

# Post Covid-19 -The Impact of ICT Facilities on the Learning Experiences and Problems Faced By the Rural Students of Higher Education- “Upgraded With Major Findings and Suggestions”

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*Abstract— The researcher survey was aimed at the impact of ICT facilities on learning experiences and the problems faced by the rural students of higher education while using ICT after Covid-19. The study comprised the students of Rural areas in Ambikapur, Chhattisgarh. About 400 students were selected from the different Colleges. Graphical representation was used to analyze the data. The findings revealed that the students have computer system/Laptop/Mobile and Internet facilities at home and college. They are expert at simple skills like Searching and Browsing at Internet, Social networking like Facebook, Instagram, reels, WhatsApp, Youtube etc., Mobile and Computer games, to some extend Email and File attachment but are less skilled or poor on other skills like using MS Word, MS Power Point, digital library, discussion forums, and different kind of online form fillings. Students spend more time on mobile and computers for recreational and other purposes than for academic excellence. They believe that the use of ICT supports their learning, but they are getting diverted from the focus of educational learning by misusing ICT facilities. They are some fact findings in the rural areas such as financial incapability to purchase Mobiles/Computers/Laptops, poor network in mobile and computer/Laptop, signal problem in Internet, and lack of internet access are the problems faced by the majority of the rural students. The college administration tried it best on improving the ICT facilities by installing latest required ICT facilities and fixed ICT related problems of students at the college.*

*Index Terms— Information Communication Technology (ICT), Facilities, Rural, Students, Higher Education, Networking.*

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## I. INTRODUCTION

Since the onset of the COVID-19 pandemic, universities, colleges, schools, and many other educational institutions have been either partially or completely closed in many countries due to measures and restrictions taken by national and state governments in order to prevent or slow down the worldwide spread of the novel corona virus disease. As such, the closure of educational institutions worldwide due to the COVID-19 outbreak has deeply affected literally millions of students (UNESCO 2020, UNICEF, 2020) with the pandemic having instigated what is probably the biggest education crisis in human history. Ultimate positive and negative impact on human life is more manifested due to use of technology as the information and the communication in learning between teachers and students after Covid-19. Information and Communication Technology (ICT) is vital for progress of education along with social life, business and economy, to meet the demands of modern information system. Use of ICT in education promotes/improves the quality and the quantity of education and causes better innovative, creative, critical and cognitive thinking, higher productivity, efficiency, and educational outcomes (NEP-2020). ICT facilitates both instructional and learning process and has a great influence on teacher/student participation in teaching-learning at higher education. It

provides opportunity for personalized, flexible and asynchronous learning and shifts the learning from teacher centered to student centered and hence is a motivation for reforms about classroom and educational system. It enhances the learning of the students, helps the students to learn new skills set, promotes social mobility, helps the citizens to compete in a worldwide economy, and thus has a multiplier effect across the education system. Information and Communication Technology (ICT) presents the material through multiple stimuli like sounds, images, and movement thus, catering the needs of visual and affective learners, Television-assisted instruction (TAI), Computer-assisted instruction (CAI), and Internet-assisted instruction (IAI) are some of the dimensions of ICT-assisted instruction. However, computer affected the educational process more than anything else (NEP-2020).

In addition to audio and visual sense, computer / laptop / mobile activates the sense of touch of the user as well. It provides the opportunity of higher interaction to the users for the development of their individual, creative, and intellectual abilities. Radio and television are now considered comparatively traditional technologies in education system as students remain passive learners while using these. Computers, however, provide more productive and innovative instruction and learning to enhance the intellectual and creative potentials of the students in today's information

society. Computers and Internet offer excellent and plenty opportunities to the students through the use of text, graphics, multicolor images, motion, and audio for the development of their creative talents and high-quality learning.

**II. RESEARCH QUESTIONS**

The study was aimed at assessing the ICT facilities, on the learning experiences and problem faced by the Rural Students of Higher Education regarding the mobiles / laptops / computers and Internet. These were the research questions of the study:

1. To what extend ICT facilities are available to the students of higher education at college and used for academic excellence?
2. To what extend students have achieved command on ICT skills?
3. What are the problems faced by the students of higher education while using ICT resources?
4. What is the post Covid -19 positive and negative impact of ICT facility usage on students?

