Journal of Agricultural Development and Policy, 2024
Volume 34, No. 1, 158-162
https://doi.org/10.63066/23220457.34.1.022

NAAS - 4.34
UGC CARE List Journal

Awareness about ICT Tools among School Teachers of Punjab

Mahi Singh[1] , Mandeep Sharma[1] and Atinder Pal Kaur[2]

[1]Department of Extension Education and Communication Management
[2]Department of Economics and Sociology
Punjab Agricultural University, Ludhiana, Punjab, India.

Abstract

The age of Information and Technology (IT), commonly known as the 21st century, is currently in effect to revolutionize the education sector to a new phase of modern pedagogy. There are scientific and technological components in every aspect of life. ICT Tools are one of them which is widely used for educational reasons to reform the needs of our education system. It is mostly used for searching educational materials, conducting presentations, assignment updates, improved research, and networking. In current study, a total of 200 respondents were taken from Punjab to investigate the awareness about ICT tools among the School teachers. A total number of five districts namely Ludhiana, Hoshiarpur, Faridkot, Patiala and Amritsar were selected which are not adjoining with each other. Among all the information availed by the teachers, results showed that maximum respondents showed a medium level of awareness among ICT tools. Around 80 per cent teachers showed medium level of awareness followed by 12 per cent in a low level of awareness and rest 9 per cent teachers had higher level of awareness. Different ICT tools like computer, multimedia projector and software like Punjab Educare app were the most preferred tools with the mean score of 2.98, 2.79 and 2.61 respectively. by maximum people in order to seek educational material online. Information and Communication Technology (ICT) is the most popular and easily accessible method present on finger tips. This study suggests about the awareness and methodology for teachers capable of using ICT for their student's educational benefits and implementation of relevant recommendations and capacity building programs for teachers.

Keywords: Information, Communication, Technology, Awareness, Education, Teachers, School.

JEL Classification: D83, H52, O33, O34, A29, I21, I22.

Introduction

Education sector not only provides education to the students but also creates the availability of jobs opportunities for students and upcoming generation. Information and communication technology (ICT) is the educational strategy that employs to facilitate, enhance, and maximize the spread of knowledge. International researches have shown that ICT may improve teaching methods and student learning. The adoption of ICT has been the biggest educational accomplishment of all time. Education, which is always essential to a nation's economic and social development, is made much more crucial under this situation. Education boosts a person's earning potential in addition to their creative abilities. It promotes their social interaction, improves their access to better health, and offers a number of other elusive benefits. Additionally, it increases their sense of wellbeing and their capacity to accept new concepts. (Bhattacharya and Sharma, 2007)

ICT stands for information and communication technologies, which are used to transmit, process, store, produce, share, and exchange information electronically. It includes older established technologies like radio and television as well as a range of services and related applications, in addition to more contemporary technologies like cell phones, the internet and intranet, hardware and software, satellite systems, expert systems, teleconferences, etc. It suggests that there are greater options today to integrate ICT into student education programs and improve the caliber of students for efficient instruction. (Ratheeswari, 2018)

ICT enable users to take part in a quickly evolving environment where access to a wide range of growing technology is increasingly transforming work and other activities. In India, there is a huge variety of ICT instruments. In total, India has 65,356 ICT laboratories, 29,178 digital classrooms, and 1,19,581 schools have access to the internet. (Ali, 2021)

Corresponding author email: mandeepsharmahsee@pau.edu

The classroom environment is evolving. The development of society and the classroom activities of the instructor are separated technologically. If we look at contemporary culture, we can observe that while technology has radically changed our world, school-level teaching and learning activities have remained largely unaffected by it. In our classroom, the teacher imparts knowledge in an antiquated, teacher-centric manner that is frequently dull and fails to pique the student's attention. However, modern education in the twenty-first century is focused on the student. The usage of ICT and multimedia in the educational field is crucial since students learn from a variety of sources. In order to study the same, the objective of analyzing the awareness about ICT tools among School teachers of Punjab is selected.

