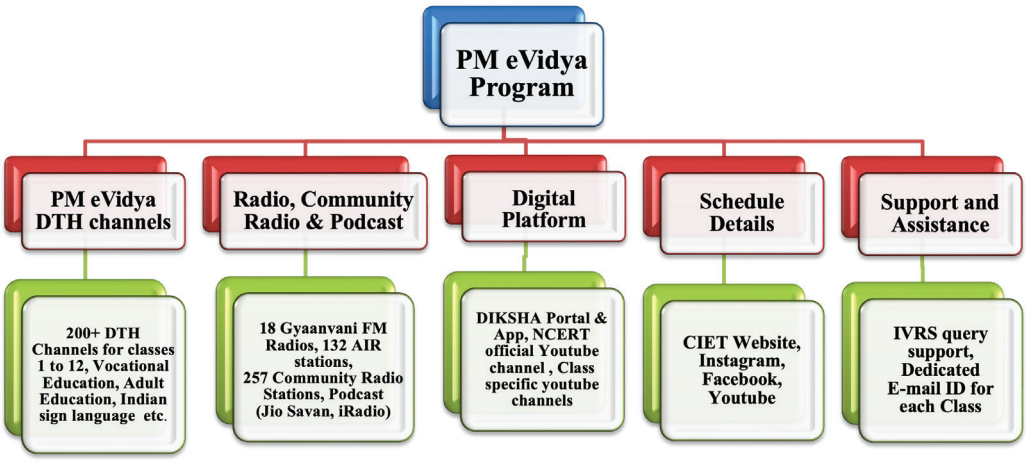
6. **Online Coaching for Competitive Exams:** Department of Higher-education has made arrangements for online learning for competitive exams - IITPAL and E-Abhyas. IITPal or IIT Professor Assisted Learning is a series of lectures prepared by IIT Professors to help students prepare for the Joint Entrance Exam (JEE) and NEET. The initiative offers online coaching and preparatory resources for competitive exams. This element is crucial for students preparing for various competitive exams, helping them access quality coaching and study materials online.

One of the significant initiatives of PM eVidya is creating 12 (now 200) PM eVidya DTH channels on One Class-One channel to broadcast educational content related to classes 1 to 12. PM eVidya DTH channels benefit learners in remote areas where stable internet is not available. These channels broadcast curriculum-based educational content developed by NCERT and other agencies like CBSE, KVS, NIOS, Rotary, etc. Video content has been developed in Hindi, English, and Regional languages. QR codes have been placed on these video content, which, when scanned using the Diksha mobile app, will take users to the same content on the Diksha portal.

To ensure the effectiveness of the PM e-Vidya program, a robust feedback mechanism and support system have been established, including an Interactive Voice Response System (IVRS) and class-wise dedicated email IDs. These channels of communication have been actively utilized by students, teachers, and parents to provide valuable feedback and seek assistance, underlining the program's positive reception among its target audience.

Accessing PM e-Vidya programs in schools involves a systematic approach to harnessing the benefits of digital education. Establishing the necessary infrastructure, including computers, internet connectivity, and audio-visual equipment, is crucial. Regularly monitoring and evaluating the program's usage and effectiveness, while also providing feedback, are essential for continuous improvement. Staying informed about updates and announcements ensures that schools make the most of this valuable educational resource. PM e-Vidya, with its comprehensive offerings, has the potential to significantly enhance the quality of education in schools across India when effectively utilized.

1.6.1 How to Access PM e-Vidya Programs?



Accessing PM e-Vidya programs is straightforward, with a variety of platforms available to cater to the needs of students, teachers, and learners across the country. The primary medium for accessing these programs is through dedicated TV channels, with over 200 channels assigned to 28 states and 7 union territories. These channels air live sessions for Classes 1 to 12, ensuring accessibility to learners in both urban and rural areas. Additionally, Channel No. 13, 14 and 31 have been launched for Vocational Education, Adult Education and Indian Sign Language (ISL) learners respectively to foster inclusivity.

In addition to TV, the DIKSHA Portal serves as a crucial resource, offering digital textbooks, interactive learning modules, and other e-learning content. The DIKSHA platform is accessible both via its official website and mobile app, which is available for download on the Google Play Store and Apple App Store.

Furthermore, each class from 1 to 12 has its own dedicated YouTube channel, which hosts live sessions, recorded lessons, and subject-specific content. These channels allow for a seamless online learning experience for students across different grades.

The audio programs are broadcast across an extensive network of 400 stations, which includes 18 Gyanwani FM radios, 132 All India Radio stations, and 257 Community Radio stations. Furthermore, the content is also accessible as podcasts on platforms such as Jio Saavn and iRadio.

To ensure that learners stay up to date with the program schedules, social media platforms such as Facebook, Instagram, and YouTube are regularly updated with announcements and live session timings. Program schedules are also readily available on the official website of CIET, NCERT.

For any inquiries or support of students. teachers and parent, a dedicated IVRS department and 12 email addresses have been set up to address their queries, with each email address designated for a specific class. These support systems ensure that all participants have easy access to assistance and can engage with the program seamlessly.

1.6.2.0 Schedule of the Sessions

The Details of the schedule for TV Program and Radio Program has been elaborated below in the separate heads.

1.6.2.1 Schedule of the session for TV Programs

The Video Unit of Media Production Division, CIET conducts live sessions from the Studio whose weekly schedule is shown in the table given below:

Sr. No.	Session Name	Timings	Days
1.	Yogshakti	8 to 8:45 AM	Monday to Friday
2.	Teaching Learning Intervention	12 to 12:30 PM	Monday to Friday
3.	Live Interaction Program (4 sessions of 30 minutes each)	2 to 4:00 PM	Monday to Friday
4.	Sahyog: Developing Study Skills	5 to 5:30 PM	Monday to Friday
5.	Training/Webinar	4 to 5:00 PM	Monday to Friday
6.	ULLAS: New India Literacy Programme	11:00-11:30 PM	Wednesday
7.	Manodarpan (promoting mental well-being)	5:30 to 6:15 PM	Friday
8.	National Centre for School Leadership, NIEPA	5:30-6:15 PM	Friday

The PM e-Vidya initiative provides a comprehensive range of educational programs aimed at supporting students, teachers, and other stakeholders. Daily yoga sessions are conducted from 8:00 AM to 8:45 AM, Monday to Saturday, promoting physical well-being. The "Teaching Learning Interventions for Inclusive Classrooms" program airs from 12:00 Noon to 12:30 PM, Monday to Friday, and is accessible via PM eVidya DTH-TV channels, the Jio TV app, and the NCERT YouTube Channel. From 2:00 PM to 4:00 PM, four 30-minute sessions are broadcasted Monday to Friday for classes 1 to 10, with a daily focus on specific grades: classes 1 and 2 on Monday, 3 and 4 on Tuesday, 5 and 6 on Wednesday, 7 and 8 on Thursday, and 9 and 10 on Friday. On Saturdays, classes 11 and 12 have two one-hour subject-specific sessions.

"Sahyog: Developing Study Skills" is broadcast from 5:00 PM to 5:30 PM, Monday to Friday, on the NCERT YouTube Channel and PM e-Vidya channels. The "Manodarpan" program, dedicated to the mental well-being of students, is telecast every Friday from 5:30 PM to 6:15 PM. The "ULLAS: New India Literacy Programme" is scheduled every Wednesday from 11:00 PM to 11:30 PM to promote education for all and programs by the National Centre for School Leadership (NIEPA) are aired on Fridays from 5:30 PM to 6:15 PM. Additionally, live sessions have been conducted on the Bridge Course, New Textbooks, Jadui Pitara, Virtual Labs and other initiatives.

1.6.2.2 Details of the Schedule of Radio Programs

The Audio Unit of Media Production Division , Central Institute of Educational Technology (CIET) is dedicated to produce high-quality audio programs that incorporate effective media elements such as appropriate music, sound effects and contribution of voice over artists. These programs are primarily

developed in Hindi, English, Sanskrit, and Urdu and cater to various educational needs. CIET ensures the wide dissemination of its audio programs both online and on-air through AIR, Community Radio, Gyaan Vaani, iRadio, Youtube, Jio Savan, ePathshala and DIKSHA to reach diverse audiences effectively.

- **Broadcast Schedule of Audio Programs on iRadio is given below-**
  - **Live Sessions**: Monday to Friday
    - Morning Session: 11:00 AM to 11:30 AM
    - Afternoon Session: 3:00 PM to 3:30 PM
  - **Recorded Programs**: Aired from 9:30 AM to 5:00 PM

- **Broadcasting Schedule of Audio Programs on Gyaan Vaani is given below-**

S. No	Name of Station	Frequency	Timing
1	Aurangabad	105.6 MHz	6:00-10:00 AM
2	Bangalore	106.4 MHz	6:00-10:00 AM
3	Cochin	105.6 MHz	8:00 AM - 8:00 PM
4	Chandigarh	105.6 MHz	8:00 AM - 8:00 PM
5	Delhi	105.6 MHz	8:00 AM - 8:00 PM
6	Indore	105.6 MHz	8:00 AM - 8:00 PM
7	Jaipur	105.6 MHz	6:00-10:00 AM, 6:00-10:00 PM
8	Jalandhar	105.6 MHz	8:00 AM - 8:00 PM
9	Lucknow	105.6 MHz	6:00-10:00 AM, 6:00-10:00 PM
10	Madurai	105.6 MHz	8:00 AM - 8:00 PM
11	Nagpur	105.6 MHz	6:00-10:00 AM, 6:00-10:00 PM
12	Pune	105.6 MHz	8:00 AM - 8:00 PM
13	Raipur	105.6 MHz	8:00 AM - 8:00 PM
14	Tirunelveli	105.6 MHz	8:00 AM - 8:00 PM
15	Varanasi	105.6 MHz	8:00 AM - 8:00 PM
16	Thiruvananthapuram	105.6 MHz	8:00 AM - 8:00 PM
17	Patna	105.6 MHz	8:00 AM - 8:00 PM
18	Jalandhar	105.6 MHz	08:00 AM- 8:00 PM

These programs feature a wide range of content, including stories of eminent personalities, inspirational tales (such as *Veer Gathayein* and *Chhoo Lo Main Akash*), awareness campaigns, daily thoughts, textbook-based enrichment activities, and general discussions on topics like festivals, social responsibilities, and government initiatives.

As CIET, NCERT caters to a diverse and inclusive audience, including students, teachers, visually impaired individuals and general public, the programs have received significant appreciation, with over 4,000 testimonials submitted via email in the past year. These include praise for the programs, answers to questions raised during live sessions and contributions like thoughts, poems, and messages from listeners.

1.7.0 Infrastructure Readiness for Accessing PM e-Vidya Programs in Schools

In recent years, India has witnessed a transformative shift in its education sector with the advent of digital technologies. One of the most ambitious initiatives in this domain is the PM e-Vidya program, aimed at providing accessible and high-quality digital education to students across the nation. It encompasses a wide range of digital resources, including video lectures, e-books, and interactive learning materials, designed to make education more inclusive and engaging. The program spans from school-level education to university education, covering every aspect of the learning ecosystem. While the vision is grand, it's imperative to study the ground reality of infrastructure readiness across schools to ensure the program's success. For the PM e-Vidya program to be effective, a robust digital infrastructure is required. As the PM e-Vidya program seeks to leverage the power of audio-video content to revolutionize education delivery it is required for the schools to be equipped with the necessary digital infrastructure.

1.7.1 Key Components of Infrastructure Readiness:

Infrastructure readiness is crucial for the effective functioning of any educational institution, particularly in today's digital age. The key components of infrastructure readiness are mentioned below:

- **Device:** To facilitate effective digital learning, it is imperative to have essential equipment on hand, including devices like televisions, radios, laptops, tablets, desktop computers, and smartphones. The presence of these devices within the school premises is a fundamental requirement to ensure the seamless operation of digital learning. It is crucial to maintain and keep these devices up-to-date, ensuring they are in proper working order.

- **Rooms:** Sufficient classroom space is necessary to accommodate TV and radio-based learning. In the context of digital infrastructure, this may pertain to the provision of dedicated rooms for conducting digital learning sessions. The room should be well lit and sound proof in design to allow efficient TV viewing/Radio listening sessions.

- **Seating Arrangement**: For physical classes, arranging seating in an effective manner can facilitate better interaction and learning. Comfortable seating is necessary for TV Viewing/Radio listening sessions.

- **DTH Connection:** Digital TV connections (DTH) are a must for TV learning sessions for smooth educational broadcasts. This is very useful in areas with limited internet connectivity.

- **Internet Connection:** High-speed and reliable internet access is vital for digital learning. It should have enough bandwidth to use PM e-Vidya through different online platforms like websites, youtube, applications, etc.

- **Maintenance of Devices:** Regular maintenance and servicing of devices ensure their longevity and optimal performance.

- **Technical Support:** Having a dedicated IT support team can address technical issues promptly, minimizing disruptions to the learning process.

- **Power Supply:** Reliable power sources, including backup options like generators or uninterruptible power supplies (UPS), are necessary to ensure uninterrupted learning, especially in areas with frequent power outages.

- **Support for CWSN (Children with Special Needs):** Infrastructure should be inclusive and provide the necessary accommodations and tools to support students with disabilities.

- **Content Storage:** A centralized system for storing and managing educational content, such as a learning management system (LMS), is important for easy access and distribution.

- **Compliance with Regulations:** Ensuring that the infrastructure and educational activities comply with local and national regulations is crucial for legal and ethical reasons.

- **Audio-Video Equipment:** This includes speakers, projectors, and other audio-visual equipment necessary for effective TV teaching and Radio listening.

- **Trained Teacher:** Having qualified and trained teachers is fundamental. They should be equipped with the necessary skills and knowledge to teach effectively, especially in a digital learning environment. They must be trained to use Audio-Video Program efficiently.

Each of these components plays a significant role in creating a conducive and efficient learning environment, whether in traditional classrooms or digital spaces. Ensuring that all these aspects are well-prepared and maintained contributes to the overall success of an educational institution.

1.7.2 Challenges

India's diversity presents both challenges and opportunities in terms of infrastructure readiness. The diverse fabric of the nation manifests itself in the form of distinct urban and rural settings, each with its own set of characteristics, needs, and challenges. While urban areas may have better access to digital resources, rural and remote regions often face infrastructure deficits. Bridging this digital divide is a monumental task, but it's also where the PM e-Vidya program can make the most significant impact. As we embark on this journey to assess infrastructure readiness for the PM e-Vidya program, we encounter a unique interplay of obstacles and prospects that define the path ahead. Here are some of the challenges:

- **Rural Infrastructure Deficits:** One of the most pressing challenges is the gaping infrastructure deficit in rural and remote areas. These regions often lack reliable DTH and internet connectivity, sufficient power supply, and adequate computing devices. The absence of these foundational elements hampers access to the digital realm, making equitable education a distant dream for many.

- **Economic Disparities:** India's economic disparities exacerbate the digital divide. Affordability remains a significant challenge, as many students and schools in underserved areas cannot afford the necessary hardware and services. This economic barrier perpetuates educational inequity.

- **Technical Support and Expertise:** A shortage of technical support and expertise in remote regions poses another challenge. Ensuring that digital infrastructure is operational and well-maintained requires skilled professionals. In many cases, these experts are concentrated in urban areas, leaving rural schools at a disadvantage.

- **Limited Interactivity:** One of the primary challenges with TV and radio as educational mediums is their limited interactivity. Unlike digital platforms, where students can actively engage with content, ask questions, and receive immediate feedback, traditional broadcasting offers a one-way communication channel. Students often consume content passively, which can limit their involvement in the learning process.

- **Scheduling and Time Constraints:** TV and radio programs follow fixed schedules, which can pose challenges for students who may have conflicting commitments. This can be especially problematic for working adults, as they may be unable to tune in at specific times. The rigidity of broadcast schedules may restrict access to educational content.

- **Access to Equipment and Infrastructure:** While TV and radio are accessible to many; there are still regions and communities with limited access to the necessary equipment. This includes the availability of radios and televisions, as well as reliable power sources and broadcast signals. Unequal access to infrastructure can create educational disparities.

- **Lack of Real-time Interaction:** TV and radio lack real-time interaction between teachers and students. This absence of immediate engagement and feedback can hinder the clarification of doubts and a deeper understanding of the subject matter.

- **Assessment and Evaluation:** Assessing and evaluating students' progress in TV and radio learning is not as straightforward as in digital or classroom settings. Traditional media often lack the infrastructure for conducting quizzes, assignments, or exams. This limitation can affect the ability to gauge student performance effectively.

- **Digital Competition:** In the digital age, TV and radio must compete with a wide range of digital educational platforms, which offer more interactive and flexible learning experiences. Staying relevant and enticing students to choose traditional media for learning can be an ongoing challenge.

1.7.3 Opportunities:

- **Wide Reach and Accessibility:** TV and radio have the advantage of wide reach, making them accessible to a broad audience. They can reach remote and underserved areas where internet connectivity may be limited. This accessibility ensures that educational content can be disseminated to a diverse range of learners, including those who might not have access to digital resources.

- **Cost-Effective Delivery:** Broadcasting educational content through TV and radio can be a cost-effective means of reaching large audiences. It eliminates the need for expensive infrastructure and devices, making education more affordable and inclusive.

- **Cultural and Linguistic Diversity:** TV and radio can cater to linguistic and cultural diversity by delivering content in various languages and dialects. This can be a powerful tool for preserving and promoting regional languages while providing education.

- **Flexibility in Scheduling:** Traditional media offer flexibility in scheduling. Students can tune in to educational programs at their convenience, 24*7 broadcasts of programs, allows them to learn without time constraints. This flexibility is beneficial for students.

- **Learning through Listening:** Radio, in particular, encourages learning through listening. This auditory mode of learning can enhance listening skills, comprehension, and critical thinking. It's a unique opportunity for learners to engage with content using sensory channels.

- **Retention and Comprehension:** The sensory-rich nature of TV and radio content can create memorable educational experiences. These experiences often lead to better retention of information. These media excel in storytelling and creative content delivery through compelling narratives, dramatizations, and real-life examples, enhancing engagement and retention.

- **Programs Designed for Diverse Learners:** Some TV and radio programs are specifically designed to cater to children with special needs. These programs incorporate ISL for Hearing Impaired learners and interactive audio rich content for visually impaired learners.

- **Complementary Learning:** TV and radio can serve as complementary tools in a blended learning environment. They can be integrated with digital resources, textbooks, and classroom instruction to create a well-rounded learning experience.

- **Professional Development:** TV and radio can offer opportunities for teacher professional development. Educational programs can provide insights into the latest teaching methods, subject matter expertise, and classroom management techniques.

- **Emergency Education:** TV and radio are reliable tools for disseminating crucial information during emergencies or disasters. They can serve as lifelines for providing educational support during challenging times like pandemic.

- **Community Engagement:** TV and radio have the potential to engage local communities in the education process. They can become platforms for community discussions, and sharing best practices for example community radio/podcast.

The intersection of these challenges and opportunities defines the landscape of infrastructure readiness for the PM e-Vidya program. While it is undeniable that the road ahead is challenging, it is equally undeniable that the potential impact of this program is profound. As we navigate these complexities, the prospect of bringing quality education to the farthest corners of India, where it is needed the most, shines as a beacon of hope. The PM e-Vidya program is not merely an initiative; it is a promise to bridge the digital divide and unlock the doors of learning for every Indian student, regardless of where they reside.

1.8 Status of Digital infrastructure in Schools: UDISE+

The educational landscape in India is undergoing a transformative shift, with technology assuming a pivotal role in classrooms. Digital infrastructure, like projectors, Smart-Class, Computers has become indispensable for effective knowledge dissemination. Data from the Unified District Information System for Education Plus (UDISE+) for the academic year 2021-22 indicates that approximately 68.6% of India's 1,489,115 schools have embraced technology with functional projectors. However, disparities are evident across states, ranging from Kerala leading at 82.3% to Rajasthan lagging at 12.4%, underscoring the need for widespread improvement.

Smart classrooms, equipped with advanced tools like digital boards, smart boards, virtual classrooms,

and smart TVs, represent the forefront of this technological transformation, with 14.9% of schools incorporating these innovations. While leaders like Andaman and Nicobar Islands, Kerala, and Delhi showcase higher adoption rates, challenges persist in states like Rajasthan and Uttar Pradesh. West Bengal stands out with near-universal smart classroom availability, highlighting a significant commitment to digital education.

The availability of computers, as UDISE+ report, reveals that 25.9% of schools possess functional desktops or PCs. Regional disparities persist, with Chandigarh and Delhi reporting nearly 100% computer availability, contrasting with lower percentages in Bihar, Assam, and Jharkhand. The digital divide underscores the urgent need for educational equity, emphasizing the risk of students in computer-deprived schools missing out on essential digital literacy and online educational resources.

Noteworthy variations based on ownership and management, such as government-managed schools outpacing private unaided schools, further emphasize the need for a more equitable allocation of resources. As India navigates the challenges of the digital age, bridging these divides requires a collective and strategic approach from policymakers, educational institutions, and communities. Investment in digital infrastructure, teacher training, and the promotion of digital literacy are critical steps toward ensuring quality education and preparing the youth for the opportunities and challenges of an increasingly interconnected world.

1.9 Rationale of the Study

The spread of Covid-19 led to the nationwide lockdown, which had a major impact on the education sector. With the schools shut down, the government re-imagined the schooling models and the ways in which education can be imparted to students without interruptions. Hence, PM e-VIDYA, a unique and comprehensive initiative was launched by the Ministry of Education in May 2020, aimed at unifying all efforts to enable multi-mode access to education. The initiative under the *'Atmanirbhar Bharat Abhiyan'* aims to benefit 25 crore school children with its comprehensive accessibility. Some of the purposes of PM e-Vidya are given below:

- To provide multimodal access to learning resources by unifying all efforts related to digital/ online/on-air education.
- To develop and collate, curate eContent (Audio and Video) from Class 1 to 12 in various regional languages also based on NCERT and state's curriculum.
- To conduct feedback studies for feed forward purposes.
- To conduct a research study in order to explore the efficacy of the PM e-Vidya initiative.

One of the major initiatives of PM e-Vidya is 12 e-Vidya TV Channels (now 200) based on the motto- 'One Class-One Channel'. These channels cater to classes 1 to 12 and broadcast educational content related to the respective classes. These channels are especially useful for the learners of those remote areas where stable internet is not available. These channels telecast curriculum-based educational content developed by NCERT and other agencies such as CBSE, KVS, NIOS, Rotary, etc.

