A Study on the Impact of ICTs on Education and its Relationship with Socio-demographic Profile of Students

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ABSTRACT

Information and Communication Technologies (ICTs), which refers to a range of technologies that enable the processing, storage, retrieval, and dissemination of information. These technologies include hardware, software, telecommunications networks, and other digital tools that facilitate communication and the exchange of data. The present study was conducted to find out the impact of ICTs on Education and its relationship with the Socio-demographic profile of Students. Two hundred thirty-five students were selected based on the proportion to the size of the population from four SAUs. The collected data were analyzed using the chi-square test to find out the impact of ICTs and their relationship on each independent variable. The findings of the study revealed that the majority (61.70%) of the students belonged to the $20-24$ years age group. The majority of students (64.26%) were male, while 35.74 % were female. The majority of the (77.44%) students had a family annual income between Rs. 156733 to 553403 and less than half of the (46.38%) students had a medium level of mass media exposure. The results further revealed that the education of students (0.001), the educational background of the students father (.010), the educational background of the students mother (0.000), and Mass Media exposure (0.004), were positively associated at 0.05 % level of significance due to the impact of ICTs. It means four variables significantly exert their influence on the impact of ICTs.

Keywords: Socio-demographic profile, Impact, ICTs, Education

INTRODUCTION

Information and Communication Technology (ICT) has revolutionized the way we live and work, and has had a profound impact on education. The integration of ICT into education has transformed the way we teach and learn, providing a wide range of opportunities for both teachers and students. Information and Communication Technology refers to the use of digital technologies to access, process, and communicate information. It includes a range of technologies such as computers, tablets, smartphones, the internet, social media, and other digital platforms. The use of ICT in education has become increasingly popular in recent years, as it offers many benefits over traditional teaching methods. The introduction of ICT in education has brought about significant changes in teaching and learning. The traditional approach to teaching involved the teacher imparting knowledge to the students through lectures, textbooks, and other materials. The students were passive recipients of information, and there was little room for interaction or engagement. The introduction of ICT has made it possible to create more interactive and engaging learning environments that cater to the needs of individual learners. Information and Communication Technologies (ICTs) are one such technology that has huge potential to transform the education sector. One

of the primary benefits of using ICT in education is that it enables personalized learning. ICT allows teachers to create customized learning experiences that cater to the needs and interests of individual students. For example, online learning platforms can provide personalized learning paths based on the student's learning preferences, pace, and style. This means that students can learn at their own pace and in their own way, which can improve their motivation and engagement with the learning material. The new possibilities presented by ICTs, from the digitization of information to new possibilities for recording, simulation, and data processing are revolutionized by scientific research in various fields (Atkins *et al.,* 2003). The integration of ICT into education has been assumed as the potential of the new technological tools to revolutionize an outmoded educational system (Albirini, 2006). Information and Communication Technology is ruling the world in all walks of life and access to mobile phones and internet facilities is growing in India at a rapid rate in recent years. (Patel *et al.,* 2020). ICT has also made it easier to collaborate and communicate with peers and teachers. With digital platforms such as social media, online discussion forums, and video conferencing, students can interact and collaborate with their peers and teachers from anywhere in the world. This can lead

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to a more diverse and inclusive learning environment, as students can learn from and interact with people from different backgrounds and cultures. Information and Communication Technology (ICT) has become an integral part of education and is being increasingly used by educators and students around the world. Pelgrum (1993) has noted that ICT is "not only the backbone of the Information Age but also an important catalyst and tool for inducing educational reforms that change our students into productive knowledge workers". ICT plays a critical role in information societies' educational systems. In these societies, the stakeholders of educational policy, redesign and reconstruct their educational systems based on the new educational paradigms such as constructivist theory so that both teachers and students develop the necessary knowledge and skills sought in this digital age. Hence, most countries around the world are focusing on approaches to integrate ICT in learning and teaching to improve the quality of education by emphasizing competencies such as critical thinking, decision-making, handling dynamic situations, working as a member of a team, communicating effectively (Anderson and Weert, 2002).