Research Methodology, the present study was a survey research of descriptive research design. About 400 students (UG-III & PG) were selected from the rural areas of Ambikapur, Chhattisgarh. The participants belonged to the departments of **computer sciences** (26.8%), **mathematics** (4.8), **Commerce** (0.25%), **life sciences** (20.4%), and **arts** (45.2%). Majority of the students (83.2%) were from UG/PG. 100% Participants were female. Age ranges of participants were between 17 to 25 years, out of which about 86.8% participants were in the age range 18-22 years mostly UG. Both open and close ended questions were asked in it. Some parts of the scale comprised checklists on which the students were required to respond in yes or no. Open ended questions were included in the study to obtain more insight regarding the research questions. The data were analyzed using descriptive statistics including numbers, frequencies, and percentage. Responses of the questions are represented in tabular and graphical form.

**III. RESULTS**

**Access to ICT facilities by the students of higher education**

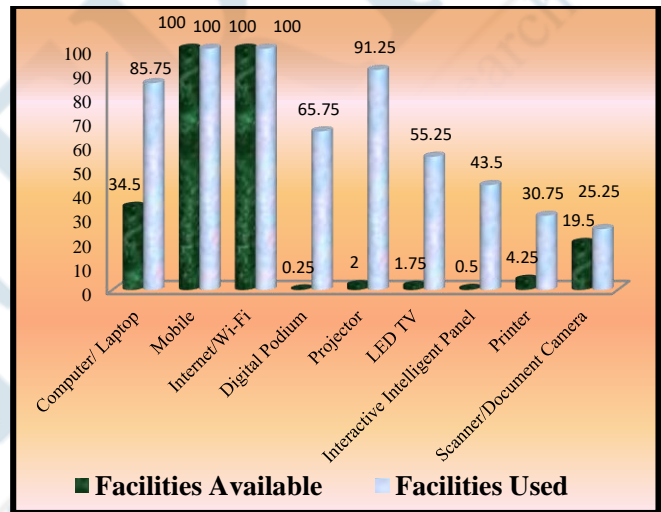
Students were provided with a checklist of the ICT facilities available-use of facilities at the colleges. They were asked to respond in yes or no. Results about the access of ICT facilities are summarized in **Table 1**.

**Table 1:** - Availability of ICT resources among participants at colleges and facilities used by the students.

Facility Available for students	At College			
	Facility Available	%	Facility Used	%
Computer/ Laptop	138	34.5	343	85.75

Mobile	400 (each student)	100	400	100
Internet/Wi-Fi	400 (each student)	100	400	100
Digital Podium	1	0.25	263	65.75
Projector	8	2	365	91.25
LED TV	7	1.75	221	55.25
Interactive Intelligent Panel	2	0.5	174	43.50
Printer	17	4.25	123	30.75
Scanner/Document Camera	78	19.5	101	25.25

Column Chat



**Table 1** shows, the facilities available at the college and used by the students. Majority of the students (100%) have Mobile with them and internet facilities at the college. Also, most of them access Computer/Laptop (85.5%), Projector (91.25%) for their seminars and presentations successfully. LED TV, Interactive Intelligent Panel and Digital Podium are used less than the other facilities, except faculty members while teaching. However, printers and scanners are not available for them at the college but with the prior permission they can use this facility at the college.

**ICT skills among the students of higher education**

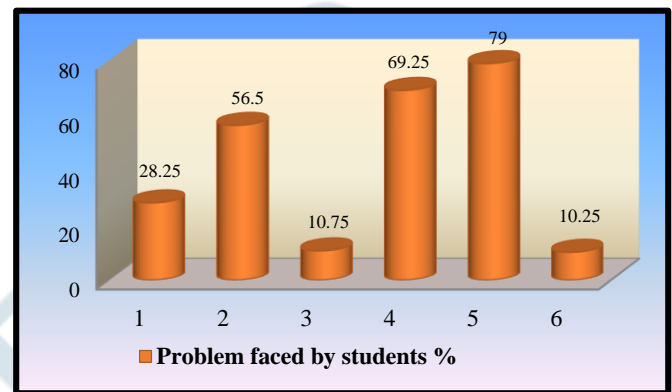
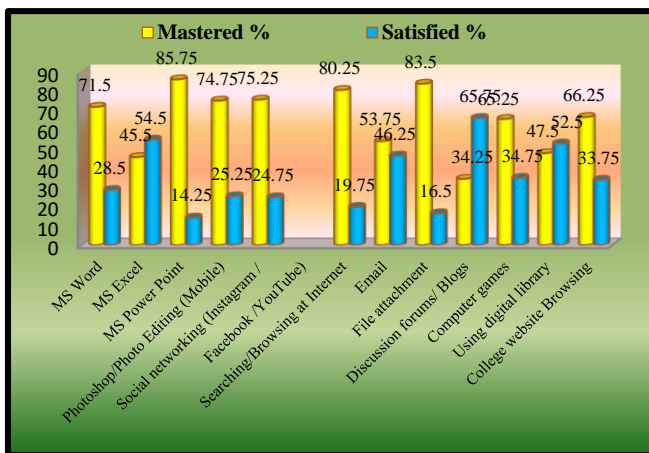
Students were provided with a list of computer skills and programs so that they can show the level of their expertise on 100 points scale. Results are presented in the **Table 2**.