Under PM e-Vidya program there is a feedback mechanism and support system comprising an Interactive Voice Response System (IVRS) and class-wise dedicated email IDs which are extensively used by the learners, teachers and parents for feedback and support. It is noteworthy that the telecast has been widely appreciated by the audience.

At present there are more than 200 channels that broadcast educational content developed by NCERT and other agencies like CBSE, KVS, NIOS, Rotary, etc. The audio programs associated with PM

eVidya programs are being broadcasted through a vast network of 400 channels, which includes 11 Gyan Vani FM radios, 132 All India Radio stations, and 257 Community Radios. Additionally, the content is made available as podcasts through platforms like Jio Savan and Radio.

However, the data regarding the categories of beneficiaries (students, teachers, teacher educators, etc.) and their respective numbers are not known yet. It is crucial to gather feedback from these beneficiaries for enhancing the quality of the programs and its delivery, particularly in view of the proposal to expand the existing 12 PM e-Vidya channels to 200 TV channels. In this context, the proposed research study is of significant importance. Therefore, the study entitled **"***A study of Reaction towards PM e-Vidya Program of Teachers and Students across the country"* was conducted.

1.10 Objectives

1. To study the availability of infrastructure for accessing the PM e-Vidya (Audio-video) program across schools in India.
2. To study the accessibility of the PM e-Vidya program (Audio-video) across India.
3. To assess and analyze the reaction of stakeholders (students, teachers and teacher educators) towards the PM e-Vidya programme.

1.11 Hypothesis

1. There is no significant influence of Gender, Locale and their interaction on Reaction towards PM e-Vidya Program of Students.
2. There is no significant influence of Locale, State and their interaction on Reaction towards PM e-Vidya Program of Students.
3. There is no significant influence of Gender, Locale and their interaction on Reaction towards PM e-Vidya Program of Teachers.
4. There is no significant influence of Locale, State and their interaction on Reaction towards PM e-Vidya Program of Teachers.

Chapter II : Review of the Related Literature

2.0 Introduction

The present chapter is devoted to the review of related literature, focusing on the intersection of digital initiatives and traditional media in education. It begins by examining the potential of digital technologies to enhance access, equity, and excellence in higher education in India, drawing on empirical evidence. The review then shifts to the role of television as an educational technology, assessing its historical and contemporary impacts on student learning. Finally, it explores the influence of educational radio programs on learning outcomes, providing a comprehensive overview of how these media have contributed to educational practices and effectiveness over time.

2.1 Researches on Accessibility, Effectiveness, and Infrastructure Readiness of Educational Television/Radio Program

Tarbet, D. G. (1955) In the article titled "The Role of TV in Our Schools," discusses the often overlooked potential of television as an educational tool in schools. While television is commonly associated with entertainment, he argues that it can play a significant role in enhancing education and fostering public engagement. The article also highlights the widespread presence of television sets in homes, regardless of whether they are in rural areas or residential neighborhoods. But still many schools have not fully recognized the value of television or considered it as an activity worth incorporating into their educational programs. Some schools believe they are too small to make use of television, but the author asserts that schools of various sizes can utilize this medium effectively, whether through classroom integration or by promoting educational programs that can be viewed at home. To exemplify the use of television in schools, Tarbet cites several programs implemented in different educational contexts. He also emphasizes that television offers a powerful platform for showcasing the work and achievements of schools to the wider community. By leveraging television programs, schools can bridge the gap between education and the public, helping society recognize the importance of quality education and fostering support for schools.In conclusion, the article advocates for schools to embrace television as an educational tool and highlights its potential to enhance teaching and learning. By harnessing the power of television, schools can create a stronger connection with the community and garner support for educational initiatives.

Splaine, J. E. (1978) In the article titled "Television and Its Influence on Reading" synthesis the two studies conducted in Minnesota and in Maryland. This study tried to determine if a relationship between the most popular books and popular television programs and movies does exist so that the implications for increasing the chances for public acceptance of the various components of educational technology are considered. The results also suggest a strong influence of the media on title popularity, particularly at the secondary level. This suggests that librarians and teachers need to be familiar with current programs or movies that are book adaptations in order to recommend those books to students.

Williams et al. (1982) synthesize existing research on the impact of leisure time television viewing on student achievement in grades K-12. The objective was to examine the magnitude and direction of this effect, as well as explore potential differences based on gender, age, subject areas, and IQ levels. To conduct the research synthesis, the authors gathered 274 correlations from various sources, including educational and psychological review articles, dissertations, assessments, surveys, journals, reports, books, and unpublished papers. The sample size included data from 23 studies representing different locations and years. The researcher coded the characteristics of the sample, outcome measures, study quality, data collection methods, average viewing hours, and observed relationships. The data analysis tool used was meta-analysis, drawing on techniques like correlation-level variables and analysis of variance (ANOVA). The researchers examined the relationship between televiewing and achievement

in different contexts and analyzed potential variations based on gender, IQ, and viewing time. The study highlighted the small negative correlation between viewing hours and achievement and identified the specific viewing time range beyond which the effects became increasingly detrimental. The overall result indicated a small negative correlation (-0.05) between hours of televiewing and achievement. This effect remained consistent regardless of sample size, year, or location of the research. However, the impact varied across different ranges of viewing time. It also revealed differences based on gender and IQ levels. Females and high-IQ children were found to be more adversely affected by television viewing than other groups.

Ridley-Johnson et al. (1983) have done exploratory study titled "The Relation of Children's Television Viewing to School Achievement and I.Q' was conducted in Columbia, United States. This study attempted to critically look at the television viewing habit of children and the impact on the student's academic achievement. The population of the study was children from fifth grade. Total number of samples of the study was 322. The data collection tool was a questionnaire and the data were collected in the locality where the socio-economic status of the children were similar in Wnature. The study concludes that In conclusion, the findings of the present study, using a comprehensive and precise measurement of television viewing, confirm those of earlier studies reporting small negative relationships between television viewing, school achievement, and I.Q. Further, this study makes the observation that experimental manipulations are needed in future research to determine the basis of the relationship between television viewing and academic achievement.

Yates, B.L. (1997) conducted a survey titled " Media Education's Present and Future: A Survey of Teachers" was conducted in the United States. The aim of the study was to assess the current state of media education in elementary and secondary schools and to determine if changes have occurred in the current educational technology context. The population of the study was public and private elementary and secondary school teachers. The total sample of the study was 350. Surveys were directly distributed and collected from the teachers. Surveys were distributed at a faculty meeting or put into teachers' mailboxes. Collected data was analyzed using SPSS. Specific areas of inquiry included the importance of teaching media literacy, competency to teach media literacy, teachers' classroom media use, teachers' perceptions of students' media skills and understanding, sources of media education materials, and barriers to media education. The conclusion of the study indicates support for media education goals and values; however, only two-thirds of the respondents reported addressing media in the classroom. Further, the study suggests that the lack of time and materials were reported as the most common barriers to media education. Significant differences were found between public and private school teachers' perceptions of students' media understanding competencies.

Ozturk, Mediha. (2001) aims to discuss the role of television as educational technology in distance education, examine its benefits in terms of learner support and motivation, and explore how it can be effectively integrated into the educational process, particularly at Anadolu University's Open Education Faculty. It highlights the benefits of using television in distance education, such as supporting teaching, explaining concepts, motivating learners, providing supplementary materials, and reaching a wide audience. It presents information about the use of television programs in various projects and provides insights into the production processes and methods used at Anadolu University's Radio and Television Broadcasting Center. It focuses on the initiatives and projects implemented by Anadolu University's Open Education Faculty, involving television programs for different bachelor's and two-year higher education programs. It primarily presents descriptive information about the utilization of television as educational technology, the production processes, and the supporting role of television programs. In conclusion, the article emphasizes that television will remain a crucial component of Anadolu University's Open Education Faculty. It stresses the need to effectively harness television as an educational technology and integrate it with other learning materials to meet student expectations. Additionally, the article suggests that advancements in technology will likely lead to the expansion of live television broadcasts and teleconferencing, further enhancing the educational experience in the future.

Wright JC et al. (2001) in their exploratory study titled "Television Exposure and Academic Skills of Children: New Findings from India Ashish Singh" was conducted in Kansas city, India. Aim of the study was to critically analyze the reading, math, and receptive vocabulary of the children from low income families. Population of the study was 4 year old children and their parents. Through volunteer samples were collected. Total number of the sample was 226. Collected data were analyzed through path analyses with the control of home environment quality and primary language. Results of the study suggest that children watching educational programs in least amounts is associated with the high level of school related and language skills and watching a lot of general audience related programs is associated with low level of same skills. These results occurred for the children from young as a 2 year old in low income families.

Vyas et al. (2002) in their article presents a descriptive summary of different educational radio projects in India, using an observational research approach. Its aim is to provide an overview and analysis of these projects, including their target audience and effectiveness in delivering quality education. The data for the article is obtained through a literature review of various educational radio initiatives in India. The analysis primarily involves summarizing the key features and outcomes of these projects. The article highlights the growth and impact of educational radio projects in India, illustrating their success in reaching diverse populations and catering to different educational needs. It concludes that radio can serve as a valuable and cost-effective medium for providing education and training, especially as a supplementary tool. It acknowledges the advantages and limitations of radio in education, emphasizing the need for careful preparation, supporting materials, and follow-up exercises to mitigate the drawbacks.

Dhingra (2003) has done exploratory study titled "Thinking about Television Science: How Students Understand the Nature of Science from Different Programs" in New York City, USA. This study aimed to examine how high school students think about science that is mediated by four different program genres on television: documentary, magazine-format programming, network news, and dramatic or fictional programming. The population of the study was two secular, independent, single-sex (1 boys' and 1 girls' school) college preparatory day schools. The total number of samples for the study was 63. To collect data from students, the use of several modes of communication—interview, open-ended questionnaire, small group discussions, and free-writing responses were used. The three most frequently listed programs from each school were selected for study. The four program categories were News, Discovery Channel programs, The X-Files, and Bill Nye, which correspond to the genres of news, documentary, fictional programming, and magazine format, respectively. The four program categories were News, Discovery Channel programs. Based on the programs data were collected. Results of the study suggest that television-mediated understandings of science constitute informal learning experiences that students bring with them to the school classroom. Classroom teachers can make use of these experiences to engage and involve a wide range of students by inviting them to share their thoughts and questions about television stories on science

Elizabeth et al. (2004) surveyed "The Impact of Educational television on young children's Reading in the Context of family stress" was conducted in the United States of America. The aim of the study was to examine the impact of educational media use on young children's reading and pre-reading skills in the context of various family stressors. The population of the study was children aged 2-5. A total number of the study sample was 310 children out of which 43% were girls and 57% were boys; 60% were Caucasians, 33% African Americans, 2% Hispanic, and 5% other. The questionnaire was used to collect data. The findings of the study indicate that all family stressors were negatively related to the quality of the home learning environment, which was in turn directly related to children's reading skills. However, only family conflict was negatively related to educational media use, though media use was positively related to reading skills. Moreover, the magnitude of the relationship between educational media use and reading skills was equal to that of the relationship between the quality of the home learning environment and reading skills. The study concludes that educational media use is less prone to disruption by family stressors than other influences on young children's reading and pre-reading skills.

Ennemoser et al. (2007) survey study on "Relations of Television Viewing and Reading: Findings From a 4-Year Longitudinal Study" was conducted in Germany. The aim of the study was to explore the long-term effects of television viewing on the development of children's reading competencies. The population of the study was kindergarten children and parents. Total number of samples is 332 children and their parents. Among 2 cohorts of German children (N1 165, N2 167), measures of television viewing were collected over 4 years, and tests of reading speed and reading comprehension were administered annually. As a result, the TV genre produced different effects. Whereas educational program viewing was positively correlated with reading achievement, relations between entertainment program viewing and reading performance were generally negative. Children who were classified as heavy viewers showed lower progress in reading over time as compared to medium and light viewers (average viewing times per day 69 and 35 min, respectively). Partial support was found only for 1 of the 3 tested causal mechanisms, namely television-induced reduction in leisure-time book reading. Study findings suggest that early entertainment TV consumption had a negative effect on reading ability assessed 3 years later of the children.

Jensen et al. (2007) has written a paper titled "The Power of TV: Cable Television and Women's Status in India" was conducted in three states Bihar, Goa, Haryana, and Tamil Nadu, India. This study aims to explore the effect of the introduction of cable television on gender attitudes in rural India. The population of the study was women from three different states. The sample was selected in two stages: in the first stage, 180 clusters were selected at random from district lists and in the second stage, 15 households were chosen within each cluster through random sampling based on registration lists. The selected sample survey was conducted among women who were more than 15 years old. Using questionnaire data was collected from the women. The study concludes that the introduction of cable television reduces son preference, fertility, and the reported acceptability of beating, and increases women's autonomy and female school enrollment. Overall, the effects are quite positive for women.

Piotrowski et al. (2012) conducted an experimental study titled "Extending The Lessons Of Educational Television With Young American Children '' in the United States of America. The aim of the study was to experiment with the impacts of experiential mediation in the development of literacy skills of children. The population of the study was children from preschool and kindergarten. Using a quasi-experimental design, samples were collected. children were recruited from thirteen classrooms across four schools in both rural and suburban districts for the experiment.The total number of student participants was 138 in the age group of 1 to 6 years. Children were divided into two groups and pretests were conducted in both groups. Procedures of the experiments were, In viewing classrooms, the teacher was instructed to show one episode of Between the Lions per day. In experiential mediation classrooms, the teacher was also provided with the appropriate materials and instructed to integrate the materials into their classrooms. The findings of the study suggest that all experiential mediation is not alike and that its impact is, in part, based on content complexity. it is necessary to ensure that the materials used to encourage experiential mediation are explicitly connected to program content.

Singh et al. (2013) has done a survey study titled " Television Exposure and Academic Skills of Children: New Findings from India" that was concocted in India. AIm of this study was to understand the impacts of television viewing in development of skills including reading, mathematics and arithmetic. Population of the study was children aged 8 to 11 years old from various states. Survey collected data from the publicly available data from the IHDS, based on stratified multistage sampling method. Survey was spread across 33 states. Collected data were analyzed through the ordinal logistic regression. Results of the study suggests that incase of reading skills watching television had a positive correlation irrespective of education content and other media programs. Television viewing for writing skills had a positive correlation even if it is more than two hours but the result suggested that mathematics skills had a negative correlation of television viewing more than two hours.

Sharma & Sharma (2016) in this study explore the role of educational radio in India, focusing on parental perceptions and usage patterns. The research investigates the attitudes of parents toward educational radio programs and their involvement in facilitating their children's radio listening habits. The findings reveal that parents consider educational radio as a valuable medium for learning and actively engage with their children in selecting and discussing radio content. However, there is a need for more targeted programming and awareness campaigns to enhance the utilization of educational radio for educational purposes. The study concludes that educational radio holds significant potential in India for promoting learning among children. It emphasizes the importance of tailored programming and awareness initiatives to maximize the educational benefits of radio education.

Kumar & Kumar (2016) in this research study titled "Role of Educational Television in India: A Study of Doordarshan, conducted in India, aims to focus on Doordarshan, the national broadcaster. The study investigates the impact of educational television programs on the learning outcomes of students in rural and urban areas. The authors conducted surveys and interviews with students, teachers, and parents to gather data. The total number of collected data was 100. The findings suggest that educational television plays a significant role in enhancing students' knowledge and understanding of various subjects. It also highlights the need for improved content quality and accessibility to reach a wider audience. The study concludes that educational television, particularly Doordarshan, has a positive impact on students' learning outcomes. However, there is a need for continuous improvement in content quality and accessibility to ensure maximum reach and effectiveness.

Bhat & Bhat (2017) explored the role of educational television in India, specifically focusing on parental attitudes and involvement. The aim of the study was to investigate the perceptions and behaviors of parents towards educational television programs and their level of engagement with their children's viewing habits. The population of the study was parents and the total number of samples was 150. The findings suggest that parents recognize the potential benefits of educational television and actively participate in selecting and monitoring the content for their children. However, there is a need for more awareness and guidance regarding the effective use of educational television in enhancing children's learning outcomes. The study concludes that parental attitudes and involvement play a crucial role in the utilization of educational television in India. It emphasizes the importance of creating awareness and providing guidance to parents to maximize the educational benefits of television programs for children.

Kumar & Kumar (2017) in their research paper investigate the impact of educational television on the academic achievement of school students in India. The study analyzes the viewing habits and academic performance of students who regularly watch educational television programs. The data collection tool of the study was a survey method. The authors collected data through surveys and academic assessments. The findings indicate a positive correlation between educational television viewing and academic achievement. Students who watched educational television regularly demonstrated higher scores in various subjects compared to those who did not. The paper concludes that educational television has a significant positive impact on the academic achievement of school students in India. It suggests that incorporating educational television programs into the curriculum can enhance learning outcomes and improve students' overall academic performance.

Bhatnagar & Singh (2017) examine the implementation and impact of radio education in India, specifically focusing on the educational programs broadcasted by All India Radio. The study explores the content, delivery, and effectiveness of these programs in enhancing learning outcomes. The research findings highlight the potential of radio education as a cost-effective and accessible medium for reaching remote and marginalized communities. It also emphasizes the need for improved coordination between radio broadcasters and educational institutions to ensure the alignment of content with curriculum objectives. The study concludes that radio education in India has the potential to bridge the educational divide and reach underserved populations. However, there is a need for better collaboration between radio broadcasters and educational institutions to enhance the quality and relevance of the programs.

Srivastava & Srivastava (2018) explore the role of educational radio in India, focusing on All India Radio (AIR). The research examines the reach and impact of educational radio programs on the education sector. The authors conducted interviews and surveys with students, teachers, and radio listeners to gather data. Interviews were collected from more than 300 students, children, and radio listeners. The findings suggest that educational radio is crucial in disseminating educational content to remote areas where access to formal education is limited. It also highlights the need for improved program quality and increased awareness among the target audience. The study concludes that educational radio, particularly All India Radio, serves as an important medium for delivering educational content to remote areas. It recommends enhancing program quality and increasing awareness to maximize the impact of educational radio in India.

Kumar & Kumar (2018) examine the impact of educational television programs on children in rural India. The study investigates the viewing habits of children, their preferences for educational programs, and the perceived educational benefits. The findings indicate that educational television programs have a positive impact on children's learning outcomes, as they enhance their knowledge, cognitive skills, and language development. The study also highlights the need for increased access to educational television in rural areas to bridge the educational gap between urban and rural children. The paper concludes that educational television programs have a significant positive impact on children in rural India, contributing to their educational development. It emphasizes the importance of expanding access to educational television in rural areas to promote equitable learning opportunities.

Kumar & Kumar (2018) investigate the impact of educational television on learning outcomes in India. The study examines the effectiveness of educational television programs in terms of knowledge acquisition, retention, and application among students. The findings suggest that educational television has a positive influence on learning outcomes, particularly in subjects like science and mathematics. The paper also discusses the factors that contribute to the success of educational television programs, such as content quality, instructional design, and student engagement. The study concludes that educational television can be an effective tool for improving learning outcomes in India. However, it emphasizes the importance of continuous evaluation and improvement of program content and design to maximize its educational potential.

Pandey & Tripathi (2018) explored the history and development of television education in India and other countries. It aims to provide information on the evolution of television as an educational tool, the introduction of cable TV and its impact, the growth of international channels, the use of television for educational purposes in India, and the role of television in spreading knowledge and information. It discusses the introduction of cable TV in India in 1992 and the subsequent expansion of channels, including international ones. It also discusses the growth of educational television projects such as the Satellite Instructional Television Experiment (SITE) and the Indian National Satellite Project (INSAT) in India. Television, specifically cable TV and satellite communication networks, are highlighted as the main tools used for educational broadcasting. The article provides a historical account of the development of television education and its impact on society. It elaborates on the content of television programs, the positive and negative effects of television on viewers, and the challenges and opportunities associated with using television as an educational medium. It states that Television has played a significant role in spreading information, conducting propaganda, educating people, strengthening national integration, and creating a national identity. Television can be an effective tool for distance education and help bridge educational resources and access gaps. However, it is often dominated by entertainment content and needs a sufficient focus on educational and informative programs.

Sharma & Sharma (2019) through case study examined the effectiveness of educational television programs in enhancing learning outcomes in India. The research focuses on a specific educational television program and assesses its impact on student's knowledge and understanding. The authors collected data through pre and post-tests, interviews, and observations. The findings indicate that the educational television program significantly improved students' learning outcomes, particularly in

terms of subject knowledge and critical thinking skills. The paper concludes that educational television programs have a positive and significant impact on students' learning outcomes. It suggests that incorporating such programs into the education system can enhance students' knowledge and critical thinking abilities, leading to improved overall academic performance.

Singh & Singh (2019) examine the effectiveness of educational television in promoting literacy skills among primary school children in India. The study investigates the impact of educational television programs on children's reading, writing, and comprehension abilities. The findings indicate that educational television plays a significant role in enhancing children's literacy skills, particularly in improving vocabulary, reading fluency, and comprehension. The study highlights the potential of educational television as a supplementary tool for literacy development in primary education. The paper concludes that educational television is an effective medium for promoting literacy skills among primary school children in India. It emphasizes the importance of integrating educational television programs into the curriculum to enhance literacy outcomes. It suggests further research to explore the long-term effects of television-based literacy interventions.

Singh & Singh (2019) examine the effectiveness of educational television programs in enhancing cognitive skills among students in India. The study investigates the impact of television programs on cognitive domains such as critical thinking, problem-solving, and creativity. The findings suggest that educational television programs have a positive influence on cognitive skill development, particularly when integrated with classroom teaching. The paper also discusses the factors that contribute to the effectiveness of these programs, including program design, teacher support, and student engagement. The study concludes that educational television programs can effectively enhance cognitive skills in the Indian context. It emphasizes the importance of integrating television programs with classroom instruction and providing adequate support to teachers for effective implementation.

Gupta & Sharma (2019) focuses on the impact of educational radio programs on learning outcomes in rural schools in India. The study aims to examine the effectiveness of radio as an educational medium and its influence on students' academic performance. The population of the study is students. The findings reveal that educational radio programs have a significant positive impact on learning outcomes, particularly in subjects like language and social studies. The paper also highlights the accessibility and cost-effectiveness of radio as a medium for educational content delivery in remote areas. The study concludes that educational radio programs can effectively improve learning outcomes in rural schools in India, especially in subjects like language and social studies. It emphasizes the potential of radio as an accessible and cost-effective medium for delivering educational content in remote areas.

