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ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY FOR EDUCATION IN RURAL SCHOOL IN M.P

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ABSTRACT

The integration of Information and Communication Technology (ICT) in rural schools in Madhya Pradesh has revolutionized the educational landscape, significantly enhanced teaching and learning processes. ICT tools such as computers, tablets, and internet connectivity have bridged the educational divide by providing students and teachers in remote areas with access to a vast array of digital resources, interactive learning platforms, and online courses. This access has improved educational outcomes by facilitating more engaging and personalized learning experiences, fostering critical thinking and problem-solving skills, and enabling real-time access to updated information and global knowledge. Additionally, ICT has empowered teachers with innovative teaching methodologies and professional development opportunities, promoting a more inclusive and effective education system. Despite challenges such as infrastructure limitations and digital literacy gaps, the ongoing efforts to integrate ICT in rural education are paving the way for a more equitable and progressive educational framework in Madhya Pradesh.

Keywords: - Rural School, ICT, Education, Digital Education.

1. INTRODUCTION

In rural places like Madhya Pradesh (M.P.), the integration of ICT has become a potent tool for changing learning experiences in the world of education. Many different kinds of technology fall under the umbrella term "information and communication technology," or ICT. These include, but are not limited to, digital devices, computers, internet access, multimedia resources, and the like.

Globally, governments are starting to pay more attention to rural development. India is a rural nation where the progress of the rural populace determines the progress of the country as a whole. Government and non-government organizations are utilizing information and communication technologies (ICT) to enhance both urban and rural communities. Its progress is particularly remarkable in the realm of education. The goal of the Indian government's emphasis on rural development is to facilitate the integration of rural and urban areas in the country's economic progress. Improvements in "higher learning process," "quality in education," "equality of opportunity," and "quality in growth" are all part of a larger effort to bring underprivileged people into the mainstream.

Internet of Things (IoT) is one area of technology that is booming in today's interconnected world. In the context of conventional schooling, ICT is a powerful tool for bringing about radical transformation and progress. Both the accessibility and quality of education can be enhanced via the strategic use of information and communication technologies (ICTs) in the classroom. Historically, every contemporary economy has shown that education is crucial for empowering individuals to develop and utilize their full potential. In the not-too-distant future, technology will undoubtedly provide the backbone of progress. They are having an impact on every part of life. Schools are being increasingly affected. Schools are under pressure from society to adapt to the rise of ICTs as a means of meeting the needs of individual students and instructors through personalized learning and instruction. Universal education must take precedence over all else if information and communication technologies are to thrive in India. The rural population, particularly the poorest of the poor, continues to live with a minimal level of information and communication technology (ICT) facilities, despite the fact that the benefits of ICTs have not reached the projected level in rural regions. This is secondary to the primary cause, which is the flawed infrastructure of ICT in rural areas.

Role of Information and Communication Technology in Rural Education in M.P.:

1. **Access to Educational Resources**: One of the primary challenges in rural education is the lack of access to quality educational resources. ICT bridges this gap by providing access to a vast repository of digital content, including e-books, online courses, and educational websites. This access enables students and teachers in rural schools to supplement their learning with relevant and up-to-date resources.

2. **Interactive Learning**: ICT facilitates interactive and engaging learning experiences through multimedia tools, simulations, and educational software. These tools cater to diverse learning styles and enhance comprehension and retention among students. Interactive whiteboards, educational apps, and virtual labs are some examples of ICT tools that can enrich the learning process in rural schools.

3. **Teacher Professional Development**: ICT plays a crucial role in enhancing the professional development of teachers in rural schools. Online training programs, webinars, and collaborative platforms enable teachers to upgrade their skills, access teaching resources, and exchange best practices with peers. This continuous professional development empowers teachers to adopt innovative teaching methodologies and effectively integrate technology into their classrooms.

4. **Distance Learning Opportunities**: In remote rural areas where access to quality education is limited, ICT enables distance learning initiatives. Virtual classrooms, video conferencing, and online tutoring platforms connect students with expert educators from

around the world, allowing them to access high-quality instruction without the need to travel long distances.

5. **Administrative Efficiency**: ICT streamlines administrative processes in rural schools, improving efficiency and accountability. Digital record-keeping systems, automated attendance tracking, and online communication platforms between schools, parents, and education authorities facilitate smooth operations and decision-making.

