Third Party Evaluation of

ICT@Schools Scheme in Chandigarh-UT

2014

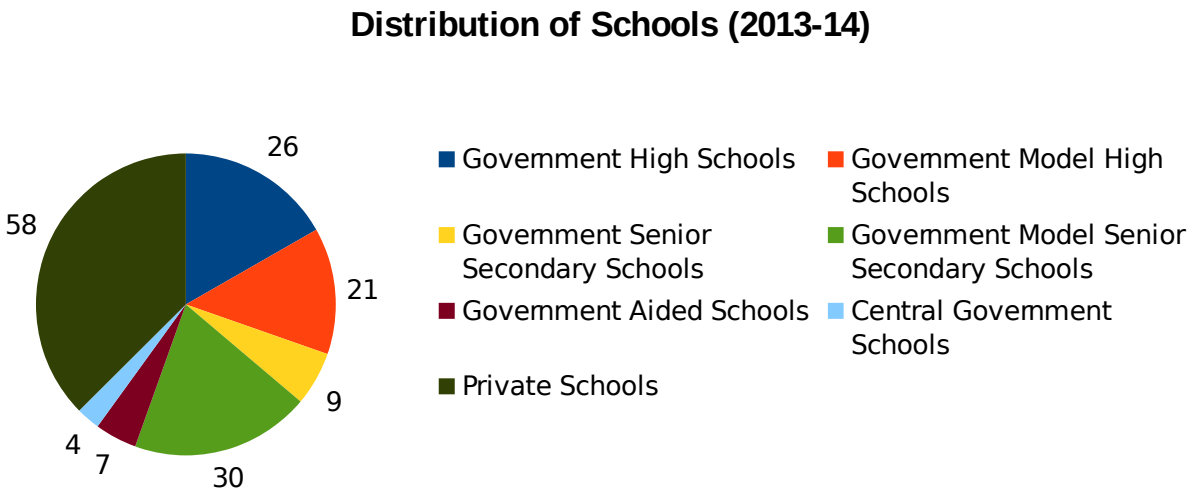
Evaluation conducted by

Central Institute of Educational Technology
National Council of Educational Research and Training

1.0 Introduction:

Located at the foothills of the Shivalik, the City of Chandigarh is a Union Territory and functions as the capital of both Punjab and Haryana. As a well planned city it is predominantly urban (97.25%, 2011 census). It enjoys a high literacy rate of 86.05% (male 89.99 and female 64.81).

Managed by the Directorate of Public Instruction, the Chandigarh administration provides 155 schools at the secondary level. As per data available from http://rmsaindia.org/en (accessed on 10 January, 2014), the distribution of schools is:



72 government schools have been covered during the year 2006-07 and 2007-08 under the centrally sponsored ICT Scheme. ICT infrastructure/hardware have been procured through the The Society for Promotion of IT in Chandigarh (SPIC), which functions under the aegis of the Department of Information Technology of the Chandigarh administration. Training to the schools was provided by DOEACC. No external BOOT AGENCY is involved in implementation of the scheme. Of these 72 ICT schools, 02 have been developed as Smart Schools (as defined under the ICT Scheme).

2.0 Scope and Objectives of the Evaluation:

While the government has endeavoured to provide ICT infrastructure and facilities across a large number of schools, the effective utilisation 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 could be an evidence. Articulation of the expectations helps the school 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 and an explicit mandate (a curricular programme for ICT), provision for other subject teachers to utilise the ICT facilities, training support to these teachers and a general integration of ICT into the day to day functioning of the school.

The study is carried out by the Central Institute of Educational Technology, 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 its ICT@Schools scheme.

2.1 The specific objectives of the evaluation therefore were:

- To assess the status of the ICT infrastructure in the selected schools;
- To assess the training levels of the ICT as well as other subject teachers for the effective use of ICT in the schools;
- To assess the support available for the maintenance and upkeep of the system;
- To assess the leadership available for the effective utilisation of the facility;
- To assess the extent of use of the facility for ICT as well as integration of ICT in the teaching learning of other subjects;
- to evaluate the above and make recommendations to the government.

2.2 Methodology adopted:

The evaluation involved development of a range of tools, including a check list for the ICT infrastructure and resources, questionnaires for ICT teachers, subject teachers, students, head teacher and parents / school committee members. Blank copies of the tools are placed at Annexure 1. A field investigator trained for the purpose visited the school and personally got the checklist / questionnaires filled up. The data was then coded and the analysis presented below was carried out.

2.3 Sample for the Evaluation:

In all data was collected from 41 (forty) schools, covering about 57% of the total ICT schools. The schools were selected randomly. The full list of schools selected is placed at Annexure 2. The list included high schools, model high schools, senior secondary, and model senior secondary schools. Both rural and urban schools were included.

The head teacher of each school, 69 computer / ICT teachers, 381 subject-teachers, 89 members from local community and 416 students (VIII to XII) constituted the sample.