**Table 2.** Participants' level of expertise at different programs

S. No	Program	Master %	Satisfied %
1	MS Word	70.5	28.5
2	MS Excel	45.5	54.5

3	MS Power Point	85.75	14.25
4	Photoshop/Photo Editing (Mobile)	74.75	25.25
5	Social networking (Instagram / Facebook /YouTube)	75.25	24.75
6	Searching/Browsing at Internet	80.25	19.75
7	Email	53.75	46.25
8	File attachment	83.5	16.5
9	Discussion forums/ Blogs	34.25	65.75
10	Computer games	65.25	34.75
11	Using digital library	47.5	52.5
12	College website Browsing	66.25	33.75

2	Lack of access of internet	226	56.5
3	Non availability of the require software	43	10.75
4	Lack of interest by students (online to offline)	277	69.25
5	More numbers of slow learners	316	79
6	Technical issues in using ICT	41	10.25



**Table 2** shows that the participants are good at some educational and recreational ICT related to skills and programs like MS Word, MS Power Point, Searching and Browsing at Internet, Email, File attachment, social networking (Instagram/Facebook/YouTube/reels making), Photoshop/Photo Editing on Mobile and Computer games. Results showed that students have moderate level of skill at using MS Excel and using digital library and are poor at using programs like discussion forums/ Blogs.

**Problems faced by the students while using ICT**

Students were provided with a checklist of problems they face at colleges. Results are presented in **Table 3**.

**Table 3:** Problems faced by students while using computers /Laptops/Mobiles/Internet.

S. No	Problem faced by students	At College	
		Frequency	%
1	Poor working condition / Slow speed of Computer/Laptop/ Mobile	113	28.25

**Table 3** shows that the most important problem participants reported regarding the use of ICT facilities are More numbers of slow learners (79%), Lack of interest by students (shift from online to offline) (69.25), and Lack of access of internet (56.5%). Second important problem faced by the students is Poor working condition /slow speed of Computer/Laptop/ Mobile, Lack of access of internet (28.25 %). Other problems participants face non-availability of the require software (10.75), and technical issues in using Projector and Digital Podium (10.25). Beside the above-mentioned problems students also faced many silent problems such as virus threat, financial issues, lack of self-confidence, misuse of the ICT technology etc.

**Post Covid -19 positive impact of ICT facility to students**

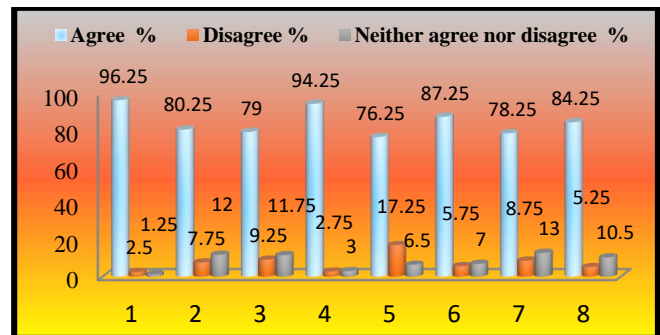
Students provided a checklist of positive impact of ICT facilities post Covid -19. Results are presented in **Table 4**

**Table 4:** Positive impact of ICT facilities post Covid -19 using computer/Laptop/Mobile/Internet.

S. No.	Positive Impact – Post Covid-19	At College		
		Agree %	Disagree %	Neither agree nor disagree %
1	The ICT resources and facilities supporting my studies well and effectively	96.25	2.50	1.25



2	Additional learning/ training support received from my teachers that is useful at present	80.25	7.75	12.00
3	I know where to ask for help while using technology in day to day	79.00	9.25	11.75
4	I am satisfied with the support I received from my teachers for my mental health and emotional wellbeing	94.25	2.75	3.00
5	I am satisfied the way my teachers delivered online classes, which is enhancing my academic capabilities now	76.25	17.25	6.50
6	I am able to continue with my studies post Covid-19 effectively	87.25	5.75	7.00
7	Promoting the use of technology to provide simulations of real activities, wider connectivity and communications at present	78.25	8.75	13.00
8	Learning is seen as an active socially engaged process, not one of a passive development in response to external forces	84.25	5.25	10.5