Musthafa & Samitha (2019) conducted the exploratory study on "Access, Equity, and Excellence In Higher Education - The Possibilities Of Digital Initiatives In India: Learnings From Empirics" in Kerala, India. The aim of the study was to investigate the awareness and utilization of educational telecasts and webcasts by the students. The population of the study was graduate students from various states. The total number of the sample was 225 graduate students. Data was collected through an online survey method. The findings of the study reveal that the situation is not as it should be. In the present scenario, the majority of the students have the habit of using the internet for extracting study materials for supplementing classroom learning relying heavily on the all-encompassing Google, not ascertaining first whether those are authentic or not. They are not taking full advantage of the authentic and if not better resources available for free, prepared by quality teachers from the formal educational sector. Further, this study makes suggestions that awareness and instructional designs need to be created to make use of the existing digital initiatives.

James (2019) in his experimental study titled "Learning Through Radio And Television During Covid-19: Perspectives Of K-12 Stakeholders" conducted in a Midwestern city, USA, aims to understand students' learning capacity through the real visuals of the science contents and anthropomorphic images.

The population of the study was children from preschool. Total number of the sample was 46. Children were shown two science programs, one was a television program that had real visuals and the other video had anthropomorphic images of the life span of the insects. Through the interview, data was collected from the students. Based on the program viewed by students. The interview consisted of the students' biological understanding, visual attention, reality judgment, and transfer of anthropomorphic ideas. Results suggest that children were more likely to transfer that knowledge to real insects if they viewed the program with realistic (rather than anthropomorphic) visuals.

Patidar (2020) in his experimental study titled "Role of Ict And Television In Learning Science" conducted in Madhya Pradesh, attempted to study the effective use of different tools of ICT and television and the quality of instruction in sciences. The population of the study was secondary school students studying in Govt schools. The sampling method of the study was simple random sampling, the total number of the study sample was 100. Data collection tools were questionnaires, students were divided into two groups 'A' and 'B'. Group A was taught using the conventional teaching method and Group B was taught using ICT and TV programs related to the topics. Data was pre-test and post-test. The results of the study state that the use of ICT and TV content has positive impacts on the learning of science programs. The study further makes the suggestion that by carefully choosing appropriate programs and clips we can make science more relevant and enhance children's engagement and interest in science learning. They constitute another resource that can stimulate ideas, inquiry, and discussion relating to science.

Galagedarage (2021) has done exploratory study on "The Role Of Television As An Educational Medium In Empowering Rural Students In Sri Lanka During Covid 19 Pandemic" in Billewa in Anuradhapura, Sri Lanka. This study attempted to understand the role of television as an educational medium during covid-19 has been examined and the opportunities and challenges of using TV as an alternative educational tool during the pandemic. The population of the study was students from grades 3 to 11, the total number of sampling was 35 students. Qualitative methods were used to collect the data. The data collection tool was an interview schedule. Data was collected through Focused Group Discussions and in-depth interviews FGD is a structured discussion. The qualitative data were analyzed thematically. The results of this study suggest that television was an effective educational medium among rural school students during Covid19 pandemic. There is a positive impact of television on school students in the rural setting during the Covid-19 pandemic.

Bhargavi (2022) in her explorative study titled " Analysis Of The Impact Of Television Programme On Primary School Children's Learning Behaviour In Tirupati Urban" conducted in Andra, India, aims to understand more about how children's viewing habits were influenced by local television programming. The population of the study was primary school children. Using a simple random sampling method 5 primary schools were selected for the data collection. Total number of samples was 200. Structured questionnaires were used for the data collection. The findings of the study suggest that students' academic performance appears to be negatively correlated with the amount of time they spend watching television at the same time. Favorable results can also be discovered in connection to language development, cognitive development, and positive educational outcomes.

Dhiman (2022) conducted a survey study titled "Negative Impact of Television Viewing on Academic Achievements of students: A Case Study of Subhash Nagar" in Haryana, India. The aim of the study was to critically look at the negative effects of Television on the academic achievement of students and To identify the effects on Socioeconomic status and poor performance in class performance. The population of the study was parents and teachers. The sample technique was simple random sampling and the total number of the sample was 40. The data collection tool was a questionnaire. Data was collected from 20 teachers and 20 parents drawn from Diamond Public School Manimajra. Based on the collected data the study draws the conclusion that Television watching has a negative effect on the academic achievement of Diamond public school children. Television has a negative effect on languages and poor performance in academics. Further study makes suggestions that parental

supervision or "co-viewing" strategies should be adopted by parents and they need to be careful to watch and understand the programming that is available to their children as they grow older.

Ayanwale et al. (2023) conducted a survey study titled " Learning Through Radio And Television During Covid-19: Perspectives Of K-12 Stakeholders" across the five southwestern states in Nigeria. This study attempted to critically understand the adoption of alternative methods, such as learning through radio and television for K-12 students during the Covid- 19 Pandemic. The population of the study was students and parents from different states. Total number of participants was 20. The study employed a purposeful sampling technique to recruit participants. The data was gathered through a telephone voice call recording. All 20 respondents were contacted through a phone call. The items, developed for students and teachers, range from knowledge about learning through radio and television to the experience using distance learning methods. The transcribed interviews were analyzed and used for the result. The results of the study suggest that the use of radio and television as educational tools during the COVID-19 pandemic has been recognized as a valuable alternative for K-12 students. Parents, teachers, students, school administrators, and broadcasters have all played important roles in utilizing radio and television to deliver educational content and support remote learning.

Tatsis (2023) has done an explorative study titled "Teachers' Reactions to Educational Television Programs during the Pandemic and Their Implied Images of Mathematics Teaching" in Poland. The study attempted to explore the possibility to improve the content of the televised educational program and the improvement of public images on mathematics. The population of the study was students, parents, and the general public. Data for the study was collected from a variety of sources such as educational fora, social networks, websites, and email exchanges. Tools of the data collection were questionnaires, questionnaires combined with interviews or focus groups. Through the collected data various characteristics like cognitive components, including a mental picture, mental representation, an idea or conception, and an affective component, including attitudes, emotions, feelings, anxiety, enjoyment, and fear were analyzed. Results of the study suggest that thorough preparation, which takes into account contemporary teaching approaches, is necessary; the television lessons had to be designed and conducted in a very short time. Still, this cannot ignore the image that the teacher presenter is expected to have some characteristics associated with keeping the intended audience motivated and engaged.

Audience Reseach Unit- Akashvani (2024) has conducted The Impact Assessment study on NCERT-UMANG, sampling 4800 radio households from 240 villages and 240 urban wards across 24 Akashvani stations, covering one station from each state. The study revealed that a majority of respondents (59.0%) were radio listeners, with a slightly higher percentage in urban areas (59.5%) compared to rural areas (58.5%). The weekly reach was highest for the Primary Channel (47.2%), followed by the Vividh Bharati Channel (43.4%) and LRS (23.7%). Awareness of "UMANG" was noted in 29.9% of respondents, marginally higher in rural areas. The primary source of awareness was radio, followed by the NewsOnAir app, friends, family, newspapers, TV, DTH, and other social media. The daily reach of "UMANG" was 12.8%, slightly higher in rural areas (13.2%) compared to urban areas (12.4%). Channel-wise, the Primary Channel had the highest daily reach (8.3%), followed by LRS (7.8%) and Vividh Bharati (0.6%). Regarding the program's impact, 12.8% of listeners reported benefits from listening to "UMANG," with the highest benefits reported in Kurukshetra (30.5%), followed by Puri & Bhopal (29.0%), and Imphal (28.0%). In terms of quality, listeners rated "UMANG" as Very Good, particularly appreciating its language, content, style of presentation, information, and theme & character.

2.2 Sum Up

The reviewed studies collectively highlight the significant potential of broadcast media as educational tools in enhancing learning outcomes across various contexts. Ozturk (2001) highlights the critical role of television as an educational technology in distance education, emphasizing its benefits in teaching support, learners motivation and reaching a broad audience. Galagedarage (2021) focuses on educational television to demonstrate its substantial positive impact on learning outcomes, particularly in rural and underserved areas. This medium served as a valuable alternative for delivering educational content. Television and radio proved to be effective in maintaining educational continuity for students, with positive impacts noted on their learning experiences. Ullah et al. (2014) mentioned that implementation of distance learning programmes which are aired on the television and radio networks as well as the internet through social networks and video conferencing served as a strategy for continued education at all levels of education. The involvement of various stakeholders, including parents, teachers, school administrators, and broadcasters, is crucial in the successful implementation and utilization of these programs.

Jaminson and McAnany (1978) reported three main advantages of radio: improving educational quality and relevance; lowering educational costs; and improving access to educational inputs particularly to disadvantaged groups. Similarly, educational television programs have proven to enhance students' knowledge and critical thinking skills, indicating their potential to improve overall academic performance. These findings suggest that incorporating educational radio and television programs into the educational system can be a highly effective strategy for improving learning outcomes, especially in remote areas. This comprehensive analysis underscores the importance of promoting awareness and utilization of broadcast educational resources to achieve access, equity, and excellence in education.

The studies highlight the importance of content quality, program design, and stakeholder engagement—particularly the support of teachers—in maximizing the effectiveness of educational television programs. While educational television offers a promising supplementary tool for education, its success largely depends on its integration with traditional classroom teaching and the provision of adequate support to educators (Singh & Singh, 2019). These studies suggest that further research is needed to explore the long-term effects of television-based educational interventions and to refine the strategies for their implementation, ensuring that educational television can effectively contribute to the overall development of students.

The role of media in educational outreach has garnered significant attention, particularly in situations where traditional classroom-based learning faces obstacles. James (2019) highlights both the strengths and limitations of media in education, emphasizing the critical importance of content quality, stakeholder engagement, and media adaptability. While radio has the potential to reach a broad audience, content must be continuously refined to maintain and enhance engagement . The preference for realistic visuals underscores the crucial role of content design in educational programming, affecting how effectively knowledge is absorbed by young learners.

The studies also underscore the roles played by parents, teachers, and school administrators in facilitating remote learning through radio and television. What children view on television is certainly at least partly a function of parental encouragement or discouragement of particular content (Pinon et al. , 1989). However, the effectiveness of these programs also relies heavily on content quality. Audience Reseach Unit- Akashvani (2024) highlights that listeners rated UMANG highly for its language, content, presentation style, and thematic elements, showcasing the program's ability to resonate with its audience. Conversely, the relatively low daily reach indicates that high-quality content alone may not suffice without sustained engagement strategies.

In conclusion, these studies collectively illustrate the potential of radio and television as educational tools, especially in reaching diverse and underserved populations. They highlight critical factors such as content design, stakeholder engagement, and the adaptability of media in crises. While radio and television offer broad accessibility and valuable educational opportunities, their effectiveness hinges on continuous content improvement and active involvement from all educational stakeholders. Balancing these elements can enhance the impact of educational media, ensuring it serves as a robust supplement to traditional learning methods. The studies also underscore both the opportunities and challenges associated with these mediums. Television and radio are particularly beneficial in rural and low-resource settings, where television helps bridge educational gaps. However, careful management of viewing habits is necessary to optimize educational outcomes.

Chapter III : Methodology

3.0 Introduction

The previous chapter provides an overview of research pertaining to TV/Radio-based education, its effects, and the available school infrastructure for broadcasting of educational programs. The current chapter focuses on Methodology, including sample selection, tools for data collection, design of the study, data collection procedures and techniques for data analysis.

3.1 Research Design

This study employs a Mixed-Methods Approach to analyze the accessibility and availability of infrastructure related to the PM e-Vidya program, integrating both quantitative and qualitative methods for a comprehensive understanding of the reactions of teachers and students. The research employs a Survey Research Design. This design is suitable for understanding the current reactions of teachers and students towards the PM e-Vidya program.

Data collection instruments comprise a structured reaction scale for quantitative data on reactions to the PM e-Vidya program, an open-ended questionnaire for Principals/School heads/Incharge teacher to provide qualitative insights on accessibility and availability, and a checklist designed to assess the workability and availability of supporting infrastructure. Data analysis involves statistical techniques like Factorial Design ANOVA and t-tests for quantitative survey responses, thematic analysis for qualitative responses, and comparative analysis of data obtained from a checklist of all three states. By employing this mixed-methods approach, the study aims to offer comprehensive insights into the effectiveness of the PM e-Vidya program and the readiness of infrastructure across the country.

3.2 Sample

The sample for this study encompasses a broad geographical scope, involving three different regions: North (Jammu and Kashmir), East (Odisha), and North East (Assam). In total, 60 schools were included, with an equal representation of 20 schools from each of the aforementioned states. The study involves 2260 students of 9th and 11th classes. Additionally, the sample consists of 543 teachers from 60 schools of three selected states.

3.3 Tools

The research tools were meticulously developed through a rigorous workshop involving research experts. It included reaction scales designed for both students and teachers, employing a five-point scale to assess their reactions towards the PM e-Vidya programs. Additionally, a questionnaire having closed ended as well as open ended questions was formulated to gather data from school principals/heads/Incharge-teacher, focusing on the availability and utility of devices, readiness of school infrastructure and training for accessing the PM e-Vidya program. Furthermore, a distinct checklist was developed for field investigators to evaluate the availability and workability of essential infrastructure items necessary for the PM e-Vidya program. The details are given separately in the following captions.

3.3.1 Questionnaire for Principals/Heads/Incharge Teacher

The questionnaire covers different dimensions of the program's implementation, aiming to gather data on its technological, pedagogical, and curricular integration in schools. It includes multiple choice answers, yes/no type questions, multiple selection answers and open ended questions as well. An elaboration of its structure and key aspects of the items are given below:

Item No.	Aspect Covered	Category	Purpose
	Demographics & School Details	General Info	Collect respondent and school details for segmentation.
1-4	Technological & E-Learning Setup	Infrastructure	Assess device availability and evaluate classroom setup for effective learning.
5, 6, 11	Frequency & Duration of Program Used List of Programs viewed	Usability	Measure how often and for how long the program is used. Gather details on PM e-Vidya programs viewed.
7	Teacher Training	Professional Development	Check teacher participation in PM e-Vidya training.
8, 9	Curriculum Integration	Curriculum	Evaluate integration of pre/post-broadcast activities.
10	Student Engagement	Engagement	Assess student participation during program sessions.
12-16	Like/ Dislike/ Learnings	Feedback	Identify positive and negative aspects of the program.

3.3.2 Reaction towards PM e-Vidya Program Scale for Teachers.

This scale was developed for accessing Teacher's Reaction towards the PM e-Vidya Program. There were 51 statements related to different aspects of the PM e-Vidya program. Against each statement, a five point scale wass given. The five points were Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SD). An elaboration of its structure and aspects of the items are given below:

Item No.	Category	Aspect Covered	Purpose
1, 2, 3, 4, 5, 6, 8, 18, 22, 28, 35, 45, 51	Content Quality	Clarity and simplicity of subject matter presentation, Areas where the content lacks structure, clarity, or relevance	Assess how effectively the subject matter is presented and understood. Identify weaknesses such as poor sequencing, unclear terms, or inadequate visuals.
12, 14, 39	Duration & Pace of the Program	Appropriateness of the presentation duration and pace	Determine if the length and pace of the presentation is suitable for students.

9, 11, 13, 21, 24, 29, 33, 34,	Visual and Audio Aids	Use of visual and audio aids	Assess the effectiveness of visuals, diagrams, and sound quality in aiding understanding.
7, 15, 16, 17, 19, 26, 32, 36, 37, 49	Teaching Methods	Use of techniques like flow diagrams, animations, real-life examples	Evaluate the use of teaching methods to engage students and link topics.
10, 20, 23, 30, 46, 48	Presenter's Performance	Presenter's confidence, clarity of speech, and gestures	Evaluate the presenter's performance, including clarity, gestures, and confidence.
27, 29, 47, 42	Technical Issue	Timing of visuals and video/audio quality	Identify technical issues such as distortion, timing, and clarity of the presentation.
40	Professional Development	Improve their understanding	Assess whether the programs help teachers in improving their understanding about the subject matter.
25, 35	Textual Elements	Font size, labeling, and clarity of textual content	Assess the adequacy of text elements such as font size and labeling.
31	Respondent alertness	Self-assessment of the respondent's participation	Ensure unbiased feedback from respondents.
38, 41, 43, 44, 50	Student Engagement and Inclusion	Student enjoyment and inclusion of special needs children	Assess whether students, including those with special needs, engaged and benefited from the program.

3.3.3 Reaction towards PM e-Vidya Program Scale for Students

This scale was developed for accessing Students Reaction towards the PM e-Vidya Program. There were 45 statements related to different aspects of the PM e-Vidya program. Against each statement, a five point scale was given. The five points were Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SD). An elaboration of its structure and aspects of the items are given below:

Item No.	Category	Aspect Covered	Purpose
1, 2, 3, 5, 7, 9,10, 11, 12, 23, 25, 26, 27, 28, 37	Content Quality	Clarity, simplicity, relevance of subject matter	Assess the quality of content and how well it aligns with the syllabus and student understanding.
8, 20, 24	Duration and pace of Presentation	Appropriateness of the duration and pace of the presentations	Evaluate whether the presentation time and pace is suitable for students.

15, 17, 19, 21, 29,30, 31, 33, 34, 35, 44	Visual and Audio Aids	Quality of Visuals like animations, Graphics and audio-video aids	Measure the effectiveness of visual and audio aids in enhancing understanding.
16, 41, 42, 43	Presenter's Performance	Voice modulation & Gestures	Evaluate how the presenter's voice and gestures help in delivering content effectively.
32	Respondent alertness	Self-assessment of the respondent's participation	Ensure unbiased feedback from respondents.
12, 13, 36, 40	Presenter's Teaching Methods	Linking previously taught topics, Providing up to date information and method of presenting content	Analyze the teaching methods used by the presenter to build understanding.
14, 18, 22	Technical Issues	Poor audibility and visual distortion	Identify technical issues that affect learning.
38, 39, 45	Student Engagement	Engaging students and resolving their queries	Assess whether the program includes methods to engage students and how well their queries are addressed during live broadcasts.

3.3.4 Checklist for Infrastructural facilities for PM e-Vidya Program

The "Checklist for Infrastructural Facilities" for PM e-Vidya Program is a practical assessment tool designed to evaluate the essential infrastructure required for implementing the PM e-Vidya Program in educational institutions. This tool consists of 13 items that cover various aspects of infrastructure, including audio-visual equipment, connectivity, support services, and maintenance.

- **Purpose of the Checklist:**

1. **Evaluation**: The checklist serves to systematically assess the availability and functionality of critical resources needed to effectively deliver educational content.
2. **Field Verification**: Investigators use this tool during field visits to verify that the necessary facilities are in place and operational, ensuring that the TV viewing/Radio listening can be executed successfully.
3. **Improvement Identification**: By identifying available and workable items, as well as those that are lacking or non-functional, the checklist helps in pinpointing areas that require improvement or additional support.

- **Structure of the Checklist:**

1. Each item in the checklist is categorized based on its relevance to the PM e-Vidya Program's infrstructural needs, such as TV sets, radio sets, internet connectivity, and technical support.
2. The checklist includes columns for marking the availability (✓ for available, × for not available) and workability (✓ for workable, × for non-workable) of each item, providing a clear and concise overview of the current infrastructure status.

3.4 Procedure of Data Collection

After coordinating with the State Project Directors (SPDs) of each state, a list of 20 schools per state was allocated for data collection. The team of researchers visited these schools in person. To complete the checklist regarding the availability and functionality of the infrastructure for TV/radio programs the researcher visited every room of the school and verified availability and functionality of items needed for the PM eVidya program. A questionnaire was distributed to the school heads/ Incharge, and a reaction scale was given to teachers and students to gather their feedback on the PM e-Vidya program. After distributing the tools each item was read and explained by the researcher to the respondents. The help of the school teacher was taken to explain the same in their state language.

3.5 Data Analysis

The collected data was scored and entered into separate Excel sheets for each state. It has been categorized based on gender and region to facilitate detailed analysis. Quantitative data obtained from the reaction scales of both teachers and students have been analyzed using statistical methods, including Factorial Design ANOVA and t-tests, to determine significant differences and interactions among the groups.

In addition, qualitative data was examined through thematic analysis, which involves identifying, analyzing, and reporting patterns (themes) within the data. This dual approach allows for a comprehensive understanding of the participants' experiences and perceptions regarding the PM e-Vidya program, thereby providing insights that complement the quantitative findings. Overall, this systematic analysis aims to draw meaningful conclusions and inform future enhancements to the program.

Chapter – IV : Results and Interpretation

4.0 Introduction

The Methodology followed in conducting this study has been given in detail in the previous chapter. In the same chapter, statistical techniques used in analyzing the data were mentioned. The Present chapter is devoted to Results and Interpretation. This has been done objective-wise separately in the following captions.

4.1.0 Availability of Infrastructure to access PM e-Vidya Program

The first objective was to study the availability of infrastructure for accessing the PM e-Vidya which has been done in each state—Assam, Odisha, and Jammu & Kashmir separately. Following this, a comparison of the availability of infrastructure of all three states based on the data obtained from the checklist are given below.

4.1.1 Availability of Infrastructure in Assam

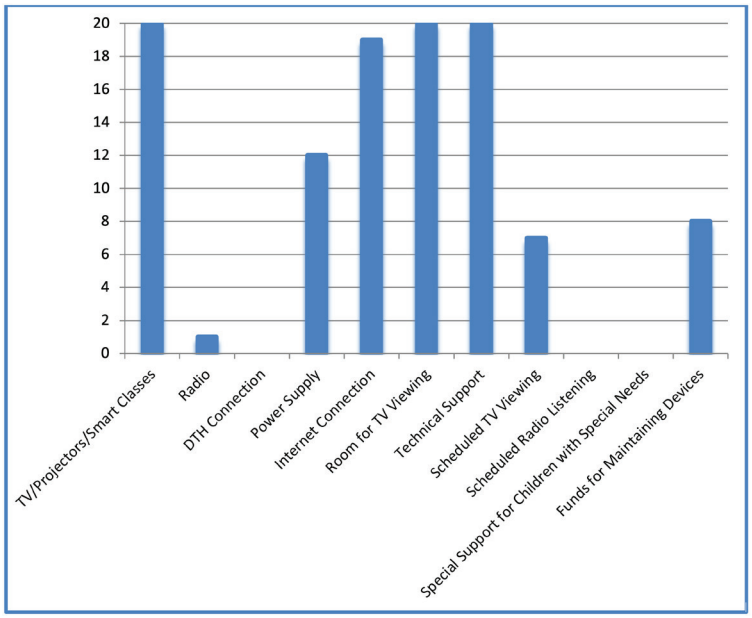


Figure 1 Graphical representation of availability of Infrastructure in Assam

The data from the 20 schools in Assam indicate a strong foundation for digital learning, with the presence of smart boards and rooms for TV viewing in 100% of schools, along with technical support from SSA (Samagra Shiksha Abhiyan). However, none of the schools have DTH connections, and only 5% of the schools have radio availability. The absence of scheduled radio listening in schools indicates a need for attention from the school authorities. Proper power supply is available in 60% of the schools, while the other 40% face power cut issues, which are effectively managed with UPS systems for short periods; however, for longer durations, this is insufficient. Exactly 50% of schools are facing problems with internet connectivity. Only 35% of schools have integrated scheduled TV viewing into their curriculum. The lack of special support for children with special needs in TV viewing rooms reveals significant gaps in inclusive and structured digital education. Funds are available in 40% of the schools for the maintenance of digital devices.

