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Cognizance of ICT gadgets among rural students: Unraveling the impact of demographic factors

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Abstract

The study was conducted in the Hisar district, the research targeted two government senior secondary schools, one each from the villages of Niyana and Bhiwani Rohilla. A total of 100 students from grades 9 to 12 participated in the study who were willing and interested to participate. The collection of data was done through the developed questionnaire from 1 May, 2022 to 30 May, 2022 by the researcher itself. The level of cognizance of ICT gadgets was measured in terms of cognizance for fifteen ICT gadgets. For the very same purpose gadgets inventory was developed by the researcher. Questionnaire also comprises demographic information. The responses of the students were collected on two continuums in 'Yes' and 'No' with weightage of 1 and 0 respectively.

The findings of the study indicated that both the school students had cent percent cognizance about computer, smart phones and television. Majority of the students of school-I had a high level of cognizance as compared to School-II students with a medium level of cognizance about the various ICT gadgets. There was significant difference between the mean of both the schools. It was also found that there was significantly positive correlation of age, education, family income, with cognizance of ICT gadgets in School-I and School-II. Also, there was significantly negative correlation of gender and distance from city or town with cognizance of ICT gadgets in School-II.

Keywords: Cognizance, ICT gadgets, rural students, demographic profile

Introduction

The technology's ultimate purpose is the transformation of existing situation. With an unprecedented proliferation of internet-based services, the world is currently undergoing a profound transformation towards a knowledge-based society. Information and communication technologies or ICT is a comprehensive word that encompasses all technological advancements for the management and transmission of all digital data. ICT tools are the instruments, devices or equipment's that perform signal processing (i.e., to receive or transmit information in the form of signals). All available communication devices including cellphones, computers, tablets, laptops, televisions, radios, smart bands, etc. are included under the umbrella term 'ICT gadgets' [2].

While the prevalence and use of ICT gadgets have become widespread in this century, significant disparities exist among students, whether they are from urban, rural, or even different rural areas. Various factors contribute to the degree of awareness and familiarity with ICT gadgets among students. The primary objective of this paper is to assess the level of cognizance regarding ICT gadgets among students and to identify the factors that influence their knowledge and awareness.

The awareness and utilization pattern of ICTs by the teachers and students of CCS HAU, Hisar and revealed that there was a notable positive correlation between ICT knowledge and usage. Furthermore, it was discovered that 90.8 percent of students had high levels of knowledge of ICT, 8.8 percent had medium level and 0.4 percent had poor level of knowledge [1].

The students of Jabalpur (M.P) were also studied and it was found that 51.33 percent of the students said they possessed moderate understanding regarding ICT usage while 10.83 percent of respondents said they had poor knowledge of utilization of ICT and 37.50 percent said they had excellent knowledge. Consequently, it could be concluded that the majority of (51.33%) had knowledge utilization of ICT at a moderate level [4]. Also, the study in Azamgarh district conducted by Meena and Meena (2019), revealed that 42.66 percent young males had high awareness and knowledge about ICT tools followed by 16.0 percent and 8.0 percent with medium and low awareness and knowledge each respectively whereas young females (40.0%) had high awareness and knowledge about ICT tools followed by 14.66 percent and 12.0 percent with medium and low awareness and knowledge of ICT tools respectively [3].

Materials and Methods

Measuring the Level of Cognizance

a. Developing Gadgets inventory

The level of cognizance of ICT gadgets was measured in terms of cognizance for fifteen ICT gadgets. For the same purpose gadgets inventory was developed with the list of following gadgets viz. Computer, Laptop, Tablet, LCD Projector, iPad, Smart phones, Landline phone, Television, Radio, Printer, Scanner, Pen drive, Memory card and Smart bands.

b. Scoring of gadgets

The responses of the students were collected on two continuum in 'Yes' and 'No' with weightage of 1 and 0 respectively. Each gadget was given a score 1 if the respondent was cognizant about certain gadget and score 0 was given if the respondent was not cognizant about the gadget. Maximum score one could obtain was 15 and minimum could be 0 for the fifteen gadgets. On this basis, the respondents were categorized into the following categories:

Category	Score range
Low	0-5
Medium	6-10
High	11-15

Note: School-I: Aarohi Model Senior Secondary School, Bhiwani Rohilla.

School-II: Government Senior Secondary school, Niyana

Significance of the Difference

The difference between the means of both the schools was calculated by t-test (A t- test is an inferential statistical test that was used to compare the means of two groups to determine if there was a significant difference between the mean of two groups. Higher value of t-test indicate that a significant difference exist between the two samples).