MATERIALS AND METHODS

The study was conducted in four state agricultural universities of Uttar Pradesh i.e. CSAUAT, NDUAT, SVBPUAT, and BUAT, and an "*Ex-post-facto*" research design was carried out. From each agricultural university, the College of Agriculture was selected purposively because it holds the maximum student strength of the agricultural university. The study selected 235 students based on proportion to their size of the population. It would be helpful to have additional information about the study, such as the research question, methodology, and findings, to better understand the context and implications of this statement. A structured interview schedule was used to collect the data. The collected data has been analyzed with the help of the Statistical Package for Social Sciences (SPSS, 16.0 version). Chi-Square was used with a .05 level of significance. The χ^2 test was first used by Karl Pearson in the year 1900. The χ^2 test is one of the simplest and most widely non-parametric test in statistical works. The equation for Chi-Square (χ^2) is stated as follows:

$$\chi^2 = \frac{\sum (f_o - f_e)^2}{f_e}$$

Here,

f_o = frequency of occurrence of observed or experimentally determined facts.

f_e= expected frequency, f_o occurrence on independent hypothesis.

RESULTS AND DISCUSSION
Socio-demographic and communication profile of the students

The results revealed (Table 1) that the majority (61.70%) of the students belonged to the age group of 20 to 24 years followed by the 24 years age group and above (25.53%) and below to 20 years age group (12.77%) of the students. Thus, it may be concluded that the majority of students belonged to the age group of 20 to 24 years. All the students were youth. The study was aligned with the findings of Khan *et al.* (2011). The

majority of (64.26%) of the students were male while (35.74%) were female students. A similar result was recorded by Chandran (2013). Out of 235 students, 134, 58, and 43 students were pursuing their graduation, Master, and Ph.D. respectively, and constituted 57.02, 24.68, and 18.30 percent of total students. It can be inferred from (Table 1) that the majority (77.44%) of the students had a family annual income between Rs. 156733 to 553403 followed by Up to Rs. 156733 (12.34%), while (10.22%) of students had an annual family income of Rs. 553403 and above. This finding might be due to the reason that most fathers of the students were marginal farmers and mostly dependent on agriculture. A similar result was reported by Kumar (2009). A majority (57.03%) of the students were having 4 to 7 family members followed by 7 family members size and above (22.55%) while (20.42%) of the students were having up to 4 family members' size. This finding might be due to the reason that most students belonged to a joint family. The findings revealed that about one-third (38.30%) of the student's father had educational qualifications up to graduation, followed by high school (22.97%), intermediate (13.21%), middle school (8.93%), post-graduation (8.52%), primary schooling (5.95%) and only 2.12 percent student's father were illiterate, respectively. In the case of the educational background of students mothers (28.08%) were educated up to middle school, followed by (22.12%) who were educated up to high school, (16.59%) were educated up to primary school, (11.06%) were educated up to intermediate, (10.63%) were illiterate, (8.08%) were educated up to graduation, and (3.40%) were post-graduation. Thus, it can be concluded that the majority (38.30%) of the student's father had educational qualifications up to graduation, while In the case of the educational background of students mothers, 28.08 percent were educated up to middle school. A similar result was reported by Kirti *et al.* (2017)**.** The mass media exposure of the students (Table 1) indicates that out of 235 students, 109 (46.38%) students had a medium level of mass media exposure, followed by 68 (28.94%) students who had a low level of mass media exposure, and 58 (24.68%) of the students had the high level of mass media exposure. Thus, it can be concluded that maximum students had a medium level of mass media exposure, followed by the low and high level of mass media exposure of the students.

