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# Role Of Information Communication Technology Tools In Elearning Process

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## ABSTRACT

ICT which is usually stated as Information Communication technology which is the integration of telecommunication devices with Computers, Software and Firmware to access, share, disseminate, retrieve, transmit or manipulate the information. Implementing the ICT in the student teacher process of learning is considered to be the wide range reform in the education sector. The research paper analyses and explores the influence of ICT in the area of e-learning in the education sector. Based on our observations and findings, instructors are willing to employ ICT for instructional purposes in the educational system.

**KEYWORDS:** ICT, Online Learning, Education, Telecommunication, Teaching etc.

## INTRODUCTION

ICT which is usually stated as Information Communication technology which is the integration of telecommunication devices with Computers, Software and Firmware to access, share, disseminate, retrieve, transmit or manipulate the information. Since its inception in history people tend to use of them to take the advantage of ICT technology. There is evidence that ICT be more effective in pedagogy for teaching learning process in education system. Specifically, when teaching science and maths using ICT in combination produces better results than conventional teaching learning exercise. The inception of ICT into education has increased instructors' reach and capacity. The so-called digital culture has had a significant impact on education, with technology being integrated into attendance-based classrooms and training procedures being developed using ICTs (e-learning). Education system in the world is under pressure to utilize the services of ICT and teachers together to teach the knowledge to students and acquire new skills to them. Different approaches have been taken into consideration for integrating the ICT tools in Schools, colleges and University. The new established structure opened the doors for making the schools with good infrastructure to accommodate the ICT system.

The ICT lead an environment with significant educational and pedagogic outcome which would be beneficial both to the students and teachers. Recently the research community and education policy makers directed towards the preparation of teachers to integrating ICT with their daily educational practices. Different programmes have been established aiming to enhance the teaching skills of teachers while using the ICT as instructional and learning processes. Implementing ICT in the classroom management learning process is seen as a broad-reaching innovation in the education sector. The research paper analyses and explores the influence of ICT in the area of e-learning in the education sector. Based on our observations and findings, instructors are willing to employ ICT for instructional purposes in the educational system.

## **LITERATURE REVIEW**

C. P. Lim et al [11] in 2002 proposed a model for ICT in the learning teaching process. The model provides imperative and descriptive role of teacher while utilizing the services of ICT tools in the learning process. However, in the model the trained and untrained teachers having been asked to use these tools. L. Iilomaki et al [5] in 2004 looked into teachers' usage of ICT tools as a pedagogical instrument for teaching practises. From 1994 to 2000, they pooled longitudinal data and outcomes from three Lansimaki School sub studies. The paradigm, on the other hand, provides no guidance for continuing and admitting high-level innovations to improve existing procedures, and the entire process is dependent on ICT experts. A. Karpati [7] in 2004 analysis the third phase of Hungarian Computerisation of Schools in which the ICT tools were promoted for contemporary educational paradigms to achieve high quality Hungarian language digital teaching material. One of the limitations of the study was that usage of any ICT tool was not explained in the research work. In 2005 a paradigm for ICT in higher education was proposed by G. Kirkup and A. Kirkwood [8]. The model investigates the increasing role of ICT in teachers' employment based on a ten-year large-scale study conducted by Open University UK on Distance Education. S. Younie [27] in 2006 concentrated on identifying the issues with government ICT implementation assessment studies in UK schools. They discovered that the government's ICT implementation was difficult in five major areas, including a lack of resource personnel and specialists in the ICT industry, finance and loans, and so on. V. Dawson et al. [2] in 2006 suggested an action research strategy for integrating ICT into the mandatory Scientific research teaching unit for students enrolled in the Diploma in Secondary Schooling. However, for instructors, the ICT research action model creates conflict between gaining new ICT skills and attaining other learning objectives. B. Perez-Lancho et al [16] in 2007 suggested an ICT model. The model uses digital library Summa Logicae for innovation and pedagogical systematization. Furthermore, the technique makes use of a variety of software tools for teaching argumentation developed by information technology students. The suggested approach, on the other hand, was created with a specific student clear message. L. M. Regueras [19] in 2008 suggested an e-learning ICT model. The e-learning is an interactive and co-operative tools of QUEST system of ICT. This QUEST tool is intended to evaluate the

influence of competitive learning on academic achievement among students studying telecommunications. However, the model did not examine the positive outcomes in relation to the ultimate score of exam marks.

R. Schibeci [20] in 2008 studied confidence and competence in the use of information and communication technologies in the Australian school system. The approach employs quantitative data from educator documents of professional learning and practical experience to explain ICT learning. However, the approach does not provide guidance for instructors who are unfamiliar with or do not have access to ICT resources. M. Wannous et al [24] in 2010 presented a web-based information communication technology lab (NVLab) model, where students may experience building, configuring, and troubleshooting network scenarios for free. However, the model does not enable more than one person to log into the system at the same time, the virtual machine is not quicker, and the model did not implement the lab in a real-time environment. M. R. Martínez-Torres et al [14] in 2011 suggested a scientific mapping technique which are used to identify external variables while designing an eLearning tool. Despite these things the model did not implement to control remotely the eLearning equipment. S.C. Viegas et al [23] in 2012 suggested an ICT model. The proposed approach emphasises technical training tools for data analysis, modelling, graphics, virtual reality, resulted in a high level of intensity in instruction.

