Chapter II

REVIEW OF RELATED LITERATURE

2. REVIEW OF THE RELATED LITERATURE:

Education Quality Foundation of India, New Delhi (May 2015) gave a research report on **"Usage of Information & Communication Technology in Secondary Schools."** The study was commissioned by the NITI Ayog to find out the access and usage of ICT by teachers and students in rural and urban schools in six states.

The study was conducted between August 2011 and May 2012 to deepen the understanding of access and usage of ICT by teachers and students in rural and urban schools in the states of Gujarat, Delhi, Kerala, Maharashtra, Tamil Nadu and Puducherry. The study was designed to address the following objectives:

- To study the actual access and usage of ICT by teachers and students in secondary schools.
- To compare the ICT usage by teachers and students in rural and urban areas.
- To study the factors affecting ICT access and usage by teachers and students.
- To provide suggestions and recommendations regarding optimal usage of ICT by teachers and students.

To get a fair representation from each of the states, two districts from every state were selected - one being the capital district and the other being a district that was located farther from the state capital in order to have rural representation.
The school list was prepared based on certain criteria like educational level, minimum student strength of 200, classes up till 12th standard, number of teachers not less than 6, student teacher ratio of 45:1. Co-educational schools were also included in the study. The schools samples included State Government schools, KendriyaVidyalaya, NavodayaVidyalaya and private schools located both in rural and urban areas.

Sampling
A sample of **110** schools was selected across the states by adopting the lottery method.
The sample also included **542** teachers, **713** students and **55** principals drawn from rural and urban schools located in different districts of the six states.

Methodology
Both quantitative and qualitative methods were used for conducting the study. Data collection methods included questionnaires for principals, teachers and students and focus

group discussion with students. Case studies and field notes were also used for qualitative analysis. All data gathered during the study was analysed using descriptive statistical method.

Key findings

1. Infrastructure

- ✓ Computers were available in 80% of the schools including Kendriya Vidyalayas, Jawahar Navodaya Vidyalayas, Government and Government aided and Private schools in Delhi, Kerala, Gujarat, Maharashtra, Tamil Nadu and Pondicherry state.
- ✓ With the exception of Kendriya Vidyalayas (KVs), all private schools had better technology infrastructure than the government schools. There was a sense of ownership for infrastructure in the private schools, which was often lacked in the government schools.
- ✓ Almost 48% teachers reported that the infrastructure was sufficient for teaching ICT as a subject. About 22% teachers stated that ICT was sufficient for teaching and learning other subjects. However, the 28% said that infrastructure was insufficient for integrating ICT in teaching-learning other subjects. 24% teachers said that the ICT infrastructure often remained unutilized.
- ✓ The student-computer ratio (SCR) varied from 35:1 to 60:1 in rural schools though the situation was significantly different in JNVs (15:1). The SCR also varied significantly in urban schools, 25:1 to 50:1 for private schools and 35:1 to 150:1 in government and government aided schools. Kendriya Vidyalayas had an SCR range of 14:1 to 24:1.
- ✓ In rural schools the number of usable computers ranged from 10-35 per school whereas in urban schools the range was from 15-40 computers.
- ✓ Around 80% of students reported that internet access was strictly reserved for staff members or for supervised groups of students.
- ✓ About 70% schools had one scanner and about 50% had one projector. More than one printer was available in about 25% schools. The most common gadget available was the printer. However, its use by students, barring the students of JNVs was limited.
- ✓ Private schools, KVs and government aided schools were better equipped to provide e-learning experiences to their students as compared to government schools. More than 90% of the schools outsourced the e-learning material. 10% of teachers reported that they prepared their own educational CDs. The most commonly available e-materials were for Mathematics and Science.
- ✓ As many as 70% of the Kendriya Vidyalayas had their own website. Nearly 40% of all teachers, about 50% from urban and 30% from rural schools, stated that their school had a website. 50% of students did not know whether their school had a website.
- ✓ Only 4% rural schools and 20% urban schools had made provision for technical support and regular maintenance of their hardware, mostly in private schools and JNVs.

2. Access to computers and peripherals

- ✓ On an average, 40% teachers in school had access to computers. In rural schools, 30% teachers had access to computers. Teachers also reported that household responsibilities prevent them from using computer at home though more than half of teachers had computer at home.
- ✓ Principals and teachers reported that only 25-45% students in all rural schools had access to computers and other peripherals in schools. On the other hand, in urban schools 25 to 100% had access.
- ✓ Access to computers at home was still low in rural areas (20%) and for students of government schools (20%) but 60% of private school students had access to computer at home.
- ✓ Almost 53% of students did not have a computer at home due to the high cost. 34% students used cyber cafe and 6% were not comfortable using technology.

3. Usage of ICT

- ✓ Printers were found to be most commonly used for educational purpose in schools. 75% teachers never used a scanner or a digital projector. Only 10- 15% teachers considered themselves highly proficient in using technology. Teacher skills in ICT in using computer for presentations, internet surfing, e-mail and word processing were low in rural schools and in government schools. In KVS, more than 90% teachers were proficient in using computers.
- ✓ ICT was more frequently used for teaching Science and Mathematics whereas it was used limited for teaching Social sciences, English and Music, around 10% in a week.
- ✓ The minimum use of ICT i.e. less than twice a month was reported by teachers for teaching Art. Schools did not have a clear policy mandate on the use of ICTs for subject related curricular work, and teachers lacked appropriate training on technology integration with other subjects.
- ✓ Students' perception on their ICT skills as 'good' was found in equal percentage of students from rural and urban areas (40%). However, in urban areas, students' perception on their skills as 'very good' was more in urban areas (12%) than rural (6%). The reason for rural students' somewhat low skills can be attributed to the lesser availability of infrastructure in schools and at home.
- ✓ Almost 40% of students stated that they learnt about computers on their own and 33% learnt from their teachers. Students used computers to work with word-processing, presentation and other applications. As a subject, ICT was accorded of much less importance than other conventional subjects. In most cases, each student got approximately 30–40 minutes (1 period in the timetable) on a computer per week.

