THIRD PARTY EVALUATION OF ICT SCHEME IMPLEMENTATION IN THE STATE OF RAJASTHAN

2017

Evaluation conducted by

Central Institute of Educational Technology
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1. Introduction

ICT stands for Information and Communication Technology which encompasses a range of human devised hardware, software and telecommunication technologies used to facilitate communication, create, disseminate, store, manage information, and share information crossing all the boundaries. In the context of overall benefits, it is sometimes described as a third revolution in the dissemination of knowledge and in the enhancement of instruction. Proper utilization of these technologies can bring revolution atmosphere to re-establish educational goals, curriculum contents and effective teaching-learning methods.

The importance of using ICT for improving education has been emphasized for over three decades in India. Right from 1986, the National Policy on Education emphasized using Educational Technology to improve the quality of education. ICT has also figured comprehensively in the norms for schooling recommended by Central Advisory Board of Education (CABE), in its report on Universal Education – 2012 and ICT Curriculum for Schools-2013. Consequently, major government schemes have a component of funding allocated for using ICT and focused initiatives such as the centrally sponsored ICT@Schools Scheme are geared toward making opportunities available to students for developing their ICT skills at school level. The Digital India Campaign (2015) while envisioning provision of ICT infrastructure, e-governance, online services and digital literacy of all citizens have provided impetus to all ICT initiatives in the country.

The ICT@Schools Scheme was launched in 2004 with a view to provide opportunities for students to develop ICT skills as well as use ICT to aid to teaching and learning process. Under this scheme, support has been provided for procurement of Computers, peripherals, software, connectivity and so on. The scheme was revised in 2010 and National ICT Award for School Teachers was introduced. The scheme is currently being implemented in all States and Union Territories (UTs) of India in about 90,000 government and government-aided secondary and higher secondary schools. Regarding this, the Government of India has made it mandatory to have a Third Party Evaluation of the implementation of ICT@Schools Scheme in all States and UTs with the objectives to establish an enabling environment to promote the usage of ICT to ensure the availability of qualitative content online and through access, to enrich the existing curriculum and pedagogy by employing ICT tools for teaching and learning, to enable students to acquire skills needed for the digital world for higher studies and gainful employment, to provide effective learning environment for children with special needs through ICT tools, etc. and linking it to future funding.

Further, the ICT @School scheme recommends that each school would be provided with 10 PCs or 10 nodes connected through a server. Accessories like printers, projection system will also be provided. Key boards would be customized for use in the regional languages. The first priority would be to have a broadband internet connection of at least 2 MBPS bandwidth in each school. Wherever that is not possible, connection of lower bandwidth would be provided with plan to upgrade in future. Wireless links would also be explored. Wherever the power supply is unreliable, it is proposed to provide assistance for purchase of a generator, as a backup only and also its recurring cost, subject to a maximum of Rs.1000/.per month, in addition to Rs 1000/. per month for the electricity charges. In areas where there is no power supply, solar generated power should be made use of. The computers would be installed in one of the safe rooms in the school. If such rooms are not available, the need can be met from the scheme Rashtriya Madhyamik Shiksha Abhiyan (RMSA) in case of Government schools.'

The Central Institute of Educational Technology (CIET), a constituent unit of NCERT is working to promote education by using ICTs in teaching-learning processes. Recently, CIET-NCERT has conducted Third Party Evaluation of ICT scheme in Karnataka, Chandigarh, Kendriya Vidyalayas and EDUSAT network of Rehabilitation Council of India (RCI), Delhi. Keeping in view the expertise and experience of the CIET, NCERT the Govt. of Rajasthan (Rajasthan Council of Secondary Education) desired to get a Third Party Evaluation of ICT@Schools Scheme as implemented by Rajasthan which was promptly accepted by CIET-NCERT.

In Rajasthan, there are 6500 schools covered under the ICT@Schools Scheme. ICT facilities were given to 2500 Schools in Phase-I (year 2008-2013), in Phase-II (year 2010-2015) and in Phase-III (year 2016). Earlier, BOOT model was implemented to provide ICT facilities. But nowadays, the Govt. of Rajasthan is directly implementing the ICT scheme in different schools of the state. Therefore, the state needed to evaluate the present situation of the installed ICT facilities in those schools. In this context, CIET-NCERT was proposed to undertake the Third Party Evaluation of ICT@Schools Scheme for the State of Rajasthan which was readily accepted by CIET-NCERT.

1.1. Initiatives of Govt. of Rajasthan

The state is having more than 16000 Govt. secondary schools and 10000 Govt. senior secondary schools. Govt. of Rajasthan aims to develop various skills among students of all those schools. To achieve such aim, Govt. of Rajasthan required state of art ICT infrastructure and technologies which should be seamlessly integrated with the curriculum and curricular transaction. Therefore, teachers of those schools needed continual support and training on ICT infrastructure and technologies to keep them abreast with current developments.

As a part of this initiative, Govt. of Rajasthan has created e-Classroom in 6500 schools, located in different regions. Further, one section in each class from class X to XII has been equipped with the necessary hardware including Interactive Board, Multimedia Projector and PC, etc and different varieties of software. Therefore, the utilization and effect of these ICT resources need to be assessed. Keeping in view, a team of CIET-NCERT was constituted and deputed them to do the work of Evaluation of ICT implementation in Government schools of Rajasthan with the following terms of reference to find out:

- Functionality of the established e-classrooms.
- Impact and effectiveness of e-class rooms on teachers and students
- Usefulness of e-class rooms in the knowledge construction of the students
- Teacher-related interventions and innovations of using ICT

1.2. Scope

While the Rajasthan Government has endeavoured to provide ICT infrastructure and facilities across a large number of schools, the effective utilization of the facilities depends on a range of factors including the definition of a scope a document which defines the expectations from the implementing school for instance. Articulation of the expectations helps the school to evolve a programme, make suitable adjustments where necessary, plan and monitor the activities and aim at success in the implementation. The availability of support for the maintenance and upkeep of the system, availability of teachers for ICT, an explicit mandate (a curricular programme for ICT), provision for other subject teachers to utilize the ICT facilities, training support to these teachers and a general integration of ICT into the day to day functioning of the school are integral to the effective utilization of the infrastructure and the realization of the objectives of the ICT@Schools Scheme.

This study is carried out by the Central Institute of Educational Technology under National Council of Educational Research and Training, New Delhi. This institute has been in the forefront of experimentation and development of knowhow in a variety of educational technologies including radio, television, multimedia and ICT. The institute has also been supporting the Ministry of Human Resource Development in the articulation and implementation of the ICT@Schools Scheme.

1.3. Objectives

- To study the implementation of ICT@School Scheme.
- To study the extent of ICT pedagogic integration.
- To find out the status of support provided by government to the schools for the implementation of ICT@School Scheme.
- To determine the level of professional development and expertise available in schools on ICT.

- To explore how teachers integrate ICT in classroom to enhance learning.
- To identify innovative practices in ICT in schools.
- To identify factors facilitating and impeding ICT implementation in schools.
- To recommend for the optimum integration of ICT at the functional level.

2. Methodology

Survey method was employed for the study. The data collecting tools and techniques namely, questionnaires, checklist and rating scale were well established. As per requirement, group discussion was also conducted to collect data.

2.1. Population

The population of the study comprised all the 6500 Government schools of Rajasthan under ICT@School Scheme.

2.2. Sampling

Initially, list of all the ICT 6500 schools were officially made available for online data collection. Out of these, 3350 schools responded in this regard. Among those, data, mailed by 1634 schools were found to be valid. In second phase, 650 ICT schools (10 per cent of total ICT schools), evenly distributed across all educational divisions of the state were randomly selected for field visit. This field visit in sampled schools was purposive for cross validation of the collected data (already collected online), and for collection of additional data on extent of ICT pedagogic integration. However, under this field visit, questionnaires were systematically filled by one Principal, five teachers (including computer teachers) and ten to twenty students, each, of 639 schools where ICT facilities were provided under three phases (1st Phase-288 schools, 2nd Phase-186 schools and 3rd Phase-165 schools).

2.3. Data collection

Both online and offline procedures were utilized to collect data. In the first step, the data were collect through online from (3351) schools pressing on important parameters related to ICT@Schools Scheme i.e. CPU, UPS, generators, inverters, laser printer, dot matrix printer, scanner, projector, webcam, internet connection, etc. After the collection of online data, further data were collected from 639 schools through the field visits. The field visits covered nine educational blocks of Rajasthan, distributed into five administrative areas. The field visit teams comprised field investigators such as M. Ed students, research scholars and faculty members from local B.Ed and M.Ed Colleges and Universities, led by staff of CIET, NCERT. The field investigators collected the data from the Principals, Teachers and Students by using the developed

questionnaires. The field investigators also interacted with the parents wherever possible and also recorded their own observations.

3. Data Analysis and Interpretation

The data analysis and interpretation are done under the following points corresponding to the various objectives of the study:

- ICT infrastructure
- Training for developing ICT competency of teachers
- ICT pedagogy integration
- Development of e-Contents
- Factors affecting implementation of ICT@Schools Scheme

3.1. ICT infrastructure

ICT@Schools Scheme recommends that every secondary and senior secondary schools should be provided with the ICT infrastructure which comprises 10 PCs connected through a server along with accessories like- printer, projector, scanner, web camera, modem, UPS, generator, etc.

The online data, received from all ICT schools reveal that 98.5 per cent of the CPUs, 85.07 per cent UPS/inverters, 95.67 per cent of generators, 97.06 per cent laser printers , 97.83 per cent dot-matrix printers, 84.70 per cent of the scanners and 96.14 per cent of the projectors have been reported to be functional. Besides, 97.99 per cent schools have reported that their internet connection is in function.

As per the document provided by the Rajasthan Government, the provision of ICT infrastructure has been given in different phases. However, the data collected from field visit discloses that the numbers of PCs or nodes are not uniformly distributed as per the ICT @ School Scheme.

Status of various devices of selected schools

The document provided by the Rajasthan Government indicates that there are 10 TFTs (Thin Film Transistors) provided to every school. However, the data collected from the schools suggest that there are instances of lesser TFTs provided (7 or 8) and a few reported to have more than 10. This may be due to the fact that the computers available under different schemes are also considered and reported. This again brings forth the need of awareness regarding the ICT@Schools Scheme in the schools. But the field study regarding the functional status of TFTs, installed in schools under the service of P-1, P-2 and P-3 shows (Fig. 3.1.1) that 76.0 per cent, 69.8 per cent and 87.6 per cent TFTs respectively are in function
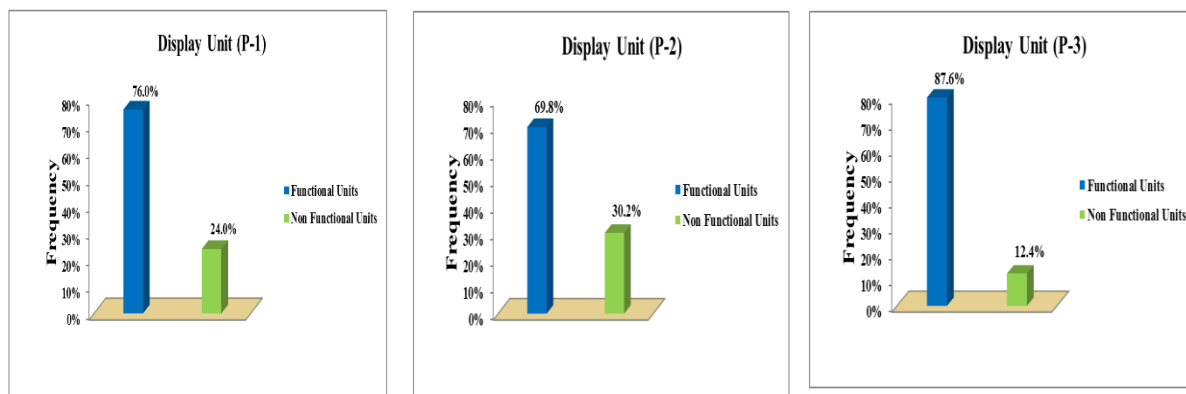
Fig. 3.1.1 Display Units

The given document of the state reproduces that in all schools under the service of P-1, P-2 and P-3, the high end CPUs have been provided while the number of low end CPUs provided varies from 1 to 9. In this regard, the data collected from different schools shows (Fig. 3.1.2) that 77.8 per cent, 66.7 and 81.5 per cent high end CPUs, installed in schools under the service of P-1, P-2 and P-3 respectively are reported to be functional

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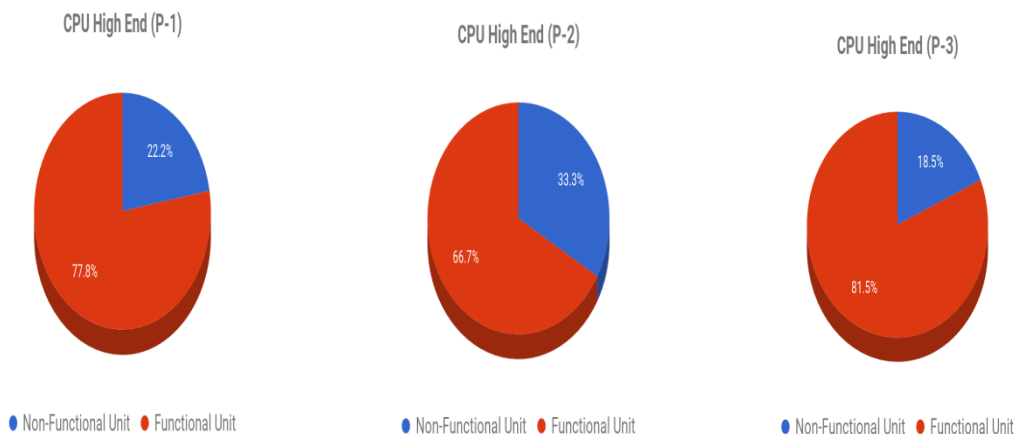
Fig. 3.1.2 CPU-High End Power supply

It is shown in the Fig. 3.1.3 that low end CPUs, installed in 67.4 per cent, 65.4 and 84.7 per cent schools under the service of P-1, P-2 and P-3 respectively are reported to be functional.
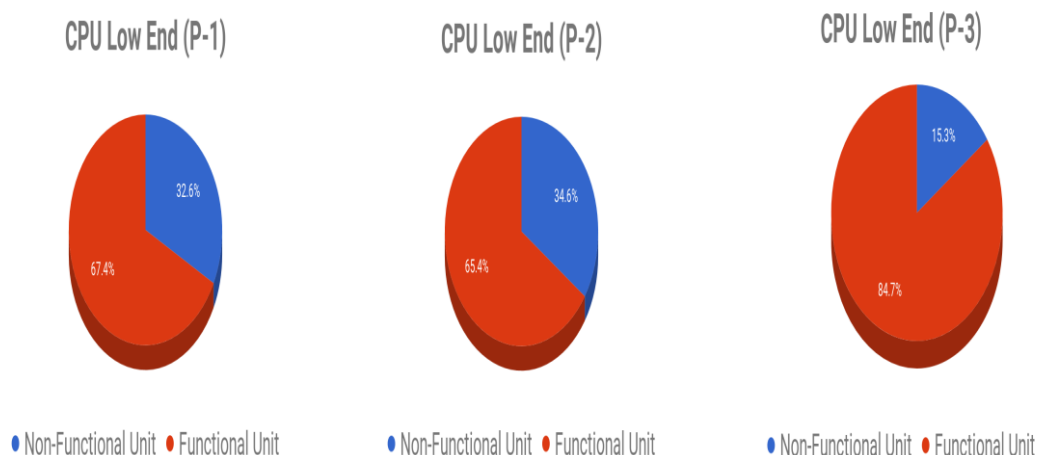
Fig. 3.1.3 CPU- Low End Power supply

As per the ICT@School Scheme, it is mandatory to provide UPS/Inverter/Generator where there is erratic power supply. In this connection, the collected document from the Govt. of Rajasthan states that schools under the service of P-1 have been provided with 2 UPS and 1 Generator while schools under P-2 have been provided with 1 UPS and 1 Generator in each. But schools under P-3 have been provided with only 1 UPS without having any generator. In this context, the collected data depicts (Fig. 3.1.4) that there 35.9 per cent, 38.0 per cent and 41.1 per cent of the UPS/Inverters in schools under the service of P-1, P-2 and P-3 respectively are functional.
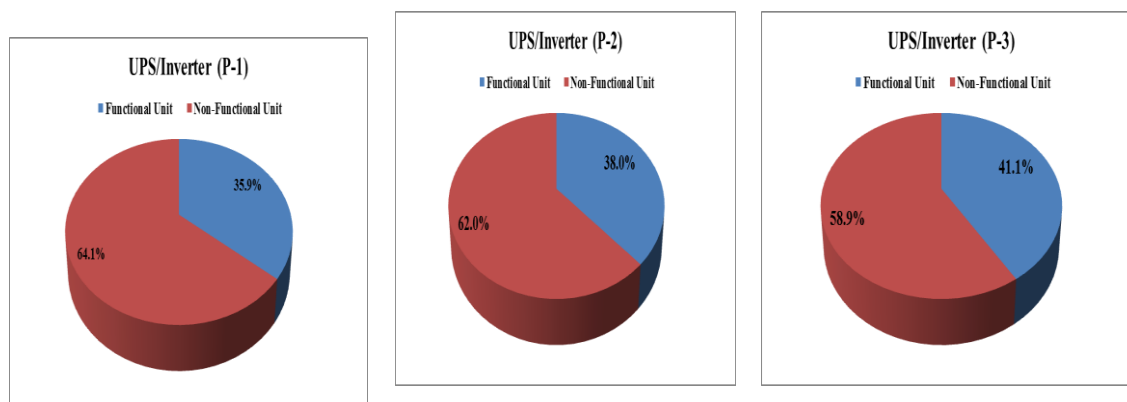
Fig. 3.1.4 UPS/Inverter