H. Niemi et al [13] in 2013 for Finish School introduced an information and communication technology approach for learning teaching purpose. The approach inspires learners by demonstrating how new technology provides a learning environment that empowers them. However, the model did not connect various elements in different schools to their cultures. C. Player-Karo [17] in 2013 suggested an ICT model for enhanced teaching learning process in traditional mathematics using excel spreadsheet programs. However, the new technology brings possible changes which most of traditional mathematics experts and teacher are not fully aware. A. A. Genlott et al [3] in 2013 suggested an Information Communication Technology method to integrate write to learn (iWTR). In the suggested model works on two process one first cognitive development and another one motor skill training.

J. F. G. Sierra et al. [21] in 2015 proposed a robotic model to involve IT students in non-robotics in the teaching learning process. However, because robotics is a distinct field of computer science, it is not possible to teach the learning methods to non-IT students. K. Jordan [6] in 2017 suggested an ICT model which teachers and learners use in the schools of Australia. The suggest model analysed national school education with introduction of Information Communication Technology and digital education revolution from 1989 up to 2000 in Australia. However, the proposed model failed to capture the motivation of using these digital technologies by older aged teachers and trainers. D. Wu et al [26] in 2019 suggested a connection between ICT tools and applications in Chinese urban and rural schooling. The study looked into 2567 elementary and secondary schools in 47

prefecture-level cities. Data on ICT enabling conditions and ICT application in school (IAIS) were collected. Among the other components, the ICT implementation in school (ISCS) elements, the ICT Infrastructure, and the School Rating were identified as essential. F. Guerriero et al [4] in 2019 proposed a paradigm for using information and communication technologies to enhance education. They suggested e-Learning and Education assisted by new online resources (ELEANOR) as an ICT tool for teaching learning activities and improving educational quality at Calabria University. However, the ELEANOR software method is not very robust for adjusting a big number of individuals.

C. P. Lim [12] in 2019 developed a case paradigm for ICT for education in the country of Sri Lanka. The approach begins with harnessing of potential ICT tools to obtain Quality Education. These ICT tools, however, necessitate the use of digital Game-based learning, intelligent tutoring systems, MOOCQS and other technology. J. Radianti et al [18] in 2019 suggested Virtual Reality (VR) model. The model possesses many potential and applications in education system. The suggested model also maps application domain with learning content and design elements & learning content. However, the suggested model has lower maturity in continuing advanced education field. N. Mukhtar et al [15] in 2020 proposed a mixed-method methodology for investigating technological durability skills for integration into higher regional diploma of Electric and Electronic Education in the country of Nigeria. Communication, ICT, and cutting-edge software tools have been included into the curriculum to ensure sustainability in technical education. These tools, however, were not put to practical use.

M. M. Kirmani et al [10] in 2017 suggested a model where central universities shall make it convenient to have common design of websites so that students have a common visual template thereby incorporation of ICT tools will be easy. However, the model has not given any direction towards the usage of ICT tools for e-learning while developing common template for different central universities. E. Woyo et al [25] in 2020 suggested a model to analyse the accomplishment of ICT framework in the sector of education in realistic phenomenon in the country of Namibia. However, the data were collected from only one university and the analysis was carried out from student perspective only.

A. H. Abdullah et al [1] in 2021 designed and developed a model for active learning instruction. The active learning instructions are implemented by using smart interactive board on a program called ALuSB to potentially increase HOTS data managing between Malaysian primary school pupils. However, the proposed model shows motivational results for ALuSB program only and no conventional method has been used to learning instruction.

M. M. Kirmani et al [9] in 2015 suggested that ICT is employed almost all organisation with diverse roles which proved useful and tactic tools to increase their competence.

However, the model suggested has more attention towards financial intuitions and gives no direction in the use of e-learning process.

M. Songara et al [22] in 2016 suggested that the ICT tools by disrupting transparency are considered to have a vital role and major factor for economic growth. The ICT tools showed smooth functioning while implementing the e-governance, e-education and e-services etc. in govt sector resulted a global village. However, In the research paper no concrete evidence has been given for e-learning for implementation of ICT tools.

## **METHODOLOGY**

A series of questions was created to recognise the usage of ICT technologies in the e-learning process. This set of questionnaires was distributed among 800 teachers and out of them 600 teachers responded to our questionnaire by teachers across south Kashmir. The target group of teachers were teaching at High Schools, Higher Secondary Schools and in colleges of south Kashmir in Union Territory of Jammu and Kashmir. In the questionnaire different kinds of questioned were supplied to these teachers via Google form or separate printed sheet.