- ✓ The study found that 95% of schools used computers for general office use, 60% used the technology for maintaining students' records and 80% used computers for accounts work. The number of computers devoted to this work is usually one or two.

4. Recommendations

Following recommendations emerged out of the findings of the study:

- ✓ The government can direct its focus on providing quality hardware like computers, printers, projectors etc., and ensure availability of updated software and seamless internet connectivity.
- ✓ Schools should provide access to computers with internet connectivity for the students even beyond school hours to address the needs of such students who do not have personal computer at home
- ✓ The computer lab should not be the exclusive domain of the computer teacher. Encouragement and involvement of subject teachers in the use of ICT in classrooms should be promoted to ensure better subject teaching and learning outcomes. Teachers need to be empowered and motivated to use ICT for curriculum transaction. Such trainings and professional development programs need to be organized on a continuous basis.
- ✓ Schools can set up a mobile computer that can be wheeled from room to room. A multimedia resource room with a projector, computer and Smart Board should be set up in schools for students' and teachers' use. A few computers can be placed in the library and staff room for students and teachers to facilitate preparation of assignments, question papers, worksheets, result sheets and so on.
- ✓ For efficient school administration, schools should utilize the benefits presented by ICT.

Pandey, Anamika & Pandey, Kumar Arun (Sep, 2020) on **"ICT IN TEACHING AND LEARNING: AN INDIAN SCENE"** a journal of critical reviews have been carried out to find out the effect of ICT in teaching and learning. Here in this review, they have attempted to collect the data to find out the work done in the window of 2010-2020. The search was made using ICT tool itself e.g. internet and our institutional library. Google and Google scholar were used as primary search engines using keywords like ICT, studies on ICT, ICT in schools/colleges, role/use of ICT in teaching and learning etc. Few other search engines were also tried to be explored which were not found very effective. Results retrieved from the search were filtered and confined to India only to make this review focused in the Indian scenario.

They have concluded that the ICT was found to be more prominent in urban areas as compare to rural areas. Based on the published data, also observed that studies were more in the south, east and north zones of India. In contrast, it was very less in central India. Further, it has also been observed that use of ICT in developing countries like India is at a lesser side as compare to developed countries.

Bera, Saradindu (Research Scholar) and **Mohalik, Ramakanta** (Asst. Prof.) RIE BBSR (May-June, 2015) published a journal, **"ENHANCING QUALITY OF TEACHING LEARNING BY USING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)".** During the past few years, Information and Communication Technology (ICT) has changed human day to day activities in many ways. It has revolutionized teaching–learning process. One of the goals for integrating ICTs in education is to enhance teaching-learning practices there by improving quality of education. Considering that ICT plays an increasingly important role in society, especially if we take into account social, economic and cultural role of computers and Internet, it is clear that the time has come for the actual entry of ICT in the field of education. The combination of ICT and the internet certainly opens not only many opportunities for creativity and innovation, but also for approaching the teaching material to current generation of students. Technology saves time and gives students access to powerful new ways to explore concepts at a depth that has not been possible in the past. The growth of these communication and computer systems, their ease of use, the power and diversity of information transfer allow teachers and students to have access to a world beyond the classroom also interact with each other over a world geographic distance in a meaningful way to achieve the learning objectives. It has the potential to transform the nature and process of the learning environment and envision a new learning culture. Interactively, flexibility and convenience have become the order of the day in the ICT supported environment. ICT helps the learner to share learning resources and spaces, promote learner centered and collaborative learning principles and enhance critical thinking, creative thinking and problem solving skills. ICT based education is definitely the direction towards which the whole world is progressing.

This paper has sought to explore the role of ICT in education as we progress in to the 21st century. In particular ICTs have impacted on educational practice in education to date in quite small ways but that the impact will grow considerably in years to come and that ICT will become a strong agent for change among many educational practices.

Meenakshi *(Research scholar)* P.G.Department of Education, University of Jammu (May. –Jun. 2013) **IMPORTANCE OF ICT IN EDUCATION.** This paper is a mere attempt to present a glimpse of meaning of ICT, its importance & its mandatory need for education, which is indispensable. Globalization and innovations in technology have led to an increased use of ICTs in all sectors - and education is no exception. Uses of ICTs in education are widespread and are continually growing worldwide. It is generally believed that ICTs can empower teachers and learners, making significant contributions to learning and achievement. Of the teachers interviewed on the effectiveness of ICT in education majority of them felt that introduction and use of ICT adequately will be extremely effective in children's learning and achievement. However, current research on the impacts of ICTs on student achievement yields few conclusive statements, pros or con, about the use of ICTs in education. Studies have shown that even in the most advanced schools in industrialized countries, ICTs are generally not considered central to the teaching and learning process. However, there appears to be a mismatch between methods used to measure effects and the type of learning promoted. Standardized testing, for example, tends to measure the results of traditional teaching practices, rather than new knowledge and skills related to the use of ICTs.

Many teachers are reluctant to use ICTs, especially computers and the internet. Some of the reasons for this reluctance include poor software design, skepticism about the effectiveness of computers in improving learning outcomes, lack of administrative support, increased time and effort needed to learn the technology and how to use it for teaching, and the fear of losing their authority in the classroom as it becomes more learner-centered. In terms of using internet and other ICT as a resource for lesson preparation, most of the teachers interviewed, admitted to never or rarely using it, while very few used the internet to gather information sporadically or regularly.