Results

The data in the Table 1 depicts the cognizance of the students about ICT gadgets from School-I and School-II. The data revealed that cent percent students from School-I had cognizance about computer, smart phones and television. This was followed by Cognizance of tablets (94.0%), laptops (92.0%), LCD projectors (84.0%), pen drives (80.0%) and memory cards (76.0%). Additionally, 74.0 percent of students were aware of radios, while 72.0 percent were cognizant about printers. Awareness dropped to 56.0 percent for modems, routers, and Wi-Fi, and less than half of the students were familiar with smart bands (42.0%), landline phones (40.0%) and scanners (34.0%).

In School-II, it was observed that cent percent students were cognizant about computers, smart phones and television. A majority of the students were cognizant about tablets (92.0%), laptop and LCD projector (70.0%). Approximately 2/3rd was aware about memory card (66.0%). This was followed by pen drive (56.0%), printers (50.0%) and radio (44.0%). Cognizance about modems/routers/Wi-fi was dropped to 36.0 percent followed by smart bands and landline phones (24.0%) and only a fifth (20.0%) of the respondents were cognizant about scanner and a very few (8.0%) were cognizant about iPad.

Table 1: Cognizance of ICT gadgets among rural students of School-I and School-II

Sr. No.	ICT gadgets	School-I (n=50)			School-II (n=50)		
		f	(%)	Mean score	f	(%)	Mean score
1.	Computer	50	100.0	1.00	50	100.0	1.00
2.	Laptop	46	92.0	0.92	35	70.0	0.70
3.	Tablet	47	94.0	0.94	46	92.0	0.92
4.	LCD Projector	42	84.0	0.84	35	70.0	0.70
5.	iPad	10	20.0	0.20	4	8.0	0.08
6.	Smart phones	50	100.0	1.00	50	100.0	1.00
7.	Landline phones	20	40.0	0.40	12	24.0	0.24
8.	Television	50	100.0	1.00	50	100.0	1.00
9.	Radio	37	74.0	0.74	22	44.0	0.44
10.	Printers	36	72.0	0.72	25	50.0	0.50
11.	Scanner	17	34.0	0.34	10	20.0	0.20
12.	Pen drive	40	80.0	0.80	28	56.0	0.56
13.	Memory card	38	76.0	0.76	33	66.0	0.66
14.	Modems/ routers /Wi-Fi	28	56.0	0.56	18	36.0	0.36
15.	Smart band	21	42.0	0.42	12	24.0	0.24

Level of Cognizance of ICT gadgets among rural students of School-I

Data in the Table 2 depicts the level of cognizance about ICT gadgets among rural students of School-I and School-II. The findings indicates that majority of the students (54.0%) had a high level of cognizance about ICT gadgets trailed by 40.0 percent with a medium level of cognizance and 6.0 percent with a low level of cognizance (Fig.1).

For School-II, the majority of students (78.0%) had a medium level of cognizance followed by 16.0 percent with a high level of cognizance, and 6.0 percent with a low level of cognizance (Fig.1)

Table 2: Level of Cognizance of ICT gadgets among rural students of School-I and School-II

Sr. No.	Level of Cognizance	School-I (n=50)		School-II (n=50)	
		f	(%)	f	(%)
1.	Low (0-5)	3	6.0	3	6.0
2.	Medium (6-10)	20	40.0	39	78.0
3.	High (11-15)	27	54.0	8	16.0

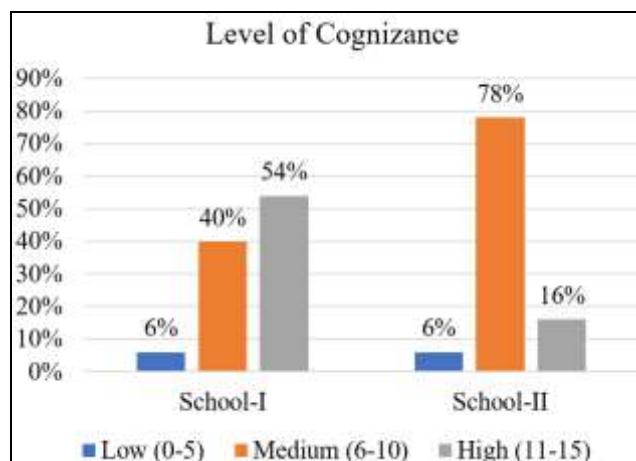


Fig 1: Level of cognizance of ICT gadgets among rural students of School-I and School-II

Significance of the difference between the School students

Data in the Table 3 indicates the significance of the difference between both the school students. Since the t -value is 5.48 and it is stated to be significant at the $p < 0.05$ level, this means that the result is statistically significant

Table 3: Comparison of both the Schools for cognizance of ICT gadgets among rural students of School-I and School-II

(N=100)			
Variable	School-I (Mean $\pm$ SD)	School-II (Mean $\pm$ SD)	't' value
Cognizance	0.70 $\pm$ 0.26	0.57 $\pm$ 0.31	5.48*