In the collection of questions, many characteristics were utilised to recognise the usage of ICT technologies in the e-learning process. 16 questions were asked regarding ICT tools used in e-learning process in the questionnaire. The objectives based on the questionnaire send to different correspondents was:

- a. To investigate the introduction of ICT tools in schools, colleges, and universities, among other places.
- b. To determine how ICT has been used in the school/college/university for lesson preparation and classroom instruction.
- c. Recognise ICT technologies used in e-learning.
- d. To determine how well a university or institution has made any ICT tools available to instructors for e-learning.
- e. To determine the teaching personnel who has completed the computer course.
- f. To identify the software used in the college, school or in university to manage student information.
- g. determining the comfortability of ICT technologies
- h. Analysing the institute's development and transparency through the use of ICT technologies.
- i. To determine the reasons behind the scientific community's lack of interest in ICT technologies.
- j. To discover institutions that have well-maintained ICT laboratories.
- k. To determine the availability of ICT tools at home.
- l. To assess whether or not internet connectivity is available at home.
- m. To evaluate if the possible software employed by the university or institution is easy to use.

- n. To Discover probable software deployed by the university / institution for student database maintenance.

Based on the above objective and questionnaire sent to different experts, the responses received are discussed in the result and discussion section.

### RESULTS AND DISCUSSION

The current study was conducted primarily to determine the function of ICT artifacts in the online learning system. To achieve this, a set of questionnaires were shared to teachers teaching using ICT tools in different secondary, senior secondary schools and colleges of south Kashmir. The suggestions received from different stack holders showed that they are valuable without any doubt therefore these have been examined carefully. After analysing the overall response received from experts it has been observed that most of the teachers are satisfied with the ICT tools that are used for e-learning process. The responses received from different experts regarding the ICT tools used in the process of e-learning with over 92.3 percent are in the opinion that they use ICT tools and 7.7 percent are those who have not used these tools. The overall percentage of responses received from the experts is shown in the figure 1.1. The responses received from teachers, nursing tutors, vocational trainers and professors across the south Kashmir in the Union Territory of Jammu and Kashmir for teaching of ICT tools at university, college and school level. 76.9 percent reported that they have ICT is taught as subject while 23.1 % reported that they ICT has never been taught as a subject. The pictorial information is shown in figure 1.2.

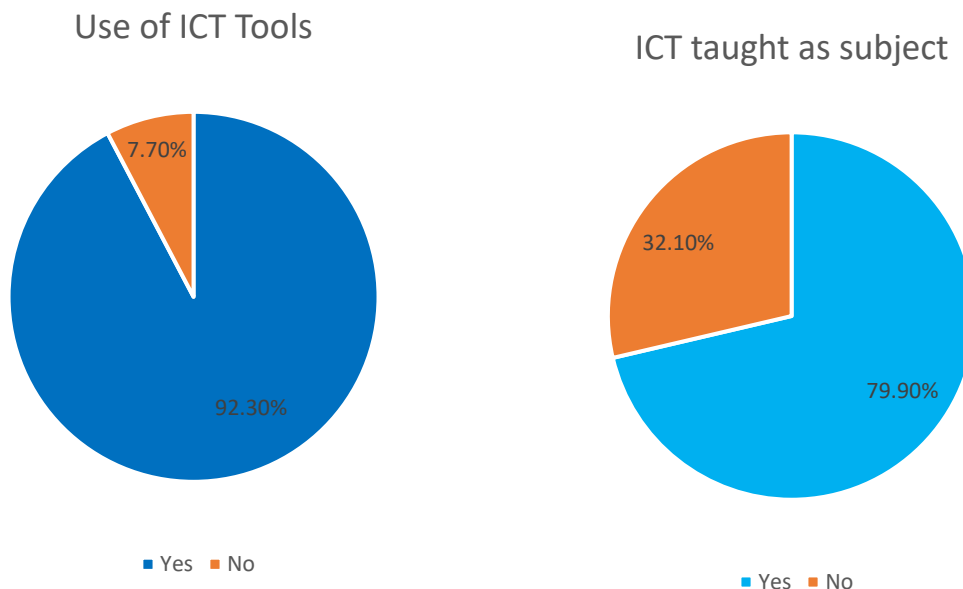


Figure 1: Percentage of response received for ever use of ICT in e-learning Process

Figure 1.2. showing the percentage of response received for teaching ICT at institution.

47 percent response received for using ICT tools for preparing lesson and 18 percent of teachers have never used ICT tools for preparing lesson. 52 percent teachers are using ICT tools for teaching classes and 13 percent have never used. The information is shown in figure 1.3.