Data Sources and Methodology

The present study was based on primary data collected from respondents. State of Punjab was selected for the purpose of conducting study. From 23 districts, a total number of 5 districts namely Ludhiana, Hoshiarpur, Faridkot, Patiala and Amritsar were selected which are not adjoining with each other. In the selected districts, 2 schools from each district belonging from different zones and wards were taken randomly. A total of 200 teachers working in selected schools were taken as respondents for the purpose of study. Out of that, 20 teachers were taken from each school that comprises of 40 teachers from each district for the study.

Interview schedule was constructed to conduct the study on specific objective. The Pre-testing was done on one non-sampled Govt. Senior Secondary School of Ludhiana. With the help of Interview Schedule, data was collected from the selected respondents. The data was tabulated on the master sheet for further processing and analyzed in frequencies and percentages.

Results and Discussion

Table 1 discussed about educational qualification of respondents which is primarily divided into two categories i.e. Graduate and Post- graduate. The Table concluded that 10 per cent respondents were graduate in Ludhiana and only 5 per cent each of Hoshiarpur and Faridkot. Maximum number of respondents were found post- graduate in their allied fields. All of 100 percent respondents from each of Patiala and Amritsar followed by 95 per cent respondents in Hoshiarpur and Faridkot respectively. 90 post-graduate respondents were found in Ludhiana. Overall, 96 per cent respondents were Post-graduate and rest 4 per cent were Graduate. Aloha (2009) aligned in his study explained that maximum teachers in Delhi University are tend to be post-graduates for obtaining higher scope of career and salary.

Nearly one- third respondents were from Amritsar, Patiala and Hoshiarpur were lecturer whereas, 20 per cent were from Faridkot. Furthermore, 80 per cent teachers were found in Faridkot followed by 72 per cent teachers from Hoshiarpur and Patiala each. 70 per cent teachers found in Ludhiana and around 67 per cent in Amritsar. Overall, 72 per cent respondents were involved as teachers and rest 27 per cent as a lecturer.

The table 1 depicts that there were less respondents had work experience of 1-10 years. Around 32 per cent respondents belonged from each of Ludhiana and Faridkot followed by 27 per cent in Amritsar. Approximately 12 per cent respondents were from Patiala and 2 per cent from Hoshiarpur only. Discussing about 10-20 years, 55 per cent respondents were from Faridkot, around 47 per cent in each of Hoshiarpur and Patiala followed by 45 per cent in Amritsar and the least 40 per cent in Ludhiana. In 20-30 years group, 50 per cent respondent belonged from Hoshiarpur followed by 40.00 per cent in Patiala. Meanwhile, 27 per cent respondents were from each of Ludhiana and Amritsar and only 12 per cent respondents in Faridkot. Concluding all, we found 47 per cent respondents falling in >10-20 years category, 31 per cent in >20-30 year of experience category and the least 21 per cent in 1-10 years category.

The table clearly mentioned the teaching subjects of the respondents. The maximum number of respondents were found to be science teachers. Around 50 per cent science teachers were found in Patiala, followed by 40 per cent in Faridkot, about 27 per cent in each of Ludhiana and Amritsar and 17 per cent in Hoshiarpur. In case of Language subject, around 37 per cent teachers were from Hoshiarpur meanwhile 30 per cent teachers each of both Patiala and Amritsar, 22 per cent teachers were from Ludhiana and 20 per cent from Faridkot. Discussing about Arts, 25 per cent respondents belonged from Ludhiana, around 20 per cent respondents belonged from both Hoshiarpur and Faridkot, meanwhile 17 per cent belonged from Amritsar and about 12 per cent from Patiala. In context of other streams like (commerce and business studies) 25 per cent respondents belonged from both Hoshiarpur and Amritsar, 20 per cent from Ludhiana, around 12 per cent from Faridkot and 7 per cent from Patiala. Lastly for Vocational education, only 7 per cent belonged from Faridkot and 5 per cent from Ludhiana. Overall, there were maximum number of science teachers with 32 per cent followed by Language teachers with 28 per cent. 19 per cent Arts teachers were involved in the profession and around 18 per cent respondents from other streams followed by only 2 per cent vocational teachers. Kwasoki (2017) stated more involvement of science teachers in the field of ICT for learning and teaching new science experiments in order to engage students in learning activities.