It may be inferred from the Fig. 3.1.5 that 53.1 per cent, 55.0 per cent and 77.4 of the generators in schools under the service of P-1, P-2 and P-3 respectively are functional.
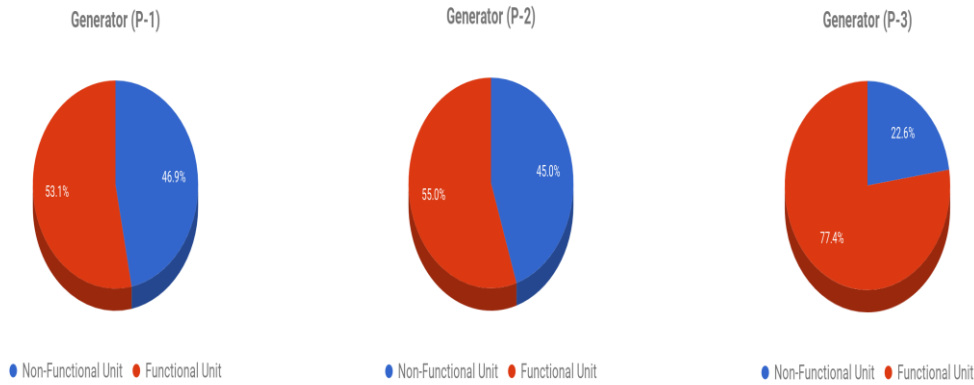
Fig. 3.1.5 Generators

Networking Device

All the schools under ICT scheme have been provided with 8 networking devices under three different phases. Regarding this, the collected data exhibits (Fig. 3.1.6) that 79.3 per cent, 78.5 schools and 81.8 per cent schools under the service of   P-1, P-2 and P-3 respectively are reported to have functional networking devices.
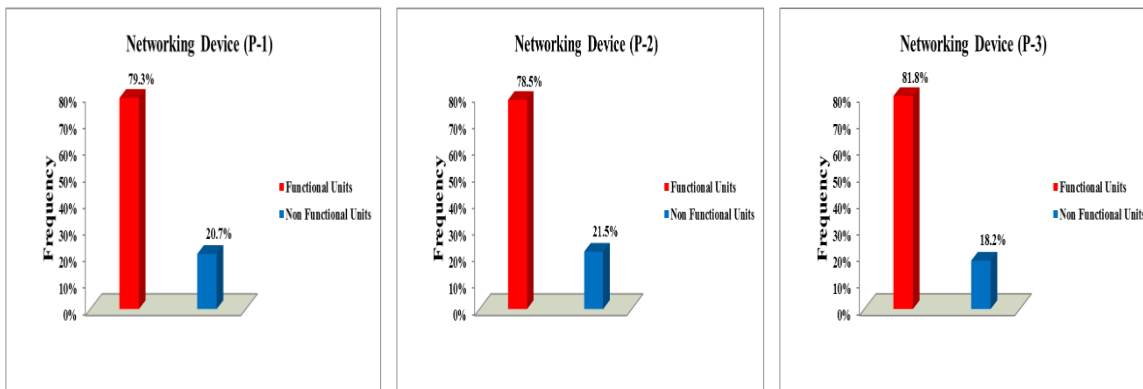
Fig. 3.1.6 Networking Devices

The ICT@School Scheme recommends that every school must be supplied with Printers, Scanner and Projectors under ICT infrastructure. In accordance with this, the received documents from the Rajasthan Govt. affirms that the schools covered under the service of P-1, P-2 and P-3 have been provided with 1 Dot matrix printer and 1 Laser printer each has been provided only to schools covered in P-3. Also all schools under P-1, P-2 and P-3 have been provided with 1 Scanner and every school under P-1 and P-2 has been provided with 1 projector each while schools covered under P-3 have not been provided with any projector. In this context, the

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collected data depicts (Fig.3.1.7) that Laser Printers in 70.7 per cent, 91.4 per cent and 60.3 per cent schools under the service of P-1, P-2 and P-3 respectively are functional.

Laser Printer (P-1)

Laser Printer (P-2)

Laser Printer (P-3)

29.3%

70.7%

39.7%

60.3%

8.6%

91.4%

• Non-Functional Unit • Functional Unit   • Non-Functional Unit • Functional Unit   • Non-Functional Unit • Functional Unit

Fig. 3.1.7 Laser Printers

It is evident from the Fig. 3.1.8 that the Dot matrix printers are found to be installed in schools under different phases. In schools under the service of P-1, P-2 and P-3, the installed Dot matrix printers show that 28.1 per cent, 48.4 per cent and 73.6 per cent respectively are functional.

Dot Matrix Printer (P-1)

Dot Matrix Printer (P-2)

Dot Matrix Printer (P-3)

28.2%

71.8%

48.4%

51.6%

26.4%

73.6%

• Non-Functional Unit • Functional Unit   • Non-Functional Unit • Functional Unit   • Non-Functional Unit • Functional Unit
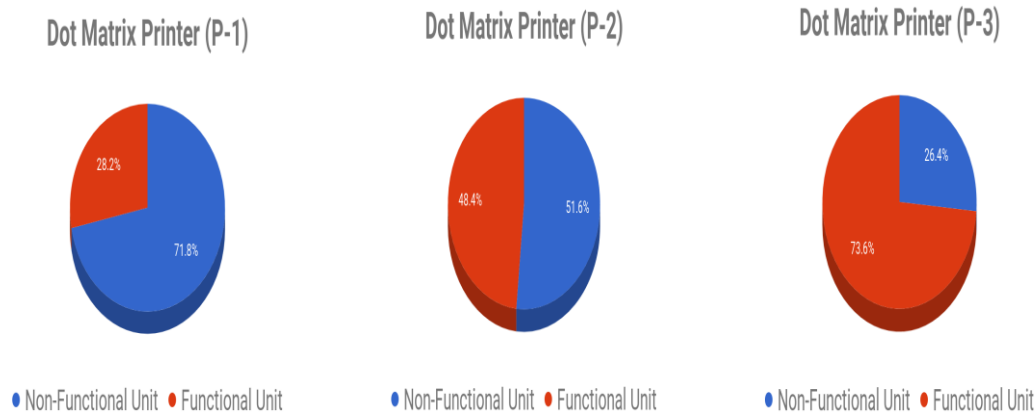
Fig 3.1.8 Dot Matrix Printers

Fig. 3.1.9 describes that 67.8 per cent, 67.8 per cent and 90.8 per cent scanners out of total, installed in schools under the service of P-1, P-2 and P-3 respectively are functional.
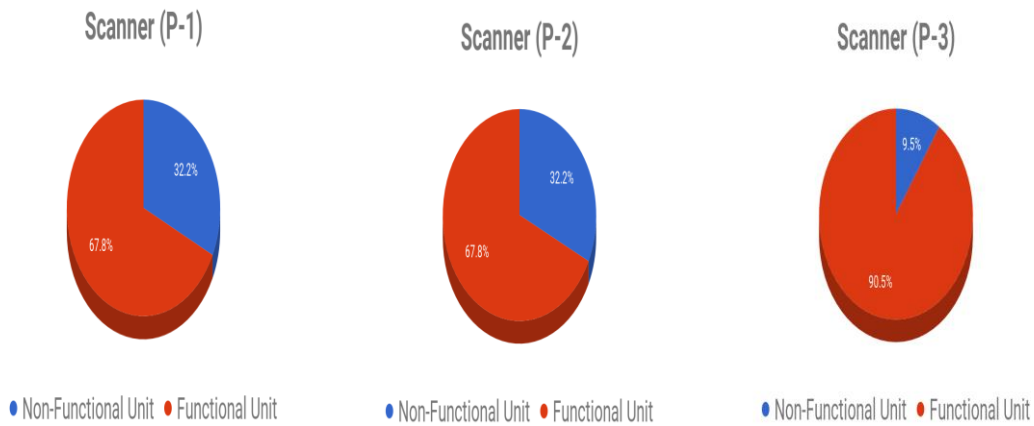
Fig. 3.1.9 Scanners

It is evident from the Fig. 3.1.10 that projectors, installed in schools under the service of P-1, P-2 and P-3 shows 70.8 per cent, 79.1 per cent and 80.5 per cent respectively out of total in function.
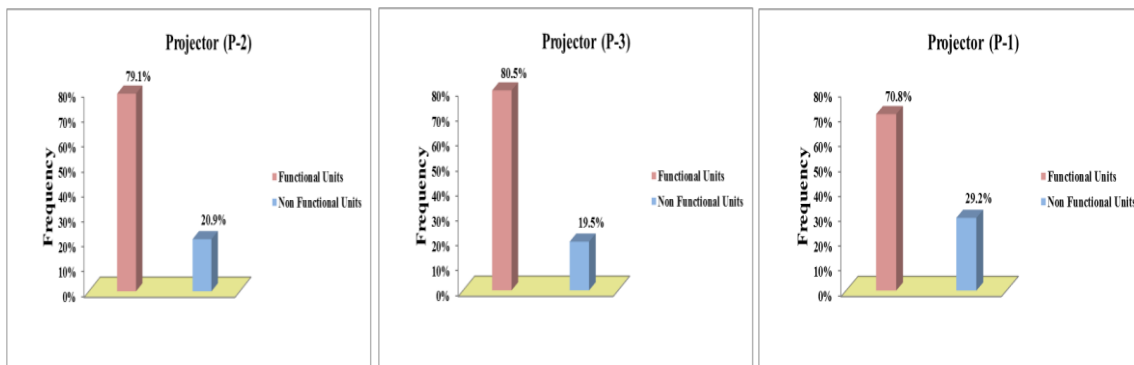
Fig. 3.1.10 Projectors

Internet connectivity

As per the recommendations of ICT@School Scheme, every school has to be provided with an internet connection, broadband at least 2 MBPS bandwidth being the first priority and in case of non-availability of broadband, a suitable alternative could be explored. In accordance with this, the documents made available to CIET by the Rajasthan Govt. reproduces that schools covered under P-I and P-2 have not been given with any internet connectivity or Ethernet switch but the schools covered under P-3 have been given with 1 Dongle for internet connectivity and 1 Ethernet switch in each school. It can be inferred from the collected data that most of the ICT schools are using personal dongle or have procured internet connection from other schemes as internet connectivity and it is essential for the purpose of 'Shala Darpan'. Study in this regard shows (Fig. 3.1.11) that

89.3 per cent, 90.9 per cent and 84.7 per cent of the internet connections in schools under the service of P-1, P-2 and P-3 respectively are functional.

Internet Connection (P-1)

Internet Connection (P-2)

Internet Connection (P-3)

Fig. 3.1.11 Internet Connectivity

Fig. 3.1.12 reveals that the Ethernet switches of 83.7 per cent, 88.2 per cent and 92.8 per cent schools under the service of P-1, P-2 and P-3 respectively are functional.
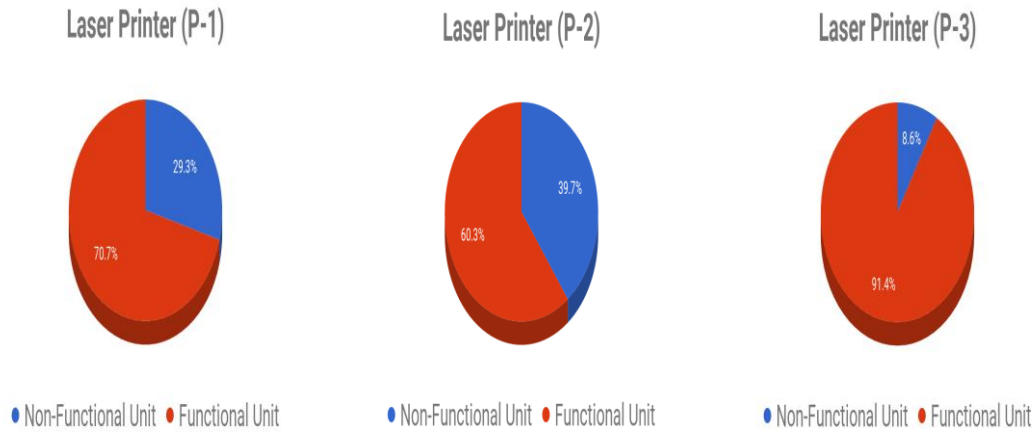
Ethernet Switch (P-1)

Ethernet Switch (P-2)

Ethernet Switch (P-3)

Fig. 3.1.12 Ethernet Switches

3.2. Analysis of Data collected from Head Masters/Principals of Schools

Infrastructure (including repair and maintenance)

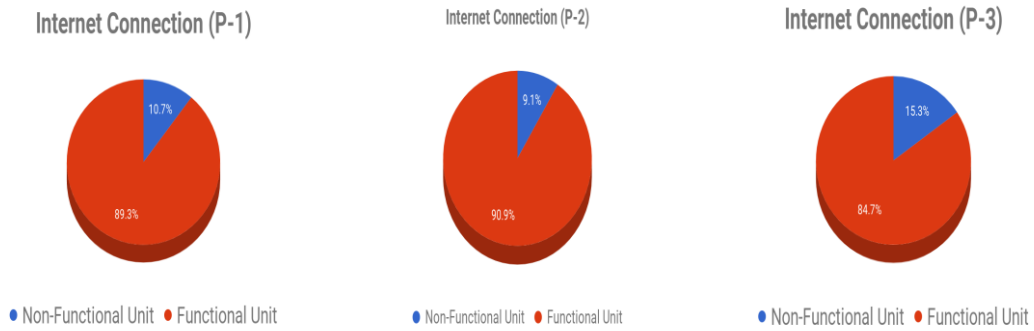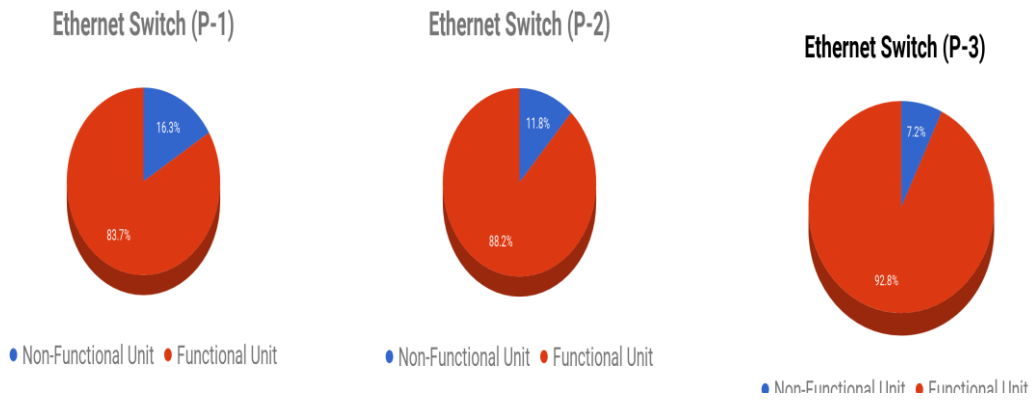The approach of the Principals or Head Masters in almost all schools has been found to be very positive. They not only install ICT devices in their schools under different phases but also try to maintain all these systematically. In addition, they generally create a congenial climate for its wider benefits to both the teachers and students. In regarding the issue of appointment of computer instructors, the collected data shows (Fig. 3.2.1) that 13.2 per cent, 4.8 per cent and 29.7 per cent Principals of the sampled schools under the service of P-1, P-2 and P-3 respectively have responded positively.
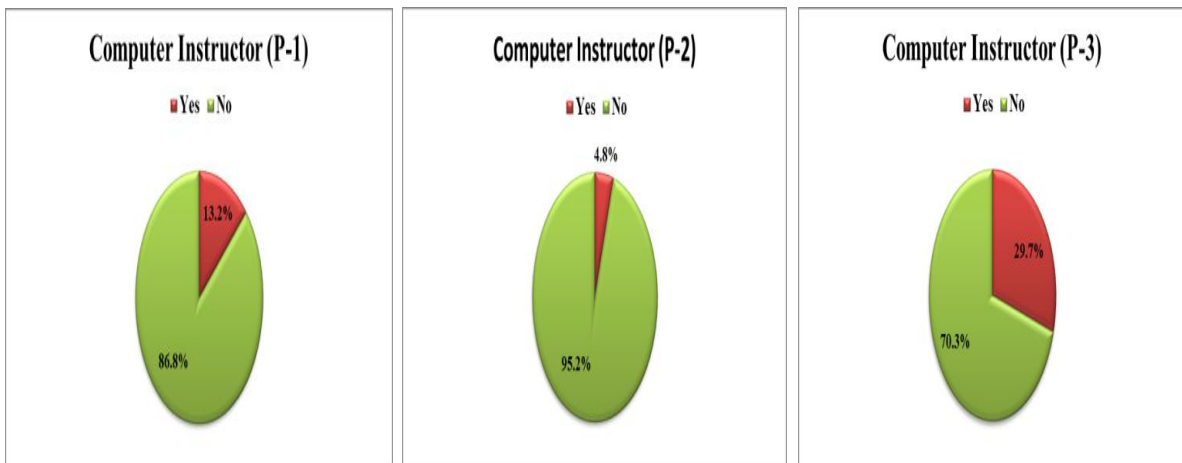
Fig 3.2.1 Status of Availability of Computer Instructors