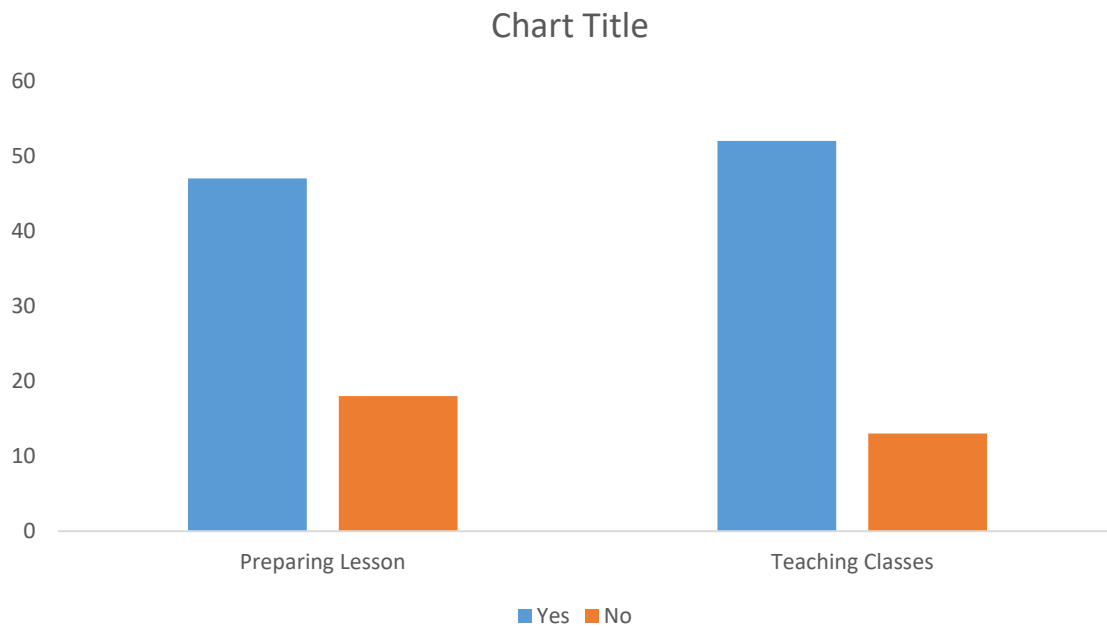


Figure 1.3. showing the percentage of responses received for preparing lesson and teaching classes.

246 that is 41.5 percent response received that they have used ICT tools at institutional level between 1 to 3 years, 26.2 percent responses reported that they have used the ICT tools more than 6 years, 29.2 percent respondents reported that they have used ICT tools less than one year and 3.1 percent reported that they have used the ICT tools in the university between 4 to 6 years. The statistics is shown in figure 1.4.

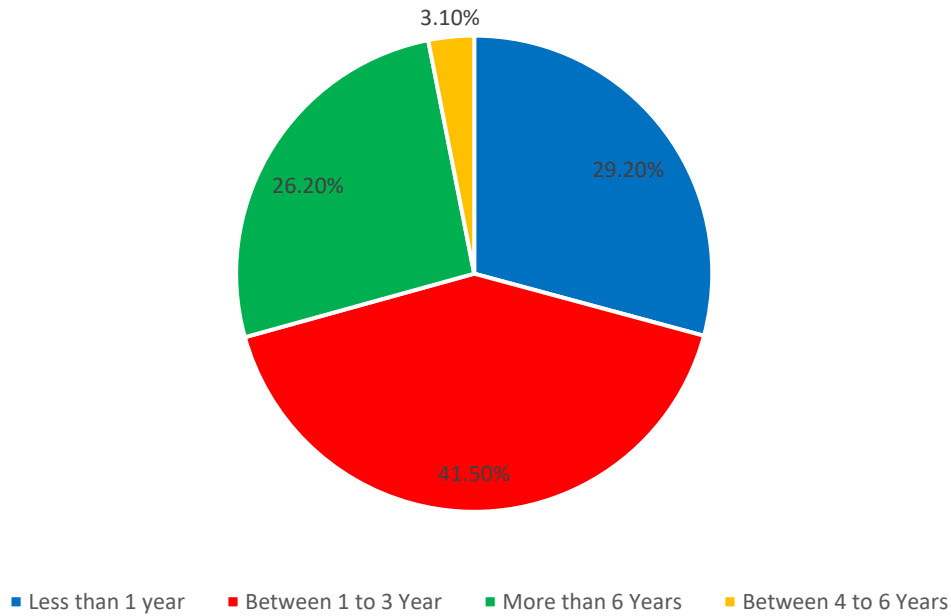


Figure 1.4. shows the percentage of responses of usage of ICT tools in years at institution.

The response received from teacher community regarding type of ICT tool used at institution, among them 23.1 percent are using Desktop without internet access as ICT tool, 32.2 percent are using Desktop with Internet Access, 27.7 percent are using laptop without internet access, 78.3 percent are using laptop with internet access, 53.8 percent are using project as type of ICT tool, 29.2 percent are using interactive white board and 26.2 percent are using E-Reader as a type of ICT tool while teaching. Figure 1.5 shows represents its diagram.

