

## A Study on The Availability of ICT at Secondary Level in Secondary Schools of Kottayam District In Kerala, India

Elizabeth S. Kuriakose<sup>1\*</sup>

\*Indian Institute of Education, Pune, Maharashtra, India

\*Email: susanthadathil@gmail.com

*Received: 10 October 2023; Accepted: 30 November 2023; Published: 6 December 2023*

**Abstract:** Today is an era of educational revolution globally. In order to bring about tremendous changes in the educational sector, technologies especially, information and communication technologies (ICTs) play a pivotal role. The shifting paradigms in the educational system necessitated the call for the use of ICT in schools. ICT has the potential to address the innumerable needs of students and also teachers, as it demonstrated its power by entering into virtual reality which is a computer-stimulated environment that can simulate physical presences in places in the real as well as imaginary world and this is a manifestation of knowledge revolution. The proposed study intends to look in to the availability of ICT in schools of Kottayam district in Kerala, INDIA . The findings of the study are of immense use to school heads, teachers, students as well as parents and thereby to the society as a whole.

**Keywords:** Information and Communication Technology (ICT); Secondary School; Principals Secondary Teachers; School Locale

### 1. Introduction

Akshaya Project is known as the first ICT project in Kerala, and it has helped in delivering computer literacy to at least one person in every home in the state. Through this project, around 6000 networked “Multi –purpose Community Information Centers known as “Akshaya Centers” were opened for the public and it has helped a lot in rendering ICT enabled education to students of Kerala state.

EDUSAT, which is a satellite launched for educational purposes has improved the self-learning methods of the learner and has enabled teachers and students to utilize digital library facilities. It is a useful tool in implementing an interactive learning environment.

The population selected for the present study was school principals and secondary school teachers in Kottayam district of Kerala, INDIA. There are two hundred and thirteen secondary schools in Kottayam district of Kerala as per the Kerala education board website (<http://archive.education.kerala.gov.in/>) and from these twenty schools were selected. Sample selected for the study was 20 school principals and 200 secondary school teachers in Kerala,INDIA. The present research is descriptive and the research method adopted is survey method which falls under quantitative research method.

Information and Communication (ICT) literally means any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. It is defined as the merging of information with communication technology.



ICT has become one of the major building blocks of modern society (Daniels, 2002). Many researchers and theorists have found that ICTs will help students to become knowledgeable, and it will also reduce the instruction time so that teachers can spend some time for students with special needs. According to Bransford et al., (2000) ICTs have a great potential to enhance the achievement level of students. Interactive white boards are a great boon to ICT as they will allow projected computer images to be displayed, manipulated, dragged, clicked, or copied (BBC. N.D.). Gillespie (2006) found out that ICT enables students to collect information and interact with resources, such as images and videos thus encouraging communication and collaboration.

Studies have found that ICTs will be more effective when teachers are digitally trained, and this will indirectly help the students to develop higher order thinking skills and prepare students for profession (Goodwin, K, 2012). Constructivist schools believe that learning is affected by the context in which an idea is taught as well as by students' beliefs, experiences and attitudes. According to (Kumar, L 2016) learning is a continuous process of new knowledge construction. Bullock (2004) found that teachers' perception about ICTs is a major enabling or disabling factor in the implementation of ICT based teaching approach. Teachers' professional development is a key factor to successful integration of computers into classroom teaching.

## **2. Methodology**

In this study, two types of questionnaires, one for school heads (Principals) and another one for teachers were used. Both the questionnaires were divided into two parts I & II, wherein Part I gives a detailed account of the personal information and Part II collected the relevant data relating to the study. The questionnaire which was prepared for sample Principals were given to Principals and questionnaire prepared for teachers were given to teachers directly. The questionnaire was administered individually to principals and teachers. The researcher visited around 25 schools but only 20 schools permitted her to collect data. General instructions with regard to responding to the items were thoroughly given. They were given a time of around one hour to complete the data. Each sample respondent was requested to respond to all the items sincerely. Respondents were also assured that the responses would be kept strictly confidential.

## **3. Result and Discussion**

### **School ICT Facilities**

#### **a) All Schools**

The schools selected for the study were examined in terms of the kind of ICT facility available. This ranged from availability of electricity to other electrical instruments. The following table provides a glance of the ICT facilities available in the selected sample of schools.