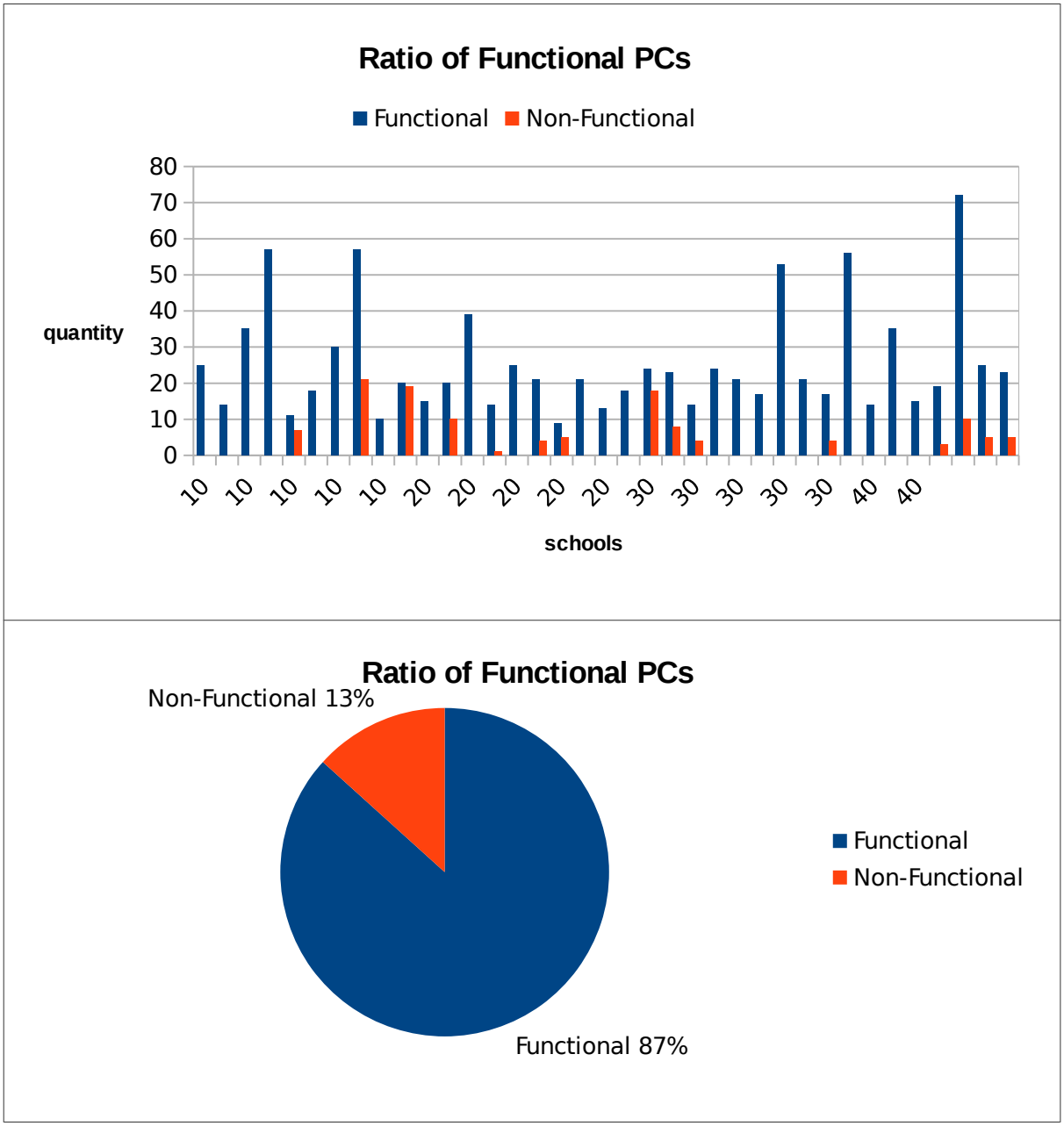
3.0 Analysis and Interpretation of Data:

A. Status of the Infrastructure in the selected schools:

Hardware:

Of the 41 schools taken up for evaluation, two schools namely, GMSSS 16-D and GSSS DHANAS have inadvertently not reported the number of computers in their schools. In all the schools report an average of 27 computers per school, with the maximum being 82 (GMSSS 19) and the minimum 13 (GMHS 22C).

Despite the fact that the computers were supplied between 2006 and 2008 (at least 6-8 years old), the schools have maintained the computers remarkably well. Of the 1090 computers in all, 945 are reported functional. An average of 3 computers are shown non-functional, with the most non-functional computers reported from GSSS 33 (21 out of 78), GSSS Manimajra (19 out of 39) and GHS 40A (18 out of 42). 22 schools have reported 100% functional computers. Two schools have reported labs of server-thin clients (10 clients and a server at GMSS 33 and 13 clients and a server at GMHS 31C.