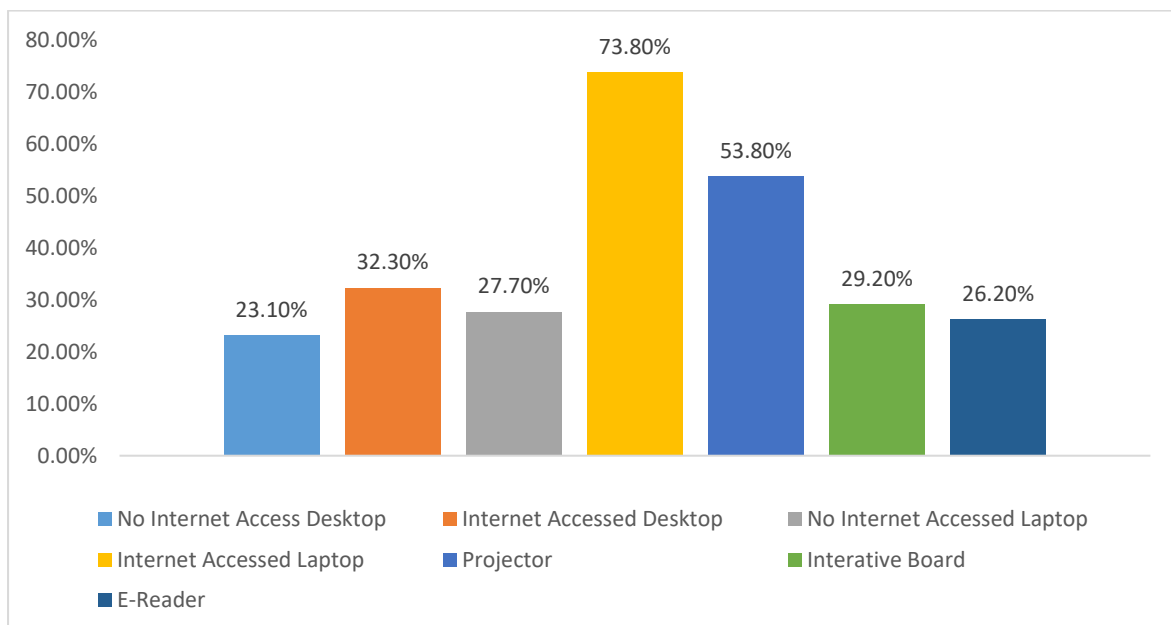


Figure 1.5. showing percentage of type of tools used in e-learning process.



The response received for desktop or laptop provided by institution as an ICT asset among 52.3 percent stated that they have been provided the tools from institution and 47.7 percent reported they have never been given any such device. The statistical representation is shown in figure 1.6. In response to other question regarding computer literacy, 89.2 percent stated that they are literate and only 10.8 percent reported that they have never studied computer science whi

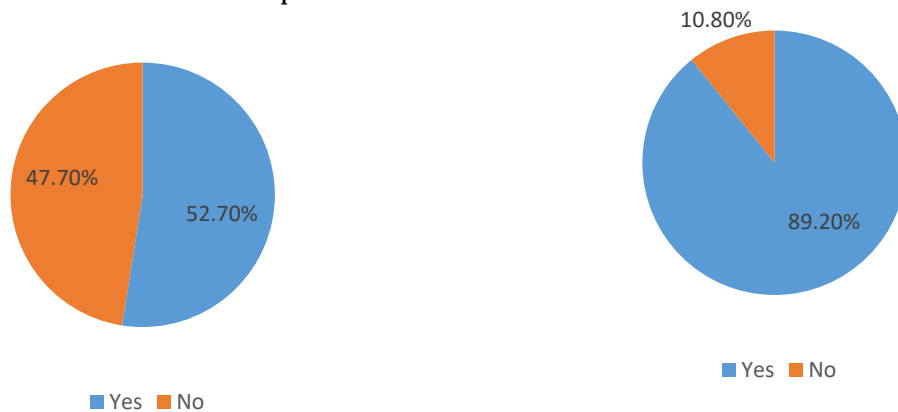


Figure 1.6: Represents the percentage of response for utilizing of ICT tool provided by institution.

Figure 1.7: Represents the percentage of response for utilizing of ICT tool provided by institution.

In response to other question asked through the questionnaires that the system used to manage students, among them 15.4 percent responded that they use internet / web-based system, 12.3 percent use paper based, 7.7 percent uses software application and 64.6 percent are using all the systems, which in figure in 1.8. In response to question about the comfortability of using the ICT tools, among 53.8 percent responded that they use these tools comfortably, 44.6 percent are highly comfortable and only 1.5 percent suggest that they are uncomfortable with the system, which is shown in figure 1.9.

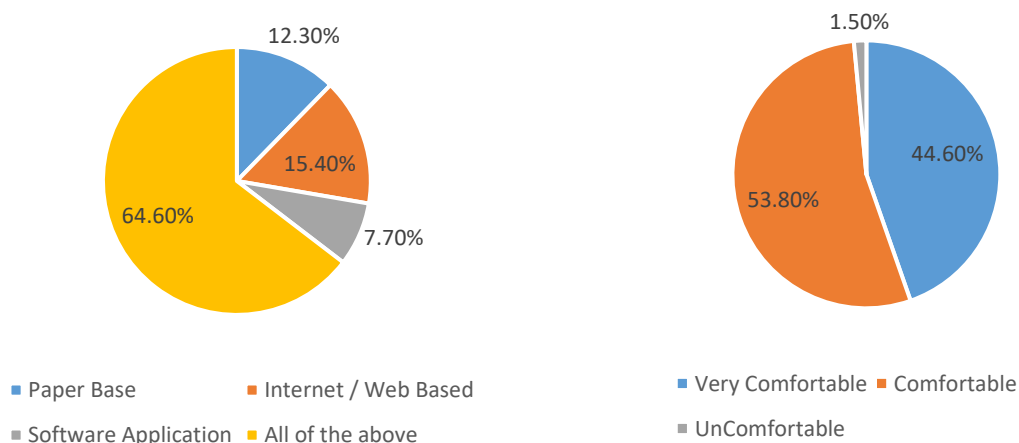


Figure 1.8: Represents percentage of system used for managing students.