The Principal of the sampled schools under the service of P-1(Fig.3.2.2) have specified that 14.7 per cent instructors have been appointed on regular basis whereas 14.4 per cent on contact basis. Due to non-availability of computer instructor, they are also receiving help from subject teachers (11.7 per cent) whereas response in this regard has not been given by 59.3 schools. Schools under the service of P-2 and P-3 show almost same situation. Many of the Principals inform that the services of computer instructors are sought on once-a-week basis. Once-a-week services are sought from the local computer institutes. It has also been reported by the Principals during the discussion that in the absence of computer instructors, the subject teachers perform duties as computer instructors as per their competency and availability.
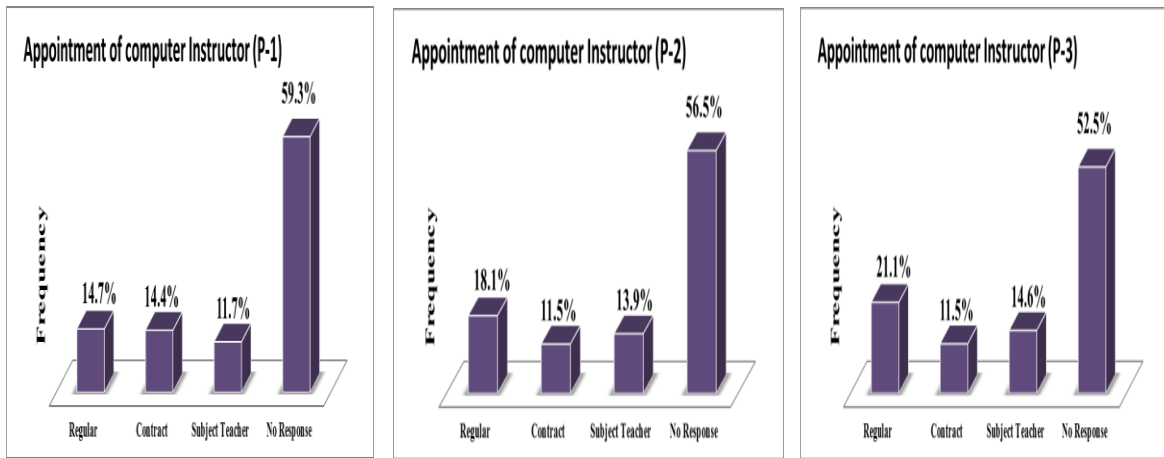
Fig. 3.2.2 Nature of Appointment of Computer Instructors

Again, 68.1 per cent of the Principals of schools under the service of P-1 have reported that they do not have Annual Maintenance Contract (AMC) whereas 17.7 per cent response positively. But 14.2 per cent Principals do not have any response regarding AMC (Fig.3.2.3). The Principals of schools under the service of P-2 also have responded in a same manner. But 40.0 Principals per cent under P-3 have reported that they do not have Annual Maintenance Contract (AMC) whereas 46.7 per cent have positive response. But 13.0 per cent Principals do not have any response regarding AMC.

Fig 3.2.3 Status of Annual Maintenance Contract signed by the Principals
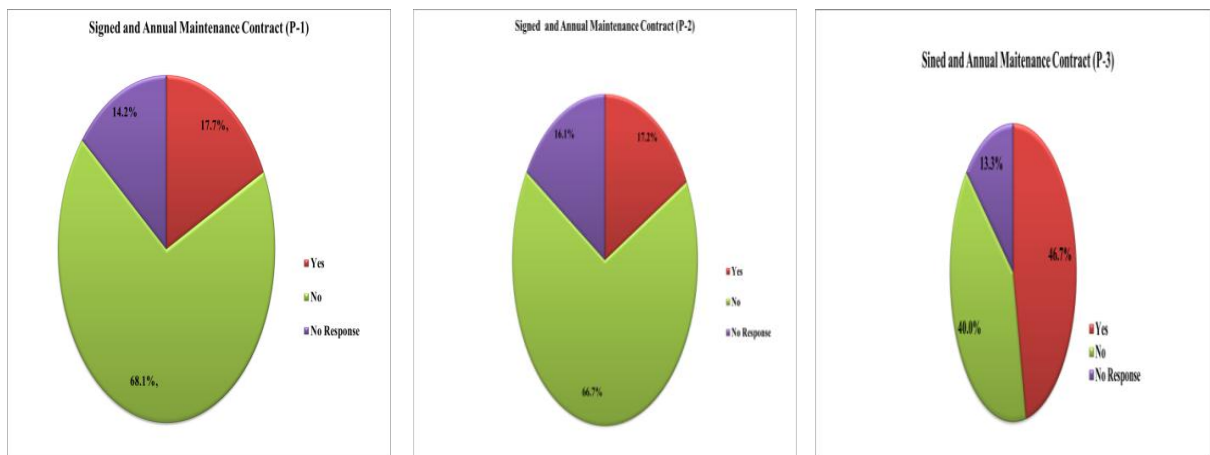
Study (Fig. 3.2.4) reflects that the Principals of schools under the service of P-1 receive preventive (25.3 per cent), corrective (13.4 per cent), adaptive (7.2 per cent) and perfective (5.9 per cent) measures of services from the local personnel for the maintenance of e-classroom whereas no

response has been given by 48.2 per cent of the Principals. More or less same scenarios in regarding the maintenance of e-classroom are found in the schools under P-2 and P-3 service.
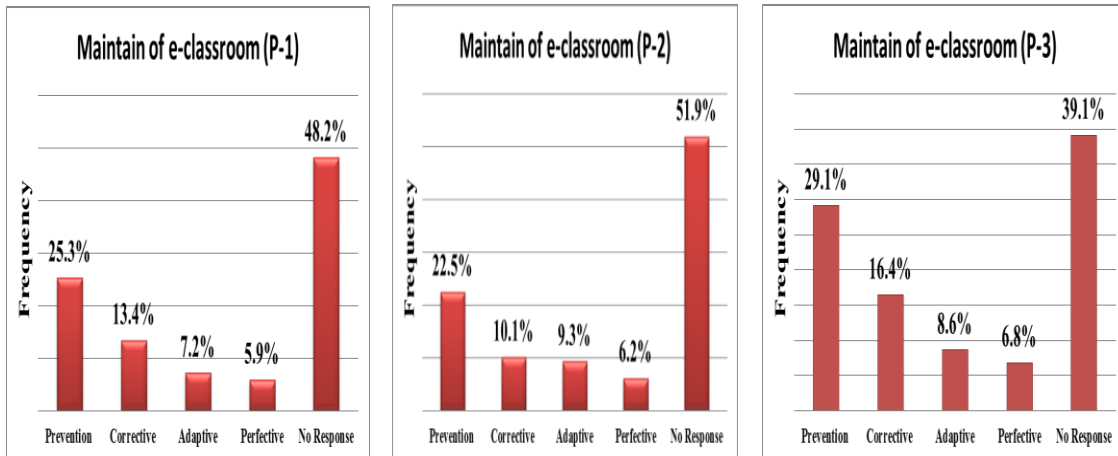
3.Fig.3.2.4 Maintenance of e-Classroom/computer Lab

It is evident from the Fig. 3.2.5 that repair and maintenance are the major issues which have been reported by most of the Principals. Maintenance is mainly done by many of them and also by teachers who have somewhat ICT background, particularly in absence of technical persons. In schools under the service of P-1, 11.2 per cent and 24.6 per cent Principal are facing Hardware and Software problems respectively whereas 43.5 per cent 20.4 per cent repair and maintain their instruments. In this regard, more or less same pictures are found in schools under the service of P-2 and P-3.
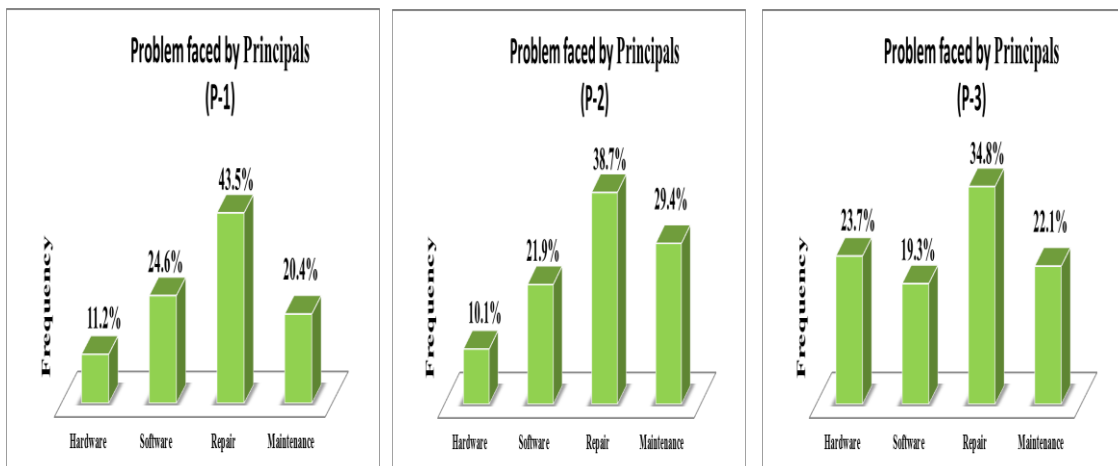
Fig. 3.2.5 Problems faced by Principals

Every school is concerned to adopt their own strategy of security measures to save the installed ICT devices. The Principals of schools under the service of P-1 (Fig.3.2.6) have reported that they do not have any security issues like- theft of ICT materials or such (72.9 per cent) whereas, a few have reported that they have faced this types of problem one-two times (16.7 per cent), three-four times

(4.5 per cent) and more than five times (5.9 per cent). Almost same situation has been reported by the Principals of the schools under the service of P-2 and P-3.
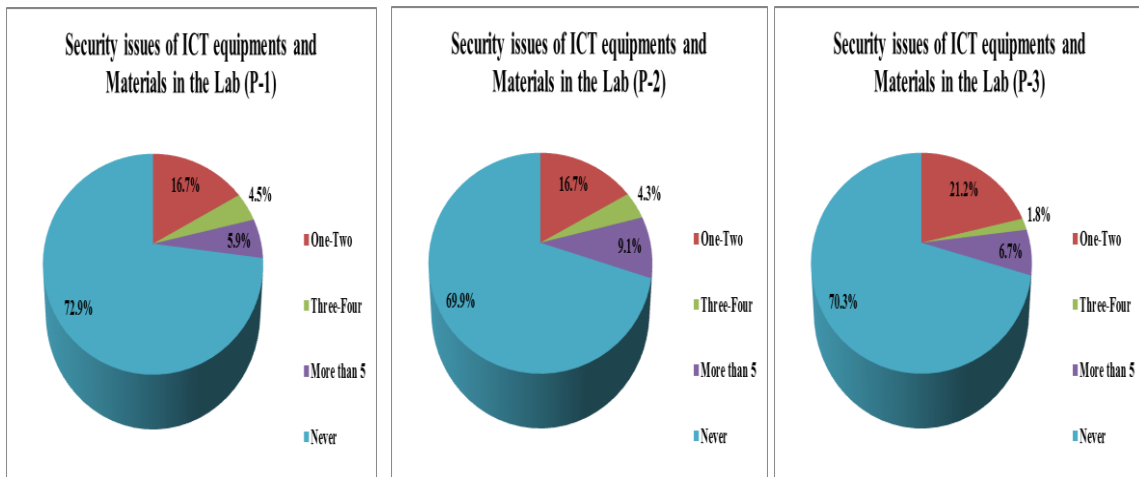
Fig. 3.2.6 Security issues related to ICT in Schools

The collected data reflect (Fig.3.2.7) that 23.3 per cent, 28.0 per cent and 31.5 per cent Principals of the schools, covered under the service of P-1, P-2 and P-3 respectively have reported to have varieties of educational CDs/DVDs.
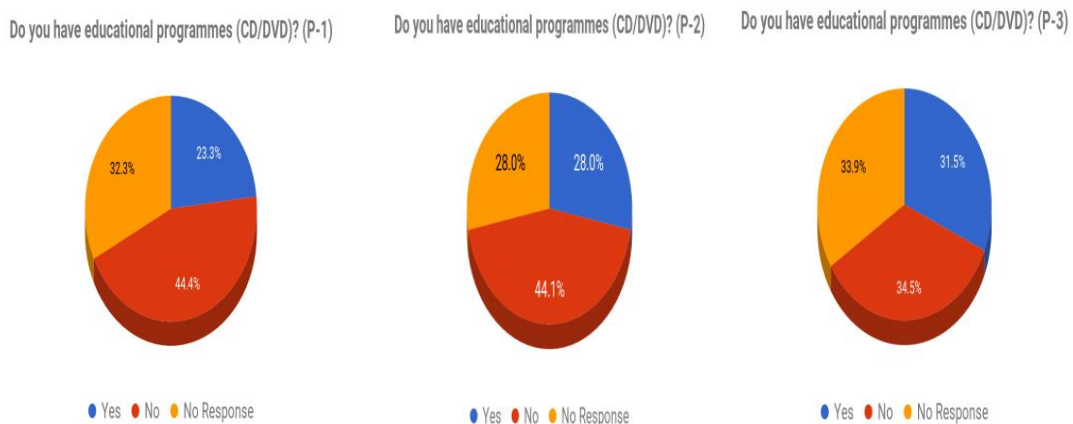
Fig. 3.2.7 Availability of educational programmes

Among them, only 30.2 per cent, 32.3 and 49.1 per cent Principals of schools under the service of P-1, P-2 and P-3 respectively are satisfied with the contents of the given CDs/DVDs (Fig. 3.2.8).
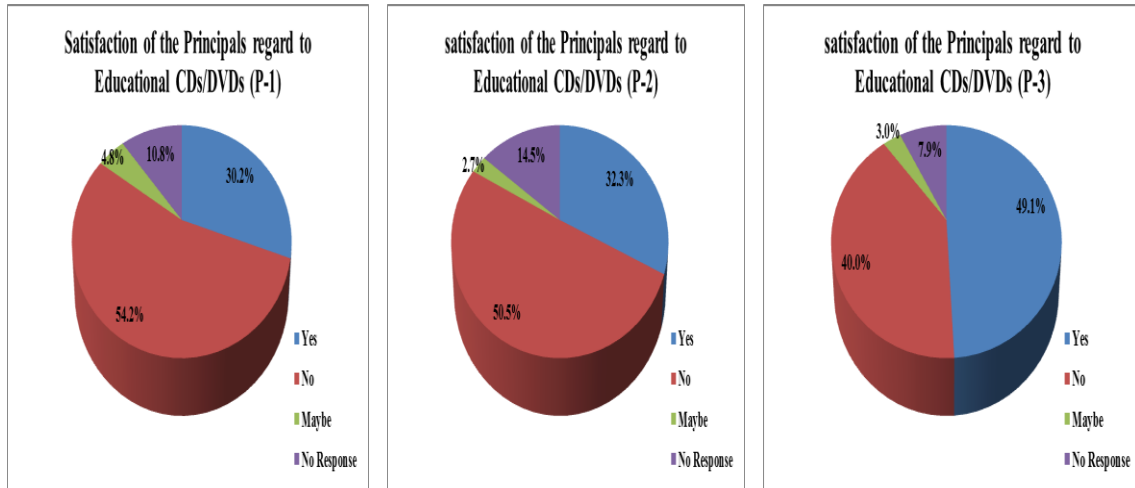
Fig. 3.2.8 Satisfaction of the Principals regard to Educational CDs/DVDs

3.2.1. ICT Pedagogy Integration in Classroom

Allotment of ICT Periods in Timetable

In some of the schools, a weekly school calendar has been developed to provide the e-Classroom/Computer/ICT benefits in a regular manner to the students. In this regard, 53.4 per cent, 49.1 per cent and 57.4 per cent Principals of schools under the service of P-1, P-2 and P-3 respectively have reported that they have specific periods, allotted in the timetable to use ICT for teaching subjects (Fig.3.2.9).
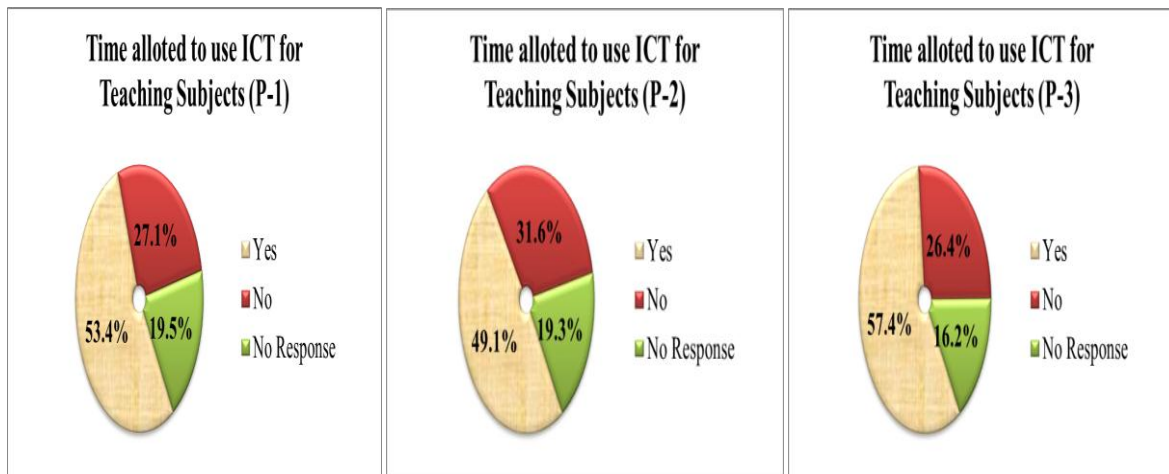
Fig. 3.2.9 Allotment of ICT Periods in Timetable

ICT has not been integrated with the school subjects in many schools and as a result, there specific space is not available in the timetable. In this regard, the Principals have reported that the computers are used for learning computers and ICT rather than for school subject. It has also been noted that the use of ICT integration has been reported highest for teaching computer education, followed by maths, science and social science. The least use has also been reported in subjects like-Language, Art and Physical education.