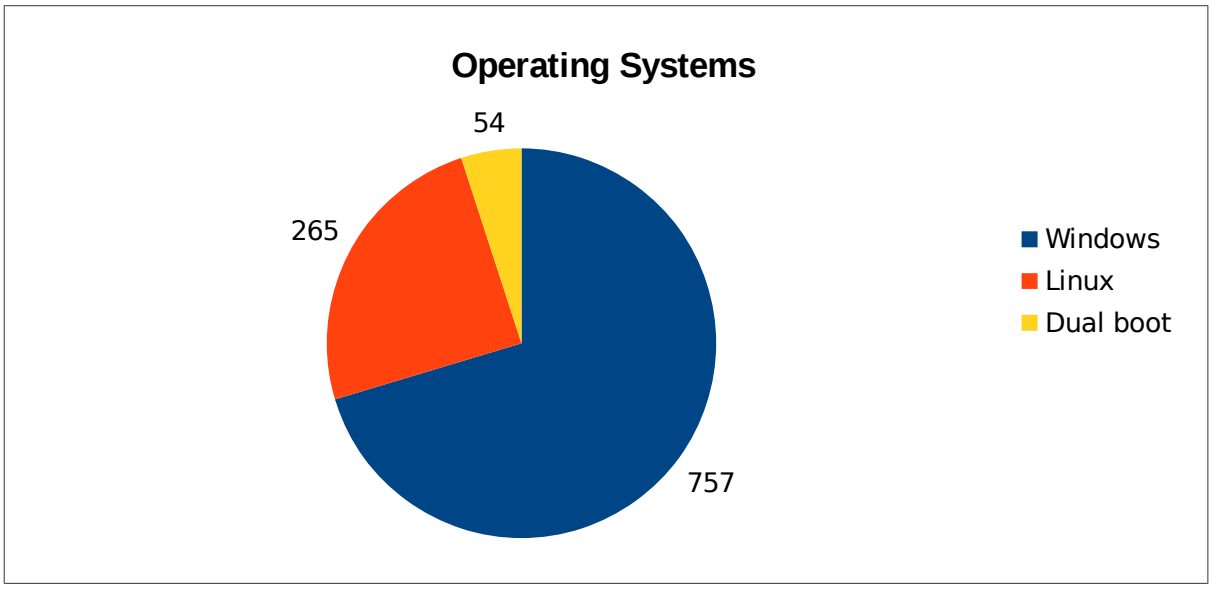


Software:

The schools have reported the use of Windows as well as Linux (BOSS) operating systems. Some schools have reported dual boots with both operating systems. The distribution of operating systems across the computers is shown below.

All schools report the use of office packages including word processors, spreadsheets, and presentation software. Only 13 of the 41 schools do not report the use of database software.

Schools are lax about antivirus protection of the Windows computers. While 757 computers have a Windows operating system, only 309 are reported to be protected with an upto date virus scanner. This is a clear indication of lack of awareness of the issue.



School have reported a variety of other software tools like media players, pdf readers, and animation tools. 13 schools have reported the use of programming tools like C, C++ and Java.

Use of software tools for advanced purposes either indicates its need as a part of the senior secondary course curriculum or teachers with advanced awareness and interest. This could not be confirmed as the 13 schools reporting database and programming tools are distributed across all types of schools. Most senior secondary schools do not report such use, contraindicating its use for syllabus transaction. It is also likely that particular senior secondary schools do not offer computer science or related streams.

The range of software is typical of any regular computer. No evidence of initiative of the schools in procuring / acquiring subject specific software tools is available. This is further vindicated by the absence of an ICT curriculum / programme of work (discussed in section...). Only one school reports the use of a graphics software (Corel Draw) while two report the use of logo / winlogo (a tool to introduce children to programming).

Internet:

All schools have reported at least broadband internet connectivity. Two of the schools (GMSSS 19 and GMSSS 21A) have reported two separate connections. But schools have reported inadequate speeds.

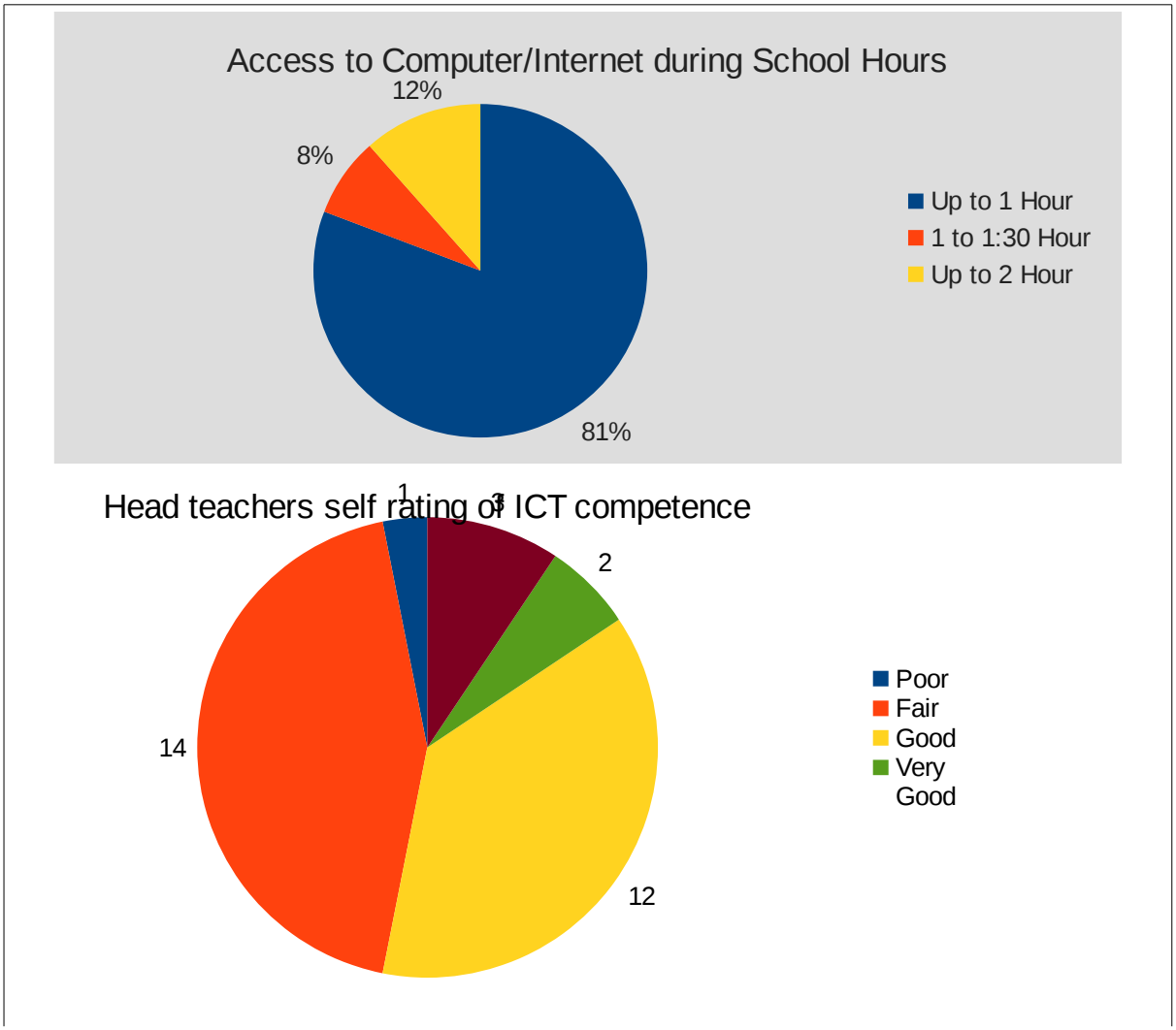
Use of ICT in School:

What do the schools use ICT for? Schools have reported a wide range of applications apart from its use for training students in ICT. These include record keeping, examination, library management, accounting, admission and correspondence. Teachers of all subjects have reported its use in their classes, however, the proportion of use is low. This is also evidenced by the absence of software applications and educational content, which could have helped the subject teachers. The range of software for ICT literacy is also very narrow – office applications and media players in some cases.

B. Analysis of feedback from the Heads of the schools:

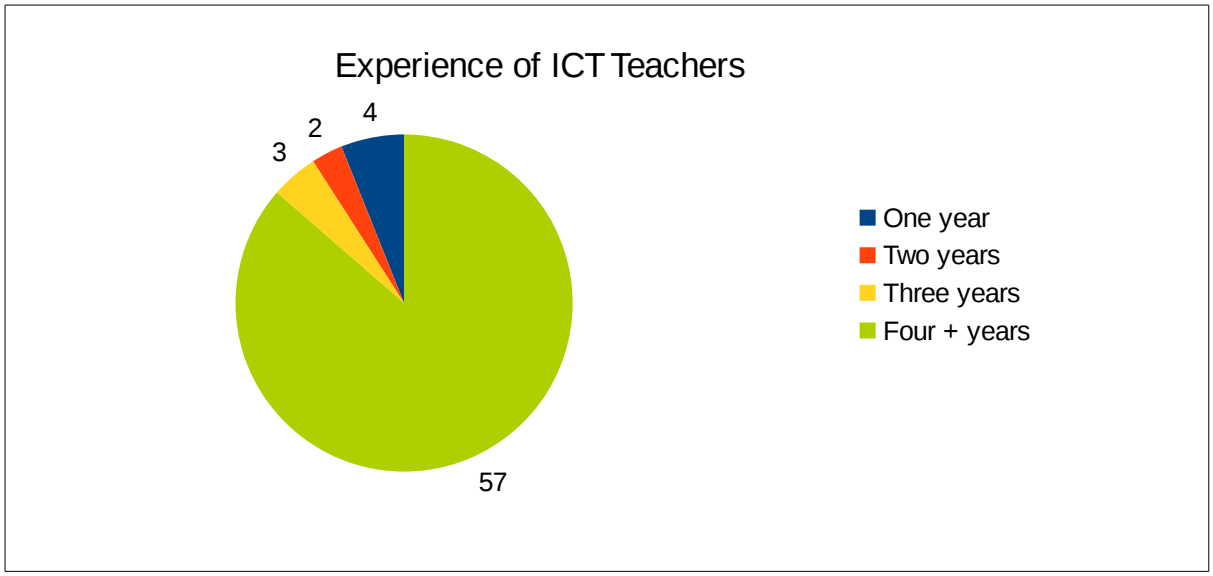
Headteachers play a crucial role in setting the expectations from their teams. Their awareness, interest and proactive actions can promote motivation and performance on the part of the school. In the case of the ICT programme, only eight of the 40 head teachers have reported attending any training in ICT and only 5 report using ICT. Of these only one head teacher reports using it for making lesson plans.

