



# Study of Computer Science Instruction at School Level

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## Abstract:

*This paper reports on the outcomes of a survey implemented in secondary schools and higher secondary schools. The survey identified the types of access and use of computers by students. It was found that the students had significant access to computers but they were not skilled in many features of computer use. Computers were used for a range of activities, some educational and others recreational by some students. Gender differences in computer use were not seen. The study highlights the changing scenario about uses of computer technology by students.*

## 1. Introduction

The lives of teens have undergone significant changes in the past few years by the acceptance of computers. We know that the use of computers by teens and their skills affect their life. Teens have extensive exposure to computers in their school and out-of-school contexts and their concomitant dispositions to learning and activity. Nowadays digital technology has been an integral part of their lives. Characteristics of these students are quite different from previous generations because of the social and technological conditions within which they are developing. There is an international recognition of the potential of computer technology to create new learning and environments (Cuban, 2003).

Prensky (2001) has been a notable writer on the phenomenon of the digital native. He argued that this generation, having grown up immersed in technology, has begun to think differently from other generations (Prensky, 2005). Their homes have computer technology in all facets of gadgetry—the remote control for the television, the programmable microwave, mobile telephone, computers and digital games. Prensky (2005) argues that digital natives are more connected than other generations through technologies such as mobile phones, email and chat lines. Communication is a much more connected and global experience for this generation than has been possible in the past.

Judge, Puckett and Cabuk (2004) have reported that it is increasingly important for early childhood educators to introduce and use computers in their settings, particularly for those children who do not have access in the home. There is considerable literature that documents the potential of ICTs to create innovative, engaging and substantive learning opportunities for young children.

Researcher sought to find out how students used computers, the skills they were developing, and the links with home and formal learning environments. Researcher undertook this through a survey in which students reported their use of computers.

## 2. Rationale of the study

Clements (2002) has shown that children working in pairs at the computer engaged more than when working on puzzles on the floor. Yelland (2002) explored the use of computers in the home to develop mathematical ideas and reported that there was considerable potential for computer games to support such learning. Similarly, working at computers has been found to create opportunities for the development of social skills (Lau, 2000). Studies have found that open-ended, child-directed software made a more significant difference in children's developmental gains than did 'drill and practice'

software (Haugland, 1997).

### 3. Objective

- 1.To study the use of computer by secondary school students.
- 2.To study the frequency of computer usage by secondary school students.
- 3.To study the Computer-related skills developed among secondary students.

### 4. Method

In the present study researcher had collected data from secondary school students of Mehsana city. survey research method was used during the year of 2017-18.

### 5. Sample

A survey was implemented in a major area of Mehsana city. Secondary school students from Gujarati medium school in Mehsana city were population in present study. Through convenient sampling method 200 students (100 girls and 100 boys) were selected from secondary school for data collection.

### 6. Research tool

Two different scales were used. Some questions sought to identify where and how teens accessed and used computers (and so only a check mark was needed), whereas the frequency of use was documented by Likert scaling, where a 1–3 rating scale was used.

### 7. Data Analysis

#### 1. Computer access

Where and how students were able to access computers and the frequency of that access is discussed here. Some students reported that they had multiple sources of access—a home computer, friends' and at school.

**Table1. Access to computers**

	Home	Friends	School	Cyber cafe	No access
Girls	87%	32%	88%	40%	12%
Boys	90%	53%	79%	45%	5%

The data in Table 1 suggests that the majority of the respondents access computers in their schools and own homes but can also access them elsewhere. Only a limited number reported having no access to computers.

#### 2. Frequency of access to computers

In seeking to understand how students access and use computers and to identify how frequently computers were used in for various functions—playing/recreation, educational purposes and creative purposes one survey question was asked to students. Using a Likert scale where 0=never; 1=sometimes; 2=frequent; 3=regular

**Table 2 Use of computers**

	For internet	For play	For education	For creative work
Girls	88%	68%	89%	60%
Boys	89%	91%	86%	65%

The data in Table 2 suggests that the majority of the respondents access computers for education, internet and play. Compare to girls Boys use computer more for play. Less number reported having access for creative work.

**Table 3 Frequency of access of computer**

Use of computer	Never		Sometimes		Frequent		Regular	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
For play	32 %	11%	55%	35%	16%	51%	8%	15%
For education	21%	25%	25%	39%	50%	22%	15%	15%
For creative work	50%	35%	51%	39%	13%	16%	6%	10%
For internet	25%	22%	53%	33%	21%	26%	12%	19%

The data in Table 3 suggests that girls and boys both are using computer sometimes for creative work and internet. Boys are using computer frequently for play and girls are using computer frequently for education. Only a limited number reported having access to computers regularly.

### 3. Activities undertaken when using computers

By asking students to fill in a check-box, we sought to ascertain the types of activities students engage in when using computers.

**Table 4 Activities undertaken while using the computer**

Activities undertaken while using computer	Girls	Boys
Games	68%	89%
Drawing	43%	33%
Subject Software	49%	26%
Pre-writing activities	22%	17%
Surfing	26%	48%

The data in table 4 suggests that students are accessing computers in a variety of ways that develop a range of computer skills, knowledge and dispositions. It indicates that there is considerable use of computer games by boys and girls. Many boys use computer for surfing and girls for drawing and subject software.

### 4. Computer skills of students

Having identified how students are accessing computers and for what purposes, researcher sought to identify the skills they were developing as a consequence of their interactions with computers.

**Table 5. Computer-related skills developed by students**

Skills	girls	boys
Type letters	64%	59%
Retrieve files	77%	80%
Use of browser	63%	70%
Use drawing tools	71%	74%
CD/DVD write	78%	81%
Use the tool bar	82%	86%
Print documents/files/screen	86%	88%
PPT	25%	21%
Excel	12%	18%

This data of table 5 suggests that students have developed a high number of skills through their interactions with the computer. Many students reported that they can type letters, retrieve files, use browser, use drawing tool, write CD/DVD and print documents very easily but they are not skillful for making of PPT and using of excel.

## 8. Effect of Gender and Habitat on Computer Science Instruction:

- Mean score of the male students of secondary and higher secondary schools were found significantly higher than the mean score of the female students of secondary and higher secondary schools on computer science instruction.
- Mean score of the urban students of secondary and higher secondary schools were found significantly higher than the mean score of the rural students of secondary and higher secondary schools on computer science instruction.
- Mean score of the urban habitat male students of secondary and higher secondary schools were found significantly higher than the mean score of the urban habitat female students of secondary and higher secondary schools on computer science instruction.
- Mean score of the rural habitat male students of secondary and higher secondary schools were found significantly higher than the mean score of the rural habitat female students of secondary and higher secondary schools on computer science instruction.

## 9. Conclusion

The data presented in this paper indicates that students have considerable access to computers in school and at home. They access computer for many purposes such as play, internet, and drawing. We should motivate students to use computer for learning and for acquiring knowledge. Students have ability to access computer well but they do have ability to make PPT and use of EXCEL. There is need to focus on development of computer skill among student which are essential for higher study.

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