Figure 1.9: represents percentage of people comfortable with system.

In response to question addressing the usage of ICT to enhance the progress of university / institution and transparency of the system. Among 29 percent people are of the opinion that they the ICT tool is an excellent tool to enhance the progress of the university and institutions, and 4 percent are of the opinion that these tools are worst, which is represented by figure 1.10. 23 percent people are of the opinion that these tools make the details available online in an excellent way, and 3 percent are of the opinion that the system is worst regarding its transparency, which is shown in figure 1.11.

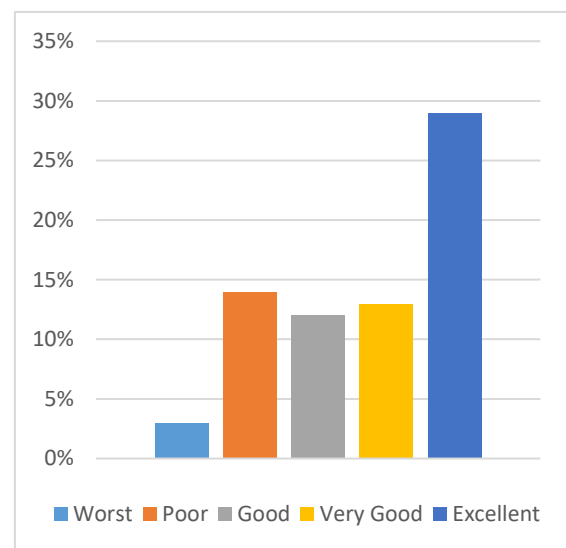
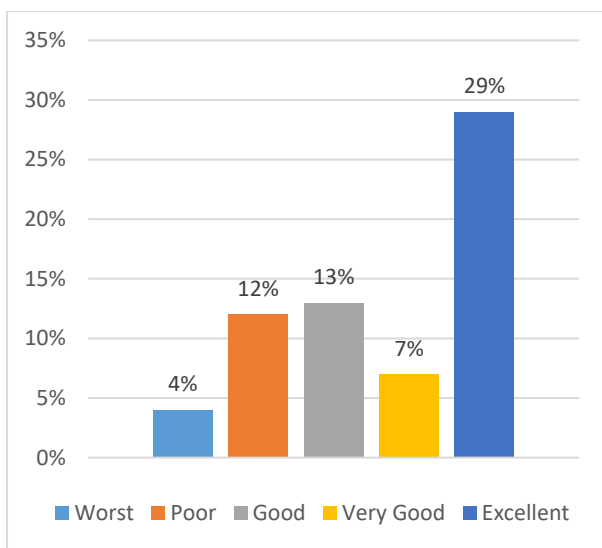


Figure 1.10: Represents the Usage of ICT tools for enhance Progress of Institution

Figure 1.11: Represents the Usage of ICT tools for enhanced transparency in the system

Response received to the rate ranging from 1 to 5 from different teacher about less popularity of ICT tools among scientific Community, The 5 point metric has been used where 1 represents strongly accept and 5 constitute strongly unaccepted The statistics is shown in figure 1.12.

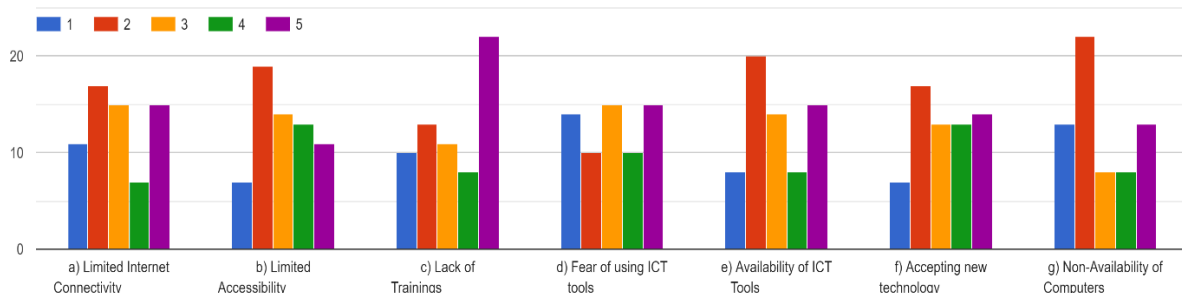


Figure 1.12: Depicts the reason of less popularity of ICT tools among scientific community.