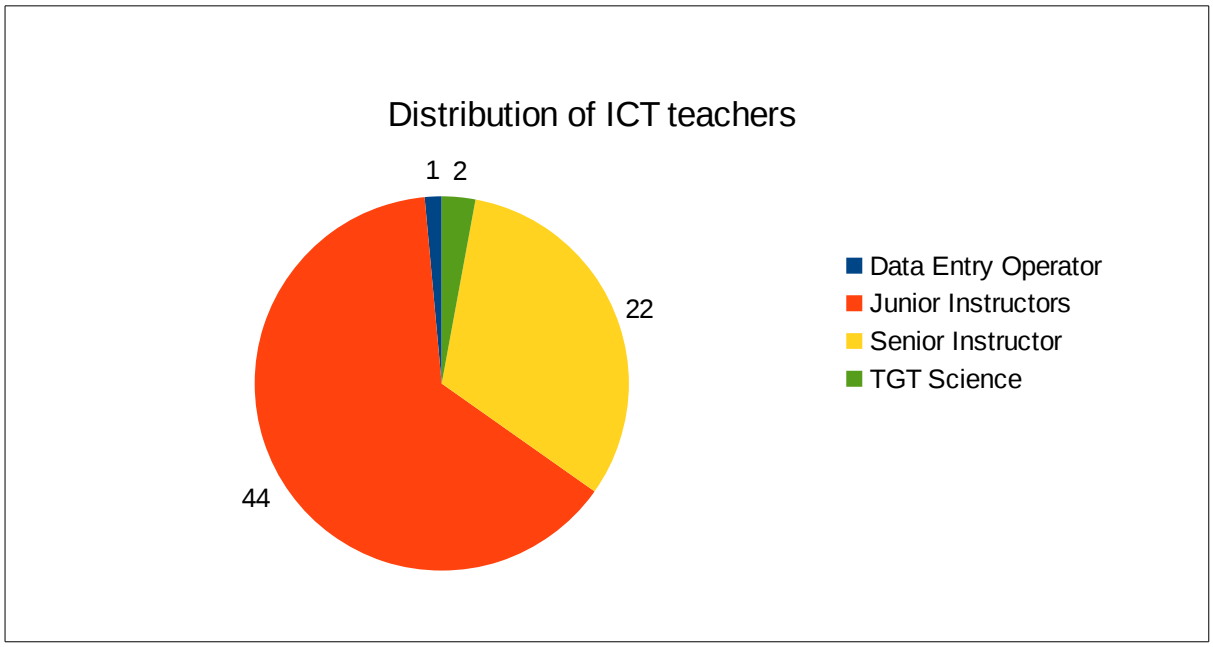
At the same time, the schools have maintained the ICT infrastructure, provided for student and teacher access though the proportion of school time available for computers and internet access is extremely low.

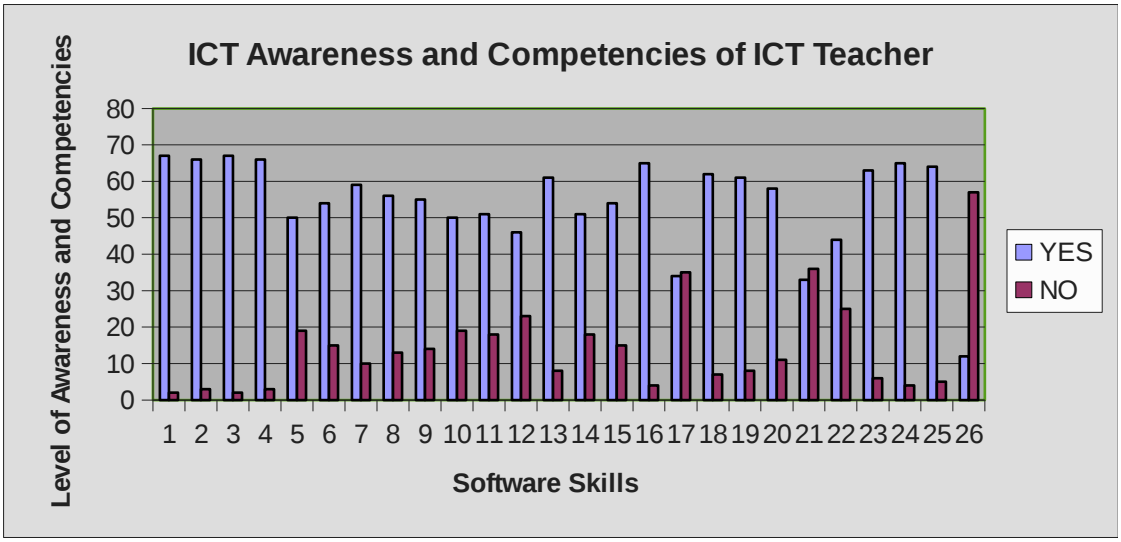


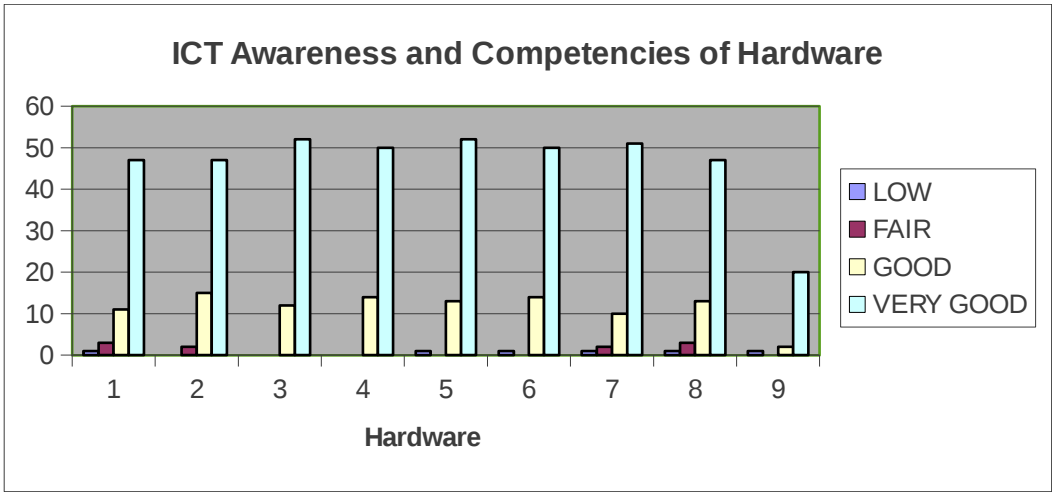
C. Analysis of feedback from the ICT / computer teachers:

Schools have reported more than one ICT teachers. There are 69 teachers in the 40 schools studied. Except one school (GHS, Sarangpur), which reports a permanent teacher, all schools have a computer teacher on contract employed by the Directorate. They are classified as Senior Computer Instructor and Junior Computer Instructor, with experience ranging from one to four years. While data was not available from 3 teachers, 57 report working for more than 4 years.









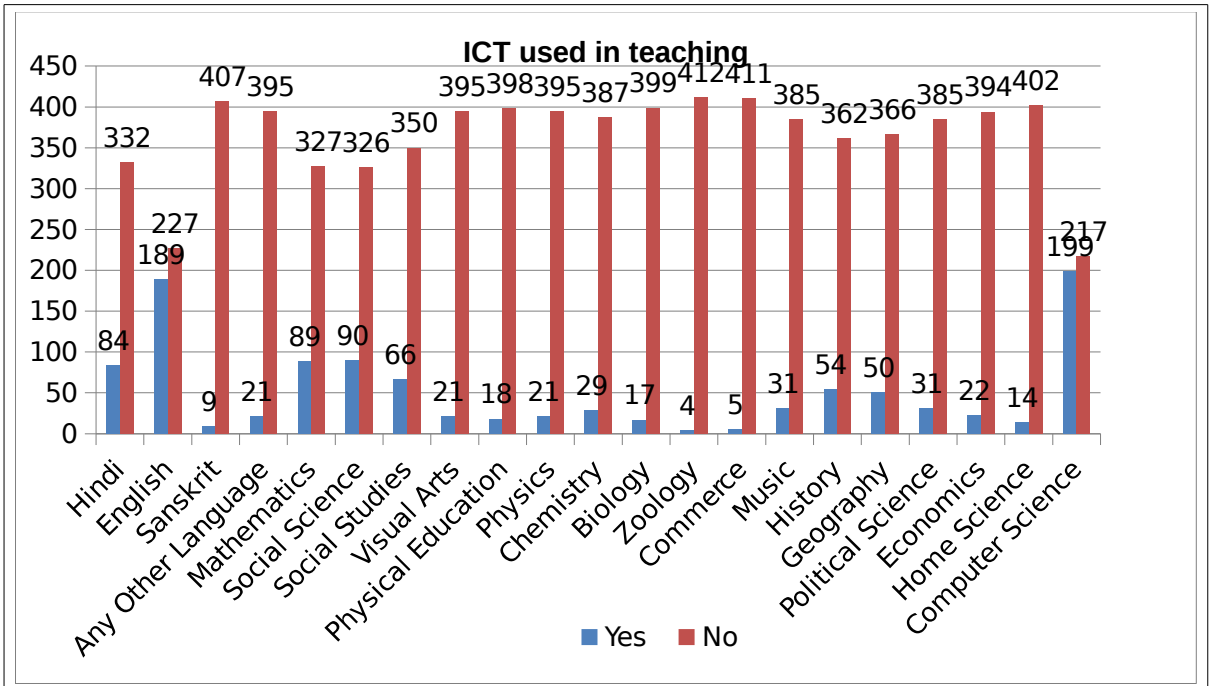
Most teachers report a post graduate qualification, with MCA or MSc IT being the most common. Some have a Post Graduate Diploma and atleast one possesses an MTech degree.

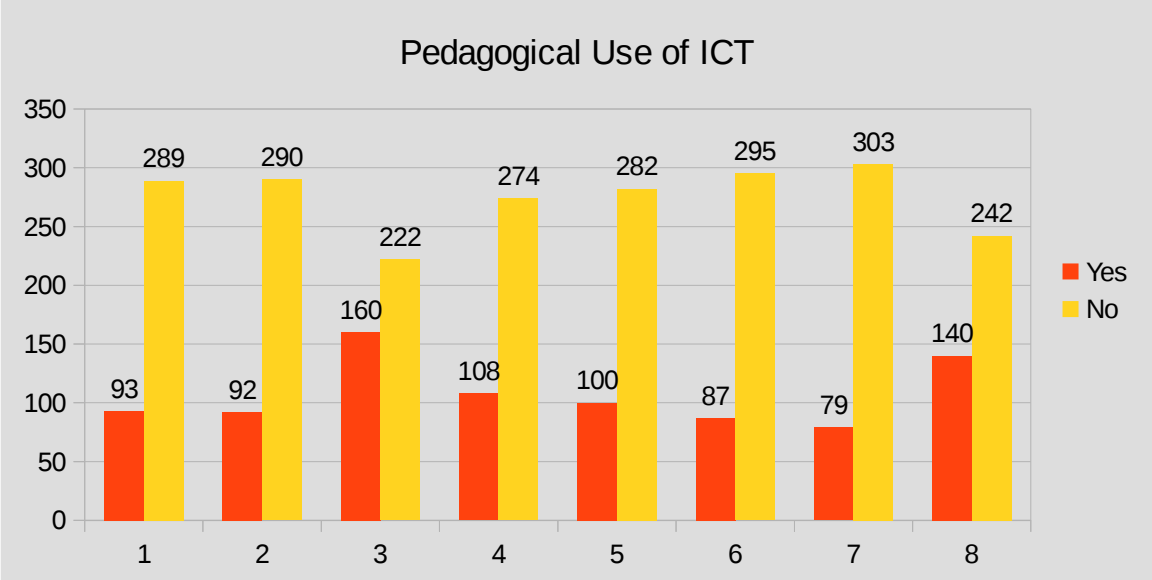
Teachers uniformly report a relatively high level of familiarity with software as well as hardware. But in the absence of any great range of either equipment or software applications, this cannot be confirmed.