**Table 4** shows about students given with checklist said, the ICT resources and facilities supporting their studies well and effectively **agreed** (96.25%), **disagreed** (2.5%) and **Neither agree nor disagree** (1.25%), they are satisfied with the support they received from the teachers for their mental health and emotional well-being **agreed** (94.25%), **disagreed** (2.75%) and **Neither agree nor disagree** (3%), they are able to continue with their studies post Covid-19 effectively **agreed**(87.25%), **disagreed** (5.75%) and **Neither agree nor disagree** (7%), their Learning is seen as an active socially engaged process, not one of a passive development in response to external forces **agreed** (84.25%), **disagreed** (5.25%) and **Neither agree nor disagree** (10.5%), additional learning/training support received from teachers that is useful at present **agreed** (80.25%), **disagreed** (7.75%) and **Neither agree nor disagree** (12%), they know where to ask for help while using technology in day to day **agreed** (79%), **disagreed** (9.25%) and **Neither agree nor disagree** (11.75%). Promoting the use of technology to provide simulations of real activities, wider connectivity and communications at present **agreed** (78.25), **disagreed** (8.75%) and **Neither agree nor disagree** (13%), and they are satisfied the way teachers delivered online classes, which is enhancing their academic capabilities now **agreed** (76%), **disagreed** (17.25%) and **Neither agree nor disagree** (6.5%).

**Post Covid -19 negative impact of ICT facility used by students**

Students given checklist of negative impact of ICT facilities post Covid -19. Results are presented in **Table 5**

**Table 5:** - Negative impact of ICT facilities post Covid -19 using computer/Laptop/Mobile/Internet.

S. No.	Negative Impact – Post Covid-19	At College		
		Agree %	Disagree %	Neither agree nor disagree %
1	I found it difficult to concentrate on my work/study after lockdown	58.75	38.75	2.50

2	I feel my grasping and memorizing strength has been affected	81.00	2.75	16.25
3	I am taking time to adjust in offline mode classes	38.25	57.75	4.00
4	I face my bad habits with the use of mobile phone and social media more than educational purpose	64.25	33.00	2.75
5	I feel really far behind in knowledge and information of the subject due to online class	70.5	28.75	0.75
6	I feel fallen into undisciplined life style as a student in behavioral and social	79.25	16.25	4.50

**Neither agree nor disagree** (0.75%), they face bad habits with the use of mobile phone and social media more than educational purpose **agreed** (64.25%), **disagreed** (33%) and **Neither agree nor disagree** (2.75%), they found it difficult to concentrate on work/study after lockdown **agreed** (58.75%), **disagreed** (38.75%) and **Neither agree nor disagree** (2.5%) and they are taking time to adjust in offline mode classes **agreed** (38.25), **disagreed** (57.75%) and **Neither agree nor disagree** (4%).

**IV. MAJOR FINDINGS**

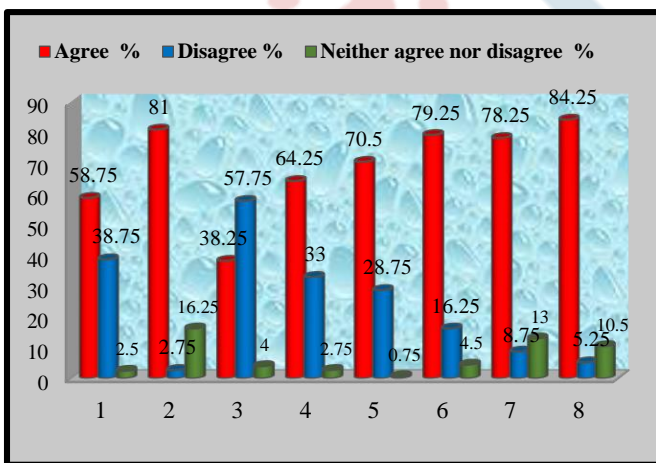
1. Information Communication Technology (ICT) does help and enhances technologically in a big way to the students' learning process.
2. ICT tools made learnings process easier and effective.
3. Transformed the traditional educational learning into digital format.
4. Majority of the students have access to the ICT but used for entertainment rather than for enhancing their learning skills.
5. ICT does enhance learning but does not help for creative and innovative learning. Human memorizing capacity is being affected.
6. Financial load to buy new ICT tools for study purpose for students and parents.

**A. RECOMMENDATIONS**

1. Apart from ICT use human and in person accompaniment is required as tutor or rather forms of help to the students for accelerating learning.
2. Youth accompaniment in their psycho-attitude and aptitude growth is needed.
3. Digital facilities in the institutes ICT to be availed in the institutes wherever possible for enhancing learning.
4. Further research in the area of ICT use and its impact on the learning like artificial intelligence and building better ways to integrate technology into educational practices.