4.1.1 Availability of Infrastructure in Odisha

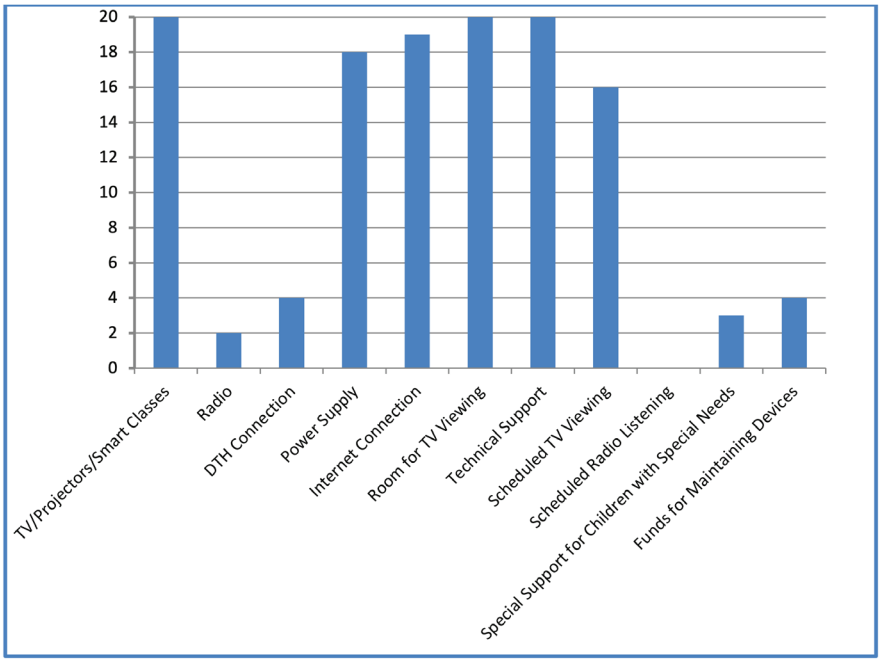


Figure 2 Graphical representation of availability of Infrastructure in Odisha

The data from Odisha's schools reflect 100% availability of devices for digital learning, with access to smart boards and dedicated rooms for TV viewing activities. The availability of TVs and projectors demonstrates the possibility of multimedia learning in multiple schools. However, the use of radios is only 10% and primarily restricted to a specific program, i.e., "Man Ki Baat," indicating limited integration of radio as an educational tool. DTH connections were present in only 20% of schools. On the other hand, 90% of schools have a stable power supply, and 95% of schools have reliable internet connectivity, ensuring minimal disruptions to digital learning. The 100% availability of technical support guarantees the proper functioning of the digital infrastructure. Eighty percent of schools have scheduled TV viewing as part of their curriculum, but scheduled radio listening is totally missing. Efforts towards inclusive education were present in only 15% of schools. In 20% of schools, funds are available for the maintenance of digital devices.

4.1.2 Availability of Infrastructure in Jammu & Kashmir :

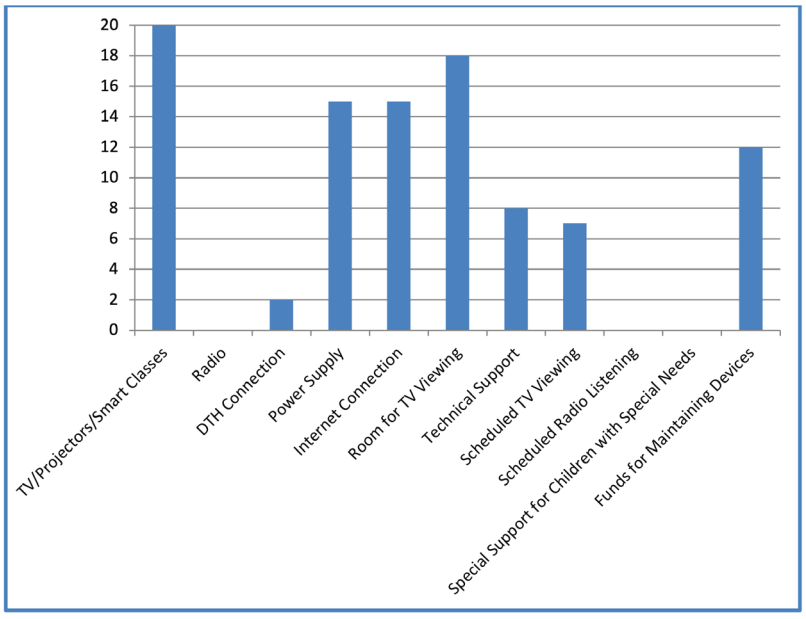


Figure 3 Graphical representation of availability of Infrastructure in Jammu and Kashmir

The data in the above graph related to schools in Jammu & Kashmir reveals a 100% availability of devices for digital learning, along with access to projectors and computers. However, the presence of smart boards and TVs was limited, indicating an uneven distribution of advanced digital learning devices. Only 10% of schools were found to have DTH connections, and none of them had radios, which shows negligible use of these mediums for educational purposes. Proper power supply was available in 75% of schools; however, 15% of schools struggle with internet connectivity, highlighting infrastructural challenges that could disrupt digital learning. Around 90% of schools had proper rooms for TV viewing. The lack of technical support in over 40% of the schools is a major concern, as it hampers the maintenance and effective use of digital infrastructure. Scheduled TV viewing for specific classes occurs in 35% of schools, and none of the schools had scheduled radio listening, indicating limited structured use of audio-visual content. The absence of special support for children with special needs in TV viewing rooms points to a need for more inclusive education efforts. Lastly, 60% of schools have funds for maintaining devices, while the reliance on general school funds by the remaining 40% underscores the need for more consistent and targeted financial support to sustain and enhance digital learning infrastructure.

4.2 Comparison and Analysis of Availability of infrastructure in Assam, Odisha and Jammu & Kashmir

Table 1 Comparison of Available Infrastructure in Assam, Odisha and Jammu and Kashmir

Parameter	Assam		Odisha		Jammu & Kashmir	
	Percent	N	Percent	N	Percent	N
Schools with smart classes/ Projectors/ TVs	100%	20	100%	20	100%	20
Schools with radios	5%	1	10%	2	0%	0
Schools with DTH connections	0%	0	20%	4	10%	2
Schools with power supply issues	30%	6	10%	2	25%	5
Schools with proper internet connectivity	90%	18	95%	19	75%	15
Schools with proper TV viewing rooms	100%	20	100%	20	90%	18
Schools with technical support	100%	20	100%	20	40%	8
Schools with scheduled TV viewing	35%	7	80%	16	35%	7
Schools with scheduled radio listening	0%	0	0%	0	0%	0
Schools with special support for children with special needs in TV rooms	0%	0	15%	3	0%	0
Schools with funds for maintaining devices	40%	8	20%	4	60%	12

***(Total no. of schools) N = 20**

1. In all three states—Assam, Odisha, and Jammu & Kashmir (J&K)—every school (100%, 20/20 schools) has availability of devices. This uniform availability ensures that students in these regions have access to essential digital learning. In Odisha and Assam classes are equipped with smart boards along with computers and TVs while in Jammu & Kashmir classes are equipped with Projector and computers only.

2. The minimal presence of radios in Assam and Odisha, coupled with their absence in J&K, indicates that this medium is largely underutilized in the educational context. Radios are available in 5% of schools in Assam and 10% of schools in Odisha. No schools in J&K have radios. This limited availability suggests that radios are not a significant component of the digital learning strategy in these regions.

3. DTH connections are most prevalent in Odisha, followed by J&K, with Assam having none. No schools in Assam have DTH connections. In Odisha, 20% of schools have DTH connections, while in J&K, 10% of schools are equipped with DTH. The limited distribution of DTH connections suggests a potential area for improvement in providing access to broadcasted educational content, which could enhance learning opportunities.

4. Odisha faces the least power supply issues, whereas Assam has the highest incidence of power cuts, with J&K in between. Power supply issues affect 30% of schools in Assam, 10% in Odisha, and 25% in J&K. Consistent power supply is crucial for uninterrupted digital learning, and addressing these issues is essential, particularly in Assam.

5. Odisha leads in internet connectivity, closely followed by Assam, while J&K has the lowest connectivity rate. Proper internet connectivity is reported in 90% of schools in Assam, 95% in Odisha, and 75% in J&K. Reliable internet access is vital for digital education, and efforts to improve connectivity in J&K should be prioritized to bridge this gap.

6. Assam and Odisha are well-equipped with designated TV viewing rooms, ensuring an appropriate environment for students. All schools in Assam and Odisha have proper rooms for TV viewing activities. In J&K, 90% of schools have proper rooms, with the remaining 10% using less ideal spaces like the principal's room. J&K, while mostly equipped, has a few schools with suboptimal setups, indicating a need for minor infrastructural improvements.

7. Technical support is available in 100% of schools in Assam and Odisha. In J&K, only 40% of schools have technical support. Assam and Odisha provide comprehensive technical support, which is critical for the maintenance and effective use of digital infrastructure. The significant lack of technical support in J&K is a major concern that needs to be addressed to ensure the sustainability of digital learning tools.

8. Odisha's higher rate of scheduled TV viewing indicates a more structured use of televised educational content. In contrast, the lower percentages in Assam and J&K suggest that integrating TV-based learning into the curriculum could be further developed. In Assam and J&K, 35% of schools have schedules for TV viewing for classes 9th and 11th. Odisha shows a much higher rate at 80% of schools.

9. No schools in any of the three states have scheduled radio listening. The absence of scheduled radio listening across all states reflects the minimal role of radio in the current educational strategy. Exploring the potential of radio as an educational tool could diversify the learning mediums available to students.

10. No schools in Assam and J&K provide special support for children with special needs in TV viewing rooms. In Odisha, 15% of schools offer this support. Only Odisha has begun to address the needs of children with special needs in TV viewing rooms. There is a clear need for more inclusive educational practices in Assam and J&K to ensure that all students benefit from digital learning environments.

11. In Assam, 40% of schools have funds for maintaining devices. In Odisha, this figure is 20% and in J&K, it is 60%. J&K has the highest percentage of schools with dedicated funds for device maintenance, followed by Assam. Odisha lags significantly behind. Ensuring adequate financial support for maintaining digital infrastructure is crucial for the sustainability and effectiveness of digital education programs.

4.3.0 Accessibility of the PM e-Vidya program (Audio-video)

The infrastructure accessibility for accessing the PM e-Vidya program in each state—Assam, Odisha, and Jammu & Kashmir-has been analyzed separately and a comparison of all three states has been done based on the data obtained from the questionnaire.

Table 2 Comparison of Accessibility to PM e-Vidya Program in Assam, Odisha and Jammu and Kashmir

Criteria	Assam (20 Schools)	Odisha (20 Schools)	Jammu and Kashmir (20 Schools)
Types of Devices Available for Receiving the PM e-Vidya Program			
Smart boards with Computers	13 schools (65%)	12 schools (60%)	8 schools (40%)
Smart boards with Computer and TV sets	6 schools (30%)	6 schools (30%)	N/A
TV sets, Radio sets, Computers, and Smart board	1 schools (5%)	2 schools (10%)	N/A
Computers and Projector	N/A	N/A	10 schools (35%)
Only Smart board	N/A	N/A	2 schools (10%)
Arrangements in the Room			
All four arrangements (seating, lighting, ventilation, fan)	15 schools (75%)	9 schools (45%)	18 schools (90%)
Three arrangements (lighting, ventilation, fan)	4 schools (20%)	11 schools (55%)	2 schools (10%)
Only one arrangement (lighting)	1 school (5%)	N/A	N/A
Frequency of Using TV/ Radio for PM e-Vidya Program			
Daily	5 schools (25%)	1 school (5%)	9 schools (45%)
Weekly	2 schools (10%)	N/A	2 schools (10%)
Monthly	9 schools (45%)	7 schools (35%)	6 schools (30%)
Occasionally	4 schools (20%)	12 schools (60%)	3 schools (15%)
Weekly Hours of Watching Educational TV Programs			
3 hours per week	9 schools (45%)	1 school (5%)	9 schools (45%)

2 hour per week	N/A	N/A	N/A
1 hours per week	N/A	N/A	N/A
Less than 1 hour per week	11 schools (55%)	19 schools (95%)	11 schools (55%)
Teacher Participation in Training Sessions or Workshops			
Participated	10 schools (50%)	15 schools (75%)	12 schools (60%)
Did not participate	10 schools (50%)	5 schools (25%)	8 schools (40%)
Pre-Telecast Activities			
Conducted	14 schools (70%)	9 schools (45%)	16 schools (80%)
Did not conduct	6 schools (30%)	11 schools (55%)	4 schools (20%)
Post-Telecast Activities			
Conducted	14 schools 70%)	7 schools (35%)	16 schools (80%)
Did not conduct	6 schools (30%)	13 schools 65%)	4 schools (20%)
Measures for Active Student Engagement			
Measures taken for active engagement	14 schools 70%)	14 schools 70%)	17 schools (85%)
No measures taken for active engagement	6 schools (30%)	6 schools (30%)	3 schools (15%)
Pre- Telecast Activity			
Conducted pre-telecast activities	14 schools 70%)	9 schools (45%)	16 schools (80%)
Did not conduct pre-telecast activities	6 schools (30%)	11 schools(55%)	4 schools (20%)
Post-Telecast Activities			
Conducted post-telecast activities	14 schools 70%)	7 schools (35%)	16 schools (80%)
Did not conduct post-telecast activities	6 schools (30%)	13 schools 65%)	4 schools (20%)

4.3.1 Accessibility of the PM e-Vidya program (Audio-video) in Assam

The questionnaire for Teachers/School Heads to assess various aspects of PM e-Vidya program was distributed to the school heads during the data collection procedure at Assam. The responses are presented in the table number 2. The explanation of the above table is given below:

1. **Device Accessibility**: A majority of the schools (85%) have access to smart boards with additional devices like computer, projectors and TVs, with a significant number (35%) having only smart boards without additional devices.

2. **Classroom Arrangements**: Most schools (75%) have all necessary arrangements (seating, lighting, ventilation, and fan) for a conducive learning environment.

3. **Usage Frequency**: The usage frequency of the PM e-Vidya program varies, with only 25% of schools using it daily, while a significant portion (45%) uses it monthly.

4. **Screen Time**: Schools typically dedicate 1 to 2 hours per week for watching educational programs.

5. **Teacher Training**: Only half of the schools' teachers have participated in training sessions, indicating a need for more widespread training initiatives.

6. **Pre and Post-Telecast Activities**: A majority of schools conduct both pre- and post-telecast activities (70%), indicating efforts to integrate the programs effectively into the learning process.

7. **Student Engagement**: Measures to ensure active student engagement during TV viewing sessions are taken by 70% of the schools.

4.3.2 Accessibility of the PM e-Vidya program (Audio-video) in Odisha

The questionnaire for Teachers/School Heads to assess various aspects of PM e-Vidya program was distributed to the school heads during the data collection procedure at Odisha. The responses are presented in the table number 2. The explanation of the above table is given below:

1. **Device Accessibility**: A significant proportion of schools (75%) have access to smart classes, with various additional devices available. However, only 5% of schools have just a smart class without additional devices.

2. **Classroom Arrangements**: Almost half of the schools (45%) have all necessary arrangements (seating, lighting, ventilation, fan) for a conducive learning environment, while the other 55% have three arrangements (lighting, fan, seating).

3. **Usage Frequency**: The usage frequency of the PM e-Vidya program is low, with only 5% of schools using it daily and 60% using it occasionally.

4. **Screen Time**: Most schools (95%) watch educational TV programs for less than 1 hour per week or occasionally.

5. **Teacher Training**: A significant majority of schools (75%) have teachers who participated in training sessions or workshops.

6. **Pre and Post-Telecast Activities**: Less than half of the schools conduct pre-telecast activities (45%) and only 35% conduct post-telecast activities, indicating a need for more structured integration of the program.

7. **Student Engagement**: Measures to ensure active student engagement during TV viewing sessions are taken by 70% of the schools.

4.3.3 Accessibility of the PM e-Vidya program (Audio-video) in Jammu and Kashmir

The questionnaire for Teachers/School Heads to assess various aspects of PM e-Vidya program was distributed to the school heads during the data collection procedure at Jammu & Kashmir. The responses are presented in the table number 2. The explanation of the above table is given below:

1. **Device Accessibility**: A significant proportion of schools (75%) have access to either smart classes with additional devices or computers with projectors, with 10% having only smart classes and 15% having TV, projector, and computer.

2. **Classroom Arrangements**: Almost all schools (90%) have all necessary arrangements (seating, lighting, ventilation, fan) for a conducive learning environment.

3. **Usage Frequency**: Nearly half of the schools (45%) use the PM e-Vidya program daily, with others using it weekly, monthly, or occasionally.

4. **Screen Time**: A good number of schools (45%) watch educational TV programs for 2 hours per week, while 55% watch for less than 1 hour per week or occasionally.

5. **Teacher Training**: A majority of schools (60%) have teachers who participated in training sessions or workshops.

6. **Pre and Post-Telecast Activities**: Most schools conduct both pre-telecast (80%) and post-telecast (80%) activities, showing a structured integration of the program.

7. **Student Engagement**: Measures to ensure active student engagement during TV viewing sessions are taken by 85% of the schools.

4.3.4 Comparison of the Accessibility to the PM e-Vidya Program in Assam, Odisha, and Jammu and Kashmir

The PM e-Vidya program aims to enhance educational outreach across India by leveraging technology. A comparison of the accessibility and implementation of this program across three states: Assam, Odisha, and Jammu and Kashmir, focusing on the availability of devices, infrastructure, usage patterns, and engagement activities has been done below:

- **Types of Devices Available for Receiving the PM e-Vidya Program in schools of Assam, Odisha and Jammu and Kashmir**

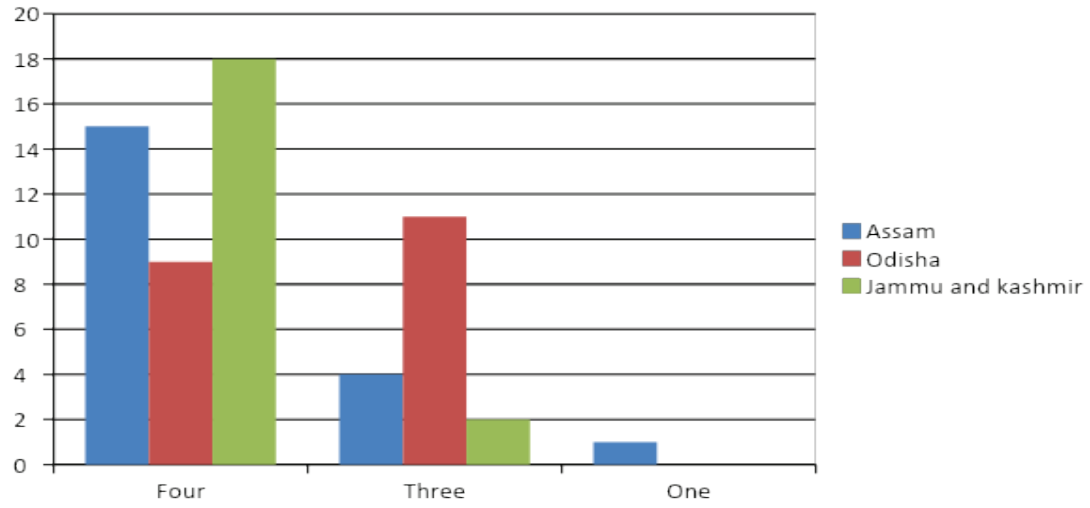


Figure 4 Types of Devices Available for Receiving the PM e-Vidya Program in schools of Assam, Odisha and Jammu and Kashmir

Assam and Odisha demonstrate a broader distribution of availability of different types of devices, facilitating varied modes of content delivery while in Jammu and Kashmir there is lack of multimodal access that shows the presence of basic setups like projectors and computer.

In **Assam**, 85% of schools are equipped with some form of smart class infrastructure. The most common setup includes computers and projectors (30%) or a combination of these with TVs (15%). Notably, 35% of schools rely solely on smart class facilities. In contrast, **Odisha** showcases a higher prevalence of advanced setups, with 40% of schools having smart classes with computers and projectors, and another 25% equipped with a more diverse range of devices, including TVs and radios. The availability of only smart classes is significantly lower (5%) in Odisha. **Jammu and Kashmir** exhibits a unique pattern, with 40% of schools having smart classes with computers and projectors, and 35% relying solely on computers and projectors.

- **Availability of Power Backup in Schools of Assam, Odisha and Jammu and Kashmir**

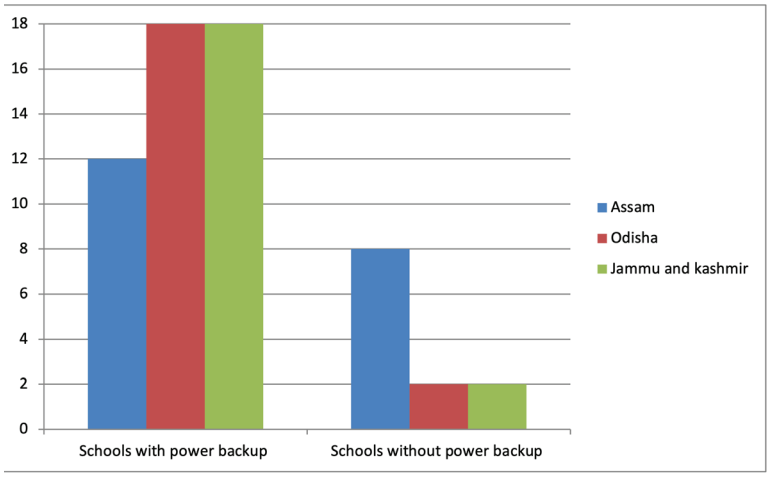


Figure 5 Availability of Power Backup in Schools of Assam, Odisha and Jammu and Kashmir

Assam lags behind with only 60% of schools having inverters, compared to 90% in both **Odisha** and **Jammu and Kashmir**. This disparity suggests that power outages could significantly disrupt the learning experience in Assam more than in the other states.