Impact of ICTs on selected independent socio-demographic profile of the students

The findings revealed (Table 2) that age of the students (0.676) was not significantly associated with the impact of ICTs at a 0.05 % level of significance. It means the variables were not significantly exerted their influence on the impact of ICTs. Hence the result confirms the null hypothesis. This result was similar to the finding of Meena (2017) found that no-significant correlation between age and usage of e-resources. The result of the analysis suggests that the p-value for the association between gender and the impact of ICT was 0.966, which means that the association is not significant at the 0.05 level of significance. The findings were similar to the study of Cavas *et al.* (2009) studied which revealed no significant differences between ICT attitudes of Turkish science teachers in terms of gender. *Findings regarding the education of students and the impact of ICTs revealed that there was a positive association between variables at a 0.05% level of significance.* This result was

Table 1: Distribution of students based on their Socio-economic and communication profile

n=235

Sl. No.	Variables	Categories	F	%
1.	Age	Below 20 years	30	12.77
		20 – 24 years	145	61.70
		Above 24 years	60	25.53
2.	Gender	Male	151	64.26
		Female	84	35.74
3.	Education of the Students	Graduation	134	57.02
		Master	58	24.68
		Ph.D.	43	18.30
4.	Family Annual Income	Below Rs. 156733	29	12.34
		From Rs. 156733 to 553403	182	77.44
		Above Rs. 553403	24	10.22
5.	Family Size	Small (Up to 4)	48	20.42
		Medium (4 to 7)	134	57.03
		Large (7 & above)	53	22.55
6.	Educational background of the student's Parents		**Father**	**Mother**
		Illiterate	5 (2.12)	25 (10.63)
		Primary	14 (5.95)	39 (16.59)
		Middle School	21 (8.93)	66 (28.08)
		High School	54 (22.97)	52(22.12)
		Intermediate	31 (13.21)	26 (11.06)
		Graduation	90 (38.30)	19 (8.08)
		Post-Graduation	20 (8.52)	8 (3.40)
7.	Mass Media Exposure	Low (below 10.11)	68	28.94
		Medium (10.11 to 12.93)	109	46.38
		High (above 12.93)	58	24.68

similar to the finding of Malik *et al.* (2020) who also reported that education exhibited a positive and significant correlation with their usage behavior of the internet.

The result of the analysis suggests that the p-value for the association between annual income of students' fathers and the impact ofICTis0.294, which means that the association is not significant at the 0.05 level of significance. Hence the result confirms the null hypothesis. This result was similar to the finding of Meena (2017) found that no-significant correlation between income and usage of e-resources. The correlation between family size and the impact of ICTs was found to be 0.444. However, it is also mentioned that this result was not significant at the 0.05% level of significance. This means that the correlation between family size and the impact of ICTs may have occurred by chance and is not strong enough to reject the null hypothesis. Based on the information provided, it appears that the educational background of students' fathers was found to be significantly associated with the impact of ICTs at a 0.05% level of significance, according to a correlation analysis of data in Table 2. This suggests that this variable exerted its influence on the impact of ICTs and supports the alternate hypothesis. It is evident from Table 2

Table 2: Relationship between Impact of ICTs and selected independent socio-economic variables of the students

S. No.	Independent Variables	Pearson Chi-Square		
		Calculated Value	Degree of freedom	P-Value
1.	Age	2.324	4	.676 NS
2.	Gender	.068	2	.966 NS
3.	Education of Students	18.831	4	**.001***
4.	Annual Income	4.932	4	.294 NS
5.	Family size	3.728	4	.444 NS
6.	Educational back-ground of the student's father	26.122	12	**.010***
7.	Educational back-ground of the student's mother	39.990	12	**.000***
8.	Mass Media Exposure	15.164	4	**.004***