At the senior secondary level, the maximum usage of computers/ICT has been reported in the subject of Humanities, followed by the subject of Sciences and ICT in Commerce subjects.

The access to computers and internet is rarely available during the school timetable other than scheduled period within school hours as well as after school hours. Principals have reported that they have 'no problem' in using ICT. But electricity supply and network connectivity have been reported as the major hindrance.

Study recapitulates (Fig.3.2.10) that the Principals of schools under the service of P-1, P-2 and P-3 have reported that 33.1 per cent, 25.6 per cent and 34.2 per cent students respectively access to computer and internet less than two hours per week.
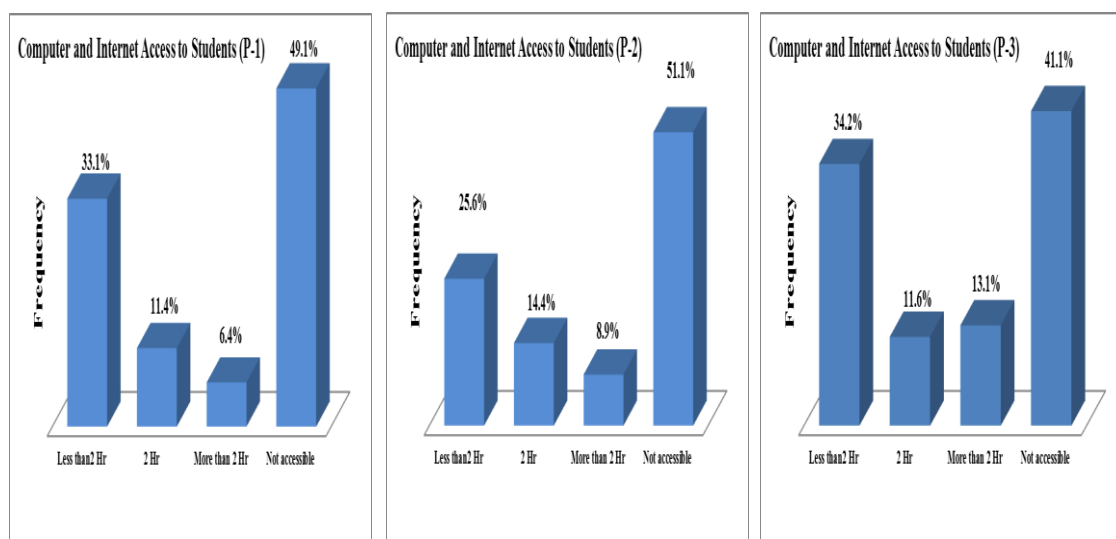
Fig. 3.2.10 Access to Computer and Internet by students in schools

Principals have further voiced that access to computer and internet by the teachers is insufficient. In this context, the Principals of schools under the service of P-1, P-2 and P-3 have reported that 30.4 per cent, 28.4 per cent and 24.7 per cent teachers respectively access to computer and

internet less than two hours per week (Fig.3.2.11). Therefore, there is a need for a suitable orientation/training programme for better implementation of ICT for teachers in all schools.
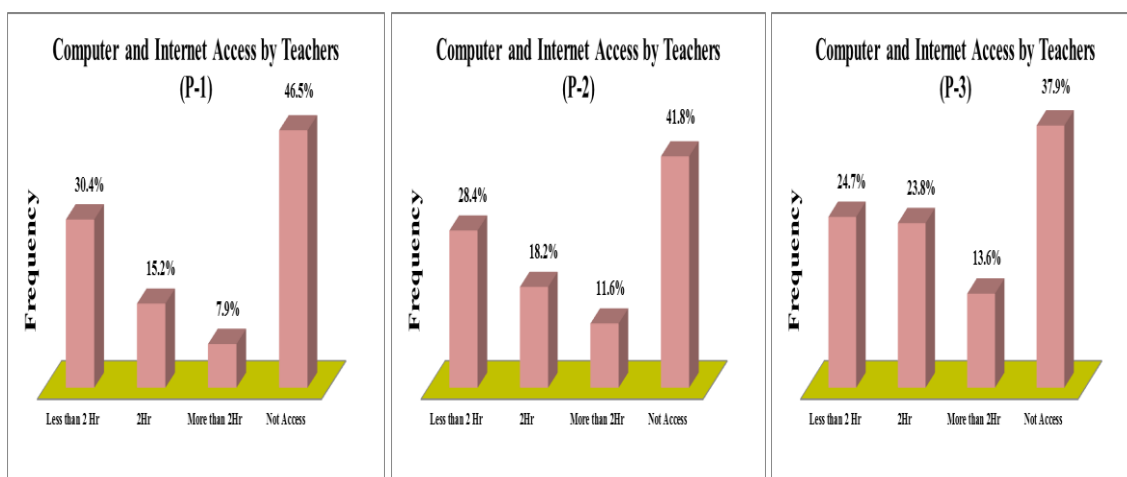
Fig.3.2.11 Access to Computer and Internet by teachers

Training for Developing ICT Competency among Teaching Staff

Training has been given to develop ICT competency among teaching staff varying from freshly appointed teachers with having experience of 10-15 years to senior teachers of more than 30 years teaching experience.

In this regard, study evidences (Fig. 3.2.12) that 45.8 per cent, 51.1 per cent and 53.9 per cent Principals of the schools under the service of P-1, P-2 and P-3 respectively are trained in ET/ICT. They have completed the basic level programme of duration 3 months, conducted by either RSCIT or RKCL.
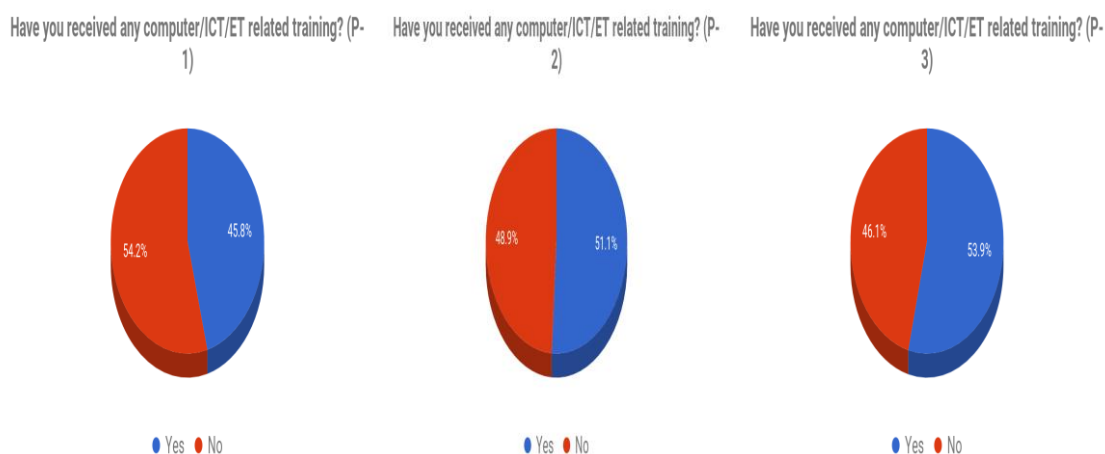
Fig. 3.2.12 Computer/ET/ICT Training

Among them, 38.2 per cent, 45.7 per cent and 35.8 per cent of the Principals of schools under the service of P-1, P-2 and P-3 respectively have rated their own competency as basic whereas their competency in intermediate and advanced levels are rarely counted by them (Fig. 3.2.13).
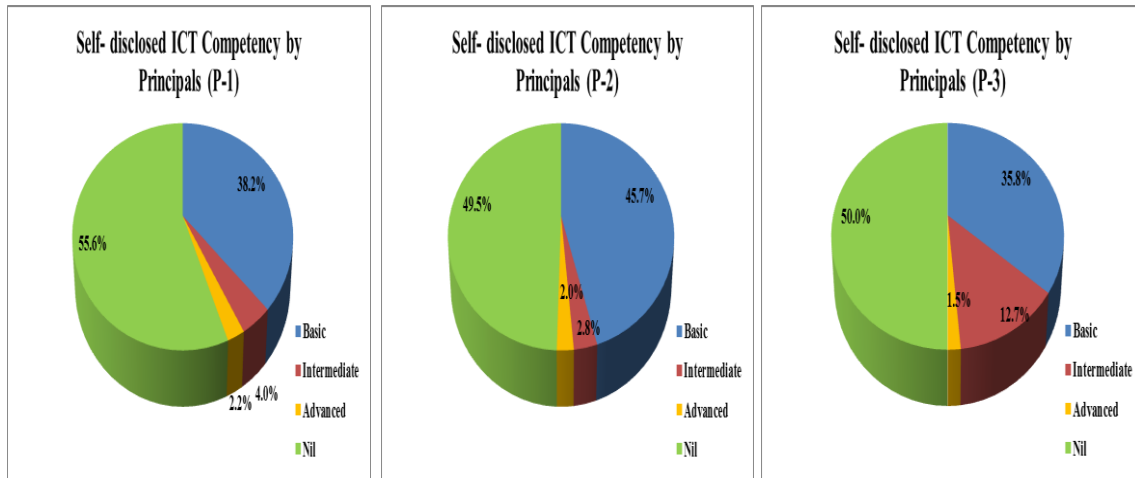
Fig. 3.2.13 Self-disclosed ICT competency by Principals

Out of total, 67.0 per cent, 56.5 per cent and 64.2per cent Principals of the schools under the service of P-1, P-2 and P-3 respectively have reported that students have basic ICT competency. But their competency in intermediate and advanced levels are very low (Fig. 3.2.14).
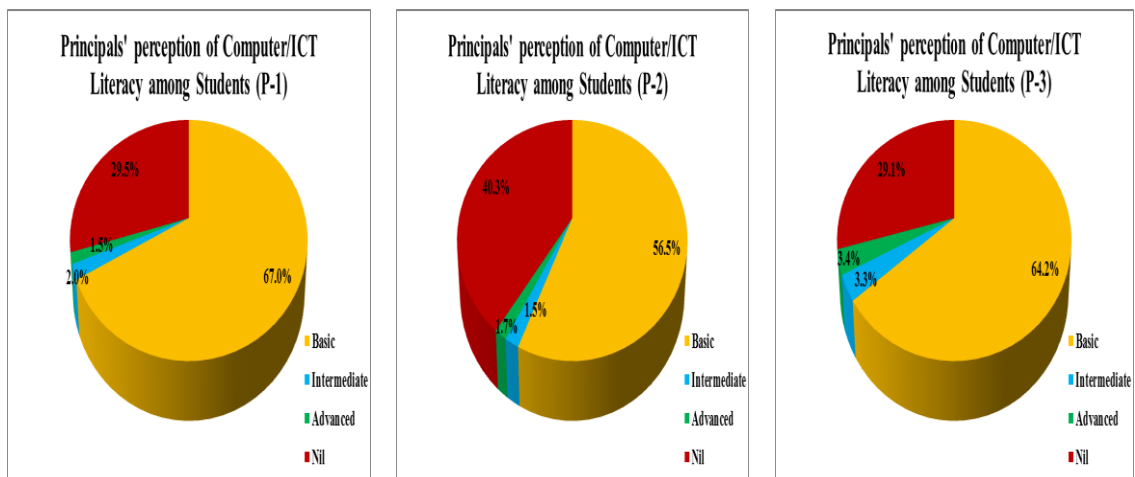
Fig. 3.2.14 Principals' perception of computer/ ICT Literacy among Students

Among them, 60.4 per cent, 51.4 per cent and 59.4 per cent Principals of the schools under the service of P-1, P-2 and P-3 respectively have reported that the teachers employ basic level ICT integrated pedagogy (Fig.3.2.15). They rarely practise intermediate and advanced level ICT integrated pedagogy whereas many of the teachers are not having knowledge of ICT use. Many Principals of

those schools have also added that teachers use only basic level of ICT skills for various purposes of academic activities such as professional development, enrichment of lessons, remedial teaching as well as management aspects, etc.
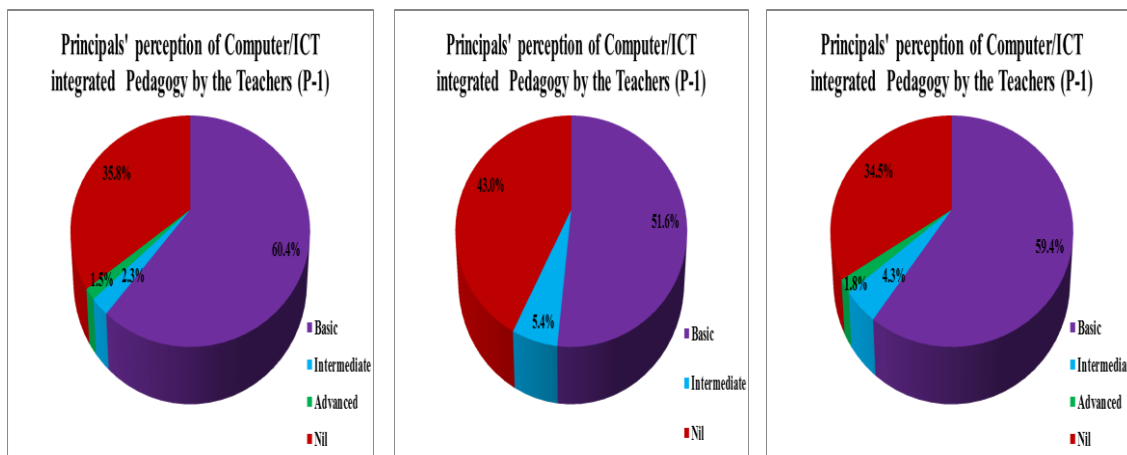
Fig. 3.2.15 Principals' perception of ICT Integrated Pedagogy by Teachers

3.3. Analysis of Data collected from the Teachers of the Schools

Under the study, data were uniformly collected from five teachers, teaching either one of the subjects such as Mathematics, Science, Social Sciences and Languages or other subjects like-Art, Physical Education, Computer Science, etc of the sampled schools. It is substantial that students take admission in Humanities at senior secondary level of schools of the state is high as compared to the students of Science and Commerce subjects and therefore, the number of teachers is high in Humanities. Random sampling method was adopted to collect data from five teachers (including computer teacher, if present) of every school. As a result of large number of teachers in Humanities, they were deputed to fill up the given questionnaire.