**V. CONCLUSION**

Substantial computers and Internet resources are required for adequate exposure to Computer Assisted Instruction (CAI). If sufficient numbers of computers are available, each learner may have access to computer for more time (UNESCO, 2014). On the basis of results, it is concluded that majority of the students have mobiles, laptop, computers and Internet facility at college. However, they can use the facility of printer and scanner at the college with prior permission and the assistant of technical staff. Research finding proves that students are skilled at simple programs like MS Word, MS Power Point, Searching and Browsing at Internet, Social networking, Email, File attachment, and Computer games. However, they are less skilled at using MS Excel, Windows & file management, and using digital library and are poor at using programs like Photoshop, discussion forums and Blogs.



**Table 5:-** shows about the negative effect students are facing in their lives given in checklist said, they feel their grasping and memorizing strength has been affected **agreed** (81%), **disagreed** (2.75%) and **Neither agree nor disagree** (16.5%), they feel fallen into undisciplined life style as a student in behavioral and social **agreed** (79.25%), **disagreed** (16.25%) and **Neither agree nor disagree** (4.5%), they feel really far behind in knowledge and information of the subject due to online class **agreed** (70.5%), **disagreed** (28.75%) and

Internet may be used for different purposes like study assignments, seeking information for further studies, making friends, recreational activities, and shopping (Chan & Fang (2007). Hawi (2012) found that students use the Internet for communication, research, and entertainment. Results of the present study showed that students spend more time on mobile, laptop, computer for recreational and other purposes rather than the academic purpose. Majority of the students learned the computer through a course that was offered to them during their degree program. They believe that the use of ICT supports their learning.

Most important problem students reported regarding the use of ICT facilities are more numbers of slow learners, lack of interest by students (shift from online to offline and lack of access of internet. Second important problem faced by the students is poor working condition /slow speed of Computer/Laptop/ Mobile, lack of access of internet. Other problems participants facing are non availability of the require software and some technical issues in using Projector and Digital Podium. Beside the above-mentioned problems students also facing many silent problems such as virus threat, financial issues, lack of self confidence, misuse of the ICT technology etc.

As we come to conclusion it is felt that college should invest more on improving the ICT infrastructure to address the ICT related problems of students at different sphere. Moreover, students should be introduced some important ICT skills in their computer course of the degree program that can help them in their study like MS Excel, Windows & file management, use of digital library, Photoshop and multimedia editing. The ICT should be firmly embedded into the teaching and learning so that the teaching and learning process may be improved with the help of the modern technology. The college has already taken prior step to improve the ICT infrastructure related problems in notice.

The outbreak of Covid-19 has upended the lives of all parts of the society. One of the most immediate changes introduced was the closure of educational institutions to slow the transmission of the virus. In order to prevent further interruption of studies, new teaching methods for the online delivery of education were introduced (Johnson et al., 2020, Di Pietro et al., 2020). However, these measures can have long-term consequences on the lives of students (Cohen et al. 2020). In this study, our second concern was to analyze the impact of the COVID-19 pandemic on the education, health, social life of the students, and demonstrate results about its subsequent effect on their daily routine. The findings indicate that the time spent by students on online classes did not comply with the guidelines issued by the Ministry of Human Resources Development (MHRD) (Department of School Education & Literacy Ministry of Human Resource Development 2020). Limited class interaction and inefficient face-to-face interaction significantly affected the satisfaction levels among students.

The peer-to-peer impact in the higher education environment motivates individuals to work hard and learn social skills, which was not possible in an online setting. Moreover, the biggest challenge for online learning is the requirement of efficient digital infrastructure and digital skillset for both students and teachers. Teachers and students both were learners in using ICT to conduct online classes; hence there is less impact as compared to offline classes.

Students experience that the ICT resources and facilities supporting their studies well and effectively, they are satisfied with the support they received from the teachers for their mental health and emotional wellbeing, they are able to continue with their studies after Covid-19 effectively and their learning is seen as an active socially engaged process, not one of a passive development in response to external forces. In additional studies support received from teachers that are useful and promoting the use of technology to provide simulations of real activities, wider connectivity and communications at present. They are also satisfied the way teachers delivered online classes, which is enhancing their academic capabilities today.

In other hand students are also facing tremendous downfall after Covid -19, such as their grasping and memorizing strength has been affected, fallen into undisciplined life style as a student in behavioral and social, they really far behind in knowledge and information of the subject due to online class, habits with the use of mobile phone and social media more than educational purpose, difficult to concentrate on work/study and they are taking time to adjust in offline mode classes.

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