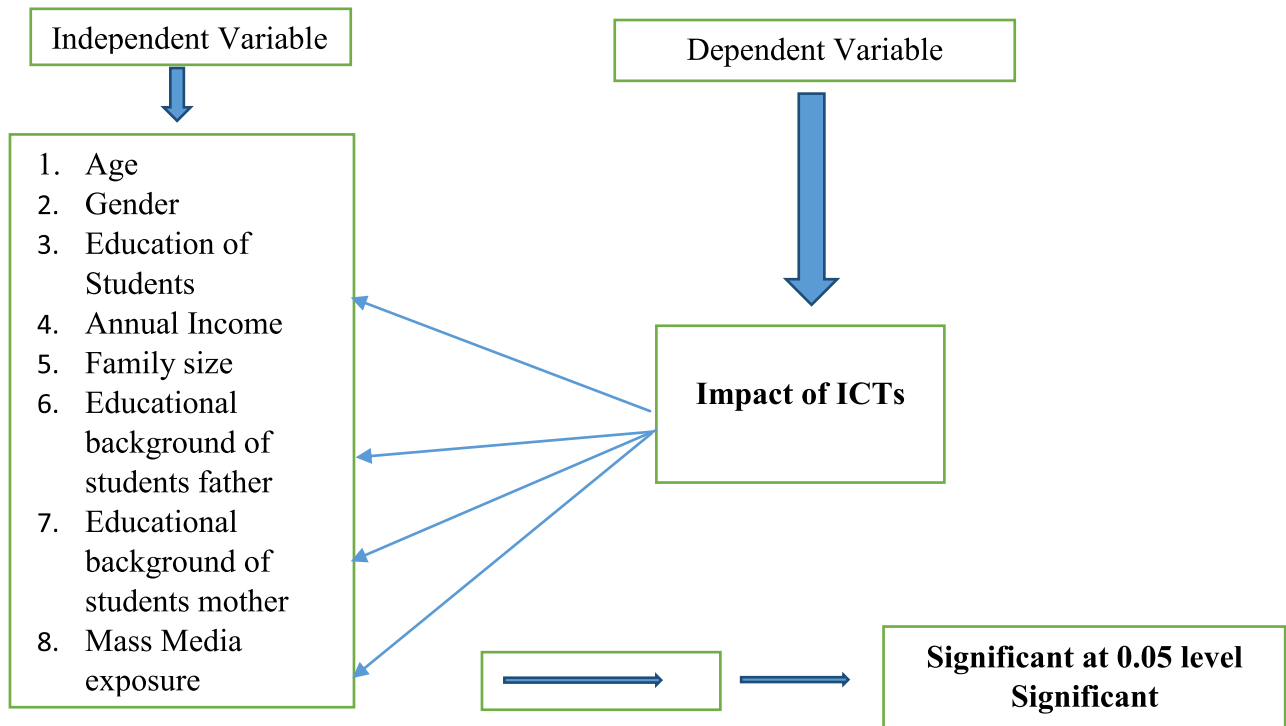*Significant at 0.05 level NS= Non-significant

Fig: 1 Empirical Research Model

that a statistical analysis was conducted to determine whether the educational background of students' mother is significantly associated with the impact of ICTs. The result of the analysis suggests that the p-value for the association between educational background of students mother and the impact of ICTs is 0.000, which means that the association is significant at the 0.05 level of significance. Hence the result confirms and supports the alternate hypothesis. Based on the information provided in Table 2 a statistical analysis was conducted to examine the relationship between Mass Media exposure and the impact of ICTs. The result of the analysis showed that the correlation between Mass Media exposure and the impact of ICTs was significant at the 0.05% level of significance, which means that the relationship between the two variables was not likely due to chance. This result was similar to the finding of Malik *et al.* (2020) found that mass

media exposure exhibited a positive and significant correlation with their usage behavior of the internet. The results are in line with the findings of Murali and Venkataramaiah (2008) that mass media exposure and economic status correlated significantly.

CONCLUSION

The findings demonstrated that several factors exhibited a significant positive association (at the 0.05% level of significance) with the impact of ICTs. These factors included the education level of students, the educational background of both the students' father and mother, land holdings, and mass media exposure. Hence, it can be concluded that these four variables exert a noteworthy influence on the impact of ICTs in the context of education.

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