The collected data in this regard shows (Fig. 3.3.1) that the number of teachers, belonging to Humanities (63.4 per cent) is very high, followed by Science (24.2 per cent) and Commerce (12.4 per cent) subjects at senior secondary level.
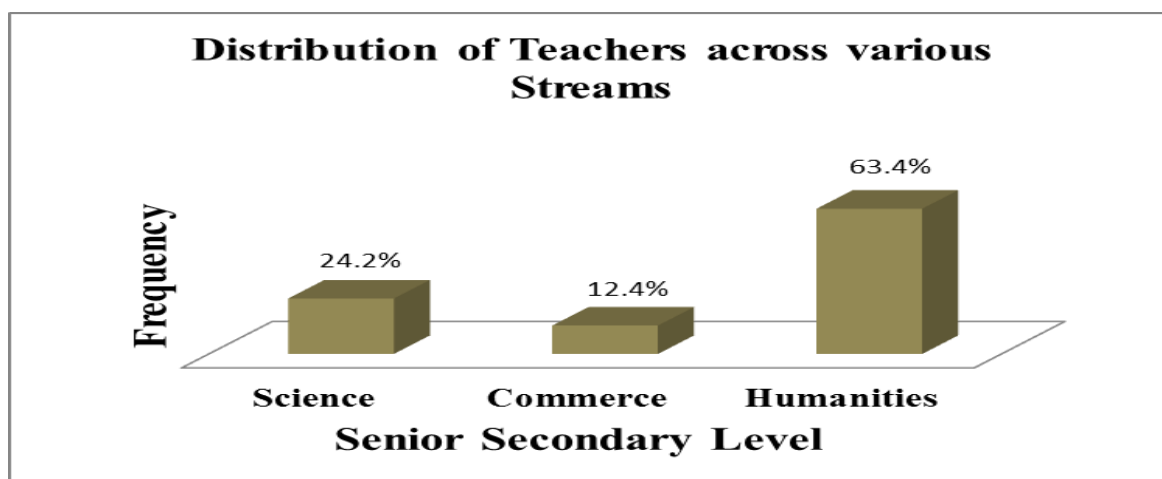
Fig. 3.3.1 Distribution of Teachers across various Streams

The collected data reveal (Fig.3.3.2) that 62.0 per cent teachers of the schools under the service of P-1, 63.2 per cent under P-2 and 70-8 per cent under P-3 are using computers for 1-5 years. Study also indicates that the number of teachers who are using computer for 5-10 years and more than 10 years are almost same in all three phases of schools. This specifies the lacunae in ICT integration and illustrates the need for specifically designed ICT programmes for teachers.
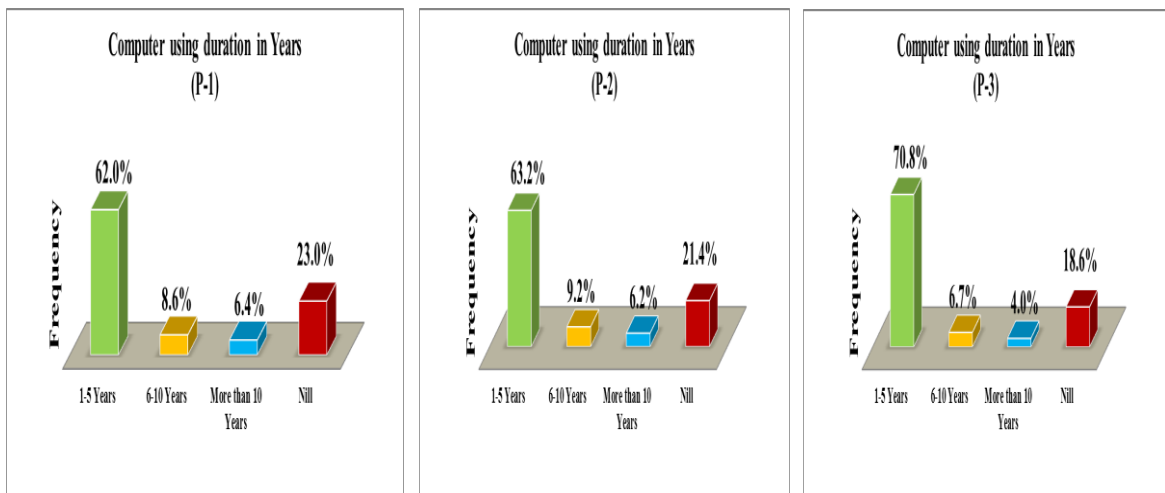
Fig. 3.3.2 Duration of usage of Computers by Teachers

It is evident from the Fig. 3.3.3 that 60.7 per cent, 65.4 per cent and 67.5 per cent teachers of the sampled schools, serviced under P-1, P-2 and P-3 respectively have undergone ET/ICT related basic level of training programmes with having a duration of three months, conducted by either RSCIT or RKCL.
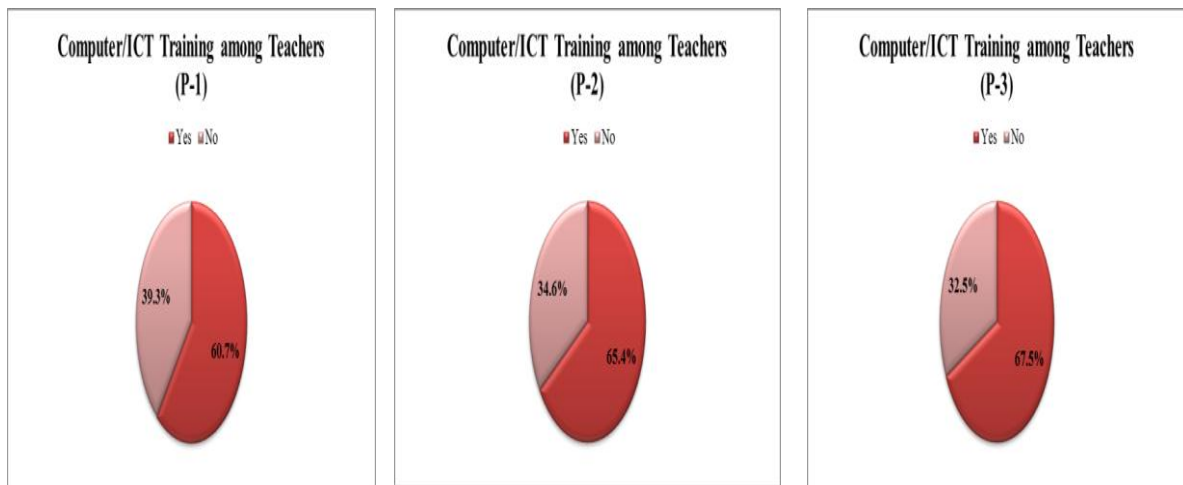
Fig. 3.3.3 Computer/ICT Training among Teachers

The collected data compare (Fig. 3.3.4) the teachers' software skills such as word processing, database management, presentation, spread sheet and concept mapping at various levels before and after ICT implementation in schools. The collected data shows that the basic level of enhancement on word processing before ICT implementation is 50.3 per cent, 52.1 per cent and 51.8 per cent and after ICT implementation is 58.7 per cent, 59.2 per cent and 58.6 per cent in schools under the service of P-

1, P-2 and P-3 respectively. In this regard, teachers of schools under the service of P-2 and P-3 also show almost the same scenery.
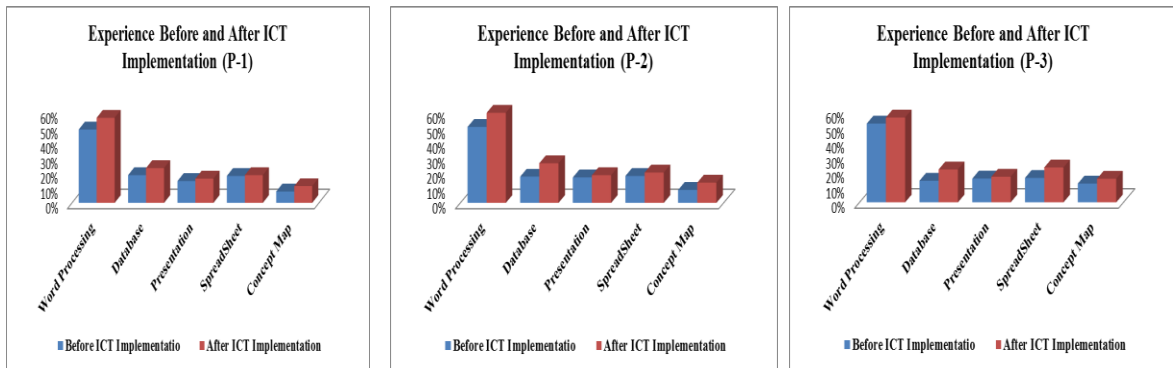
Fig. 3.3.4 Extent of various Software Skills among Teachers

It is evident from the Fig. 3.3.5 that the basic level of enhancement on graphic editing software before ICT implementation is 12.5 per cent, 15.9 per cent and 18.2 per cent and after ICT implementation is 28.6 per cent, 24.3 per cent and 27.2 per cent in schools under the service of P-1, P-2 and P-3 respectively. Almost similar level of enhancement is noted in audio editing, video editing and website creation in intermediate and advanced levels.
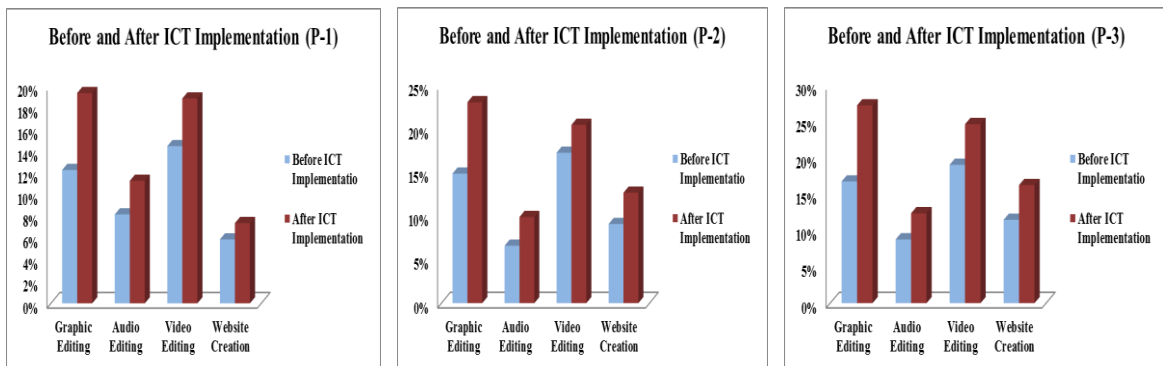
Fig. 3.3.5 Extent of various Software Skills among Teachers

Study shows (Fig. 3.3.6) that there are some enhancements of software skills in the area of Blog, Wikipedia/Wikimedia/Google docs, social bookmarking and social networking at various levels namely basic, intermediate and advanced. The basic level of enhancement on social networking before ICT implementation is 47.5 per cent, 49.8 per cent and 44.8 per cent and after ICT implementation is 52.8 per cent, 54.7 per cent and 58.2 per cent in schools under the service of P-1, P-2 and P-3 respectively. Similar pattern of enhancements is found in the area of Blog, Wikipedia/Wikimedia/Google docs and social bookmarking in all levels.
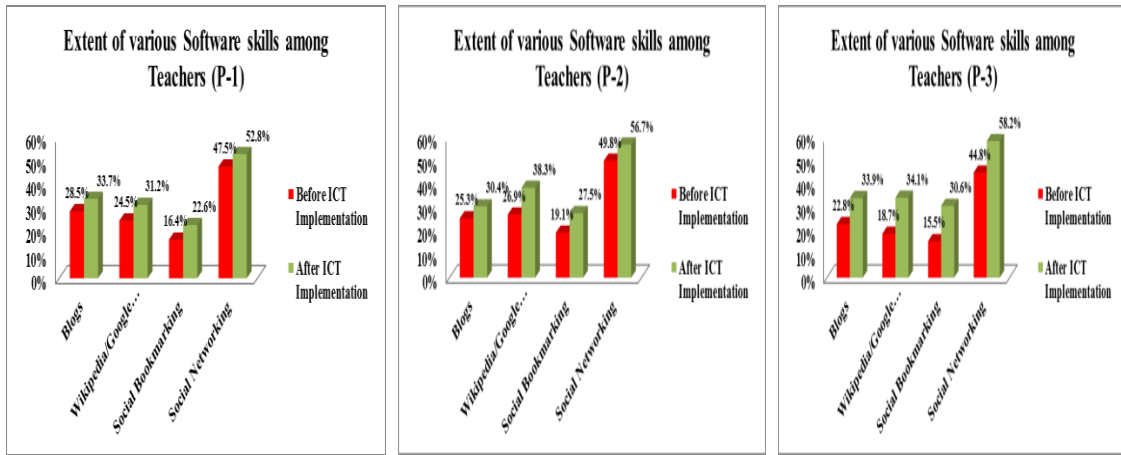
Fig. 3.3.6 Extent of various software Skills among Teachers

It is evident from the Fig. 3.3.7 that there are some enhancements of software skills namely online groups such as Google groups, e-mail and web syndication at various levels like- basic, intermediate and advanced. Data exhibit that the basic level of enhancement on e-mail before ICT implementation is 91.4 per cent, 83.5 per cent and 84.2 per cent and after ICT implementation is 98.5 per cent, 88.3 per cent and 89.1 per cent in schools under the service of P-1, P-2 and P-3 respectively. Almost similar pattern of enhancement is also found in social bookmarking and web syndication.
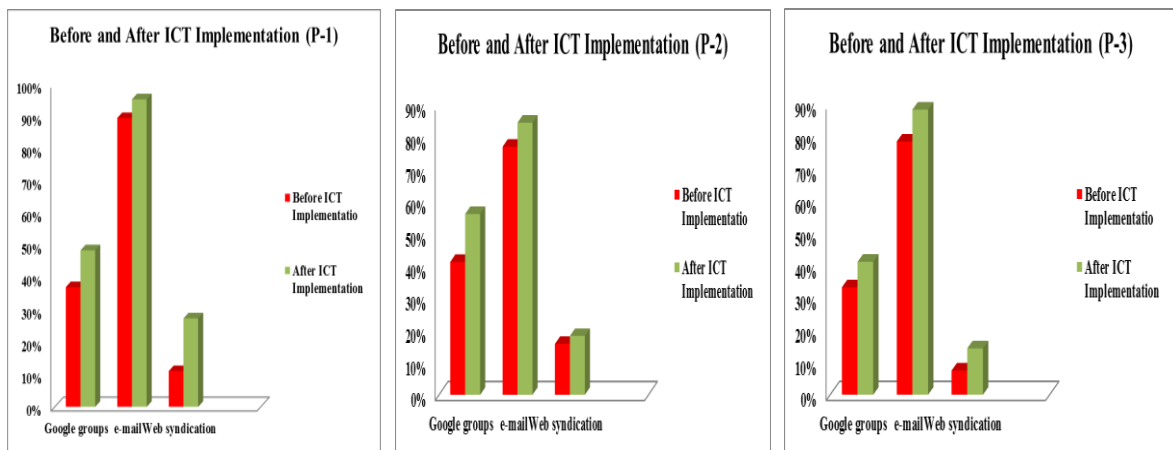
Fig. 3.3.7 Extent of various Software Skills among Teachers

Fig. 3.3.8 shows that the basic level of enhancement on online video chat before ICT implementation is 30.2 per cent, 33.5 per cent and 28.9 per cent and after ICT implementation is 38.3 per cent, 43.8 per cent and 34.2 per cent in schools under the service of P-1, P-2 and P-3 respectively. Almost similar pattern of enhancement is done in online text chat, videoconferencing and podcasting.
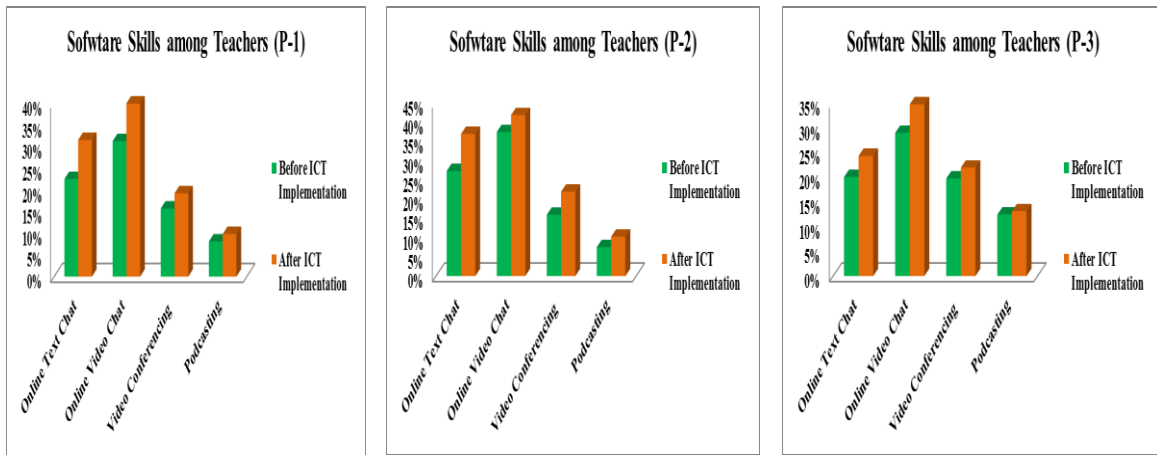
Fig. 3.3.8 Extent of various Software Skills among Teachers

It is evident from the Fig. 3.3.9 that the basic level of enhancement on scanning before ICT implementation is 21.1 per cent, 27.5 per cent and 47.5 per cent and after ICT implementation is 35.7 per cent, 39.6 per cent and 58.1 per cent in schools under the service of P-1, P-2 and P-3 respectively. Study further shows almost similar pattern of enhancement on online media streaming, PDF file archiving and installing software.
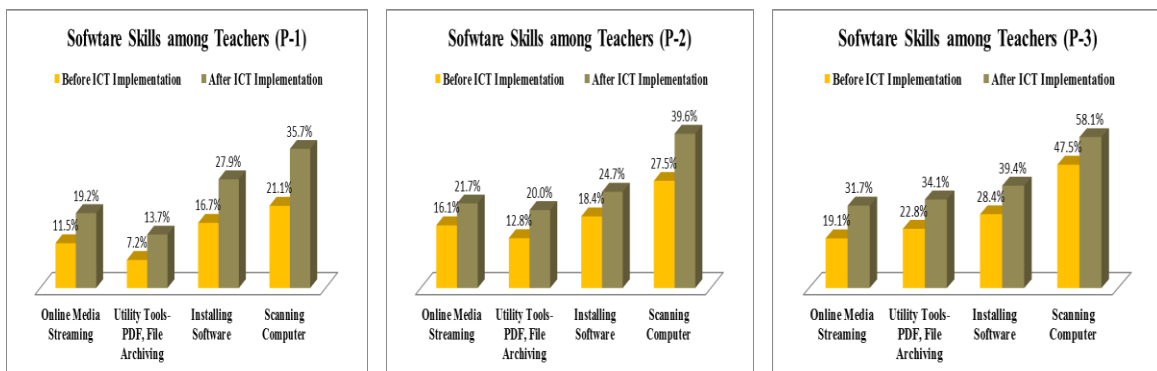
Fig.3.3.9 Extent of various Software Skills among Teachers

The collected data indicate that there are some improvements of teachers specially in the area of hardware skills in ICT after participating in the training programme. The data reveal the improvement particularly in the skills of using word processor, email and social media. It is reflected from the above presentation that the teachers are more skilled in hardware aspects such as scanning virus, connecting the mobile or the camera with PC/laptop, connecting and using the printers and projectors after the training programme. A fewer percentage of teachers uses ICT for academic purposes like- professional development, reports, timetable and logbooks or collaboration with the

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academic fraternity out of school time. There, teacher training programme is rarely organised specially, for the integration of ICT in pedagogy. The collected data might further be utilised to suggest the development of a suitable training programme specially designed for teachers as per their needs for ICT integration pedagogy and administration.