Table 2 discussed that the maximum teachers were fully aware about common ICT Tools. As far as hardware was concerned, the highest overall mean score (2.98) was recorded for computer and the least was recorded for Digital podium (1.54). Teachers were completely aware about laptop and smart phones with the mean score of 2.95 and 2.94

Table 1. Distribution of school teachers on the basis of their professional profile

Particulars		Ludhiana	Hoshiarpur	Faridkot	Patiala	Amritsar	Overall
Educational qualification	Graduate	4(10.00)	2(5.00)	2(5.00)	–	–	8(4.00)
	Post- graduate	36(90.00)	38(95.00)	38(95.00)	40(100.00)	40(100.00)	192(96.00)
Designation	Lecturer	12(30.00)	11(27.50)	8(20.00)	11(27.50)	13(32.50)	55(27.50)
	Teachers	28(70.00)	29(72.50)	32(80.00)	29(72.50)	27(67.50)	145(72.50)
Work experience (years)	1 - 10 years	13(32.50)	1(2.50)	13(32.50)	5(12.50)	11(27.50)	43(21.50)
	>10 -20 years	16(40.00)	19(47.50)	22(55.00)	19(47.50)	18(45.00)	94(47.00)
	>20 - 30 years	11(27.50)	20(50.00)	5(12.50)	16(40.00)	11(27.50)	63(31.50)
	Average work experience	16.95	21.43	16.67	20.25	16.43	18.34
Teaching subjects	Languages	9(22.50)	15(37.50)	8(20.00)	12(30.00)	12(30.00)	56(28.00)
	Arts	10(25.00)	8(20.00)	8(20.00)	5(12.50)	7(17.50)	38(19.00)
	Vocational education	2(5.00)	–	3(7.50)	–	–	5(2.50)
	Science	11(27.50)	7(17.50)	16(40.00)	20(50.00)	11(27.50)	65(32.50)
	Other streams (commerce, business studies, economics)	8(20.00)	10(25.00)	5(12.50)	3(7.50)	10(25.00)	36(18.00)

Note: Figures in the parentheses indicate percentage in total

respectively. They were also aware about scanner, printer and multimedia projector with the mean score of 2.86, 2.83 and 2.79 respectively. The probable reason behind the findings was that teachers were quite often using these ICT tools on a regular basis for conducting classes. In case of software, teachers were also well- aware of educational software like Punjab Educare app with the mean score of 2.61, Moreover, using it to comprehend regular classes of students. It is advised by the Government to use their own software which includes all the necessary curriculum of the lower and upper classes along with audio- visual representations. This makes the process easy- grasping and easy- learning with the concept of "learning by seeing." Other than that, teachers were well aware about Microsoft office word document and excel worksheet with the mean score of 2.69 and 2.65 respectively. At the time of Covid-19, it was advised by the Government. to use software like google classroom and zoom meeting to conduct classes of students, teachers were firstly trained with the concept of using these software, these software also had higher mean score of 2.64 and 2.83. In context of social media applications, teachers were well aware of its usage. They were using WhatsApp group, Facebook and YouTube page to a major extent with the mean score of 2.83, 2.72 and 2.68 respectively. They used social media to send invitation link, online report card to the parents, and YouTube for uploading videos of several events been conducted in the school. Teachers also were aware about webcam, video and audio conferences with the mean score of 2.22, 2.87 and 2.72 and used it in order to virtually talk to parents of the concerned students at a time. Teachers were somewhat aware about the Digital camera, with the mean score of 2.03, using it to capture events of the school. They were less aware about Smart boards, Quora and Blogs with the mean score of 2.02, 1.71 and 1.80 respectively.