6. **Empowerment and Inclusion**: By providing access to information and educational opportunities, ICT empowers students in rural areas and promotes inclusion. It helps bridge the digital divide by equipping students with digital literacy skills and enabling them to participate in the global knowledge economy.

2. NEED FOR ICT IN EDUCATION

By incorporating a variety of technologies, ICT aids in remaining current with the latest advancements. To achieve the aims of instruction, expanding access to and utilization of resources, capacity building, and educational system administration, information and communication technologies encompass all digital and potentially digital devices, tools, content, resources, forums, and services.

Interactive digital content, internet and other satellite communication devices, radio and television services, web-based content repositories, interactive forums, learning management systems, and management information systems will all be part of this. It will also include hardware devices connected to computers and software applications. Digitalization procedures, content deployment and administration, platform development and deployment, capacity development processes, and the establishment of discussion and exchange forums will all be part of these.

When it comes to education, why is it necessary to have access to ICT? Did we not have schools and universities even before computers? Just why is this change in thinking so important? Teachers now need to be facilitators of knowledge collecting rather than only lecturers, and this change is essential in this information age.

In India, the term "information and communication technology" is unfortunately most commonly used to refer to computers and the Internet. There is a lack of emphasis on the purpose and manner of using ICT. Supposedly, once schools and universities buy computers, Internet connections, and LCD projectors, they send their instructors to crash courses to learn how to use the technology. The main issue is that this entire strategy lacks concentration. No amount of digitization, however, will assist until educators are convinced of the necessity of ICT. Many educators are hesitant to fully embrace technology in the classroom, and one common reason given is the fear that students won't be able to learn well without constant guidance. And my response to that is, "Students also have ideas of their own and knowledge that they gathered from daily life; these knowledge and

ideas are not accepted or utilized by teachers." Thanks to modern technology, this is totally doable. Facilitating learning requires teachers to be trained to make it real, achievable, difficult, exciting, and not scary. It is crucial to focus less on teacher speech and more on student discussion. In order for something to be taught, it is not necessary to write it down on the board. Computers aren't just for making something look pretty, according to a lot of educators. They must be informed that in the modern era, access to information is not a problem; rather, the ability to organize, share, and collaborate has become crucial. It follows that the purpose of information and communication technology is to facilitate learning through interaction, sharing, and the display of information. The use of ICT in the classroom allows for the creation of more engaging and effective learning materials. Students are more actively involved in their own learning when they use ICT since it is learner centric. Learning activities that are difficult, real, multi-sensory, and cross-disciplinary inspire students.

When information, communication, and content technologies come together, it is called ICT. Academics, businesses, governments, and communities are all interested in finding new and profitable ways to use it. No country can hope to succeed in today's global economy without an educated and trained workforce that is also adept at using information and communication technologies. Technology has the ability to level the playing field when it comes to access to education. It can help reach rural and underserved areas, as well as demographics like women and girls, people with disabilities, children with special needs, the elderly, and those who are unable to attend classes on campus due to time or financial limitations. In order to accomplish the aims of inclusive education in schools, the usage of ICT will serve as a catalyst. Both in rich and developing nations, there is a lack of definitive studies showing that the use of ICTs in the classroom improves student achievement. Nonetheless, both educators and school administrators agree that using ICTs improves classroom instruction substantially.

Different Strategies for applying ICT in Teacher Education:

- Providing adequate infrastructure and technical support.
- Applying ICT in all subjects.
- Applying new Pre-service teacher Education curriculum.
- By using application software, using multimedia, Internet e-mail, communities, understanding system softwares.

3. ROLE OF ICT IN EDUCATION

As a nation, India places a premium on education; the government has launched a number of initiatives to raise public awareness about the value of education, and online learning is quickly gaining traction.

Teaching and learning with information and communication technologies is what we call "ICT in education." It is now an integral aspect of schooling. It has helped nations build riches via the exploration of knowledge and has progressively turned educational society into a knowledge and information society, which in turn has transformed the economy into a knowledge economy. It has far-reaching effects on the educational system and is a cutting-edge, high-quality technology strategy. The educational system and its administration have undergone sweeping transformations as a result of these innovations, which have improved productivity and brought about qualitative shifts. It has made a significant impact on the field of education and will continue to do so in the future. Teachers need to know how to make the most of information and communication technology (ICT) technologies in order for their students to benefit from them. Another undeniable truth is that technology will fail in the classroom unless it is accompanied by qualified educators.