Study shows (Fig. 3.3.10) that only 15.6 per cent, 22.2 per cent and 29.3 per cent teachers of schools under the service of P-1, P-2 and P-3 respectively have reported for having allotted period for ICT use in class. The specific allotted periods where computers/ICTs are used are maximum that of computer education/ICT as a subject, followed by Science and then Maths at senior secondary level.
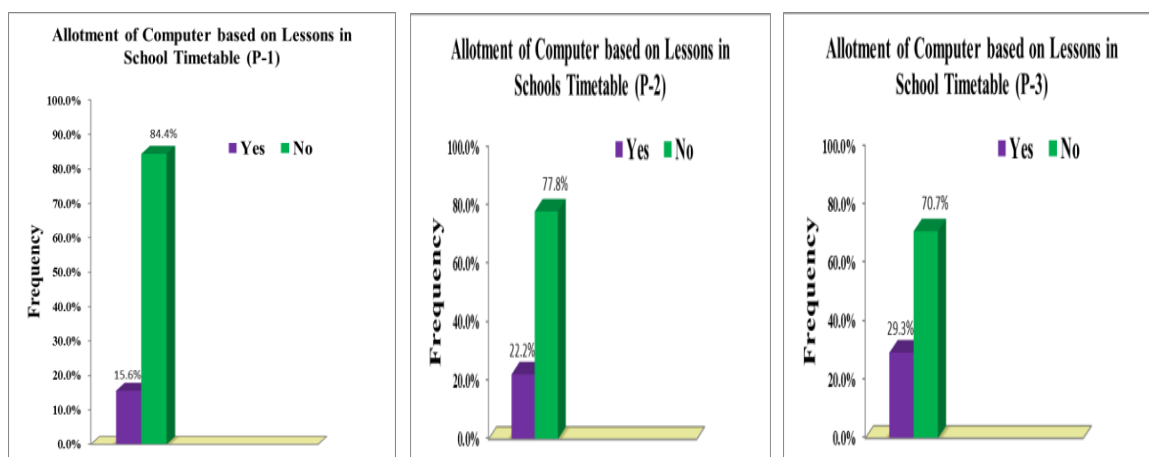
Fig. 3.3.10 Allotment of computer based lessons in school timetable

Fig.3.3.11 presents that the percentage of ICT non-users is very high in the schools of all phases. But out of all users in schools at the senior secondary level under the service of P-1, P-2 and P-3, Humanities are found to be reported to have maximum allotted periods for using ICT in subjects.
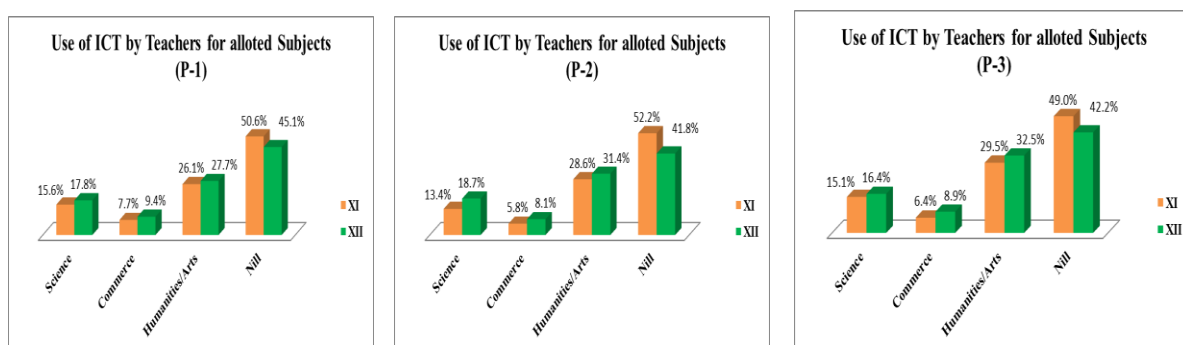
Fig. 3.3.11 Allotment of Computer based Lessons in Senior Secondary Schools

Fig. 3.3.12 revels that the percentage of teachers who do not access to computer in the schools of all phases is very high. Out of total users, 37.6 per cent, 28.7 per cent and 33.7per cent

teachers in schools under the service of P-1, P-2 and P-3 respectively access to computers less than 2 hours per week.
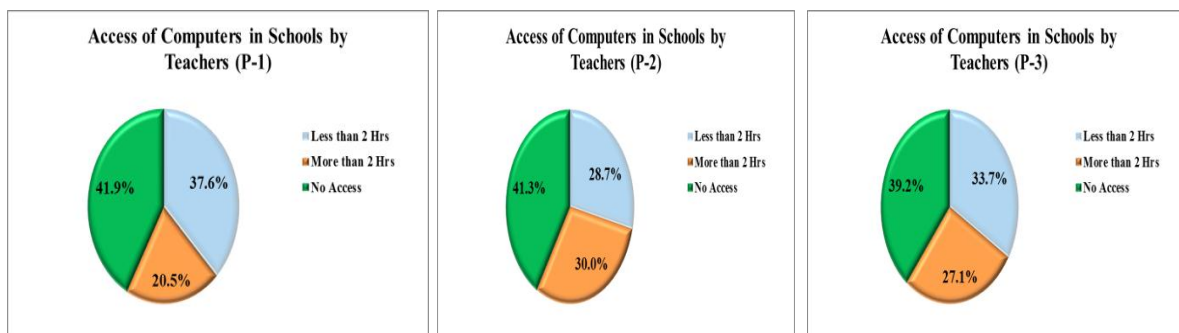
Fig. 3.3.12 Access to Computers in School by Teachers

Fig. 3.3.13 exhibits that the percentage of teachers who do not access to the internet in the schools of all phases is very high. Out of total users, 35.8 per cent, 29.7 per cent and 24.4 per cent teachers in schools under the service of P-1, P-2 and P-3 respectively have access to internet less than 2 hours per week.
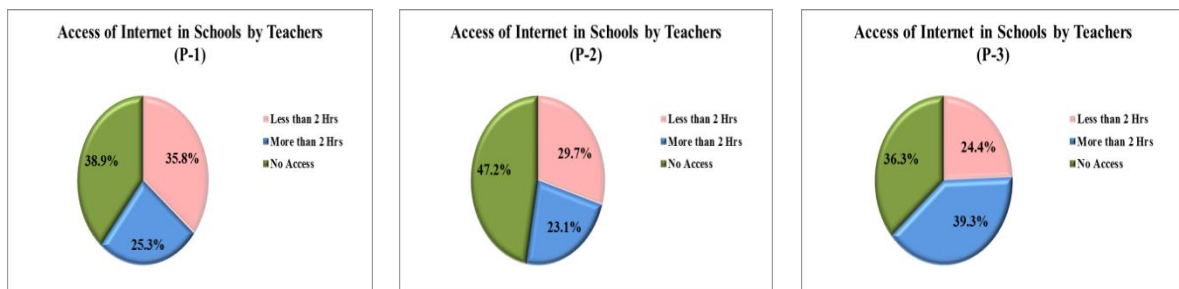
Fig. 3.3.13 Access to Internet in School by Teachers

It is evident from the Fig. 3.3.14 that in absence of computer teacher and AMC, 7.2 per cent, 11.2 per cent and 16.3 per cent subject teachers in schools under the service of P-1, P-2 and P-3 respectively resolve hardware and software problems by their own efforts. Study further shows that percentage of computer teachers and AMC in resolving problems is almost same under different phases.
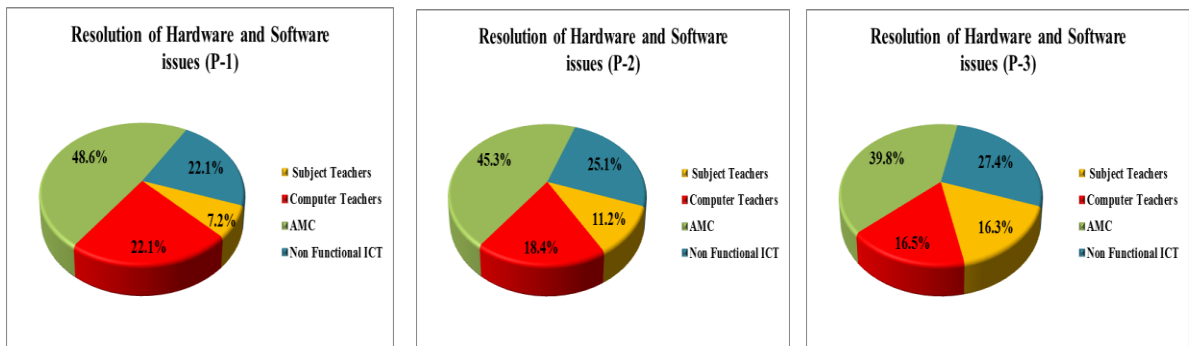
Fig. 3.3.14 Resolution of Hardware and Software Problems by Teachers

According to the Fig. 3.3.15, 47.7 per cent, 48.9 per cent and 57.0 per cent teachers in schools under the service of P-1, P-2 and P-3 respectively have perceived that the subject understanding of the students is enhanced due to the use of ICT.
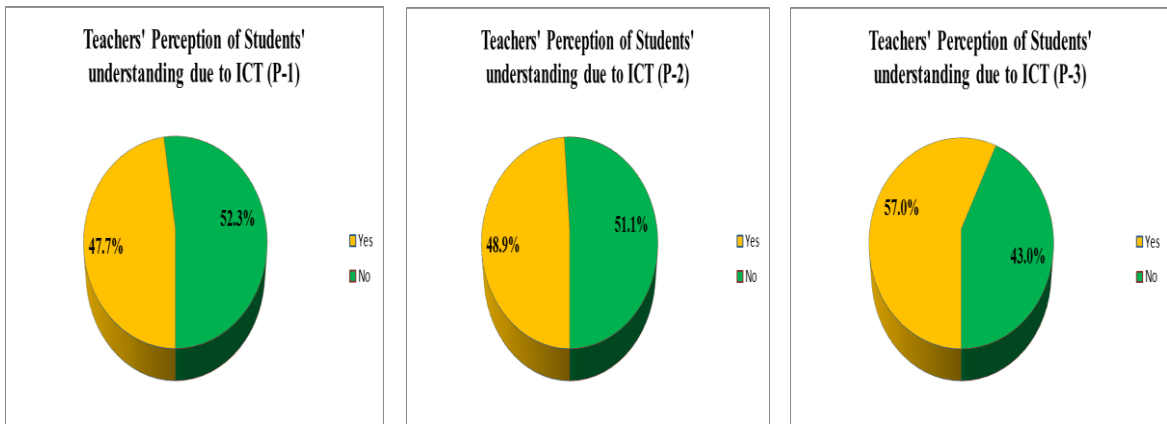
Fig. 3.3.15 Teachers' perception of Students' understanding due to ICT

Impact of ICT Integrated Pedagogy

● Almost, all the teachers of the sampled school have opined that use of ICT increases academic achievement, student motivation, better understanding of the subject and positively impact on the other academic aspects of learning.

● The teachers have also discoursed that they have more access to use technology by smart phones as personal devices. But as a reason of irregular practice, they are not able to use ICT facilities. Beside this, teachers are not sufficient in number in accordance with needs of schools. Therefore, they are always pressurized to conduct traditional classroom teaching and other non-teaching activities so that

they do not have enough space to learn ICT and to organize ICT-based classroom teaching. Hence only a few of the subject teachers are effectively integrating ICT in teaching-learning.

● In a thorough discussion, it has been revealed that teachers majorly use ICT in pedagogy through PPT. Others like-2D resources, Images, Diagrams, etc. are rarely used by teachers.

● Teachers have expressed that due to unavailability of e-Contents and computer related training materials (Hard copies), they face difficulties in transacting curricular activities.

● The data collected from the teachers indicate a pressing demand for an orientation programme for effective ICT integrated pedagogy. The collected data further specify that paucity of separate computer instructor, irregular internet connectivity and out dated computer system in each school always make hurdle for ICT usage in education.

3.4. Analysis of Feedback of Students on ICT Integrated Pedagogy

Data were collected from 10 to 20 students of each of the sampled schools. The sample covered Govt. schools including Co-educational, Boys' Schools and Girls' Schools. In case of data collection, enough care was taken to collect the sample equally across the gender. Hence the collected data comprises 52.5 per cent of female students. The collected data also comprises to the students who are studying in rural, urban, semi-urban, as well as socio- ethnic and religious back ground. Students were in majorly of class-IX and X in case of secondary levels and class-IX, X and XI in case of senior secondary levels among the sampled schools.

Majority of students forming the sampled data have reported that they have been using computers and internet since long back. But the data, collected from the Principals indicate that the use of computers and internet by students in the school is minimal. The data also reveal that the use of ICT by students is mostly done through their personal devices, specially using smart phones rather than devices of schools.