The response received regarding the question of availability of lab at institution, among the response 75.4 percent rated that their exits well established and well-equipped ICT lab in the institutions, and 24.6 percent rated that they have never heard about such a lab, the information is represented on figure 1.13. In response to another question regarding the availability of desktop and laptop at home, among 92.3 percent responded that they have easily available the desktop and laptop at home.

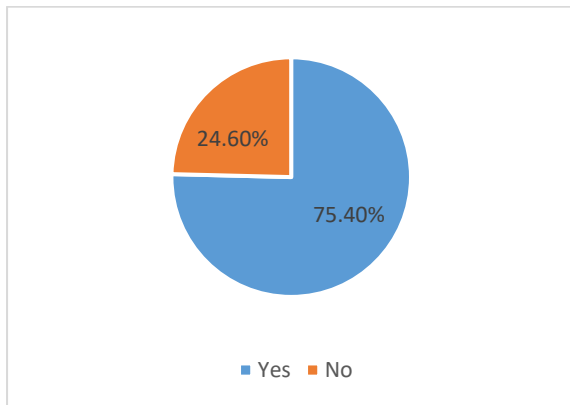


Figure 1.13: shows the representation of availability of lab at institution

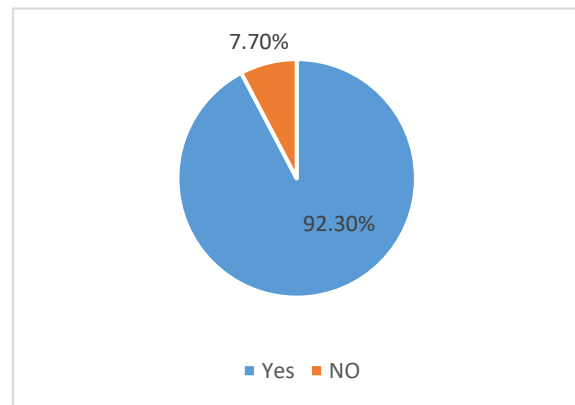


Figure 1.14: Show the representation of availability of Desktop or Laptop at home

In response to the question asked about the availability of internet access at home, 96.9 percent people answered that they have full availability of internet at home and 3.1 percent are of the opinion that they have hardly availability of access to internet at home. The statistics is represented on figure 1.15.

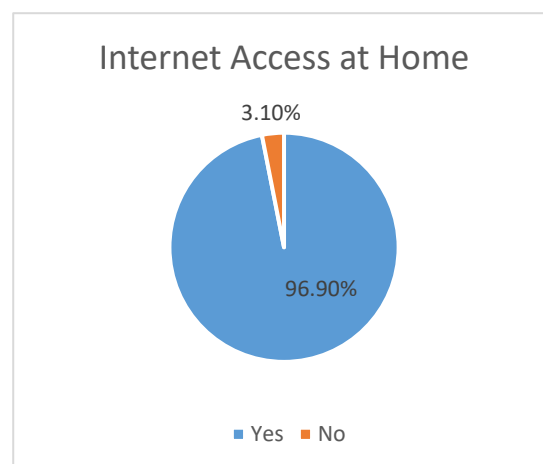


Figure 1.15: showing percentage of availability of Internet access at home.

The responses received regarding the comfortability of potential software used by university / institution, among the responses 50 percent are using the software for uploading online attendance and 15 percent are of the opinion that they have never used such a software in the institution. 53 percent are able to upload the marks using the potential software and 12 percent have never used the potential software to upload the marks of students online. 54 percent are using the University Management Software (UMS) / School Management Software (SMS) for online assessment. 11 percent are of the opinion that they have never used the UMS / SMS for such activity. 48 percent answered that they are using the UMS / SMS ICT tool to track the online assessment tracking and 17 percent answered that they are not using the ICT software tool for online assessment tracking purposes. The percentage response is shown in figure 1.16.