In context of overall evaluation of the entire five districts is concerned, the level of awareness among the respondents was divided on a three point continuum scale of low, medium, high. The maximum number of respondents were having medium level of awareness among all five districts. Nearly 87 per cent respondents from Hoshiarpur, 83 per cent from Patiala, 80 per cent from Amritsar, 75 per cent in Ludhiana and rest 70 per cent in Faridkot were having medium awareness about ICT tools. In total, 79 per cent respondents were having medium level of awareness, 12 per cent respondents with low level of awareness and rest 9 per cent respondents who had higher degree of awareness in which maximum teachers were belonging from Ludhiana with 20 per cent and the least from Faridkot with only 3 per cent, who fall in the category of high level of awareness.

Conclusion and Policy Implications

The study examined District-wise awareness and Level (degree) of awareness of school teachers regarding ICT tools. Data showed that 96 per cent respondents were post-graduate in which around 77 per cent were designated as teachers and rest 23 per cent as lecturers. Majority of respondents

Table 2 Overall awareness of ICT tools among school teachers

ICT tools	Awareness				
	Not at all aware	Somewhat aware	Fully aware	Mean score	SD
Hardware					
Computer	–	5	195	2.98	0.16
Laptop	5	–	195	2.95	0.31
Multimedia projector	–	43	157	2.79	0.41
Scanner	–	29	171	2.86	0.35
Printer	–	34	166	2.83	0.38
Webcam	14	128	58	2.22	0.56
Hard drive	40	99	61	2.11	0.70
Pen drive	–	24	176	2.88	0.33
Smart phones	–	13	187	2.94	0.25
Tablets	–	26	174	2.87	0.34
Digital camera	40	115	45	2.03	0.65
Smart board	69	59	72	2.02	0.84
Digital podium	112	69	19	1.54	0.66
LED	5	31	164	2.80	0.46
Software					
Audio calling	6	45	149	2.72	0.51
Video calling	4	18	178	2.87	0.39
Wifi/ LAN/ Internet browser	10	45	145	2.68	0.57
Educational software(Punjab Educare app)	9	61	130	2.61	0.58
Web portals	6	54	140	2.67	0.53
Online dictionaries	–	104	96	2.48	0.50
Email	4	30	166	2.81	0.44
Blogs	62	116	22	1.80	0.62
Quora	90	78	32	1.71	0.73
Microsoft office PowerPoint presentation	22	27	151	2.65	0.67
Microsoft office word document	13	36	151	2.69	0.59
Microsoft office excel worksheet	13	45	142	2.65	0.60
Google classroom	–	73	127	2.64	0.48
Zoom meeting	–	35	165	2.83	0.38
Facebook account	4	49	147	2.72	0.49
WhatsApp group	4	27	169	2.83	0.43
Instagram page	17	22	151	2.62	0.61
YouTube page	13	38	149	2.68	0.59

Note: Figures in the table indicate frequency in total

having work experience of 10-30 years and maximum respondents (around 33 per cent) of them were involved as science teachers and the least i.e. 18 per cent were involved as profound commerce teachers.

This study illustrated that the majority of teachers had medium level of awareness about ICT tools. About 80 per cent teachers had medium level of awareness among the all five districts of Punjab whereas, 12 per cent teachers had low level of awareness and only 8 per cent teachers had higher level of awareness. Smart phones, computers and social media are the most popular method among school teachers for disseminating knowledge to the students, sharing notes, conducting classes and updating knowledge for self-upgradation. For the purpose of contacting students and

Table 3. Distribution of respondents according to level of awareness

Level of awareness	Ludhiana (n_1=40)	Hoshiarpur (n_2=40)	Faridkot (n_3=40)	Patiala (n_4=40)	Amritsar (n_5=40)	Overall
Low	2(5.00)	3(7.50)	11(27.50)	3(7.50)	5(12.50	24(12.00)
Medium	30(75.00)	35(87.50)	28(70.00)	33(82.50)	32(80.00)	158(79.00)
High	8(20.00)	2(5.00)	1(2.50)	4(10.00)	3(7.50)	18(9.00)

Note: Figures in the parentheses indicate percentage in total

providing school related information, whatsapp group and audio calling was a major highlight for the teachers. The recommendations as per the study is that there should be improvisation of computer labs with equipped facilities.