**Table 1.** ICT Facilities Available in School

No.	Facility	Yes N (%)	No N (%)
1	Access to electricity	20(100%)	0(0%)
2	Electricity Back-up System	14(70%)	6(30%)
3	A separate Computer Lab	20 (100%)	0(0%)
4	Landline telephonic connection	17(85%)	3(15%)
5	Broadband Internet Connectivity	20 (100 %)	0(0%)
6	Computer as a core subject in each class	20(100%)	0 (0 %)
7	Television set	11(55%)	9(45%)
8	Radio set	6(30%)	14(70%)
9	System administrator	17(85%)	3(15%)
10	At least one printer	20(100%)	0(0%)
11	Scanner	16(80%)	4(20%)
12	Digital camera	13(65%)	7(35%)
13	Digital projectors	16(80%)	4(20)
14	CCTV camera	19(95%)	1(5%)
15	Laptop	18(90%)	2(10%)
16	Handy cam	11(55%)	9(45%)
17	CD player	15(75%)	5(25%)
18	UPS	19(95%)	1(5%)
19	School Website	14(70%)	6(30%)
20	Modem	20(100%)	0(0%)

*N=Frequency; The value in the parenthesis indicates percentage of schools*

From table 1, it is evident that all the schools were equipped with at least one printer, access to electricity, a separate computer lab, broadband internet connectivity, computer as core subject and a modem. This table also shows that nineteen schools have CCTV cameras and UPS, eighteen schools have laptops, seventeen schools have a system administrator and a landline telephonic connection. It is clearly shown that sixteen schools have digital projectors and scanners, fifteen schools have CD players, and fourteen schools have school website and electricity backup system. Among the thirteen schools have digital cameras, eleven schools have handy cam and a television set. From this table, it is also evident that only six schools have a radio set.

b) Rural Vs Urban Vs Semi-urban schools

The study also made a comparison of ICT facilities available among schools of rural, urban and semi-urban areas. The following table gives an insight of the ICTs available in schools of rural, urban and semi urban areas.

**Table 2.** Availability of ICTs with reference to School Locale

No.	Facility	Rural n(%)	Urban n(%)	Semi Urban n(%)
1	Access to electricity	8 (100%)	5 (100%)	7 (100%)
2	Electricity Back-up System	3 (37.5%)	5 (100%)	6 (85.7%)
3	Separate Computer Lab	8 (100%)	5 (100%)	7 (100%)
4	Landline telephonic connection	6 (75%)	5 (100%)	6 (85.7%)

5	Broadband Internet Connectivity	8 (100%)	5 (100%)	7 (100%)
6	Computer as a core subject in each class	8 (100%)	5 (100%)	7 (100%)
7	Television set	4 (50%)	5 (100%)	2 (28.5%)
8	Radio set	4(50%)	0 (0%)	2 (28.5%)
9	System administrator	6 (75%)	5 (100%)	6 (85.7%)
10	At least one printer	8 (100%)	5 (100%)	7 (100%)
11	Scanner	5 (62.5%)	5 (100%)	6 (85.7%)
12	Digital camera	1 (12.5%)	5 (100%)	7 (100%)
13	Digital projectors	5 (62.5%)	5 (100%)	6 (85.7%)
14	CCTV camera	7 (87.5%)	5 (100%)	7 (100%)
15	Laptop	7 (87.5%)	5(100%)	6 (85.7%)
16	Handy cam	2 (25%)	4 (80%)	5 (71.4%)
17	CD player	5 (62.5%)	5 (100%)	5 (71.4%)
18	UPS	7 (87.5%)	5 (100%)	7 (100%)
19	School Website	3 (37.5%)	5 (100%)	6 (85.7%)
20	Modem	8 (100%)	5 (100%)	7 (100%)

*N=Frequency; The value in the parenthesis indicates percentage of schools*

It is evident from table 2 that regardless of the locality all the schools are furnished with access to electricity, a separate computer lab, broadband internet connectivity, computer as a core subject, at least one printer, and a modem. It is clear from the table that, apart from not having a radio set, all the five schools of urban region are equipped with almost all the ICT facilities which are considered in the study. Schools of urban regions run far ahead in terms of ICT facilities compared to rural and semi-urban regions. Schools of semi urban region have more ICT facilities when compared to schools of rural region but falls much behind the schools of urban region.

### c) Aided Verses Unaided schools

The study has made a comparison between the ICT facilities available in aided and unaided schools. The following table provides an idea of the differences and similarities with reference to the ICTs available in aided and unaided schools.