- **Availability of proper arrangements in rooms for TV viewing and Radio listening**

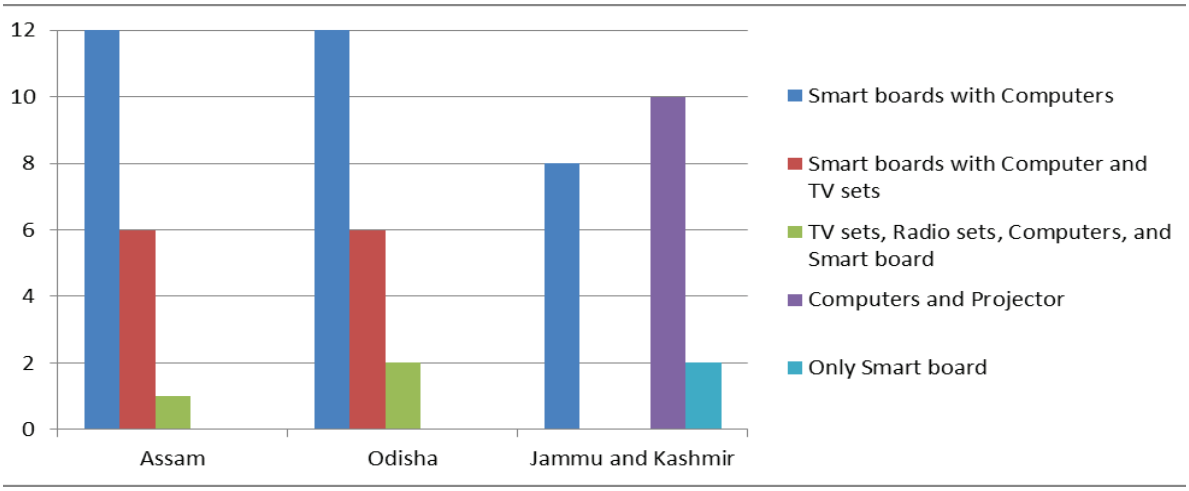


Figure 6 Availability of proper arrangements for TV viewing and Radio Listening

The quality of the physical classroom environment plays a critical role in the learning experience. In **Assam**, 75% of schools have all necessary arrangements (seating, lighting, ventilation, and fans). However, **Odisha** shows a disparity, with only 45% of schools fully equipped, and 55% having three arrangements, mainly lacking adequate ventilation. **Jammu and Kashmir** reports a high standard, with 90% of schools having all arrangements, ensuring a conducive learning environment.

- **Frequency of Using TV/Radio for Viewing/Listening PM e-Vidya Program**

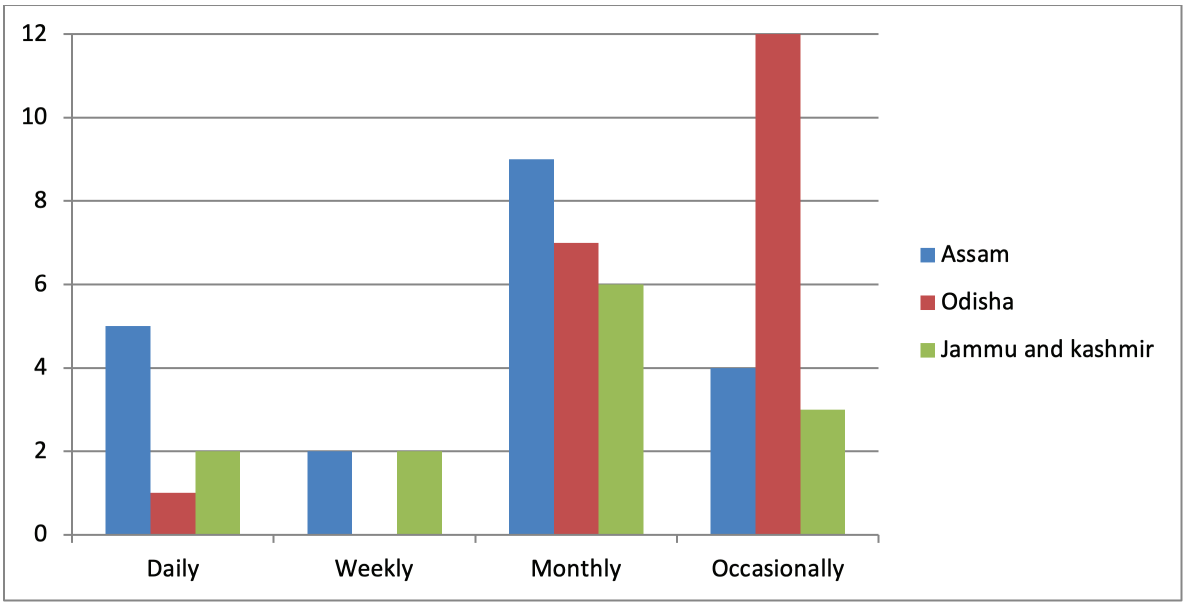


Figure 7 Frequency of Using TV/Radio for Viewing/Listening PM e-Vidya Program

Frequency of Using TV/Radio for the PM e-Vidya Program- In terms of usage frequency, **Assam**

shows moderate engagement, with only 25% of schools using the program daily and 45% using it monthly. **Odisha** has a lower daily usage rate at 5%, with the majority (60%) using it occasionally. **Jammu and Kashmir** demonstrates a higher daily usage rate at 45%, with a significant portion using the program monthly (30%).

- **Weekly Hours of Watching Educational TV Programs**

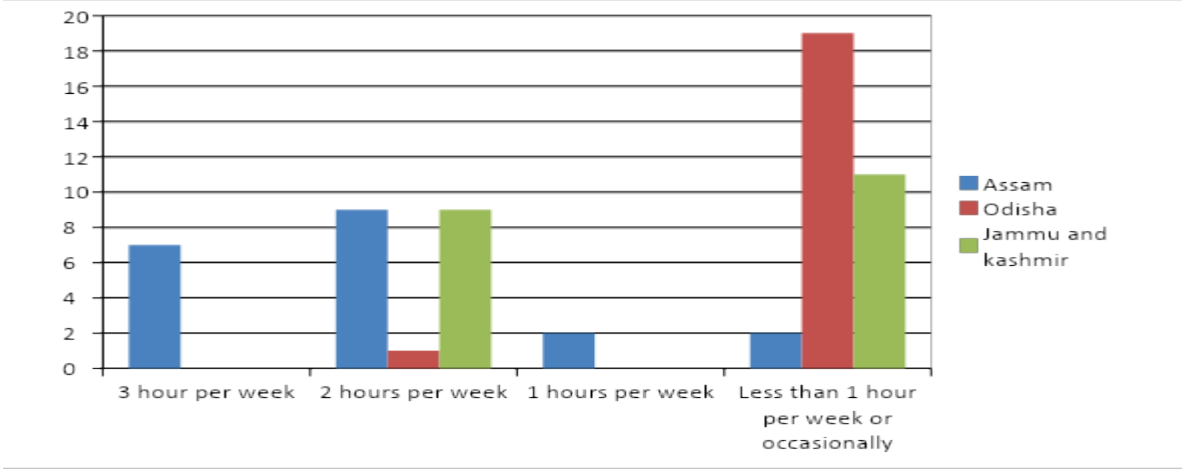


Figure 8 Weekly Hours of Watching Educational TV Programs

Assam and **Jammu and Kashmir** show similar patterns, with 45% schools dedicating 2 hours per week to educational TV programs. However, **Odisha** has a more extreme distribution, with 95% of schools engaging less than 1 hour per week or occasionally, indicating minimal use.

- **Teacher Participation in Training Sessions or Workshops**

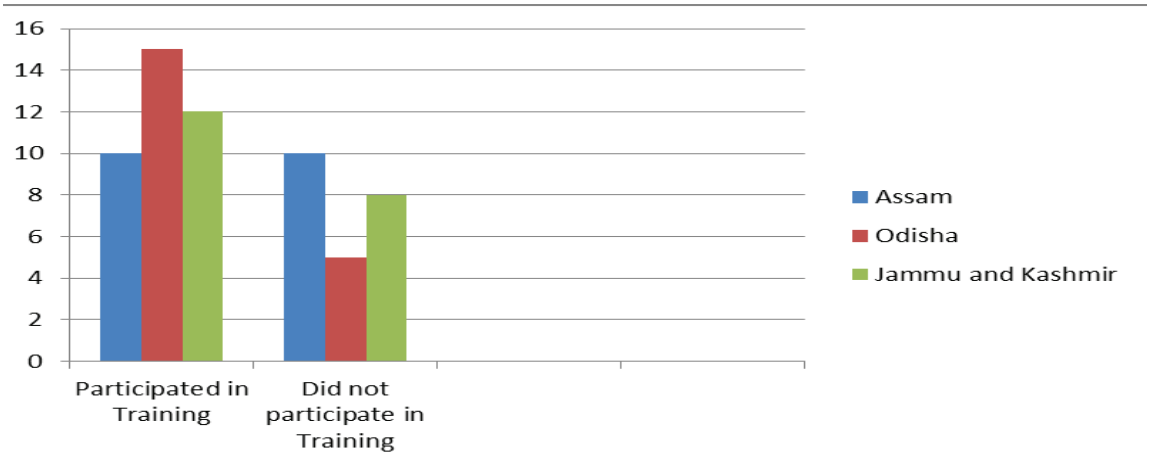


Figure 9 Teachers Participation in Training Sessions or Workshops

Teacher participation in training sessions is crucial for the effective implementation of the program. **Assam** and **Jammu and Kashmir** report moderate participation at 50% and 60%, respectively. **Odisha** shows higher participation at 75%, indicating a greater emphasis on teacher preparedness.

- **Pre- and Post-Telecast Activities**

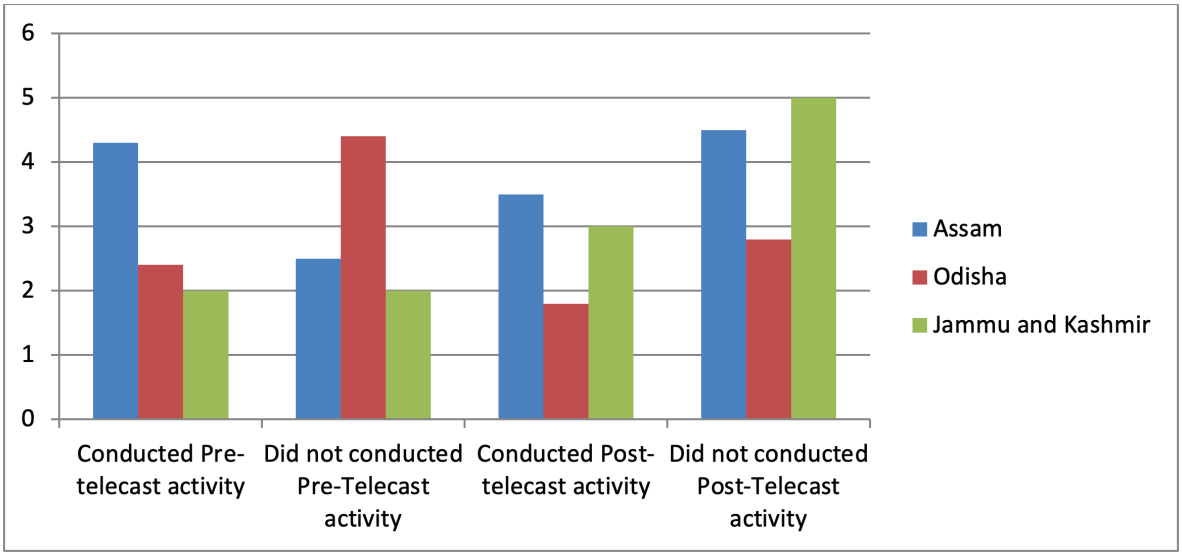


Figure 10 Number of schools conducting Pre- and Post-Telecast Activities

Pre-telecast activities were conducted in 70% of schools in **Assam** and **Jammu and Kashmir**, while only 45% of schools in **Odisha** engaged in these activities. Post-telecast activities were similarly more prevalent in Assam and Jammu and Kashmir (70% and 80%, respectively) than in Odisha (35%).

- **Measures for Active Student's Engagement**

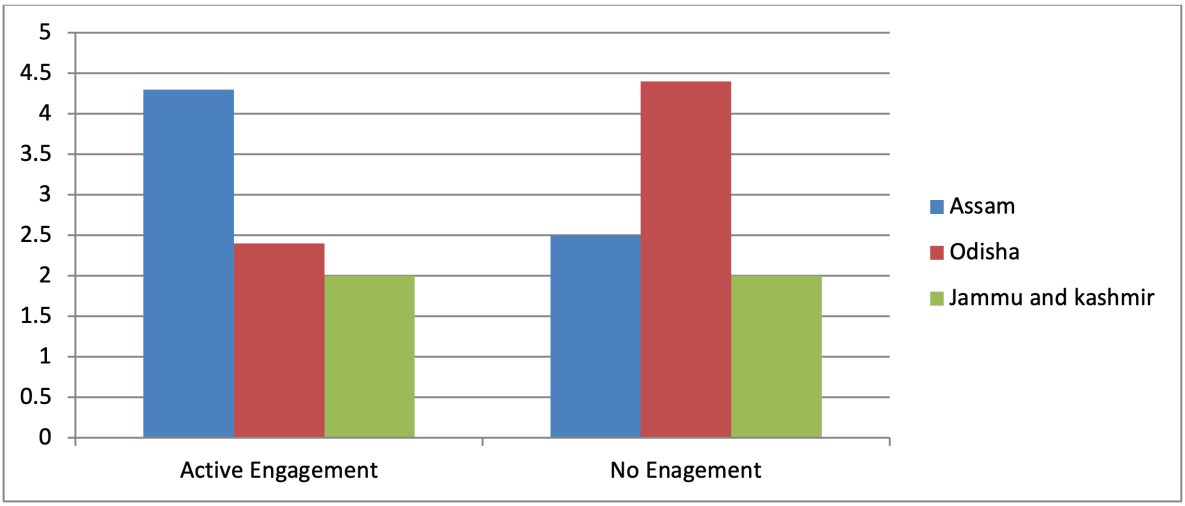


Figure 11 Measures for Active Student Engagement

Active engagement measures are critical for ensuring students are not passive recipients of information. **Assam** and **Odisha** report similar engagement levels, with 70% of schools implementing measures. **Jammu and Kashmir** shows a higher rate at 85%, indicating a more robust effort to involve students actively.

4.4.0 Influence of Gender, Locale their Interaction on Reaction Towards PM e-Vidya Programme of Students

The objective was to study the influence of Gender, Locale and their interaction on Reaction towards PM e-Vidya Program of Students. Male and Female were the two levels of Gender and Urban and Rural the two levels of Locale of students. Thus the data were analysed with the help of 2 X 2 Factorial Design ANOVA and the results are given in Table 4.1.

Table 4.1: Summary of 2 X 2 Factorial Design ANOVA of Reaction towards PM e-Vidya Program of Students

Source of Variance	df	SS	MSS	F-Value	Remark
Gender (A)	1	1476.25	1476.25	2.39	ns
Locale (B)	1	72268.91	72268.91	117.03	p<0.01
A X B	1	61.21	61.21	0.10	ns
Error	2288	1412851.18	617.50		
Total	2291				

ns= Not Significant

4.4.1 Influence of Gender on Reaction towards PM e-Vidya Program of Students

From Table 4.1, it can be seen that the F-Value for Gender is 2.39 which is not significant. It indicates that there is no significant difference in mean scores of Reaction towards PM e-Vidya Program of Male and Female Students. So there is no significant influence of Gender on Reaction towards PM e-Vidya Program of Students. Thus the null hypothesis that there is no significant influence of Gender on Reaction towards PM e-Vidya Program of Students is not rejected. Further the mean scores of Reaction towards PM e-Vidya Program of Male and Female Students are 150.70 and 149.03 respectively. It may be said that both Male and Female students were found to have same degree of favourable Reaction towards PM e-Vidya Program.

4.4.2 Influence of Locale on Reaction towards PM e-Vidya Program of Students

From Table 4.1, it can be seen that the F-Value for Locale is 117.03 which is significant at 0.01 level with df=1/2288. It indicates that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Urban and Rural Students. So there is a significant influence of Locale on Reaction towards PM e-Vidya Program of Students. Thus the null hypothesis that there is no significant influence of Locale on Reaction towards PM e-Vidya Program of Students is rejected. Further the mean score of Reaction towards PM e-Vidya Program of Urban Students is 144.03 which is significantly lower than Rural students whose mean score of Reaction towards PM e-Vidya Program 155.70. It may be said that Rural students were found to have significantly higher degree of favourable Reaction towards PM e-Vidya Program as compared to Urban students.

4.4.3 Influence of Interaction between Gender and Locale on Reaction towards PM e-Vidya Program of Students

The F-Value for interaction between Gender and Locale is 0.10 which is not significant (Vide Table 4.1). It indicates that there is no significant difference in mean scores of Reaction towards PM e-Vidya Program of Male and Female Students belonging to Urban and Rural Area. So there is no significant influence of interaction between Gender and Locale on Reaction towards PM e-Vidya Program of Students. Thus the null hypothesis that there is no significant influence of interaction between Gender

and Locale on Reaction towards PM e-Vidya Program of Students is not rejected. It may be said that Reaction towards PM e-Vidya Program was found to be independent of interaction between Gender and Locale of students.

4.5.0 Influence of Locale, State & their Interaction on Reaction Towards PM e-Vidya Programme of Students

The objective was to study the influence of Locale, State and their interaction on Reaction towards PM e-Vidya Program of Students. Urban and Rural were the two levels of Locale of students while students belong to Assam, Odisha and Jammu & Kashmir States. Thus the data were analysed with the help of 2 X 3 Factorial Design ANOVA and the results are given in Table 4.2

Table 4.2: Summary of 2 X 3 Factorial Design ANOVA of Reaction towards PM e-Vidya Program of Students

Source of Variance	df	SS	MSS	F-Value	Remark
Locale (A)	1	13222.41	13222.41	22.58	p<0.01
State (B)	2	4622.18	2311.09	3.95	p<0.05
A X B	2	68778.16	34389.08	58.73	p<0.01
Error	2286	1338546.71	585.54		
Total	2291				

4.5.1 Influence of Locale on Reaction towards PM e-Vidya Program of Students

The result in respect of influence of Locale on Reaction towards Reaction towards PM e-Vidya Program of students is same as given in Caption 4.2.2.

4.5.2 Influence of State on Reaction towards PM e-Vidya Program of Students

From Table 4.2, it can be seen that the F-Value for State is 3.95 which is significant at 0.05 level with df=1/2286. It indicates that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of students belonging to Assam, Odisha and J & K States. So there is a significant influence of State on Reaction towards PM e-Vidya Program of Students. Thus the null hypothesis that there is no significant influence of State on Reaction towards PM e-Vidya Program of Students is rejected. In order to know Which State students had significantly higher Reaction towards PM e-Vidya Program, the data were further analysed with the help of t-Test and the results are given in Table 4.3.

Table 4.3: State-wise M, SD, N and t-values of Reaction towards PM e-Vidya Program of students

State	M	SD	N	Odisha	J & K
Assam	153.50	19.36	364	4.10**	4.12**
Odisha	148.06	23.31	1419		1.91
J & K	145.47	33.37	509		

** Significant at 0.01 level

From Table 4.3, it can be seen that the t-value for Assam and Odisha states is 4.10 which is significant at 0.01 level with df= 1781. It shows that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Students belonging to Assam and Odisha States. The mean score of Reaction towards PM e-Vidya Program of Assam Students is 153.50 which is significantly higher than Odisha students whose mean score of Reaction towards PM e-Vidya Program is 148.06. It may be said that Assam students were found to have significantly more favourable Reaction towards PM e-Vidya Program as compared to Odisha students.

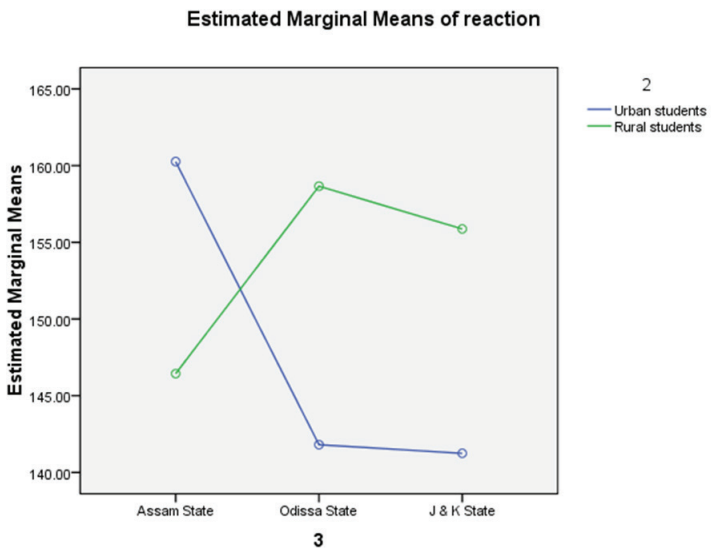
The t-value for Assam and J & K states is 4.12 which is significant at 0.01 level with df= 871 (Vide Table 4.3). It shows that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Students belonging to Assam and J & K States. The mean score of Reaction towards PM e-Vidya Program of Assam Students is 153.50 which is significantly higher than J & K students whose mean score of Reaction towards PM e-Vidya Program is 145.47. It may be said that Assam students were found to have significantly more favourable Reaction towards PM e-Vidya Program as compared to J & K students.

The t-value for Odisha and J & K states is 1.91 which is not significant (Vide Table 4.3). It shows that there is no significant difference in mean scores of Reaction towards PM e-Vidya Program of Students belonging to Odisha and J & K States. It may be said that Odisha students as well as J & K State students were found to have same degree of favourable Reaction towards PM e-Vidya Program.