The fact that a very high number of computers are maintained does corroborate the above fact. But urgent attention would be required to orient the ICT programme towards supporting teaching learning.

D. Analysis of feedback from the subject teachers:

12 % of overall classes have reported use of ICT in the teaching of subjects. Interestingly though despite the proportion being very low, almost all subject teachers report use. The highest being English (46.4%) and Computer Science (47.8). Mathematics reports a very low usage (21%), while science even lower (4.2 %)

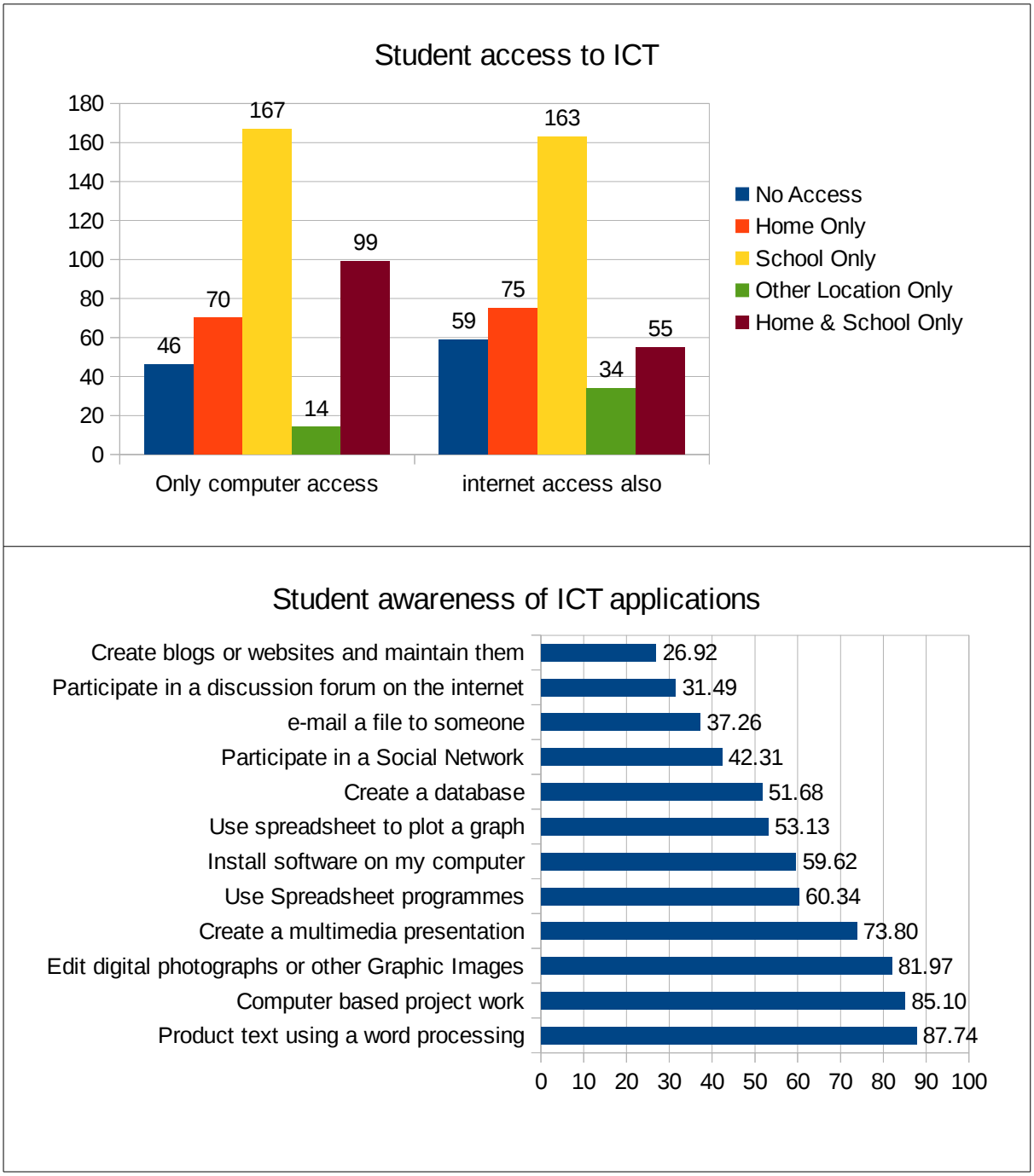




Only 80 of the 383 teachers whose responses are available have reported having been formally trained. But in general, 150 of the 382 report awareness and use of ICT. But use of ICT for teaching learning diminishes, with 92 reporting use for preparing lessons and 127 during class teaching. 8 teachers have reported using ICT in the classroom 25%-50% of the time and only 5 report using it more than 75% of the time.