Technology, approach, methodology, and manner of instruction are the only things that can be altered, improved, or changed. Educational institutions, management, and teachers must all reevaluate their responsibilities, strategies, and long-term goals in light of these revolutionary changes brought about by ICT. The use of information and communication technology for distant learning in India has so far been limited to higher education, and its quality has been criticized for being inferior to that of more conventional methods. Ultimately, this research hopes to pave the way for a more cost-effective and fruitful model of distant learning that would provide students with a better educational experience. There is a merging of new technology with traditional media, and the variety of technologies is constantly expanding. Both in rich and developing nations, there is a lack of definitive studies showing that the use of ICTs in the classroom improves student achievement. Nonetheless, both educators and school administrators agree that using ICTs improves classroom instruction substantially. In addition to enhancing teaching and facilitating school reform, ICTs have the power to spur innovation, speed up the acquisition of new skills, broaden and deepen existing ones, excite and engage students, help bridge the gap between classroom learning and real-world job requirements, and provide a sustainable economic future for workers of the future. The term "information and communication technology" (ICT) as a medium of instruction describes the tool used for the actual act of instructing.

Various Role of ICT in Educations

- Application of ICT has the potential to improve living standards of people in rural areas and by providing important educational benefits, social and commercial awareness.
- Providing adequate infrastructure and technical support.
- To increase variety of education services and medium.
- To promote technology literacy.
- ICT is helping in modernizing agriculture, in medical surgery, to educate and to trained workers for industry.
- To support schools in sharing experience and information with others.

- To increase a variety of educational services i.e. development of learning skills, expansion of optional education, distance education.
- To promote equal opportunities to obtain education and information.
- ICT helps teacher for organizational preconditions (vision, policy, and culture).
- It helps in effectiveness of classroom as well as innovative teaching.
- ICT helps teacher in both pre-service and in-service teachers training.

4. POSITIVE IMPACT OF ICT IN EDUCATION

The advent of widespread and easy access to online information and resources, the rise of student-teacher dialogue, and the development of tools for individualized lesson plans have all contributed to the dramatic transformation of the educational landscape brought about by the proliferation of ICT. Students in both urban and rural locations have access to cutting-edge information and communication technology (ICT) that allows them to go beyond the pages of textbooks and into interactive simulations, online courses that accommodate different learning styles, and multimedia materials. Information and communication technology also equips educators with cutting-edge resources that boost their efficiency in the classroom, such as new ways to collaborate on lesson plans, conduct assessments in real-time, and participate in professional development opportunities. Information and communication technology (ICT) has the ability to revolutionize education by expanding access regardless of location, increasing proficiency with digital tools, and encouraging a mindset of continuous learning.

5. PROPOSED MODEL FOR ICT

All of these factors have been carefully examined in the suggested model, which makes use of the RKM (Rural Kiosk Machine) for technical connections and physical communication between the Rural Development Department (RDD) and the Rural Community using information and communication technology. Then, based on regional requirements, these RKMs will be linked to various departments through area-wise wireless connections. People will be trained in the Community Training Centres (ICT-TC) by ICT-RDD, and then they will be able to use RKM to access the information on their own.