4.5.3 Influence of Interaction between Locale and State on Reaction towards PM e-Vidya Program of Students

The F-Value for interaction between Locale and State is 58.73 which is significant at 0.01 level with df= 2/2286 (Vide Table 4.2). It indicates that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Urban and Rural Students belonging to States of Assam, Odisha and J & K. So there is a significant influence of interaction between Locale and State on Reaction towards PM e-Vidya Program of Students. Thus the null hypothesis that there is no significant influence of interaction between Locale and State on Reaction towards PM e-Vidya Program of Students is rejected. In order to know the trend of influence of interaction between Locale and State on Reaction towards PM e-Vidya Program of Students, Graph 4.1 has been plotted.

Graph 4.1: Trend of influence of interaction between Locale and State on Reaction towards PM e-Vidya Program of Students



From Graph 4.1, it can be seen that in case of Urban students as the State changes from Assam to Odisha, there is a sharp decline in Reaction towards PM e-Vidya Program of Students but it remains almost the same as state changes from Odisha to J & K. On the other hand, in case of Rural students, as the State changes from Assam to Odisha, there is a sharp increase in Reaction towards PM e-Vidya Program of Students but it declines as the state of students changes from Odisha to J & K. Rural students from Odisha and J & K States while Urban students from Assam State were found to have more favourable Reaction towards PM e-Vidya Program.

4.6.0 Influence of Gender, Locale & Their Interaction on Reaction Towards PM e-Vidya Programme of Teachers

The objective was to study the influence of Gender, Locale and their interaction on Reaction towards PM e-Vidya Program of Teachers. Male and Female were the two levels of Gender and Urban and Rural the two levels of Locale of Teachers. Thus the data were analysed with the help of 2 X 2 Factorial Design ANOVA and the results are given in Table 4.4.

Table 4.4: Summary of 2 X 2 Factorial Design ANOVA of Reaction towards PM e-Vidya Program of Teachers

Source of Variance	df	SS	MSS	F-Value	Remark
Gender (A)	1	7787.97	7787.97	11.43	p<0.01
Locale (B)	1	3797.16	3797.16	5.57	p<0.05
A X B	1	12737.46	12737.46	18.70	p<0.01
Error	489	305831.03	681.14		
Total	492				

4.6.1 Influence of Gender on Reaction towards PM e-Vidya Program of Teachers

From Table 4.4, it can be seen that the F-Value for Gender is 11.43 which is significant at 0.01 level with df=1/489. It indicates that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Male and Female Teachers. So there is a significant influence of Gender on Reaction towards PM e-Vidya Program of Teachers. Thus the null hypothesis that there is no significant influence of Gender on Reaction towards PM e-Vidya Program of Teachers is rejected. Further the mean score of Reaction towards PM e-Vidya Program of Male Teachers is 179.90 which is significantly higher than Female Teachers whose mean score of Reaction towards PM e-Vidya Program is 171.46. It may be said that both Male and Female teachers were found to have favourable Reaction towards PM e-Vidya Program but Male teachers had significantly higher favourable Reaction towards PM e-Vidya Program as compared to Female Teachers.

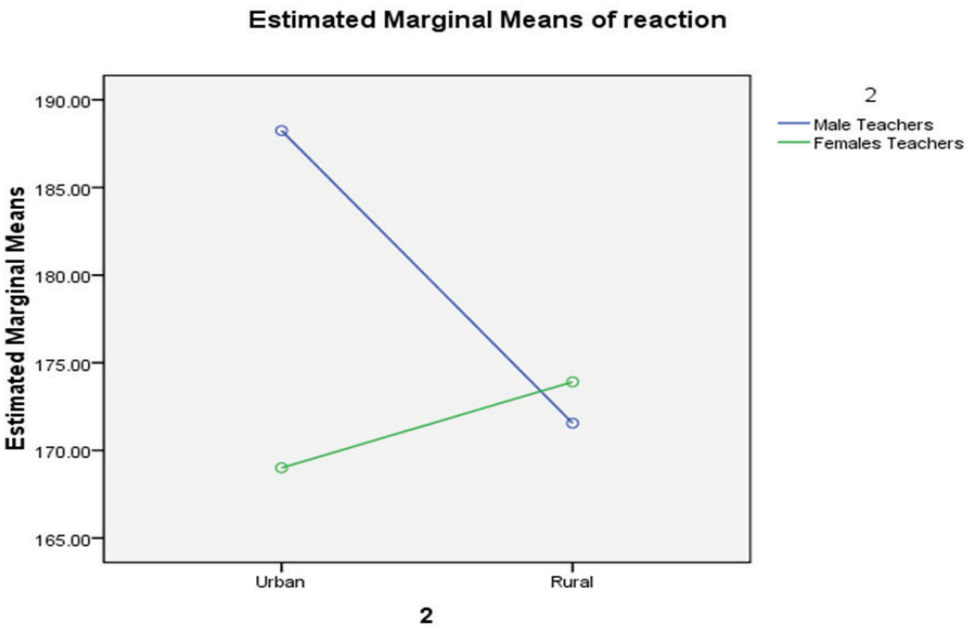
4.6.2 Influence of Locale on Reaction towards PM e-Vidya Program of Teachers

From Table 4.4, it can be seen that the F-Value for Locale is 5.57 which is significant at 0.05 level with df=1/489. It indicates that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Urban and Rural Teachers. So there is a significant influence of Locale on Reaction towards PM e-Vidya Program of Teachers. Thus the null hypothesis that there is no significant influence of Locale on Reaction towards PM e-Vidya Program of Teachers is rejected. Further the mean score of Reaction towards PM e-Vidya Program of Urban Teachers is 178.63 which is significantly higher than Rural Teachers whose mean score of Reaction towards PM e-Vidya Program 172.73. It may be said that both Urban and Rural teachers were found to have favourable Reaction towards PM e-Vidya Program but Urban teachers had significantly higher favourable Reaction towards PM e-Vidya Program as compared to Rural Teachers.

4.6.3 Influence of interaction between Gender and Locale on Reaction towards PM e-Vidya Program of Teachers

The F-Value for interaction between Gender and Locale is 18.70 which is significant at 0.01 level with df=1/449 (Vide Table 4.4). It indicates that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Male and Female Teachers belonging to Urban and Rural Area. So there is a significant influence of interaction between Gender and Locale on Reaction towards PM e-Vidya Program of Teachers. Thus the null hypothesis that there is no significant influence of interaction between Gender and Locale on Reaction towards PM e-Vidya Program of Students is rejected. In order to know the trend of influence of interaction between Gender and Locale on Reaction towards PM e-Vidya Program of Teachers, Graph 4.2 has been plotted.

Graph 4.2: Trend of influence of interaction between Gender and Locale on Reaction towards PM e-Vidya Program of Teachers



From Graph 4.2, it can be seen that in case of Male Teachers as the Locale changes from Urban to Rural, there is a sharp decline in Reaction towards PM e-Vidya Program of Teachers but there is a slight increase in Reaction towards PM e-Vidya Program of Female Teachers. Thus Male Teachers from Urban area were found to have more favourable Reaction towards PM e-Vidya Program as compared to Female Teachers. Also Male and Female Teachers from Rural Area had same degree of favourable Reaction towards PM e-Vidya Program.

4.7.0 Influence of Local, State & Their Interaction on Reaction Towards PM e-Vidya Programme of Teachers

The objective was to study the influence of Locale, State and their interaction on Reaction towards PM e-Vidya Program of Teachers. Urban and Rural were the two levels of Locale while Assam, Odisha and J & K the three states. Thus the data were analysed with the help of 2 X 3 Fcatorial Design ANOVA and the results are given in Table 4.5.

Table 4.5: Summary of 2 X 3 Factorial Design ANOVA of Reaction towards PM e-Vidya Program of Teachers

Source of Variance	df	SS	MSS	F-Value	Remark
Locale (A)	1	3.73	3.73	0.01	ns
State (B)	2	102361.07	51180.54	101.24	p<0.01
A X B	2	4.03	2.02	0.004	ns
Error	447	225978.51	505.54		
Total	452				

ns: Not Significant

4.7.1 Influence of Locale on Reaction towards PM e-Vidya Program of Teachers

The result in respect of influence of Locale on Reaction towards PM e-Vidya Program of Teachers is same as given in caption 4.4.2.

4.7.2 Influence of State on Reaction towards PM e-Vidya Program of Teachers

From Table 4.5, it can be seen that the F-Value for State is 101.24 which is significant at 0.01 level with df=1/447. It indicates that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Teachers belonging to Assam, Odisha and J & K States. So there is a significant influence of State on Reaction towards PM e-Vidya Program of Teachers. Thus the null hypothesis that there is no significant influence of State on Reaction towards PM e-Vidya Program of Teachers is rejected. In order to know Which State Teachers had significantly higher Reaction towards PM e-Vidya Program, the data were further analysed with the help of t-Test and the results are given in Table 4.6.

Table 4.6: State-wise M, SD, N and t-values of Reaction towards PM e-Vidya Program of Teachers

State	M	SD	N	Odisha	J & K
Assam	188.18	22.79	167	14.42**	1.71
Odisha	153.51	19.37	147		11.43**
J & K	183.51	24.81	139		

** Significant at 0.01 level

From Table 4.6, it can be seen that the t-value for Assam and Odisha states is 14.42 which is significant at 0.01 level with df= 312. It shows that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Teachers belonging to Assam and Odisha States. The mean score of Reaction towards PM e-Vidya Program of Assam Teachers is 188.18 which is significantly higher than Odisha Teachers whose mean score of Reaction towards PM e-Vidya Program is 153.51. It may be said that Assam Teachers were found to have significantly more favourable Reaction towards PM e-Vidya Program as compared to Odisha Teachers.

The t-value for Assam and J & K states is 1.71 which is not significant (Vide Table 4.6). It shows that there is no significant difference in mean scores of Reaction towards PM e-Vidya Program of Teachers belonging to Assam and J & K States. The mean scores of Reaction towards PM e-Vidya Program of Assam and J & K Teachers are 188.18 and 183.51. It may be said that both Assam and J & K states Teachers were found to have same degree of favourable Reaction towards PM e-Vidya Program.

The t-value for Odisha and J & K states is 11.43 which is significant at 0.01 level with df= 284 (Vide Table 4.6). It shows that there is a significant difference in mean scores of Reaction towards PM e-Vidya Program of Teachers belonging to Odisha and J & K States. Further the mean score of Reaction towards PM e-Vidya Program of Teachers is 183.51 which is significantly higher than those of Odisha Teachers whose mean score of Reaction towards PM e-Vidya Program is 153.51. It may be said that J & K State Teachers were found to have significantly more favourable Reaction towards PM e-Vidya Program than Odisha Teachers.

4.7.3 Influence of interaction between Locale and State on Reaction towards PM e-Vidya Program of Teachers

From Table 4.5, it can be seen that the F-Value for interaction between Locale and State is 0.004 which is not significant. It shows that there is no significant difference in mean scores of Reaction towards PM e-Vidya Program of Urban and Rural Teachers belonging to Assam, Odisha and J & K States. So there is no significant influence of interaction between Locale and State on Reaction towards PM e-Vidya Program of Teachers. Thus the null hypothesis that there is no significant influence of interaction between Locale and State on Reaction towards PM e-Vidya Program of Teachers is not rejected. It may be said that Reaction towards PM e-Vidya Program of Teachers was found to be independent of interaction between Locale and State.

Chapter V : Results & Findings

5.0 Introduction

This Chapter contains findings and results deduced from the analysis of Data which is done in previous chapter.

5.1 Findings

The following were the findings of the research conducted :

1. Odisha has the highest overall digital infrastructure availability, with superior internet (95%), scheduled TV learning (80%), minimal power issues (10%), and 100% technical support, making it the most digitally equipped state.

2. Assam (85%) and Odisha (75%) have higher usage of smart boards with additional devices, whereas J&K (75%) primarily uses computers with projectors.

3. Both Male and Female students were found to have same degree of favourable Reaction towards PM e-Vidya Program.

4. Rural students were found to have significantly higher degree of favourable Reaction towards PM e-Vidya Program as compared to Urban students.

5. Reaction towards PM e-Vidya Program was found to be independent of interaction between Gender and Locale of students.

6. Assam students were found to have significantly more favourable Reaction towards PM e-Vidya Program as compared to Odisha and J & K States students but Odisha and J & K States students had similar degree of favourable Reaction towards PM e-Vidya Program.

7. Rural students from Odisha and J & K States while Urban students from Assam State were found to have more favourable Reaction towards PM e-Vidya Program.

8. Both Male and Female teachers were found to have favourable Reaction towards PM e-Vidya Program but Male teachers had significantly higher favourable Reaction towards PM e-Vidya Program as compared to Female Teachers.

9. Both Urban and Rural teachers were found to have favourable Reaction towards PM e-Vidya Program but Urban teachers had significantly higher favourable Reaction towards PM e-Vidya Program as compared to Rural Teachers.

10. Male Teachers from Urban area were found to have more favourable Reaction towards PM e-Vidya Program as compared to Female Teachers. Also Male and Female Teachers from Rural Area had same degree of favourable Reaction towards PM e-Vidya Program.

11. Assam as well as J & K Teachers were found to have significantly more favourable Reaction

towards PM e-Vidya Program as compared to Odisha Teachers. Both Assam and J & K states Teachers were found to have same degree of favourable Reaction towards PM e-Vidya Program.

12. Reaction towards PM e-Vidya Program of Teachers was found to be independent of interaction between Locale and State.

Chapter VI : Summary, Findings and Implications

6.0 Introduction

The study has been given in detail in the previous chapters. The present chapter is devoted to Summary, Findings and Implications. The details are being given under different captions.

6.1 Rationale

The spread of Covid-19 led to the nationwide lockdown, which had a major impact on the education sector. With the schools shut down, the government re-imagined the schooling models and the ways in which education can be imparted to students without interruptions. Hence, PM e-VIDYA, a unique and comprehensive initiative was launched by the Ministry of Education in May 2020, aimed at unifying all efforts to enable multi-mode access to education. The initiative under the *'Atmanirbhar Bharat Abhiyan'* aims to benefit 25 crore school children with its comprehensive accessibility. Some of the purposes of PM e-Vidya are given below:

1. To provide multimodal access to learning resources by unifying all efforts related to digital/online/ on-air education.
2. To develop and collate, curate eContent (Audio and Video) from Class 1 to 12 in various regional languages also based on NCERT's and state's curriculum.
3. To conduct feedback studies for feed forward purposes.
4. To conduct a research study in order to explore the efficacy of the PM e-Vidya initiative.

One of the major initiatives of PM e-Vidya is 12 e-Vidya TV Channels based on the motto- 'One Class-One Channel'. These channels cater to classes 1 to 12 and broadcast educational content related to the respective classes. These 12 e-Vidya DTH channels are especially useful for the learners of those remote areas where stable internet is not available. These channels telecast curriculum-based educational content developed by NCERT and other agencies such as NIOS, Rotary, etc.

PM e-Vidya 12 DTH Channels has maintained a feedback mechanism and support system comprising an Interactive Voice Response System (IVRS) and class-wise dedicated email IDs which are extensively used by the learners, teachers and parents for feedback and support. It is noteworthy that the telecast has been widely appreciated by the audience.

It is more than two years now, CIET, NCERT has successfully been running 12 PM e-Vidya TV Channels. The audio programs associated with these channels are being broadcasted through a vast network of 400 channels, which includes 11 Gyanwani FM radios, 132 All India Radio stations, and 257 Community Radios. Additionally, the content is made available as podcasts through platforms like Jio Savan and Radio.

However, the data regarding the categories of beneficiaries (students, teachers, teacher educators, etc.) and their respective numbers are not known yet. It is crucial to gather feedback from these beneficiaries for enhancing the quality of the programs and its delivery, particularly in view of the proposal to expand the existing 12 PM e-Vidya channels to 200 TV channels. In this context, the proposed research study is of significant importance. In this context, the proposed research study is of significant importance.

Therefore, the study entitled "*A study of Reaction towards PM e-Vidya Program of Teachers and Students across the country"* was conducted.

6.2 Objectives

1. To study the availability of infrastructure for accessing the PM e-Vidya (Audio-video) program across schools in India.
2. To study the accessibility of the PM e-Vidya program (Audio-video) across India.
3. To assess and analyze the reaction of stakeholders (students, teachers and teacher educators) towards the PM e-Vidya programme.

6.3 Hypothesis

1. There is no significant influence of Gender, Locale and their interaction on Reaction towards PM e-Vidya Program of Students.
2. There is no significant influence of Locale, State and their interaction on Reaction towards PM e-Vidya Program of Students.
3. There is no significant influence of Gender, Locale and their interaction on Reaction towards PM e-Vidya Program of Teachers.
4. There is no significant influence of Locale, State and their interaction on Reaction towards PM e-Vidya Program of Teachers.

6.4 Research Design

This study employs a **mixed-methods approach** to analyze the accessibility and availability of infrastructure related to the PM e-Vidya program, integrating both quantitative and qualitative methods for a comprehensive understanding of the reactions of teachers and students. The research employs a **survey research design**, a method used to describe what is occurring at a particular point in time. This design is suitable for understanding the current reactions of teachers and students towards the PM e-Vidya program.

Data collection tools comprise a structured reaction scale for quantitative data on reactions to the PM e-Vidya program, an open-ended questionnaire for school heads to provide qualitative insights on accessibility and availability, and a checklist designed by experts to assess the workability and availability of supporting infrastructure. Data analysis involves statistical techniques for quantitative survey responses, thematic analysis for qualitative responses, and compilation of checklist scorers. Ethical considerations include informed consent, confidentiality, and data integrity. The study acknowledges potential limitations such as response bias, limited generalizability, and technological barriers. By employing this mixed-methods approach, the study aims to offer comprehensive insights into the effectiveness of the PM e-Vidya program and the readiness of infrastructure across the country.

6.5 Sample

The sample for this study encompasses a broad geographical scope, involving three different regions: North (Jammu and Kashmir), East (Odisha), and North East (Assam). In total, 60 schools were included, with an equal representation of 20 schools from each of the aforementioned states. The study involves 2260 students from classes 9th and 11th. Additionally, the sample consists of 543 teachers selected from 60 schools.

6.6 Tool

The research tools were meticulously developed through a rigorous workshop conducted by the principal investigator involving experts. It included reaction scales designed for both students and teachers, employing a five-point rating scale to assess their reactions towards the PM e-Vidya programs. Additionally, a questionnaire having closed ended as well as open ended questions is formulated to gather data from school principals/heads/teachers, focusing on the availability of devices, utility of devices, readiness of school infrastructure and training for accessing the PM e-Vidya program. Furthermore, a distinct checklist was created for field investigators to evaluate the availability and workability of essential infrastructure items necessary for the PM e-Vidya program. The details are given separately in the following captions.

Questionnaire for Teachers/School Heads to assess various aspects of PM e-Vidya Program. It includes multiple choice answer, yes/no type questions, multiple selection answer and open ended questions as well.

Reaction towards PM e-Vidya Program Scale for Teachers. This scale is developed for accessing Teachers Reaction towards the PM e-Vidya Program. There are 51 statements related to different aspects of the PM e-Vidya program. Against each statement a five point scale is given. The five points are Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SD).

Reaction towards PM e-Vidya Program Scale for Students. This scale is developed for accessing Students Reaction towards the PM e-Vidya Program. There are 45 statements related to different aspects of the PM e-Vidya program. Against each statement, a five point scale is given. The five points are Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SD).

Checklist for Infrastructural facilities for PM e-Vidya Program. This checklist consists of 13 items related to different aspects of essential infrastructure needed for PM e-Vidya Program. The investigators need to verify their availability and workability during the field visit.

6.7 Procedure of Data Collection

After coordinating with the State Project Directors (SPDs) of each state, a list of 20 schools per state was allocated for data collection. The researcher visited these schools in person to complete a checklist assessing the availability and functionality of the infrastructure for TV/ radio programs. A questionnaire was distributed to the school heads/In-charge, and a reaction scale was given to teachers and students to gather their feedback on the PM e-Vidya program.

6.8 Data Analysis

Quantitative data obtained from the reaction scales of both teachers and students have been analyzed using statistical methods, including Factorial Design ANOVA and t-tests, to determine significant differences and interactions among the groups.

In addition, qualitative data was examined through thematic analysis, which involves identifying, analyzing, and reporting patterns (themes) within the data. This dual approach allows for a comprehensive understanding of the participants' experiences and perceptions regarding the PM e-Vidya program, thereby providing insights that complement the quantitative findings.

6.9 Findings

The following findings are organized according to each Research Objective.

1. To Study the Availability of Infrastructure for Accessing the PM e-Vidya Program (Audio-video) Across Schools in India.

- Odisha has the highest overall digital infrastructure availability, with superior internet (95%), scheduled TV learning (80%), minimal power issues (10%), and 100% technical support, making it the most digitally equipped state.
- All schools (100%) have digital devices for basic access. Assam and Odisha have smart boards, computers, and TVs, while J&K relies on projectors and computers.
- Radio is rarely used—5% in Assam, 10% in Odisha, and none in J&K.
- DTH access is highest in Odisha (20%), followed by J&K (10%), with none in Assam.
- Power supply issues affect Assam (30%) and J&K (25%) more than Odisha (10%).
- Internet connectivity is strongest in Odisha (95%), followed by Assam (90%) and J&K (75%). TV viewing rooms exist in all Assam and Odisha schools, while 90% of J&K schools have similar spaces, though some use alternatives. Technical support is fully available in Assam and Odisha but low in J&K (40%).
- Scheduled TV-based learning is highest in Odisha (80%), compared to Assam and J&K (35% each).
- No state schedules radio-based learning. Special support for children with special needs in TV rooms exists only in Odisha (15%).
- Funding for device maintenance is highest in J&K (60%), followed by Assam (40%) and Odisha (20%).

2. To study the accessibility of the PM e-Vidya program (Audio-video) across India.

- Assam (85%) and Odisha (75%) have higher usage of smart boards with additional devices, whereas J&K (75%) primarily uses computers with projectors.

- J&K has the highest numbers (90%) of schools with all necessary classroom arrangements (seating, lighting, ventilation, and fans), followed by Assam (75%), while Odisha has the lowest (45%), with 55% of schools missing one or more arrangements.

- J&K has the highest daily usage (45%) of the PM e-Vidya Program, significantly higher than Assam (25%) and Odisha (5%).

- J&K has the highest proportion of schools (45%) watching educational programs for 2 hours per week, while most schools in Assam (55%) and Odisha (95%) watch for less than 1 hour per week.

- Odisha leads in teacher training participation (75%), followed by J&K (60%) and Assam (50%).

- J&K satisfactorily integrates pre and post-telecast activities (80%), followed by Assam (70%), while Odisha has the lowest implementation (45% pre, 35% post).