Teachers have not exhibited any awareness of the possibilities of ICT for improving teaching learning practices. Routines, ready availability of access and awareness of software and econtent can contribute significantly to increased use.

E. Analysis of feedback from students:



The students in an urban place have the advantage of exposure to a wide variety of technologies. However converting this to an advantage in the class would require a systematic effort by the school programme. The data about access to computers is revealing. Children who depend completely on the school for access is quite high. The awareness of ICT applications appear to be restricted to office applications like producing text,

photographs or data presentation (tables etc.). Beyond this there is a steep drop in awareness, an issue which needs attention.

3.1 Results of the evaluation study

The Evaluation study conducted across 40 government secondary and senior secondary schools of Chandigarh has revealed the following:

- The Directorate has successfully deployed ICT infrastructure in all schools and made available ICT instructors in all schools.
- The schools have successfully integrated the ICT facility into the school, ensuring its regular upkeep and maintenance.
- The number of access points (computer terminals and internet connections) are limited and students and teachers do not get adequate time at the terminals.
- The range of software is grossly inadequate. Almost no educational software have been defined and no educational content has been purposively deployed.
- Teachers, including the ICT teachers and the Head teacher have not demonstrated awareness of the possibilities of ICT particularly in enhancing their own skill set and leveraging ICT to improve teaching learning.
- Students while generally aware of possibilities do not appear to be getting adequate exposure to ICT and chances to utilise the benefits of ICT for their learning.
- The ICT infrastructure appears to be grossly underutilised and does not appear to be yielding results proportionate to the investment.

4. Recommendations:

Based on the study, the following recommendations are offered:

- The Directorate may draw up a policy articulating its expectations from the ICT implementation. These policy statements would help articulate what it expects the schools and the RMSA to achieve in terms of ICT literacy, ICT supported teaching learning, ICT access for other applications like inventory management, school administration, data compilation and analysis. This would also help define the infrastructure – number of computers, nature of software applications, internet access, as well as training levels of school functionaries.
- The Directorate may take note of National level initiatives in ICT in Education, particularly the National Policy of ICT for School Education, 2012, Guidelines to the States for implementing the ICT@Schools Scheme, the ICT Curriculum for teachers and students, as well as the National Repository of Open Education Resources. These documents will help draw up the policy.
- In order to ensure adequacy of the ICT infrastructure, the strength of the school and the number of periods becoming available to the students per week may be assessed and suitable enhancements made. Classrooms with projection devices and libraries of appropriate digital resources will facilitate their use in subject teaching.
- Drawing up a systematic curricular programme around ICT as is done in various other subjects will help define benchmarks of achievement and help monitor the implementation. The ICT curriculum for students could be utilised / adapted for the purpose. Orienting the head teachers and the educational functionaries to these would also be essential.
- All teachers irrespective of their subject specialisations should be provided a training designed to make them self sufficient in using ICT resources for their teaching learning.

Annexure 1: Tools used for the study

The tools used for the study are annexed separately

Annexure 2: List of schools included in the evaluation

Government High Schools

1 Government High School, Sector 24A

2 Government High School, Sector 29B

3 Government High School, Sector 32D

4 Government High School, Sector 40A

5 Government High School, Sector 41A

6 Government High School, Sector 7C

7 Government High School, DARIA

8 Government High School, KEJHRI

9 Government High School, SARANGPUR

Government Model High Schools

10 Government Model High School, Sector 22C

11 Government Model High School, Sector 31C

12 Government Model High School, Sector 34C

13 Government Model High School, Sector 36D

14 Government Model High School, Sector 38 WEST

15 Government Model High School, Sector 39C

16 Government Model High School, Sector 43

Government Model Senior Secondary Schools

17 Government Model Senior Secondary School, Sector 8B

18 Government Model Senior Secondary School, Sector 15

19 Government Model Senior Secondary School, Sector 16D*

20 Government Model Senior Secondary School, Sector 19

21 Government Model Senior Secondary School, Sector 20D

22 Government Model Senior Secondary School, Sector 21A

23 Government Model Senior Secondary School, Sector 22A

24 Government Model Senior Secondary School, Sector 27

25 Government Model Senior Secondary School, Sector 28D

26 Government Model Senior Secondary School, Sector 33

27 Government Model Senior Secondary School, Sector 35D

28 Government Model Senior Secondary School, Sector 38 WEST

29 Government Model Senior Secondary School, Sector 47D

30 Government Model Senior Secondary School, Sector 56

31 Government Model Senior Secondary School, Sector 8B

32 Government Model Senior Secondary School, MALOYA

33 Government Model Senior Secondary School, MANIMAJRA

Government Senior Secondary Schools

34 Government Senior Secondary School, Sector 45A

35 Government Senior Secondary School, BEHLANA

36 Government Senior Secondary School, DHANAS*

37 Government Senior Secondary School, KAIMBWALA

38 Government Senior Secondary School, KHUDDA ALI SHER**

39 Government Senior Secondary School, KHUDDA LAHORA

40 Government Senior Secondary School, MANIMAJRA TOWN

41 Government Senior Secondary School, RAIPUR KHURD

** Schools that have missed out on reporting number of computers; **GSSS Khudda Ali Sher has reported 21 out of 21 computers as non-functional, which requires further confirmation; status of infrastructure analysis therefore considers 37 schools only.*