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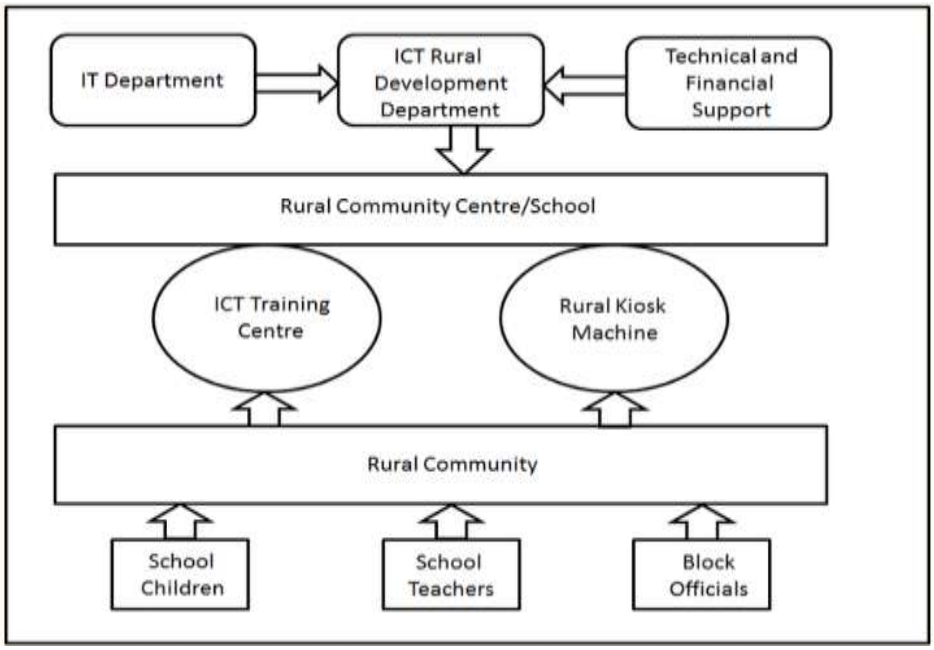

Figure 1. Model For ICT

ICT AND NCF 2005:

With careful planning, technology can expand access to educational programs, streamline system administration, and meet individual students' needs in terms of what they study. The importance of ICT (Information and Communication Technology) in the classroom was also highlighted in the 2005 national curricular framework. The Sarva Shiksha Abhiyaan (SSA) initiative, the national flagship program for education in India, also incorporates the use of ICT to enhance its quality. In 2005, the Central Advisory Board of Education (CABE) published a report on universal secondary education that includes ICT as a standard in education. It is now crucial to include all potential information and communication technologies in order to enhance the standard of school education in India, as a result of technological shifts (NCF, 2005).

For instance, there are many ways in which the media can promote education, aid in classroom instruction, and even serve as a platform for political activism. The utilization of technology, especially ICT, has the potential to enhance a wide range of educational practices, including self-learning, dual-mode study, individualized instruction, and learning at different speeds (NCF, 2005). The proliferation of online communities has opened up new avenues of discussion and debate on a wide range of topics that were previously inaccessible. Proper assistance and equipment to help children with special needs learn also necessitate technological advancements. It should be emphasized that technology should not be seen as an afterthought or separate from educational programs, but rather as an integral part of their overall aims and procedures. It is important to assess and oppose the use of technology in this context if it reduces teachers and

students to consumers and operators of technology. There can be no curricular intervention that compromises the notion of interaction and closeness as essential to quality education. The use of information and communication technologies (ICTs) to support children with special needs will be brought to the attention of all educators. Inclusive education made possible by technology will be a part of all capacity building programs (MHRD, 2012). The lack of qualified educators is often the result of ineffective hiring practices, but technology has emerged as a tool to combat this problem. Even if it's intended to improve classroom instruction, ET will just make educators more disillusioned with their profession. The majority of educators and students must be seen as more than just consumers if educational technology (ET) is to contribute to the improvement of curriculum reform. Per NCF (2005). More direct access to multimedia equipment and ICT, along with possibilities for youngsters to mix and create their own works and share their own experiences, could open up new avenues for their creative imaginations. Per NCF (2005). More can be done than what has been done so far by teacher groups and associations to improve school education. For instance, by exerting control over their teachers, administrators can assist establish standards that enhance school operations, such as a culture of accountability and the protection of instructional time. In addition to serving as positive lobbying groups, they can bring attention to the resources, teacher training, and professional development that are essential for successful curriculum transaction. Per NCF (2005).

NCF-SE AND NCF-FS NEP 2020 ON RURAL ICT INTEGRATION

All students in the nation will have better educational opportunities according to the lofty goals laid out in the National Education Policy 2020 (NEP 2020). The last National Policy on Education was published in 1986, over thirty years ago. Changes in demography and educational opportunities and outcomes, the rise of new fields of study like cognitive neuroscience, computer science, deep learning, and artificial intelligence, the effects of climate change and environmental degradation, and worldwide economic and health crises (2008, 20) are just a few of the many things that have changed during this time. As a constructive response to these changes, NEP 2020 lays out explicit goals and objectives for education across all levels, from pre-K through college.