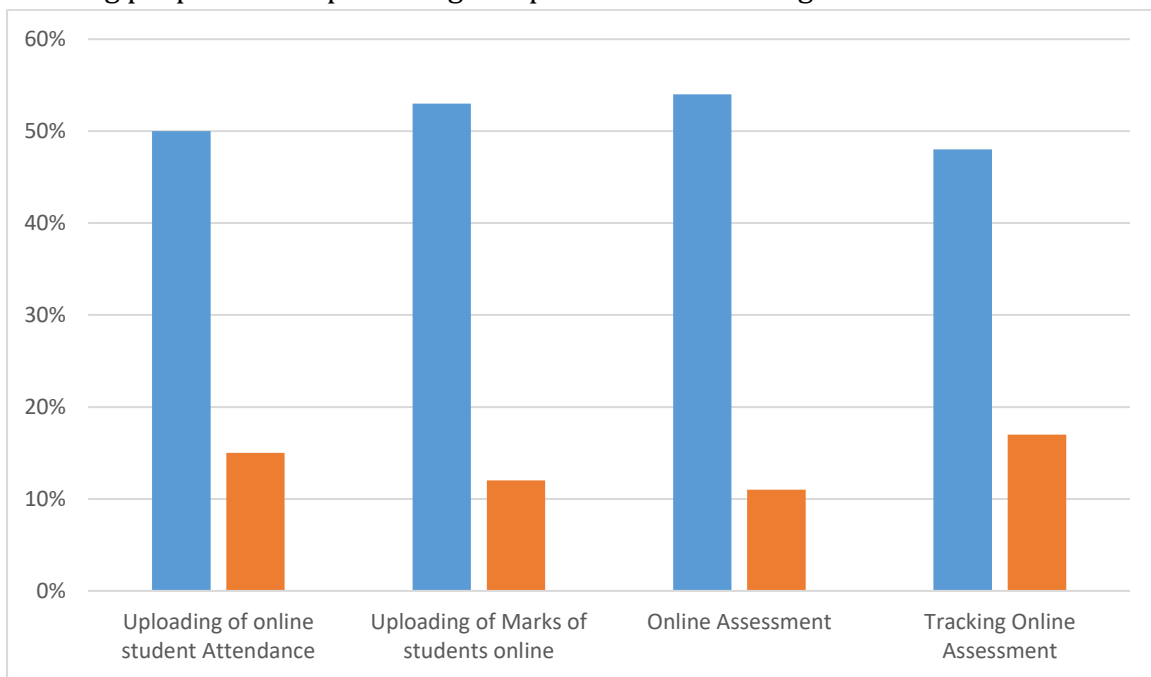


Figure 1.16: Showing percentage of comfortability of using SMS/UMS for various activities.

The average comfortability of using the SMS / UMS software is showing in figure 1.17.

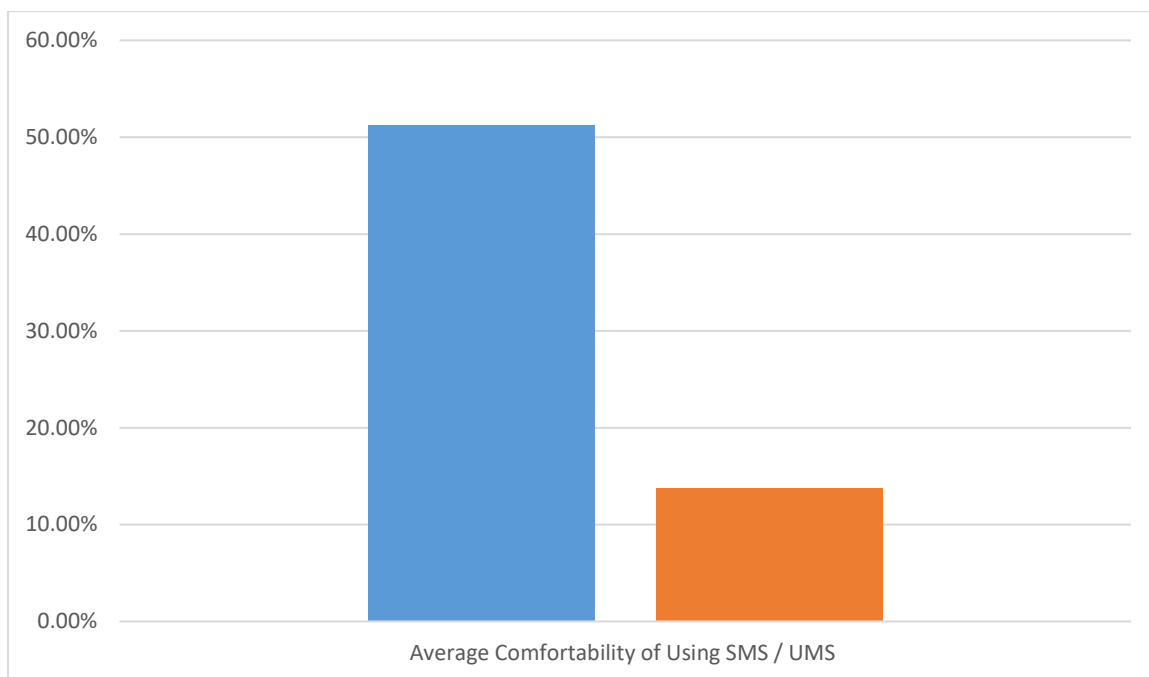


Figure 1.17: Showing Average Comfortability of using SMS / UMS for various activities.

As per the responses received in response to the question regarding the UMS / SMS software used by different institutions reported that they are using their own robust mechanism for managing the database for students.

## CONCLUSION

The ICT lead an environment with significant educational and pedagogic outcome which would be beneficial both to the students and teachers. Recently the research community and education policy makers directed towards the preparation of teachers to integrating ICT with their daily educational practices. The introduction of ICT into the educational system resulted in a possible rise in the reach of teachers as well as an improvement in their skill. The so-called digital culture has had a significant impact on education, with technology being integrated into attendance-based classrooms and training procedures being developed using ICTs (e-learning).

## FUTURISTIC SCOPE

The ICT tools can be used in every school, college, university or in any technical institutions for better aiding for e-learning across Kashmir.

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