**Table 3.** Availability of ICTs with reference to aided and unaided schools

No.	Facility	Aided N (%)	Unaided N (%)
1	Access to electricity	13 (100%)	7 (100%)
2	Electricity Back-up System	7 (53.8%)	7 (100%)
3	Separate Computer Lab	13 (100%)	7 (100%)
4	Landline telephonic connection	11 (84.6%)	6 (85.7%)
5	Broadband Internet Connectivity	13 (100%)	7 (100%)
6	Computer as a core subject in each class	13 (100%)	7 (100%)
7	Television set	5 (38.4%)	6 (85.7%)
8	Radio set	5 (38.4%)	1 (14.2%)
9	System administrator	10 (76.9%)	7 (100%)
10	At least one printer	13 (100%)	7 (100%)
11	Scanner	9 (69.2%)	7 (100%)
12	Digital camera	7 (53.8%)	6 (85.7%)
13	Digital projectors	9 (69.2%)	7 (100%)

14	CCTV camera	12 (92.3%)	7 (100%)
15	Laptop	11 (84.6%)	7 (100%)
16	Handy cam	4 (30.7%)	7 (100%)
17	CD player	8 (61.5 %)	7 (100%)
18	UPS	12 (92.3%)	7 (100%)
19	School Website	8 (61.5%)	6 (85.7%)
20	Modem	13 (100%)	7 (100%)

*N=Frequency; The value in the parenthesis indicates percentage of schools*

It is obvious from the table that both aided and unaided schools have access to electricity, a separate computer lab, broad band internet connectivity, computer as a core subject, at least one printer, and a modem. Apart from this, it is shown clearly that all the unaided schools under study have the ICT facilities namely electricity back-up system, a system administrator, scanner, digital projectors, CCTV camera, laptops, handy cam, CD player, and UPS whereas a few of the aided schools do not have the same. It is evident that unaided schools have more facilities than aided schools.

## Discussion

### Status of ICT facilities

In this study it was found that all the schools were equipped with at least one printer, access to electricity, a separate computer lab, broadband internet connectivity, computer as core subject and a modem. Nineteen schools have CCTV cameras and UPS, eighteen schools have laptops, seventeen schools have a system administrator and a landline telephonic connection. Sixteen schools have digital projectors and scanners, fifteen schools have CD player, and fourteen schools have school website and electricity backup system. Thirteen schools have digital cameras, eleven schools have a handy cam and a television set, and six schools have a radio set. It is inferred that all the schools under the study have an adequate status of ICT facilities which is in accordance with the ICT policies for school education in India.

It has been found that regardless of the locality, all the schools are furnished with access to electricity, a separate computer lab, and broadband internet connectivity, computer as a core subject, at least one printer, and a modem. Apart from not having a radio set, all the five schools of urban region are equipped with almost all the ICT facilities which are considered in the study. Schools of urban regions run far ahead in terms of ICT facilities compared to rural and semi-urban regions. Schools of semi urban region have more ICT facilities when compared to schools of rural region but falls much behind the schools of urban region.

It has also been found that both aided and unaided schools have access to electricity, a separate computer lab, broadband internet connectivity, computer as a core subject, at least one printer, and a modem. Apart from this, it is found that, all the unaided schools under study have the ICT facilities namely electricity back-up system, a system administrator, scanner, digital projectors, CCTV camera, laptops, handy cam, CD player, and UPS whereas a few of the aided schools do not have the same. Therefore, it is inferred that unaided schools have more facilities than the aided schools.

#### 4. Conclusions

Integration of ICT in higher education is inevitable. In the coming years the thrust will be on the use of ICT to strengthen the system in the mode of opens and distance learning. Institutional and sector-wide higher education ICT policy and planning should identify the specific role of ICT in enhancing research capabilities and provide for adequate infrastructure backed by capacity building. Institutional and sector-wide higher education ICT policy and planning should identify the specific role of ICT in enhancing research capabilities and provide for adequate infrastructure backed by capacity building. Teacher has to adapt continuous professional development in the educational uses of technology. In this sense, teachers have to be ready to make use of the possibilities that ICT offer, such as different learning contexts, focused on the students, presenting them with several types of interaction, offering different degrees of control of their own learning, adapting to their personal interests, promoting collaborative tasks and developing autonomy in their work and study.

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