The National Curriculum Framework for School Education (NCF-SE) and the National Curriculum Framework for Foundational Stage (NCF-FS) under the National Education Policy (NEP) 2020 emphasize the integration of Information and Communication Technology (ICT) in education, including in rural areas. Here are the key points related to ICT integration in these frameworks:

National Curriculum Framework for School Education (NCF-SE)

1. **Access to Digital Resources:**
    - Ensure that all students, regardless of location, have access to high-quality digital resources.

- Promote the use of e-learning platforms and digital libraries.

2. **Infrastructure Development:**
   - Prioritize the development of ICT infrastructure in rural schools.
   - Provide reliable internet connectivity, computers, and smart classrooms to enable digital learning.
3. **Teacher Training:**
   - Conduct regular ICT training programs for teachers to enhance their digital skills and integrate ICT into their teaching practices.
   - Develop online and offline professional development courses for continuous learning.
4. **Curriculum and Pedagogy:**
   - Integrate digital literacy into the curriculum from the early stages of education.
   - Encourage the use of multimedia tools and interactive learning methods to make education more engaging and effective.
5. **Inclusivity:**
   - Focus on bridging the digital divide by ensuring that rural and underprivileged students have the same access to ICT resources as their urban counterparts.
   - Implement schemes and programs to distribute digital devices and provide internet connectivity to remote areas.
6. **Community Engagement:**
   - Involve local communities and parents in understanding the benefits of ICT in education.
   - Encourage community-driven initiatives to support ICT infrastructure and digital literacy programs in schools.

National Curriculum Framework for Foundational Stage (NCF-FS)

1. **Early Introduction to ICT:**
   - Introduce children to age-appropriate digital technologies and activities to develop foundational digital skills.

- Use educational games and applications to make learning fun and interactive for young learners.

2. **Teacher Preparedness:**
   - Train early childhood educators in the effective use of ICT tools to enhance teaching and learning experiences.
   - Provide resources and support for teachers to create and use digital content suitable for young children.
3. **Blended Learning Approaches:**
   - Combine traditional teaching methods with digital tools to create a blended learning environment.
   - Use ICT to facilitate personalized learning experiences, catering to the individual needs of each child.
4. **Parental Involvement:**
   - Encourage parents to participate in their children's digital learning activities.
   - Provide guidance and resources for parents to support digital learning at home.
5. **Monitoring and Evaluation:**
   - Develop systems to regularly monitor and evaluate the impact of ICT integration on learning outcomes.
   - Use data analytics to inform policy decisions and improve ICT implementation strategies.

Implementation Strategies for Rural Areas

1. **Public-Private Partnerships:**
   - Leverage partnerships with private sector companies, NGOs, and international organizations to fund and support ICT initiatives in rural schools.
2. **Government Initiatives:**
   - Utilize government schemes such as Digital India, SWAYAM, and DIKSHA to provide digital resources and training to rural schools.
3. **Localized Solutions:**

- Develop localized digital content in regional languages to ensure it is accessible and relevant to rural students.
- Use offline solutions like pre-loaded educational content on devices where internet connectivity is limited.

4. **Community-Based Approaches:**
   - Engage local communities in setting up and maintaining ICT infrastructure.
   - Foster a culture of digital learning through community centers and local educational programs.

By addressing these areas, the NCF-SE and NCF-FS under NEP 2020 aim to create an inclusive and equitable digital learning environment that benefits all students, including those in rural areas.

CONCLUSION

Finally, rural schools all over Madhya Pradesh (M.P.) have seen revolutionary transformations as a result of the role of ICT in education. These schools have been able to break through quality and accessibility hurdles in education by making better use of information and communication technology (ICT) tools and resources. The use of information and communication technologies in the classroom allows for more dynamic and participatory lessons, opens up a treasure trove of educational resources, and encourages teachers to work together and advance their craft. By connecting students in rural areas to the global knowledge economy and reducing the digital divide, ICT also fosters inclusion. To make the most of information and communication technology's ability to promote educational excellence and give voice to rural communities, it is critical that all students in the state have equal access to the necessary technical infrastructure and support services.

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