However, it is evident from the study (Fig. 3.4.1) that 8.7 per cent, 16.5 per cent and 28.8 per cent students of the schools under the service of P-1, P-2 and P-3 respectively have reported to be able to use computer for more than 2 hours per week.
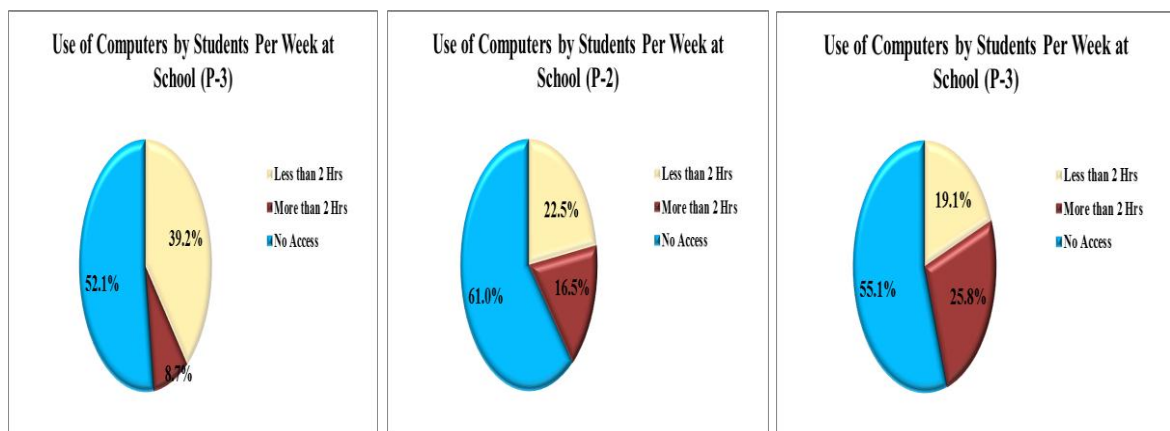
Fig. 3.4.1 Use of Computers by Students at Schools per week

Fig. 3.4.2 depicts that 25.8 per cent, 25.2 per cent and 28.9 per cent students of the schools under the service of P-1, P-2 and P-3 respectively have reported to be able to use internet for less than 2 hours per week.
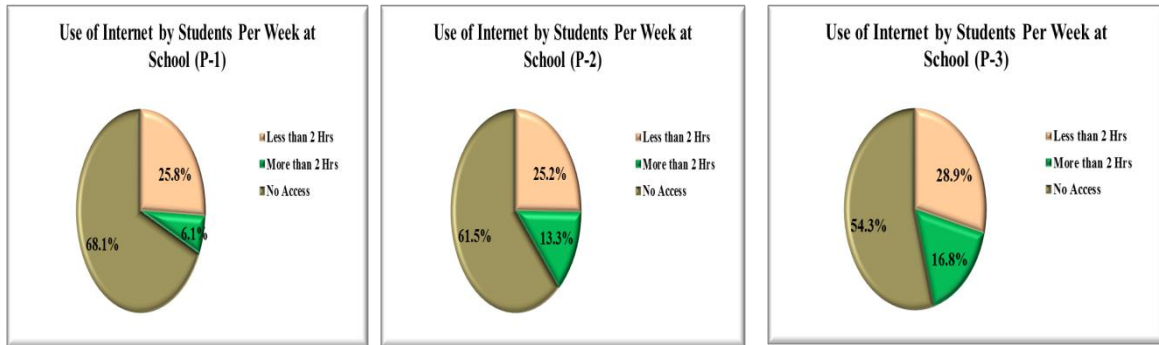
Fig. 3.4.2 Use of Internet by Students at Schools per week

The collected data reproduces (Fig. 3.4.3) that only 9.3 per cent, 12.6 per cent and 15.8 per cent students of the schools under the service of P-1, P-2 and P-3 respectively have computers at home.
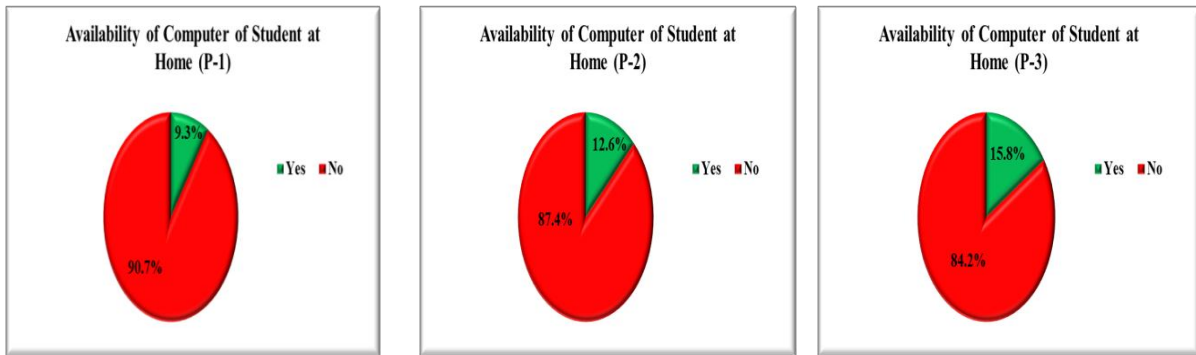
Fig. 3.4.3 Availability of computers by students at Home

The collected data replicates (Fig. 3.4.4) that only 44.2 per cent, 49.1 per cent and 45.4 per cent students of the schools under the service of P-1, P-2 and P-3 respectively have internet facility at homes. This difference points out that smart phones are used for internet surfing.
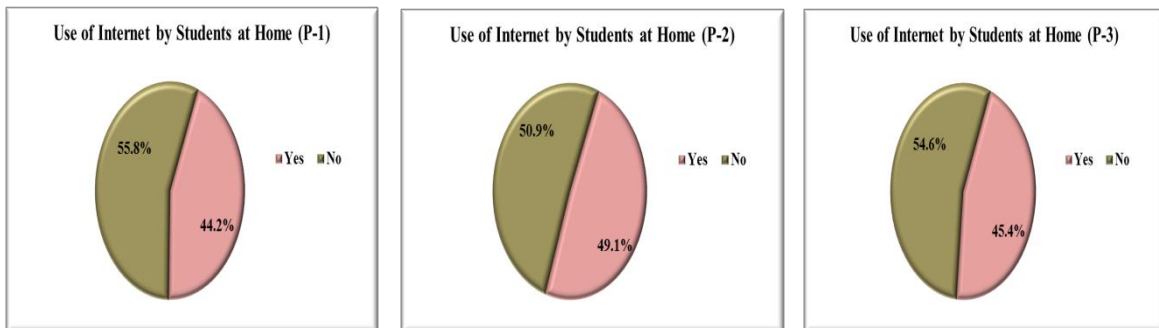
Fig. 3.4.4 Use of Internet by Students at Home

Fig. 3.4.5 indicates that basic to advanced skills in computer learning package, project work, drawing, developing newsletter and brochure of the students are gradually decreasing. Study specifies

that only 16.1 per cent, 26.0 per cent and 24.9 per cent students of schools under the service of P-1, P-2 and P-3 respectively have somewhat better skills in developing newsletter than the skill of other areas.
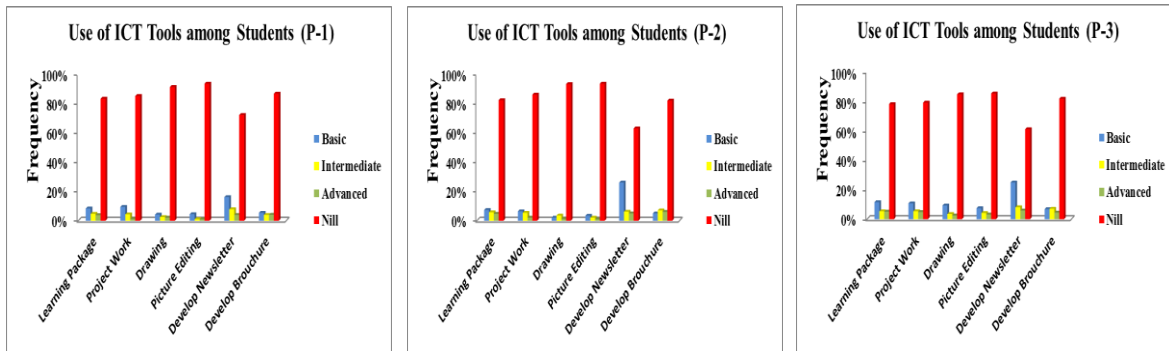
Fig.3.4.5 Students Skills in using ICT Tools

The data, collected from the students specify (Fig. 3.4.6) that most of students have basic ICT skills in word processor, presentation, spread sheet and graphics software whereas skills in e-mail and games of some of them are found in advance. In this regard, study shows that 23.2 per cent, 26.5 per cent and 28.0 per cent students of schools under the service of P-1, P-2 and P-3 respectively have somewhat high skills in using e-mail as compared to the skill of other areas.
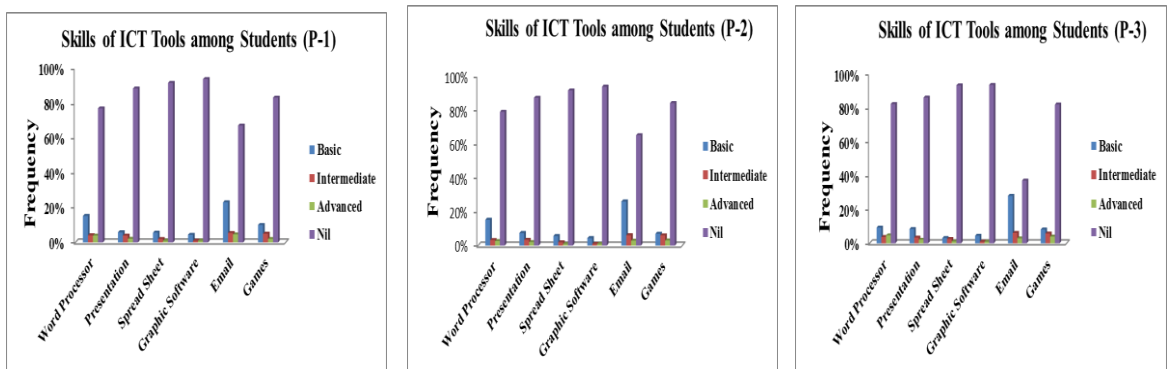
Fig.3.4.6 Students Skills in using ICT Tools

A large group of students have reported to be active on social media with Facebook and WhatsApp being the most widely used (Fig. 3.4.7). Study further represents that 35.3 per cent, 37.3 per cent and 37.2 per cent students of schools under the service of P-1, P-2 and P-3 respectively are active on social media.
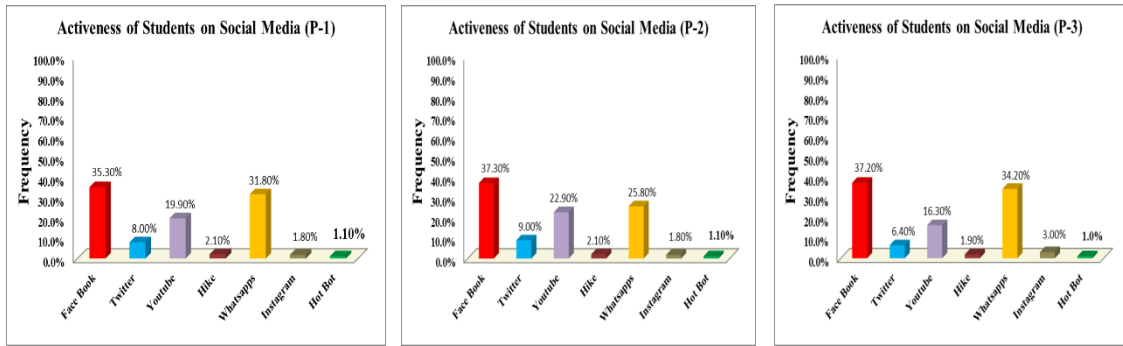
Fig. 3.4.7 Use of Social Media by Students

Study reflects that a large group of students use social media for searching, whereas, analysing, uploading, downloading and creating are done rarely by them (Fig. 3.4.8). Study further finds out that 35.6 per cent, 38.3 per cent and 39.1 per cent students of schools under the service of P-1, P-2 and P-3 respectively are always active for searching.
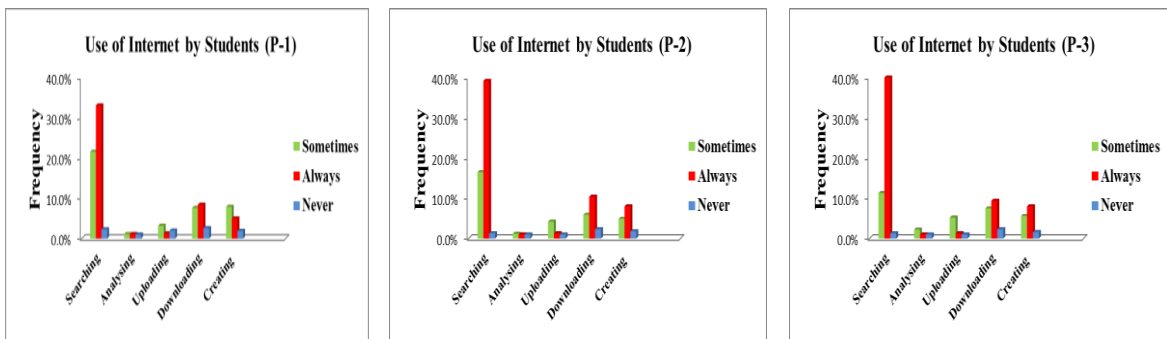
Fig. 3.4.8 Use of Internet by Students for various Purposes

Study shows (Fig. 3.4.9) that 26.6 per cent, 31.5 per cent and 46.8 per cent students of schools under the service of P-1, P-2 and P-3 respectively always use internet for accessing audio programmes.
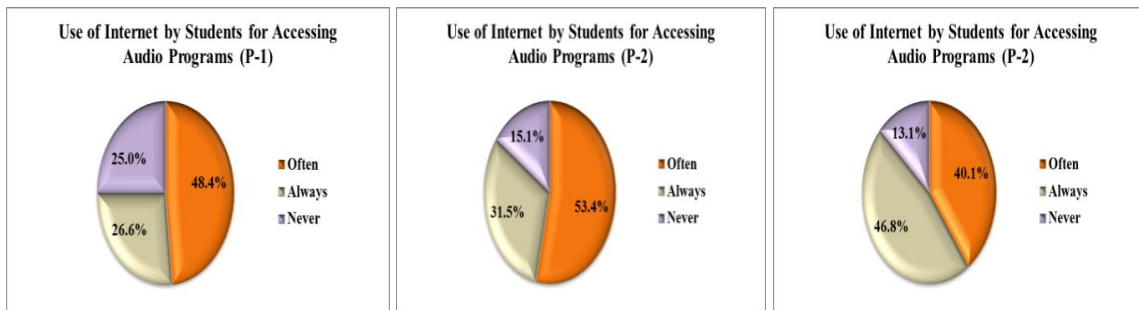
Fig. 3.4.9 Use of Internet by Students for accessing Audio programmes

It is evident from the Fig. 3.4.10 that 28.9 per cent, 36.0 per cent and 55.7 per cent students of schools under the service of P-1, P-2 and P-3 respectively always use internet for accessing video programmes.
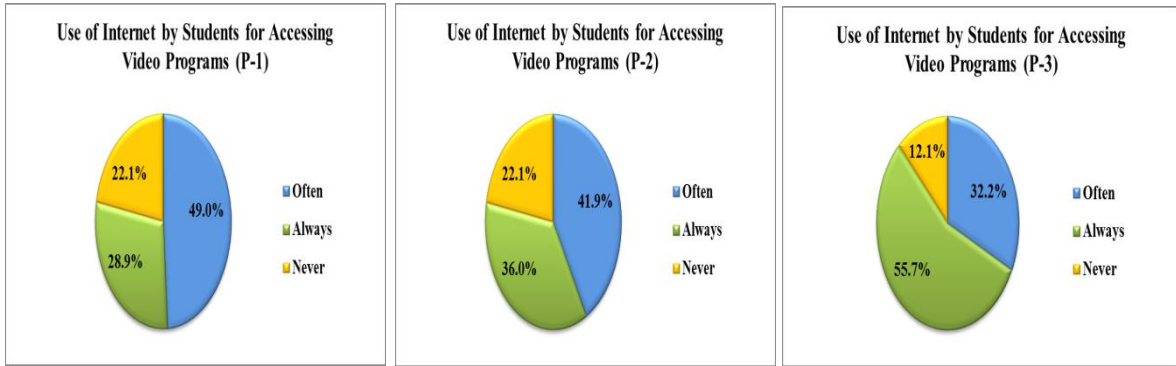
Fig. 3.4.10 Use of Internet by Students for accessing Video programmes

● Most of the students from the sampled schools have reported that computer and internet are used for the subject of computer education/ICT in the schools, followed by science and maths.

● Games, tools used for pictures, surfing internet, etc have been reported as the most enjoyable activities for them.

● Students have also reported that they use internet facility at cyber cafe, e-Seva Kendra and residence of their own, friends and relatives.

● Most of the students studying in both rural and urban schools are interested to operate computers installed in computer Lab. But because of less number of computer sets in Lab, they do not have enough scope to practise computer regularly. In most of the cases, they are getting chance to practise computer exercise by rotation or by an interval of one or two days. In some of the schools, computer Labs existed, but was not functional.

Fig. 3.4.11 indicates that 11.8 per cent, 17.9 per cent and 13.8 per cent students of schools under the service of P-1 use computer, internet and other technology respectively for learning social science subject. But this trend is found to be gradually reducing in other subjects.
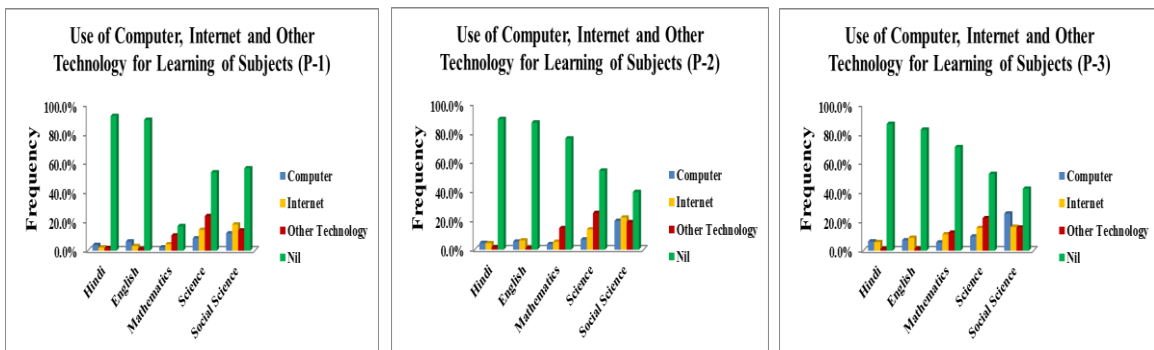
3.4.11 Use computer and other Technology in Subject

4. Results of the Evaluation Study

The Evaluation study, conducted across 639 Government Secondary and Senior Secondary Schools of Rajasthan under P-1, P-2 and P-3 has revealed the following:

- The Directorate has reasonably attempted to provide ICT infrastructure in the schools.

- In spite of administrative problems, many schools have been trying to integrate ICT in teaching-learning. This is evident from the 'Shala Darpan' that a web portal of the Rajasthan Government has been created and there, all the data of the school including mark sheets of the students are uploaded.