- J&K has the highest proportion of schools (85%) implementing active student engagement strategies, followed by Assam and Odisha (70% each).

3. To Assess and Analyze the Reactions of Stakeholders (Students and Teachers) Towards the PM e-Vidya Program.

- Both Male and Female students were found to have the same degree of favourable Reaction towards PM e-Vidya Program.

- Rural students were found to have significantly higher degree of favourable Reaction towards PM e-Vidya Program as compared to Urban students.

- Reaction towards PM e-Vidya Program was found to be independent of interaction between Gender and Locale of students.

- Assam students were found to have significantly more favourable Reaction towards PM e-Vidya Program as compared to Odisha and J & K States students but Odisha and J & K States students had similar degree of favourable Reaction towards PM e-Vidya Program.

- Rural students from Odisha and J&K and urban students from Assam expressed more favorable reactions to the program.

- Both Male and Female teachers were found to have favourable Reaction towards PM e-Vidya Program but Male teachers had significantly higher favourable Reaction towards PM e-Vidya Program as compared to Female Teachers.

- Both Urban and Rural teachers were found to have favourable Reaction towards PM e-Vidya Program but Urban teachers had significantly higher favourable Reaction towards PM e-Vidya Program as compared to Rural Teachers.

- Male Teachers from Urban area were found to have more favourable Reaction towards PM e-Vidya Program as compared to Female Teachers. Also Male and Female Teachers from

Rural Area had same degree of favourable Reaction towards PM e-Vidya Program.

- Assam as well as J & K Teachers were found to have significantly more favourable Reaction towards PM e-Vidya Program as compared to Odisha Teachers. Both Assam and J & K states Teachers were found to have same degree of favourable Reaction towards PM e-Vidya Program.

- Reaction towards PM e-Vidya Program of Teachers was found to be independent of interaction between Locale and State.

6.10 Conclusion

The analysis of the availability and accessibility of digital infrastructure across schools in Assam, Odisha, and Jammu & Kashmir highlights significant progress as well as distinct areas requiring improvement. The findings reveal significant disparities in infrastructure, technological accessibility and engagement levels among students and teachers, emphasizing the need for targeted interventions to enhance the program's effectiveness.

The availability of essential digital infrastructure, including projectors, computers, and smart classrooms, is a key indicator of digital readiness across schools. While all three states ensure access to basic digital tools, the extent of advanced technological integration varies significantly. Assam emerges as a leader in smart class implementation, with a higher proportion of schools utilizing interactive digital learning environments. However, the lack of DTH connections and minimal use of radio-based education limits access to diverse educational content. Additionally, 30% of schools in Assam experience power supply issues, which disrupt seamless program delivery. In contrast, Odisha has DTH connections in 20% of schools, facilitating better access to satellite-broadcast educational content. However, the limited presence of radio-based learning mirrors the trends seen in Assam. Odisha's structured scheduling of TV-based educational content, with 80% of schools ensuring scheduled viewing for classes 9th and 11th, indicates better integration of digital learning into school routines. Yet, the reliance on general school funds for device maintenance highlights financial constraints that may impact the sustainability of digital education. Jammu & Kashmir presents a varied picture, with basic digital tools available but lower penetration of smart classes and DTH connections. Schools in the region face significant challenges in power supply stability and internet connectivity, with many institutions reporting frequent disruptions. The absence of scheduled TV viewing and lack of technical support in over 50% of schools further hinders effective digital learning. The lack of inclusive facilities for children with special needs in TV viewing rooms across all states highlights a pressing concern regarding accessibility and equity in digital education. These findings emphasize the importance of infrastructure development and technical support in ensuring consistent and uninterrupted digital education. Without a stable power supply, internet connectivity, and well-maintained digital tools, the full potential of e-learning remains underutilized, particularly in remote and underserved areas.

The reaction of students towards the PM e-Vidya Program is a crucial measure of the program's effectiveness and acceptance. The findings indicate that both male and female students exhibit an equally favorable response, suggesting that gender is not a determining factor in digital education acceptance. However, rural students demonstrate a significantly higher degree of enthusiasm compared to their urban counterparts. This trend suggests that students in rural areas, who often have limited access to traditional educational resources, perceive digital learning as a valuable and engaging supplement to their studies. When analyzing state-wise differences, students in Assam expressed the highest level of favorability, while those in Odisha and J&K exhibited a similar degree of acceptance. This variation may be influenced by factors such as the availability of structured TV-based learning schedules, power supply stability, and digital infrastructure. Interestingly, rural students from Odisha and J&K, along with urban students from Assam, showed the most enthusiasm, underscoring how regional and infrastructural disparities shape students' perceptions and engagement with digital education.

Teachers also responded positively to the PM e-Vidya Program, but male teachers exhibited significantly higher enthusiasm compared to female teachers. This finding suggests that gender-based differences in digital adaptability, confidence, or familiarity with technology might influence perceptions of the program. Similarly, urban teachers responded more favorably than rural teachers, likely due to better access to training, resources, and technical support in urban settings. Within the urban demographic, male teachers showed a more favorable response than female teachers, whereas in rural areas, both male and female teachers had an equal level of acceptance. The state-wise analysis of teacher responses reveals that teachers from Assam and J&K had a more favorable reaction compared to those from Odisha, yet their reactions were independent of locale and state interactions. This suggests that factors such as digital accessibility, infrastructure quality, and training availability play a more significant role in shaping teacher perceptions than geographical location alone.

The findings of this study highlight the critical role of infrastructure, accessibility, and engagement strategies in determining the success of digital learning initiatives. The variation in digital infrastructure availability across states underscores the need for targeted investments in technology, power supply stability, and internet connectivity, particularly in regions like J&K, where disruptions hinder consistent digital education delivery. The study also emphasizes the importance of structured digital learning schedules and technical support, as seen in Odisha, where a higher prevalence of scheduled TV-based education positively influences student engagement. The stronger acceptance of digital learning in rural areas suggests that e-learning can serve as a powerful tool to bridge educational gaps, especially in regions where access to traditional learning resources is limited. However, the higher enthusiasm among urban teachers and male educators points to the need for inclusive training programs that ensure equitable digital adaptability across all demographics.

In conclusion, while the foundational digital infrastructure is in place across all three states, gaps in advanced digital tools, structured implementation, technical support, and inclusivity remain significant barriers to maximizing the impact of the PM e-Vidya Program. Addressing these challenges through targeted policy interventions, improved infrastructure investment, and inclusive training programs is essential to ensuring equitable access to quality digital education for both students and teachers.

6.11 Suggestions

The study on the PM e-Vidya program highlights its significant impact on fostering digital learning among students and teachers across India while also identifying critical gaps in its implementation. The program has garnered favorable reactions from stakeholders, with rural students showing a higher degree of satisfaction compared to urban students and male teachers expressing more favorable reactions than their female counterparts. Assam emerged as a leader in digital readiness with the widespread adoption of smart classrooms, although challenges such as inadequate DTH connections, limited radio usage, and power supply issues persist. Odisha showcased a structured approach to TV-based learning, yet gaps in inclusive practices and reliance on general school funds for maintenance were evident. Jammu & Kashmir faced notable challenges, including limited smart classrooms, poor internet connectivity, and insufficient technical support. Across all states, the absence of provisions for children with special needs and inconsistent use of radio and TV-based learning hindered program accessibility. Despite these shortcomings, the program has enhanced exposure to technology-driven education, benefiting students and teachers alike. To maximize its impact, efforts should focus on expanding infrastructure like smart classrooms and DTH connections, addressing power and connectivity issues, providing technical support, and ensuring inclusive practices for all learners. By overcoming these challenges, the PM e-Vidya program can achieve its vision of equitable and quality digital education across India.

To bridge the gaps identified in the availability and accessibility of digital infrastructure in schools across Assam, Odisha, and Jammu & Kashmir, a multifaceted approach is necessary. The following suggestions aim to enhance the overall effectiveness and inclusivity of digital learning in these regions:

1. **Expand Smart Class Integration:** Efforts should be made to increase the adoption of smart classes in Odisha and Jammu & Kashmir. This can be achieved through targeted funding, teacher training programs, and partnerships with technology providers to ensure that all schools have access to advanced digital learning environments.

2. **Enhance Connectivity and Access to Diverse Content:** The lack of DTH connections in Assam and the limited availability in Jammu & Kashmir should be addressed by facilitating the installation of satellite dishes and providing subscriptions to educational channels. Additionally, the potential of radio as an educational tool should be explored and promoted, especially in areas with limited internet access.

3. **Improve Power Supply Stability:** To mitigate power supply issues, particularly in Assam and Jammu & Kashmir, investments in reliable power backup solutions such as solar panels and inverters should be prioritized. This will ensure uninterrupted digital learning sessions.

4. **Strengthen Internet Connectivity:** While most schools in the three states have proper internet connectivity, the remaining gaps, especially in Jammu & Kashmir, need to be closed. Collaboration with telecom providers to extend broadband services to remote areas and provide affordable data plans for schools is essential.

5. **Provide Technical Support:** Comprehensive technical support should be made available to all schools. This can be achieved through dedicated helpdesks, regular maintenance visits, and training programs for school staff to troubleshoot basic technical issues.

6. **Schedule and Structure Digital Learning:** The adoption of structured schedules for TV and radio-based educational content should be encouraged across all schools. This can be facilitated by integrating such content into the curriculum and providing guidelines and resources to teachers for pre- and post-telecast activities.

7. **Inclusive Educational Practices:** Special support for children with special needs should be incorporated into the design and setup of TV viewing rooms and other digital learning environments. This includes providing assistive devices, tailored content, and trained staff to support inclusive learning.

8. **Ensure Sustainable Funding:** Schools should be provided with dedicated funds for the maintenance and upgrading of digital infrastructure. This can be achieved through government grants, private sector partnerships, and community funding initiatives. Ensuring consistent financial support is crucial for the long-term sustainability of digital learning programs.

9. **Teacher Training and Capacity Building:** Regular training sessions and workshops for teachers on using digital tools effectively should be institutionalized. This includes training on integrating digital content into lesson plans, managing digital classrooms, and using data to enhance teaching and learning outcomes.

10. **Monitor and Evaluate:** Establish a robust monitoring and evaluation framework to track the implementation and impact of digital learning initiatives. Regular assessments, feedback mechanisms, and data-driven decision-making will help in identifying areas of improvement and ensuring that the digital infrastructure meets the evolving needs of students and teachers.

6.12 Implications

This study has implications for Researchers, Educational Planners, Heads, Teachers, and Students. The details are as given below:

- **For Researchers**

The study underscores the critical role of accessibility and infrastructure in the effectiveness of digital education programs like PM e-Vidya. Researchers can explore the impact of infrastructure quality on educational outcomes, particularly in diverse socio-economic and geographic contexts. The findings also highlight the importance of mixed-methods approaches in capturing both quantitative and qualitative aspects of program implementation and user experiences. Future research can build on this study to examine long-term effects, scalability, and the integration of digital education tools in traditional learning environments.

- **For Teachers**

Teachers benefit from understanding the specific factors that influence the accessibility and effectiveness of the PM e-Vidya program. The research provides insights into the barriers and facilitators of digital education, enabling teachers to better navigate and utilize available resources. The findings can be used to improve professional development programs focused on enhancing digital literacy and pedagogical skills related to online teaching. Teachers can also advocate for necessary infrastructure improvements and support, ensuring that they and their students can fully engage with digital learning platforms.

- **For School Heads**

The study offers valuable data on the current state of digital infrastructure in schools, highlighting areas that require attention to improve the accessibility and effectiveness of PM e-Vidya. School heads can use this information to prioritize investments in technology and connectivity, ensuring that all students have equitable access to digital education. The qualitative insights from school heads across different regions provide practical strategies for overcoming common challenges. Additionally, the findings can support data-driven decision-making and strategic planning to enhance the overall educational environment and support staff and students effectively.

- **For Students**

Students' experiences and feedback are central to understanding the effectiveness of the PM e-Vidya program. The research highlights the need for accessible and engaging digital content that caters to diverse learning needs. The findings can inform the development of student-centric digital resources and support systems, ensuring that students can effectively engage with and benefit from the program. By addressing accessibility issues and improving the quality of digital learning materials, the study aims to enhance students' overall educational experience and outcomes.

- **For Policymakers and Educational Authorities**

Policymakers and educational authorities can leverage the study's findings to develop and implement policies that address the digital divide and improve the accessibility and effectiveness of digital education programs like PM e-Vidya. The research provides evidence-based insights into the infrastructure needs and challenges faced by schools, guiding resource allocation and policy formulation. By addressing the identified gaps and barriers, policymakers can ensure that digital education initiatives are inclusive and effective, reaching all students regardless of their socio-economic or geographic background.

- **For Technology Providers**

The study offers technology providers insights into the specific needs and challenges faced by educational institutions in implementing digital education programs. By understanding the barriers to accessibility and effectiveness, technology providers can tailor their products and services to better support schools and educators. The research highlights the importance of user-friendly, reliable, and scalable digital solutions that can enhance the learning experience for students and facilitate effective teaching practices.

- **Overall Impact**

The comprehensive insights from this study on the accessibility and effectiveness of the PM e-Vidya program can drive significant improvements in digital education. By addressing the needs and challenges of various stakeholders, the research promotes a collaborative approach to enhancing digital learning environments. The implications drawn from this study serve as a valuable resource for fostering innovation, equity, and quality in digital education, ultimately leading to better educational outcomes for all students.

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Appendices

Appendix I

विद्यार्थियों के लिए पी एम ई-विद्या कार्यक्रम के प्रति प्रतिक्रिया मापनी

Reaction towards PM e-Vidya Program Scale for Students

विद्यार्थी का नाम Name of the Student.....

लिंग Gender: पुरुष M ( ) महिला F ( ) अन्य Others ( )

विद्यालय का नाम Name of the School- .....

विद्यालय का पता Address of the School - .....

राज्य State-.....जिला District-.....

विद्यालय का प्रकार Type of school - अशासकीय Private ( ) शासकीय Govt. ( )

दिव्यांग जन Person with Special Need- हाँ Yes ( ) नहीं No ( )

निर्देश

यह मापनी पी एम ई-विद्या कार्यक्रम के प्रति आपकी प्रतिक्रिया जानने के लिए विकसित की गई है। इसमें **पी एम ई-विद्या कार्यक्रम** के विभिन्न पहलुओं से संबंधित 45 कथन हैं। प्रत्येक कथन के सामने पाँच बिन्दुओं की मापनी दी गयी है । पाँच बिंदु हैं- पूर्णतः सहमत (पू स), सहमत (स), अनिर्णीत (अ), असहमत (अस) और पूर्णतः असहमत (पू अ)। आपसे अनुरोध है कि प्रत्येक कथन को ध्यान से पढ़ें और एक उपयुक्त विकल्प पर सही (✓) का निशान लगाएँ जो पीएम ई-विद्या कार्यक्रम के प्रति आपकी प्रतिक्रिया को सबसे अच्छी तरह दर्शाता हो। आपकी प्रतिक्रियाएँ गोपनीय रखी जाएँगी और केवल शोध के लिए उपयोग की जाएँगी।

Instructions

This scale is developed for accessing your Reaction towards the PM e-Vidya Program. There are 45 statements related to different aspects of the **PM e-Vidya program**. Against each statement a five point scale is given. The five points are Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SD). You are requested to read each statement carefully and put a tick (✓) on an appropriate alternative which best represents your Reaction towards PM e-Vidya Program. Your responses will be kept confidential and used only for research.

क्र. सं. S. No.	कथन Statements	पू स S A	स A	अ U	अस D	पू अ S D
1	पी एम ई-विद्या कार्यक्रम में विषय वस्तु को सरल शब्दों में प्रस्तुत किया गया है। The subject matter in the PM e-Vidya Program is presented in simple words.					

2	विषय वस्तु को तार्किक क्रम में प्रस्तुत नहीं किया गया है। The subject matter is not presented in a logical sequence.					
3	कार्यक्रम की विषयवस्तु निर्धारित पाठ्यक्रम के अनुसार है। The subject matter of the program is as per the prescribed syllabus.					
4	कार्यक्रमों में प्रस्तुतकर्ता के उच्चारण से विषय वस्तु को समझना कठिन हो जाता है। The presenter's accent in the program makes the subject matter difficult to understand.					
5	मेरे लिए विषय वस्तु को समझना आसान है। It is easy for me to understand the subject matter.					
6	कार्यक्रमों में शब्दों का उच्चारण शुद्ध नहीं है। The pronunciation of the words is not accurate in the programs.					
7	प्रयुक्त तकनीकी शब्दों को सरल शब्दों में समझाया गया है। Technical terms used are explained in simple words.					
8	प्रस्तुति की अवधि मेरे लिए उपयुक्त नहीं है। The duration of the presentation is not appropriate for me.					
9	कार्यक्रम में विषय वस्तु को प्रवाह रेखाचित्रों के माध्यम से प्रस्तुत किया गया है। The subject matter is presented through flow diagrams in the program.					
10	कार्यक्रमों में प्रस्तुति अचानक शुरू हो जाती है। The presentation started abruptly in the programs.					
11	प्रस्तुतकर्ता ने सिखाई गई अवधारणा की आवश्यक विशेषताओं को स्पष्ट रूप से सूचीबद्ध किया। The presenter clearly listed the essential characteristics of the concepts taught.					
12	प्रस्तुतकर्ता प्रस्तुति समाप्त करने से पहले पाठ को संक्षेप में प्रस्तुत नहीं करते हैं। The presenters do not summarize the lesson before closing the presentation.					
13	प्रस्तुतकर्ता ने वर्तमान विषय को पिछले विषय से जोड़कर पढ़ाया। The presenter teaches the present topic by linking it with the previous topic.					
14	कार्यक्रमों में प्रयुक्त ऑडियो दृश्यों का तालमेल नहीं है। The audio used in the lesson does not synchronize well with the visuals in the program.					

15	कार्यक्रमों में दिखाए गए दृश्य साफ़ दिखाई देते हैं। The visuals shown are clearly visible in the program.					
16	प्रस्तुतकर्ता की आवाज़ में कोई उतार चढ़ाव नहीं है। There is no modulation in the voice of the presenter.					
17	कार्यक्रमों में प्रस्तुत एनिमेशन मुझे विषय वस्तु को समझने में मदद करते हैं। The animations of the program help me in understanding the subject matter.					
18	कार्यक्रमों में आवाज़ साफ़ सुनाई नहीं देती है। The voice in the programs is not clearly audible.					
19	एनिमेशन के माध्यम से की गई व्याख्या रुचिकर है। Explanation done through animations is interesting.					
20	स्क्रीन पर प्रदर्शित विषय वस्तु थोड़े समय के लिए ही रहती है। The subject matter displayed on the screen stays only for a short duration.					
21	कार्यक्रमों में दिखाए गए दृश्य मुझे विषय वस्तु को समझने में मदद करते हैं। The visuals shown in the program help me in understanding the subject matter.					
22	कार्यक्रम के वीडियो दृश्य विकृति से मुक्त नहीं हैं। Videos of programs are not free from visual distortion.					
23	कैप्शन मुझे सीखने में मदद करते हैं। Captions help me in learning.					
24	प्रस्तुतियों की गति मेरे लिए उपयुक्त नहीं है। The speed of presentations is not appropriate for me.					
25	प्रस्तुति में प्रयुक्त उदाहरण दैनिक जीवन से संबंधित हैं। Examples used are related to day to day life.					
26	अवधारणा को समझाने के लिए उपयोग किए गए उदाहरण प्रासंगिक नहीं हैं। Examples used to explain the concepts are not relevant.					
27	प्रस्तुतकर्ता ने उदाहरण के तौर पर मूर्त वस्तुओं का उपयोग किया। The presenter used concrete objects as an example.					
28	प्रस्तुतिकरण में पाठ्यपुस्तकों के उदाहरणों का प्रयोग किया जाता है। Examples of the textbooks are used in presentations.					

29	प्रस्तुति के दौरान उपयोग की जाने वाली श्रव्य -दृश्य सामग्री मुझे विषय वस्तु को समझने में मदद करती है। Audio-Video aids used during presentations help me in understanding the subject matter.					
30	प्रस्तुतिकरण के दौरान प्रयुक्त श्रव्य -दृश्य सहायक सामग्री स्पष्ट रूप से दिखाई नहीं देती हैं। Audio-Video aids used during presentation are not clearly vis-					
31	श्रव्य -दृश्य सहायता के उपयोग के माध्यम से, प्रस्तुतकर्ता ने मेरी रुचि बरकरार रखी। Through the use of Audio-Video aids, the presenter sustained my interest.					
32	मैं बिना पढ़े जवाब दे रहा/रही हूँ । I am responding without reading.					
33	फ़ॉन्ट का आकार इतना बड़ा नहीं है कि पढ़ा जा सके। The font size is not large enough to be read.					
34	कार्यक्रमों में प्रस्तुत ग्राफ़िक्स विषय वस्तु को समझने में सहायक हैं। The graphics presented in the program are helpful in understanding the subject matter.					
35	प्रस्तुतीकरण में प्रयुक्त ग्राफ़िक्स आकर्षक नहीं हैं। The graphics used in the presentation are not attractive.					
36	प्रस्तुतकर्ता ने चित्र बनाने के लिए डिजिटल बोर्ड का प्रभावी ढंग से उपयोग किया। The presenter used the digital board effectively to draw diagrams.					
37	कार्यक्रमों में आरेख/चित्र ठीक से लेबल नहीं किए गए हैं। The diagrams/figures used in the programs are not labeled properly.					
38	प्रस्तुतीकरण के अंत में मेरे ज्ञान का परीक्षण करने के लिए प्रश्न दिए गए हैं। At the end of the presentation, questions are given to test my knowledge.					
39	प्रस्तुतीकरण के अंत में मेरी समझ को परखने के लिए प्रश्न नहीं दिए गए हैं। At the end of the presentation, questions are not given to test my					
40	पी एम ई-विद्या कार्यक्रम में प्रस्तुतकर्ता सही जानकारी देता है। The presenter gives correct information in the PM e-Vidya program.					

41	प्रस्तुतकर्ता के हाव-भाव मुझे विषय वस्तु को समझने में मदद नहीं करते हैं। The presenter's gestures do not help me in understanding the subject matter.					
42	प्रस्तुतकर्ता आत्मविश्वास के साथ पढ़ाता है। Presenter teaches with confidence.					
43	प्रस्तुतकर्ता का संचलन अप्रासंगिक है। There are irrelevant movements of the presenter .					
44	कार्यक्रम दृश्यगत रूप से समृद्ध हैं। Programs are visually enriched.					
45	मेरे प्रश्नों का सीधे प्रसारण में संतोषजनक उत्तर नहीं दिया गया। My queries were not answered satisfactorily during the live session.					