Major implementation to be done in order to reform traditional pedagogy into modern pedagogy, newer technologies to be added for further advancement of students. There should be provision of advanced training and workshop on ICT tools so they become well aware about latest ICT tools and can use them easily. Investing in comprehensive training programs in advanced ICT tools for teachers to ensure they are proficient in using ICT tools. Providing schools and teachers with the necessary hardware and software tools that teachers can access to study material and other hassle-free educational activities. In addition to that, providing sufficient grant to the schools for its overall development and availability of specifically important needs.

References

Aboh 2008 Assessment of the frequency of ICT Tools usage by Agricultural Extension agents in IMO state Nigeria. *Journal of Agriculture and Social Research* **8**: 32-56. 10.4314/jasr.v8i2.43353.

Aderinto A, Adedoyin S, Awotide D and Adamu C 2008 Use of Information and Communication Technologies (ICTs) among Extension Personnel in Ondo State. *Nigeria Journal of Rural Society and Agriculture* (NRSA), **8**: 66-70. dx.di.org/10.4314/jae.v17i1.8

Adokoya A 2006 Use of ICT among rural people in Oyo State, Nigeria. *Research Journal of Applied Sciences* 1: 101-05. medwelljournals.

Aduke L 2008 Problem and Prospect E-learning in Nigerian Universities. *International Journal of Technology and Inclusive Education* (IJTIE). **3**: 112-116. 10.20533/ijtie.2047.0533.2014.0041

Agwu A, Uche-Mba, U and Akinnagbe O M 2008 Use of information and communication technologies among researchers, extension workers and farmers in Abia and Enugu states: Implications for a national agricultural extension policy on ICTs. *Asian Journal of Agriculture Extension* **12**: 37-48. 10.4314/jae.v12i1.47025.

Ahuja V 2011. Cyber extension: A convergence of ICT and agricultural development", *Global Media Journal of Indian Edition* **2**: 211-45. Amity.academia.edu/VivekAhuja

Akpabio W 2007 Lack of awareness affecting ICT utilization by Agricultural Extension Officers in the Niger Delta, Nigeria. *The Journal of Agricultural Education and Extension* **13**: 263-272. 10.1080/13892240701630986

Aloha K 2009 Teacher's perceptions of their computer related skills in DU: A preliminary study. *Interdisciplinary Journal of e-skills and lifelong learning.* **12**: 95-112. 10.1011/jue.viW.456098.

Aluga S 2018. Awareness and use of ICT among Undergraduate students of rural areas in Dindigul District : a study. *Library philosophy and practice e-journal*. 3: 1522-0222. 10.5923/j.ijis.20130301.01

Ankamah T 2021. Awareness and Usage of ICT effectiveness and Usage of ICT tools among among Postgraduate Student in the University of Ghana and the University of Cape Coast. *Library philosophy and practice e-journal*. 6027. digitalcommons.unl.edu/libphilprac/6027

Arundhathi P and Tiotia S. 2018. Awareness and Impact of Information Communication Technology (ICT) on the Academic Performance of the Students of Sarada Vilas Teachers (B.Ed.) College, Mysore: A study. *International Journal of Library and Information Studies*. **8**: 2231-4911. www.ijlis.org.64344.

Kwasoki T 2017. Knowledge of ICT and computer proficiency in college and university teachers. *Journal of information systems.* 1: 2224- 65. www.scholarlyjournals.com/SJE.10.967890.

Received: October 15, 2023 Accepted: March 20, 2024