Significant at $*p < 0.05$ level of significance

Correlation between socio-demographic profile of rural students and cognizance of ICT gadgets

There are several demographics factors that affect the awareness or cognizance of the students regarding the ICT gadgets. The socio-demographic factors taken into consideration for the research data were Age, Gender, Education, Ordinal position, Family size, Family type, Occupation of family, Family income, Hours of power supply and Distance from city or town. Few factors among them revealed significantly positive correlation and some, significantly negative correlation. Data in the Table 4 inferred that there was significantly positive correlation of age with cognizance of ICT gadgets ($r = 0.41^*$ and $r = 0.32^*$) in School-I and School-II which means as the age increased cognizance among respondents also increased.

There was significantly negative correlation of gender ($r = -0.28^*$) with cognizance of ICT gadgets in School-II which means that males had higher cognizance than females. Further, it was found that there was significantly positive correlation between education and cognizance of ICT gadgets ($r = 0.40^*$) in School-II which means as the education increased cognizance among respondents also increased.

It was shown that there was significantly positive correlation of family income with cognizance of ICT gadgets ($r = 0.28^*$) which means as the family increased cognizance among respondents also increased in School-I. There was significantly negative correlation of distance from city or town with cognizance of ICT gadgets ($r = -0.29^*$) which means as the distance from city or town increased cognizance among respondents decreased in School-II.

Table 4: Correlation between socio-demographic profile and cognizance of ICT gadgets by rural students of School-I and School-II

(N=100)			
S. No.	Variables	Correlation with Cognizance	
		School – I (n=50)	School – II (n=50)
1.	Age	0.41*	0.32*
2.	Gender	-0.55	-0.28*
3.	Education	0.40*	0.17
4.	Ordinal position	-0.15	-0.045
5.	Family size	-0.15	-0.075
6.	Family type	0.08	0.022
7.	Occupation of family	0.18	0.19
9.	Family income	0.28*	0.029
10.	Hours of power supply	0.15	0.096
11.	Distance from city or town	-0.21	-0.29*

*Significant at $p < 0.5$ level of significance

Discussion

The study revealed that cent percent rural students had cognizance about computer, smart phones, television in both the schools as all these gadgets were owned by majority of the students or were highly accessible as computers were available in the computer labs in their schools. Majority of the respondents were cognizant about tablets (94.0%) in Aarohi Model Senior Secondary School, Bhiwani Rohilla and least cognizant (20.0%) about iPads. Most of the students in School-II were cognizant about tablets (92.0%) as in both the schools tablets were distributed among the students from E-Adhigam yojana, a government initiative for children.

Data showed that in School-I, majority of the students (54.0%) had high level of cognizance about ICT gadgets while in School-II, majority (78.0%) had medium level of cognizance about ICT gadgets as they had better accessibility to the ICT gadgets due to better infrastructural facilities for ICT in school and School-II had poor infrastructural facilities that counts for low cognizance about ICT gadgets among majority of the students.

It was found that there was significantly positive correlation of age with cognizance of ICT gadgets as with improved level of education, knowledge, experience, more exposure for technological devices and more information could be obtained from peers and school teachers with increase in age. In School-II, males had higher cognizance of ICT gadgets than females, likely due to greater awareness and fewer restrictions on usage. In School-I, both education and family income were positively correlated with cognizance—higher education levels and income increased awareness of ICT gadgets. In School-II, students living farther from the city had lower cognizance due to limited exposure to technology. Both schools showed that higher education led to greater ICT gadget use, while distance from the city negatively impacted gadget utilization in both.

Conclusion

In both schools, all students were aware of basic ICT gadgets such as computers, smartphones, and televisions. However, the overall level of cognizance varied between the two. In School-I, 54.0% of students exhibited a high level of awareness, while in School-II, the majority (78.0%) had a medium level of cognizance. The t -score (5.48*) confirmed a significant difference in cognizance levels between the two schools.

The study found a significantly positive correlation between cognizance of ICT gadgets and factors like age, education, and family income. In School-II, there was a significantly negative correlation between gender and distance from the city and cognizance, meaning males and those living closer to urban areas had higher awareness. Additionally, a positive correlation between education and ICT utilization was observed in both schools, while distance from the city negatively impacted utilization in both.

Given the lower cognizance levels in School-II, introducing digital literacy programs at the school or district level could help enhance awareness and utilization of ICT gadgets among rural students. Access to technology, knowledge, and maintenance of ICT gadgets can be improved by setting up structured ICT labs, especially as digital-based education becomes more essential. The better facilities and higher

awareness seen in School-I suggest that expanding the model school concept to every village could help bridge the digital divide and improve students' cognizance and skills across rural areas.

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