Appendix II

शिक्षकों के लिए पी एम ई-विद्या कार्यक्रम के प्रति प्रतिक्रिया मापनी

Reaction towards PM e-Vidya Program Scale for Teachers

शिक्षक का नाम Name of the Teacher- .....

Gender लिंग- पुरुष M ( ) महिला F ( ) अन्य Others ( )

विद्यालय का नाम Name of the School- .....

विद्यालय का पता Address of the School- .....

जिला District- ..... राज्य State-.....

विद्यालय का प्रकार Type of school - अशासकीय Private ( ) शासकीय Govt.( )

दिव्यांग जन Person with Disability- हाँ Yes ( ) नहीं No ( )

निर्देश

यह मापनी पी एम ई-विद्या कार्यक्रम के प्रति आपकी प्रतिक्रिया जानने के लिए विकसित की गई है। इसमें पी एम ई-विद्या कार्यक्रम के विभिन्न पहलुओं से संबंधित 51 कथन हैं। प्रत्येक कथन के सामने पाँच बिन्दुओं की मापनी दी गई है ।पाँच बिंदु हैं- पूर्णतः सहमत (पू स), सहमत (स), अनिर्णीत (अ), असहमत (अस) और पूर्णतः असहमत (पू अ)। आपसे अनुरोध है कि प्रत्येक कथन को ध्यान से पढ़ें और एक उपयुक्त विकल्प पर सही (✓) का निशान लगाएँ जो पीएम ई-विद्या कार्यक्रम के प्रति आपकी प्रतिक्रिया को सबसे अच्छी तरह दर्शाता हो। आपकी प्रतिक्रियाएँ गोपनीय रखी जाएँगी और केवल शोध के लिए उपयोग की जाएँगी।

Instructions

This scale is developed for accessing your Reaction towards the PM e-Vidya Program. There are 51 statements related to different aspects of the **PM e-Vidya program**. Against each statement a five point scale is given. The five points are Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SD). You are requested to read each statement carefully and put a tick (✓) on an appropriate alternative which best represents your Reaction towards PM e-Vidya Program. Your responses will be kept confidential and used only for research.

क्र. सं. S. No.	कथन Statements	पू स SA	स A	अ U	अस D	पू अ S D
1	पी एम ई-विद्या कार्यक्रम में विषय वस्तु को सरल शब्दों में प्रस्तुत किया गया है। The subject matter in the PM e-Vidya Program is presented in simple words.					
2	विषय वस्तु को तार्किक क्रम में प्रस्तुत नहीं किया गया है। The subject matter is not presented in a logical sequence.					

3	कार्यक्रम की विषय वस्तु निर्धारित पाठ्यक्रम के अनुसार है। The subject matter of the program is as per the prescribed syllabus.					
4	कार्यक्रमों की विषय-वस्तु आधुनिक नहीं है। The subject matter of the programs is not up to date.					
5	विद्यार्थियों को विषय वस्तु समझने में आसानी होती है। It is easy for students to understand the subject matter.					
6	कार्यक्रमों में प्रयुक्त तकनीकी शब्दों को सरल शब्दों में नहीं समझाया गया है। Technical terms used in the programs are not explained in simple words.					
7	कार्यक्रम में विषय वस्तु को प्रवाह रेखाचित्रों के माध्यम से प्रस्तुत किया जाता है। The subject matter is presented through flow diagrams in the program.					
8	वीडियो कार्यक्रमों में विषय वस्तु को सतही स्तर पर प्रस्तुत किया गया है। In video programs, the subject matter has been presented at a superficial level.					
9	कार्यक्रमों में दिखाए गए दृश्य साफ़ दिखाई देते हैं। The visuals shown are clearly visible in the program.					
10	प्रस्तुतकर्ता के उच्चारण से विषय वस्तु को समझना कठिन हो जाता है। The presenter's accent makes the subject matter difficult to understand.					
11	कार्यक्रमों में प्रस्तुत एनिमेशन छात्रों को विषय वस्तु को समझने में मदद करते हैं। The animations of the program help students in understanding the subject matter.					
12	प्रस्तुतियों की गति छात्रों के लिए उपयुक्त नहीं है। The speed of presentations is not appropriate for students.					
13	कार्यक्रमों में दिखाए गए दृश्य छात्रों को विषय वस्तु को समझने में मदद करते हैं। The visuals of the program help students in understanding the subject matter.					

14	स्क्रीन पर प्रदर्शित विषय वस्तु थोड़े समय के लिए ही रहती है। The subject matter displayed on the screen stays only for a short duration.					
15	एनिमेशन के माध्यम से की गई व्याख्या रुचिकर है। Explanation done through animations is interesting.					
16	प्रस्तुतकर्ता प्रस्तुति बंद करने से पहले पाठ का सारांश नहीं बताता। The presenter does not summarize the lesson before closing the presentation.					
17	प्रस्तुतकर्ता वर्तमान विषय को पिछले विषय से जोड़कर पढ़ाते हैं। The presenter teaches the present topic by linking it with the previous topic.					
18	कार्यक्रम लिंग तटस्थ नहीं हैं। Programs are not gender neutral.					
19	प्रस्तुतकर्ता ने सिखाई गई अवधारणा की आवश्यक विशेषताओं को स्पष्ट रूप से सूचीबद्ध किया। The presenter clearly listed the essential characteristics of the concepts taught.					
20	कार्यक्रमों में शब्दों का उच्चारण शुद्ध नहीं है। The pronunciation of the words is not accurate in the programs.					
21	कार्यक्रम दृष्टिगत रूप से समृद्ध है। The program is visually enriched.					
22	कार्यक्रमों में प्रस्तुति अचानक शुरू हो गई। The presentation started abruptly in the programs.					
23	प्रस्तुतकर्ता के हाव-भाव छात्रों को विषय वस्तु को समझने में मदद करते हैं। The presenter's gestures help students in understanding the subject matter.					
24	कार्यक्रमों में प्रस्तुत ग्राफ़िक्स छात्रों को विषय वस्तु को समझने में सहायक हैं। The graphics in the programs help students in understanding the subject matter.					
25	फ़ॉन्ट का आकार इतना बड़ा नहीं है कि पढ़ा जा सके। The font size is not large enough to be read.					

26	प्रस्तुतकर्ता ने चित्र बनाने के लिए डिजिटल बोर्ड का प्रभावी ढंग से उपयोग किया। The presenter used a digital board effectively to draw diagrams.					
27	कार्यक्रम के वीडियो दृश्य विकृति से मुक्त नहीं हैं। The videos of the programs are not free from visual distortion.					
28	कार्यक्रम में कैप्शन छात्रों को सीखने में मदद करते हैं। Captions in the program help students in learning.					
29	कार्यक्रमों में प्रयुक्त ऑडियो दृश्यों का तालमेल नहीं है। The audio used in the lesson does not synchronize well with the visuals in the program.					
30	प्रस्तुतकर्ता की आवाज़ में कोई उतार चढ़ाव नहीं है। There is no modulation in the voice of the presenter .					
31	मैं बिना पढ़े जवाब दे रहा/रही हूँ । I am responding without reading.					
32	कार्यक्रम में प्रयुक्त उदाहरण विद्यार्थियों के दैनिक जीवन से संबंधित हैं। Examples used in the programs are related to the day to day life of students.					
33	प्रस्तुतिकरण में प्रयुक्त ग्राफ़िक्स आकर्षक नहीं हैं। The graphics used in the presentation are not attractive.					
34	प्रस्तुति के दौरान उपयोग की जाने वाली श्रव्य -दृश्य सहायक सामग्री छात्रों को विषय वस्तु को समझने में मदद करते हैं। Audio-Video aids used during presentations help students in understanding the subject matter.					
35	कार्यक्रमों में आरेख/चित्र ठीक से लेबल नहीं किए गए हैं। The diagrams/figures used in the programs are not labeled properly.					
36	प्रस्तुतकर्ता ने उदाहरण के तौर पर मूर्त वस्तुओं का उपयोग किया। Presenter used concrete objects as an example.					
37	अवधारणा को समझाने के लिए उपयोग किए गए उदाहरण प्रासंगिक नहीं हैं। Examples used to explain concepts are not relevant.					

38	टीवी/रेडियो कार्यक्रम ने विशेष आवश्यकता वाले बच्चों के लिए विषय वस्तु की पहुँच में सुधार किया है। TV/Radio programs have improved the accessibility of subject matter for children with special needs.					
39	प्रस्तुति की अवधि छात्रों के लिए उपयुक्त नहीं है। The duration of the presentation is not appropriate for students.					
40	टीवी/रेडियो कार्यक्रम वषिय वस्तु के बारे में मेरी समझ को बेहतर बनाने में मेरी मदद करता है। TV/Radio programs help me in improving my understanding of the subject matter.					
41	श्रव्य - दृश्य सहायक सामग्री के उपयोग के माध्यम से, प्रस्तुतकर्ता ने छात्रों की रुचि बरकरार रखी। Through the use of Audio-Video aids, the presenter sustained interest of students.					
42	कार्यक्रमों में आवाज़ साफ़ सुनाई नहीं दे रही है। The voice in programs is not clearly audible.					
43	प्रस्तुतिकरण के अंत में विद्यार्थियों के ज्ञान का परीक्षण करने के लिए प्रश्न दिए गए हैं। At the end of presentations, questions are given to test the student's knowledge.					
44	प्रस्तुतिकरण के अंत में विद्यार्थियों की समझ को परखने के लिए प्रश्न नहीं दिए जाते हैं। At the end of the presentation, questions are not given to test the student's understanding.					
45	पी एम ई-विद्या कार्यक्रम में प्रस्तुतकर्ता सही जानकारी देते हैं। The presenter gives correct information in the PM e-Vidya program.					
46	प्रस्तुतकर्ता का संचलन अप्रासंगिक है। There are irrelevant movements of the presenter .					
47	प्रस्तुतिकरण के दौरान प्रयुक्त श्रव्य -दृश्य सहायक सामग्री स्पष्ट रूप से दिखाई नहीं देते हैं। Audio-Video aids used during presentation are not clearly visible.					

48	मुझे लगता है कि प्रस्तुतकर्ता आत्मविश्वास के साथ पढ़ाता है। I think the presenter teaches with confidence.					
49	प्रस्तुतिकरण में पाठ्यपुस्तकों के उदाहरणों का उपयोग किया जाता है। Examples of the textbooks are used in presentations.					
50	मुझे लगता है कि छात्रों ने पी एम ई-विद्या कार्यक्रम का आनंद लिया। I feel students enjoyed the PM e-Vidya program.					
51	छात्रों को विषय वस्तु समझने के लिए उदाहरणों की संख्या पर्याप्त नहीं है। Number of examples is not sufficient to understand the subject matter by the students.					

Appendix III

पी एम ई-विद्या कार्यक्रम के विभिन्न पहलुओं का आकलन करने के लिए शिक्षकों/स्कूल प्रमुखों के लिए प्रश्नावली

Questionnaire for Teachers/School Heads to assess various aspects of PM e-Vidya Program

शिक्षक का नाम Name of the Teacher/Head …….....

लिंग Gender: पुरुष M ( ) महिला F ( ) अन्य Others ( )

विद्यालय का नाम Name of the School …….....

विद्यालय का पता Address of the School …….....

जिला District …… राज्य State-…….....…….....…

विद्यालय का प्रकार Type of school- अशासकीय Private ( ) शासकीय Govt.( )

सभी प्रश्नों का उत्तर देना अनिवार्य है। आपकी प्रतिक्रियाएँ गोपनीय रखी जाएँगी और केवल शोध के लिए उपयोग की जाएँगी।

All questions are compulsory to answer. Your responses will be kept confidential and used only for research.

विद्यालय में तकनीकी व्यवस्था Technological Setup in the School

1. आपके विद्यालय में पी एम ई-विद्या कार्यक्रम की सुविधा प्राप्त करने के लिए किस प्रकार के उपकरण उपलब्ध हैं? (कृपया सभी उपलब्ध विकल्पों पर सही का निशान लगाएँ)

   What types of devices are available for receiving the PM e-Vidya Program in your school? (Please put tick mark on all available options)

   1. टीवी सेट TV set(s) ☐
   2. रेडियो सेट Radio set(s) ☐
   3. कंप्यूटर Computers ☐
   4. प्रोजेक्टर Projector ☐
   5. कोई अन्य (कृपया निर्दिष्ट करें) Any other (Please specify)……

2. आपके विद्यालय में उपलब्ध टीवी का आकार (इंच में) क्या है? (कृपया सभी उपलब्ध विकल्पों पर सही का निशान लगाएं)

   What is the size of the TV available in your school? (Please put tick mark on all available options)

   A) 21”

   B) 26”

C) 32”

D) 43”

E) कोई अन्य (कृपया निर्दिष्ट करें) Any other (Please specify)……

3. क्या आपके विद्यालय में बिजली कटौती के दौरान बिना रुके टीवी देखने के लिए पावर बैकअप या इन्वर्टर सिस्टम है? हाँ ( ) नहीं ( )

Does your school have a power backup or inverter system for uninterrupted TV viewing during power cuts? Yes ( ) No ( )

विद्यालय में ई-लर्निंग के लिए फर्नीचर E-Learning Oriented Furniture at the School

4. विद्यार्थियों के लिए कमरे में देखने/सुनने हेतु निम्नलिखित में से कौन सी उचित व्यवस्था उपलब्ध है? (कृपया सभी उपलब्ध विकल्पों पर सही का निशान लगाएँ)

Is there a proper arrangement available during viewing/listening in the room for the students?

(Please put tick mark on all available options)

1. बैठने की व्यवस्था Seating Arrangement ☐
2. प्रकाश व्यवस्था Lighting Arrangement ☐
3. वेंटिलेशन Ventilation ☐
4. पंखा Fan ☐
5. कोई अन्य Any other ……

5. पी एम ई-विद्या कार्यक्रम के भाग के रूप में छात्रों को कितनी बार टीवी/रेडियो का उपयोग करके पढ़ाया जाता है?

How often students are taught using TV/ Radio as part of the PM e-Vidya program?

1. दैनिक Daily ☐
2. साप्ताहिक Weekly ☐ Please specify number of days in a week…….
3. मासिक Monthly ☐ Please specify number of days in a month…….
4. कभी-कभी Occasionally ☐

6. आपके विद्यालय में विद्यार्थी प्रति सप्ताह औसतन कितने घंटे शैक्षिक टीवी कार्यक्रम देखते हैं?

On an average, how many hours per week students in your school watch educational TV Programs?

1. एक घंटा One Hour
2. दो घंटे Two Hours
3. तीन घंटे Three Hours

4. कोई अन्य (कृपया निर्दिष्ट करें) Any other (Please Specify)……

प्रशिक्षण Training

7. क्या आपके विद्यालय के शिक्षकों ने पी एम ई-विद्या कार्यक्रम के प्रभावी उपयोग के लिए किसी प्रशिक्षण सत्र या कार्यशाला में भाग लिया है? हाँ ( ) नहीं ( )

Did the teachers of your school participate in any training sessions or workshops for the effective use of the PM e-Vidya program? Yes ( ) No ( )

स्कूल पाठ्यक्रम में एकीकरण Integration in School Curriculum

8. क्या सीखने के लिए टीवी देखने/रेडियो सुनने से पहले कोई प्रसारण-पूर्व गतिविधियाँ या तैयारी की जाती है?

हाँ ( ) नहीं ( )

Are there any pre-telecast activities or preparations conducted before the TV viewing for learning?

Yes ( ) No ( )

9. क्या टीवी/रेडियो शिक्षण सत्रों या कार्यक्रमों की प्रभावशीलता का मूल्यांकन करने के लिए प्रसारण के बाद कोई गतिविधियाँ आयोजित की जाती हैं? हाँ ( ) नहीं ( )

Are there any post-telecast activities conducted to evaluate the effectiveness of the e-learning sessions or programs? Yes ( ) No ( )

10. क्या टीवी देखने/रेडियो सुनने के सत्र के दौरान छात्रों की सक्रिय भागीदारी सुनिश्चित करने के लिए स्कूल द्वारा कोई उपाय किए गए हैं? हाँ ( ) नहीं ( )

Are there any measures taken by the school to ensure active student engagement during TV viewing sessions? Yes ( ) No ( )

11. उन कार्यक्रमों का नाम लिखें जिन्हें आपने देखा/सुना है:

Mention the name of the programs which you have seen:

……
……
……

12. पी एम ई-विद्या कार्यक्रमों के तीन पहलुओं की सूची बनाएँ जो आपको सबसे ज़्यादा पसंद आए :

List three aspects that you liked the most about the PM e-Vidya Program:

……
……
……

13. पी एम ई-विद्या कार्यक्रमों के तीन पहलुओं की सूची बनाएँ जो आपको बिल्कुल पसंद नहीं आए :

List three aspects which you did not like in the PM e-Vidya Program:

……
……
……

14. पी एम ई-विद्या कार्यक्रम में सुधार के लिए तीन सुझाव दें :

List three suggestions for improvement of PM e-Vidya program:

.....
.....
.....

15. तीन सीख लिखिए जो आपने कार्यक्रम देखने के बाद सीखीं।

Provide three learnings which you have learnt after viewing the program.

.....
.....
.....

16. उन शिक्षण कौशलों की सूची बनाएँ जो आपने कार्यक्रम देखने के बाद सीखे।

List the teaching skills that you have learnt after viewing the program.

.....
.....
.....

Appendix IV

पी एम ई-विद्या कार्यक्रम के लिए बुनियादी सुविधाओं की जाँच सूची

Checklist for Infrastructural facilities for PM e-Vidya Program

अन्वेषक का नाम Name of Investigator-……..…….....

दौरे की तारीख़ Date of Visit...…….....

विद्यालय का नाम Name of School-…….....…….....

…….....

विद्यालय का पता जिसका दौरा किया गया Address of visited school-…….....

…….....

निर्देश

इस जाँच सूची (चेकलिस्ट) में पी एम ई-विद्या कार्यक्रम के लिए आवश्यक बुनियादी ढाँचे के विभिन्न पहलुओं से संबंधित 13 मद शामिल हैं। अन्वेषकों को क्षेत्र दौरे (फ़ील्ड विजिट) के दौरान मदों की उपलब्धता और कार्यशीलता को सत्यापित करने की आवश्यकता है। कृपया विद्यालय में उपलब्ध वस्तुओं के आगे (✓) तथा अनुपलब्ध वस्तुओं के आगे (×) का निशान लगाएँ। इसी प्रकार विद्यालय में कार्यशील वस्तुओं के सामने (✓) और निष्क्रिय वस्तुओं के सामने (×) लगाएं।

Instructions

This checklist consists of 13 items related to different aspects of essential infrastructure needed for PM e-Vidya Program. The investigators need to verify their availability and workability during the field visit. Please put (✓) in front of the available items and (×) in front of the non-available items in the school. Similarly, put (✓) in front of the workable items and (×) in front of the non-workable items in the school.

	उपलब्ध Available	कार्यशील Workable
1. टीवी सेट TV set	☐	☐
2. रेडियो सेट Radio set	☐	☐
3. डी.टी.एच. कनेक्शन DTH Connection	☐	☐
4. विघुत आपूर्ति Power Supply	☐	☐
5. इंटरनेट कनेक्शन Internet Connection	☐	☐
6. टीवी देखने के लिए कमरा Room/s TV viewing	☐	☐
7. तकनीकी सहायक Technical Support	☐	☐

8. 9 वीं कक्षा के लिए टीवी देखने की समय तालिका ☐ ☐

Schedule for TV viewing for 9th class

9. 11 वीं कक्षा के लिए टीवी देखने की समय तालिक ☐ ☐

Schedule for TV viewing for 11th class

10. 9वीं कक्षा के लिए रेडियो/पॉडकास्ट/सामुदायिक ☐ ☐

रेडियो कार्यक्रम सुनने के लिए समय तालिका

Schedule for Radio/Podcast/Community

radio programs Listening for 9th class

11. 11वीं कक्षा के लिए रेडियो/पॉडकास्ट/सामुदायिक ☐ ☐

रेडियो कार्यक्रम सुनने के लिए समय तालिका

Schedule for Radio/Podcast/Community

radio programs Listening for 11th class

12. विशेष आवश्यकता वाले छात्रों के लिए सहायता से सुसज्जित टीवी कक्ष ☐ ☐

TV room equipped with Support for Special Need Students

13. उपकरणों के रख रखाव के लिए धनराशि ☐ ☐

Funds for Maintenance of Devices

14. कोई अन्य अवलोकन बिंदु (कृपया निर्दिष्ट करें)

Any other aspect observed (Pleases Specify).....

Glimpses of the Field Work

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ICT INITIATIVE

DIKSHA

DIKSHA (Digital Infrastructure for Knowledge Sharing) is a national platform for school education, an initiative of National Council for Educational Research and Training (NCERT), under the aegis of the Ministry of Education (MoE), GoI. Launched in 2017 by Honourable Vice President of India – Shri M. Venkaiah Naidu, DIKSHA has been adopted by almost all the States, Union Territories, central autonomous bodies/boards including CBSE. DIKSHA was developed on the basis of the Strategy and Approach Paper for the National Teacher Platform released by the then Honourable Minister for Human Resource Development, Shri Prakash Javdekar in September, 2017. DIKSHA can be accessed by learners and teachers across the country and currently supports 36 Indian languages. Each State/UT leverages the DIKSHA platform in its own way, as it has the freedom and choice to use the varied capabilities and solutions of the platform to design and run programs for teachers, learners and administrators. DIKSHA policies and tools make it possible for the education ecosystem (educationist, experts, organisations, institutions - government, autonomous institutions, non-govt and private organisations) to participate, contribute and leverage a common platform to achieve learning goals at scale for the country. NCERT Textbooks are licenced under CC BY NC-ND and all the resources are licenced under CC BY NC-SA. Under the PM eVidya initiative of the GoI, which was declared as part of the Atma Nirbhar Bharat, DIKSHA has been declared as 'One Nation, One Digital Platform'.

ICT INITIATIVE

PMeVidya is an innovative and unique initiative by the Ministry of Education, Government of India to sustain education by leveraging ICT and to facilitate learning and teaching at school level. It offers multifarious educational resources in multi-platform mode viz. digital/ online through 200+ DTH TV Channels, community radio, content for Divyangs (CwSNs), podcast etc. Takes advantage of the several streaming patforms available accross the country to telecast educational content in audio/video mediums.

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