- Several schools try to ensure the up-keeping and maintenance of ICT infrastructure facilities mostly at the local level, whenever required. It is noted that there is a large scale ignorance about the Annual Maintenance Contract (AMC) resulting in the subsequent underutilization of the ICT infrastructure.

- The ICT infrastructure appears to be underutilized with respect to the integration with pedagogy and does not appear to be yielding expected results proportionate to the investment.

- The number of access points (computer terminal, internet connection, etc) is limited and students and teachers do not get adequate time at the terminals.

- In most of the schools, electricity supply is a major deterrent in the utilization of the ICT infrastructure facilities.

- The range of software is grossly inadequate. Study also reveals that the Principals and teachers are not satisfied with the software and the educational programmes provided to their schools.

- The state has come up with a three-month training programme to train teachers on ICT skills but the coverage is wanting. The Principals/Head Masters and teachers have rarely completed the training programme. Further the training appears to be limited to a literacy programme. A differentiated programme for the Principals/Head Masters, ICT teachers and subject teachers of different subjects does not appear to have been articulated, though the needs of each of these groups are distinct.

- Teachers including the Principals/Head Masters in large numbers, though have undergone a basic three months training programme, have not demonstrated sufficient awareness of the possibilities of ICT, particularly, in enhancing their own skill-set and utilising ICT to improve teaching-learning.

- It has been found that the teachers are most comfortable accessing technology through their mobile devices and try to use these devices for teaching-learning activities.

- Students are generally aware of ICT possibilities but do not appear to be getting adequate exposure to ICT in schools.

- ICT infrastructure is mainly being utilized for computer education which is not as per the mandate of ICT@Schools Scheme. Therefore, there is a need for organizing training programme for ICT in education.

- Most of the secondary and senior secondary levels of students use mobile phone in their house. They are also having experience on the activities related with word processing, games, internet surfing, editing pictures, audio and video editing, social networking such as Facebook, WhatsApp, etc.

- Study also reproduces that students get access to the computers mainly under Utkarsh and CLICK Yojana. But, CLICK Yojana has not realized its full potential because of parental inability to pay the fee.

5. Recommendations

The Evaluation study, conducted across 639 Government secondary and senior secondary schools of Rajasthan under P-1, P-2 and P-3 has revealed the following recommendations:

1. Computers and accessories should be duly provided to the schools as per the recommendations of ICT@School Scheme.

2. Very often, the downtime for the hardware is very high because for every single servicing, the schools have to depend upon external agencies. The competencies of the teachers should be developed so that they are in a position to provide servicing where so ever possible, on their own.

3. There should be due measures for preventive, corrective, adaptive and perfective maintenance.

4. There should be systematic mechanism for disposal and renewal old systems.

5. Attempts should be made to raise the ICT competency level of the teachers and learners from basic to higher level.

6. Periods should be allocated in the school timetable for the ICT pedagogy integration. Moreover, the duration of ICT pedagogy integration should be progressively enhanced.

7. In-service teacher training programmes in every subject of the schools should be organised for ICT pedagogy integration. Professional development programmes should be organised for the school teachers on ICT in education cutting across ICT skills, info-savvy skills, ICT aided constructivist skills, digital skills with special focus on ICT pedagogy integration and e-Content development.

8. Indigenous culture should be developed for ICT in education wherein, the teachers and learners are in a position to develop and implement e-Content.

9. Teachers should be groomed on the entire management information system series right from admission through Time-Space-Personnel Management (TSPM), CAI, Learning Resource Management (LRM) and development of evaluation rubrics.

10. There should be Continuous Professional Development of school teachers on ICT in education. For that, the teachers may be deputed for in-service training programme. Competency of teachers should be developed through new media choice.

11. There should be networking among all schools across the state for sharing one another's innovative practices.

Annexure-1

List of the Tools:

1.1. Evaluation of ICT@School Scheme in Rajasthan

Checklist for Schools (To be filled up by The Principal / Headmaster / Nominated Teacher)

1. Name :

2. U-Dise Code of School :

3. Designation (Mark only one box)

☐ Computer Teacher / ICT Lab   ☐ Subject Teacher/ ICT Lab in-charge
        in-charge   ☐ Headmaster
                                          ☐ Principal

4. Gender :   Male   [   ]   Female   [   ]

5. Date of Birth:

6. School Name:

7. Complete Mailing Address:

8. Telephone (Landline) number: 9. Mobile number:
                                               (should contain 10 digits)

10. Email ID:

Section B
General Information about Computer Lab Established Under ICT@School

S.No.	Items	Total Units	Functional Units
1	TFT / Display Unit		
2	CPU High end		
3	CPU Low end		
4	UPS / Inverter		
5	Generator		
6	N-Computing Devices		
7	Computer Table		
8	Computer Chair		
9	Laser Printer		
10	Dot Matrix Printer		
11	Scanner		
12	Projector		
13	Set Top Box		
14	C-Band Antenna		

15	Solar Plate		
16	Keyboard		
17	Mouse		
18	Head Phone		
19	Speaker		
20	Web Cam		
21	Mouse Pads		
22	Ceiling Fans		
23	Wall Clock		
24	Meter (Electricity)		
25	LED TV		
26	TV Remote		
27	Lighting Equipment		
28	Internet Connection		
29	Ethernet Switch		
30	Dust Covers		

Information of Software and Internal Hardware Capacity

S.N.	Items	Total Units	Functional Units
1	Hard Disk		
2	RAM		
3	Processor		
4	Operating System		

1.2. List of the Tools

1.2.1. Questionnaire for Principals

Basic Information

1. Name:
2. Designation (Tick ONE box): ☐ admaster ☐ ncipal

3. Gender: ☐ Male ☐ ale
4. Date of Birth:
5. Name of the School:

6. Complete Postal Address:
7. Telephone Number: Mobile Number:
8. Email ID:
9. Total Years of Service completed :
10. Does your school have a website (Tick ONE box)?   Yes ☐   ☐
11. Please Mention the Website link:
12. Have you received any computer related training? (Tick ONE box)
    ☐ Yes   ☐
13. Name of the Training programme:

14. Training Content (Main Focus):

15. Year and duration of the training:
16. Name of Institute/Agency provided Training:
17. Do you have computer Instructor? (Tick ONE box) Yes ☐   ☐
18. Whether he/she is regular or contract teacher? _____
19. What is the salary paid to them per month? _____
20. Who repairs and maintains the computer and network in the e-Classroom?

(Tick one Yes or No)	Yes	No
Are there any problems related to the hardware, software and its repair and maintenance?		
Are you satisfied with the computer software provided?		
Are you satisfied with the educational programmes (CD/DVD) provided?		
Do you have specific periods allotted in timetable (classwise) for the eClassroom?		

21. Class:
22. Subject:

23. Number of Periods:
24. Name it:

Additional Information for e-Classroom

(Tick one Yes or No)	Yes	No
Do the students have access to the computer and internet during the school hours in addition to the scheduled periods?		
Indicate the extent of use		
Do the students have access to the computer and internet after the school hours?		
Indicate the extent of use		
Please rate you own ICT competency?		
Extent of effectiveness after eClassroom facilities being used which of the following activities for which the e Classroom facilities in your school are being used? (If used rate the extent of its effectiveness, Mark only ONE box)		
Training the students in basic computer literacy.		
Student's independent use for academic learning.		
Teachers use for classroom instruction.		
Teachers use for personal purpose.		
Remedial Teaching.		
Enrichment Lessons		
Accounting		
Record Keeping		
Admission		
Examination		
Correspondence		
Library Management		
Any other		

25. Indicate the extent of effectiveness (Tick ONE box):
☐ Poor   ☐ Good   ☐ Very Good

26. Please indicate the extent: _____

(Tick one in Box)	Always	Sometimes	Never
When e-Classrooms being used in various subjects?			
Computer Science			
Mathematics			
Science			
Social Science			
English			
Hindi			
Art			
Music			
Physical Education			
Other Languages			
Other Subjects			

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27. Have you ever faced security issues (theft) of ICT equipment and materials in the lab?

☐ Yes   ☐ No

28. Are you satisfied with the service rendered by the service provider having   Annual Maintenance Contract (AMC)?

☐ Yes   ☐ No

29. What problems do you face with respect to use of e Classrooms in your school?

30. What are your suggestions for enhancing the use of e Classroom in your school?

1.2.2. Questionnaire for Teachers

1. Name:

2. Gender: ☐ MALE   ☐ FEMALE   ☐ TRANSGENDER

3. Date of Birth:

4. Complete Mailing Address: School name:

Place (Village/town/city):

Block: District: Pin code:

5. Telephone (Landline) number of the school:
6. Mobile number:

7. Email-ID of the teacher:

8. Designation: ☐ Computer Teacher   ☐ Subject Teacher

9. Total teaching experience of the teacher:

10. Have you received any computer related training?   Yes ☐   No ☐

11. Name of the Training programme:

12. Title of the training programme:

13. Year and duration of the training:

14. Name of Institute/Agency that provided Training:

15. Please tick on the appropriate box as per subjects and classes that you teach

Class	English	Hindi	Third Lang.	Maths	Science	Social Scienc	Physical Educatio	Art	Other	Music	Nil	Others
I												
II												
III												
IV												
V												

VI												
VII												
VIII												
IX												
X												

16. Tick the appropriate in case of senior secondary school teacher.

Class	Science	Commerce	Humanities/Arts
XI			
XII			

17. Indicate the number of years since when you are using computers:

☐ 1-5 Years ☐ 5-10 Years ☐ More than 10 Years

Please indicate your competency of various tools of e-class.

18. Software Skills before / after the implementation of e-class.

Software Skills	BEFORE IMPLEMENTATION			AFTER IMPLEMENTATION		
	Basic	Intermediate	Advance	Basic	Intermediate	Advanced
Word processing						
Database						
Presentation						
Spreadsheet						
Concept map						
Graphics editing						
Audio editing						
Video editing						
Website creation						
Blog						
Wikipedia/Wikimedia/Google						
Social bookmarking						
Social networking						
Online forum						
Online groups						
E-mail						
Web syndication						
Online text chat						
Online video chat						
Videoconferencing						
Podcasting						
Media streaming						
Utility tools pdf file						
Installing software						
Scanning computer for virus						

19. Indicate extent level of software skills

1	2	3	4	5

20. Hardware Skills before /after the implementation of e-Class

	Before implementation			After implementation		
	Basic	Intermed	Advance	Basic	Intermedia	Advanc
Connecting pc (cpu, monitor, mo keyboard)						
Connecting projector, printer, s						
Connecting and using pen drive /exte storage device						
Burning CD/DVD						
Using printer						
Using scanner						
Using projector						
Connecting and using camera						

21. Indicate extent level of Hardware skills

1	2	3	4	5

22. Please indicate your knowledge of using various tools of BEFORE/AFTER the implementation of e-class.

Activities	Before			After		
	Basi	Intermedi	Advanc	Basi	Intermedi	Advanc
Database: creating student database						
Personal, non-professional use of computer						
Record keeping						
Communicating with parents						
Timetable						
Online calendar						
Maintaining stock register						
Logbook/ teacher diary						
Other administrative tasks						
Recording marks using spread sheet						
Word processing						
Finding resources and information on the internet						
Accessing resources: streaming using online database/ repository						
Accessing resources: downloading using online database						
Developing presentation as teaching resources						
Developing digital content as self-learning materials						

Your own Professional Development Activities Online Courses, Teacher Forums, Webinar etc.					
Create online assessment quizzes, test and activities digital rubrics and electronic portfolios					
Using of learner management systems for teaching learning					
Using live conferencing platforms to manage projects					
For online project based/problem based learning					
Developing and using digital concept map					
Graphics - editing photos and albums					
Recording video, editing and streaming					
Recording audio, editing and podcasting					
Creating and using blog in education					
Using publishing software for newsletter, brochure etc.					
Authoring platform (Wikipedia)					
Authoring tool (google docs)					
Creating social bookmarking of educational resources					
Collaborating with colleagues and students using social networking					
Using online form and groups for collaborative learning					
E-mail communication with colleagues students and parents					
Using live chat for communicating each other					
Use of video conferencing in learning					

Additional Information

23. Do you have specific periods allotted in the school timetable (class-wise) for the computer based lesson?

24. Do you have specific periods allotted in the school timetable (class-wise) for the computer based lesson?

Class	Science	Commerce	Humanities/Arts
XI			
XII			

25.Indicate the Expertise level of using ICT tools

1	2	3	4	5

26. Access to computer per week:

Less than 2 hours	More than 2 hours	Not Accessible

27. Access to Internet per week?

Less than 2 hours	More than 2 hours	Not Accessible

28.How do you resolve hardware & software related issues? Mark only oval.

◯ Yourself   ◯ Computer Teacher   ◯ AMC

29. Have you received any incentive/award for the use of ICT? Mark only oval.

◯ Yes   ◯ No

Mention the kind of problem encountered by you in implementing computer programme:

30. Tick a suitable option pertaining use of e-classroom in your opinion. Mark one oval.

Use of E-Classroom	Agree	Neutral	Disagree	Strongly Disagree
Increase student motivation				
Improve your teaching effectiveness				
Increase student achievement				
Make your work simple				
Improve your professional competency				
Other				

Any other benefit:

31. Mention the technology tools used by you personally.

32. Do you see any improvement in the subject understanding of the students because of ICT usage? Mark only oval

Yes ◯   No ◯

33. What kind of orientation you would like to undergo for effective ICT integration?

34. What are your suggestions for better implementation of ICT programme in your school?

35. Are you satisfied with the agency having AMC? Mark only oval.

Yes ◯   No ◯

36. What are the various resources like books, manuals, CDs/DVDs etc. used by you? Please specify:

37. Do you think that there is an improvement in the learning of students because of the e-class project implementation? Mark only one oval.
   ⬭ Yes   ⬭ No

38. What are the various resources like books, manuals, CDs/DVDs etc. used by you? Please specify:

39.   Do you think that there is an improvement in the learning of students because of the e-class project implementation? Mark only one oval.

     ⬭ Yes   ⬭ No

40.   State challenges and problems that you have faced while working with various groups listed below:
41.   Your suggestions for the better Utilization of ICT Resources in the school.
42.   With regards to student learning:
43.   With regards to subjects:
44.   With regards to administrative Work:
45.   Any other suggestions/comments:

1.2.3. Questionnaire for Students

Basic Information

1.   Email address:
2.   Name :
3.   Gender: ⬭ Male   ⬭ Female   ⬭   Transgender
4.   Date of Birth :
5.   Name of the School :
6.   Class :
7.   Since how many years have you been using computers? :

<u>Please indicate your level of skills in the following</u>

8.   Technology / ICT Tools (*Mark only one oval per row*)

Technology / ICT Tools	Basic	Intermediate	Advanced	Nil
Word Processor				
Presentation				
Spreadsheet				
Graphics Software				
Email: Sending and Receiving				
Games				
Internet				
Learn from Computer Based Learning Packages/CD				
Computer Based Project Work				
Create Drawings				

Edit Picture				
Develop Newsletter using ICT tools				
Develop Brochure				

9. Tick the appropriate Social Networking Sites that you use

☐ Facebook ☐ Whatsapp ☐ Twitter ☐ Instagram

☐ Google + ☐ Blogs others _____

10. Surfing internet search, find and use information from internet (Mark only one oval per row)

Surfing internet search	Often	Always	Never
Searching			
Asking			
Accessing			
Analysing			
Applying			
Assessing			
Creating			
Uploading			
Downloading			

11. Accessing to Audio Programmes (Mark only oval)

○ Often ○ Always ○ Never

12. Accessing Video Programmes (Mark only oval)

○ Often ○ Always ○ Never

13. Develop Websites (Mark only oval)

○ Basic ○ Intermediate ○ Advanced

14. Discussion using Online Forum (Mark only oval)

○ Often ○ Always Never ○

15. Discussion using Online Chat (Mark only oval)

○ Often ○ Always ○ Never

Questions regarding e-classroom

16.   In which subjects do you use computers, internet and other technology? (Check all the apply)

Computer uses	computers	internet	Other Technology
Mathematics			
Science			
Social Science			
English			
Hindi			
Other Language			
Music			
Art			
Any other			

17. Who deals with computers or ICT tools in e-class? (*Check all the apply*)

Subject Teacher   ⬭   Computer Teacher   ⬭

Other Teachers   ⬭   Content Provider   ⬭   Other   ⬭

18.   What are your favourite activities using computers in class?

19.   How many hours per week do you use computers? (*Mark only oval)*

Less than 2 hours   ⬭   More than 2 hours   ⬭   Nil   ⬭

20.   How many hours per week do you use the internet for surfing websites in school? (*Mark only oval)*Less than 2 hours   ⬭   2 Hours   ⬭   More than 2 Hours ⬭

21.   Do you have computer at home? (*Mark only oval)*   Yes ⬭   No ⬭

22.   Do you have internet at home? (*Mark only oval*)   Yes   ⬭   No ⬭

23. Do you have personal e-mail address? (*Mark only oval*)   Yes ⬭   No ⬭

24. Where else you access these facilities? If you don't have access to computer and internet facilities in your school