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Research Note

Constraints Faced by the Students in the Usage of ICT Initiatives in Agricultural Education

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ABSTRACT

Information and communication technologies (ICTs) play a pivotal role in all aspects of our lives in a rapidly growing information society and has enormous potential to transform the education sector. The present study was conducted to find out the constraints faced by the students in the usage of ICT initiatives in agricultural education. The collected constraints were analyzed using Garret's ranking methodology to develop a quantitative position of each constraint. The findings showed that students face personal, infrastructural/ technical, and organizational constraints more severely. Among the personal constraints, the high cost of ICTs Tools/Gadgets, Lack of awareness about the availability of different ICT tools were prominent. Similarly, in the case of infrastructural/technical constraints Internet Speed/Connectivity and lack of up-gradation of ICT equipment dominated. In case of organizational constraints subscription of relevant Journals and e-resources and lack of training on ICT tools ranked at top. Thus, several field-level constraints faced by agricultural students have been identified and ranked to the context for using ICT in education.

Keywords: Education, ICT, Infrastructural, Internet, Organizational, Technical

INTRODUCTION

Information Technology includes all of the technology that is used to collect, process, protect, and store information. It denotes hardware, software, and computer networks. Information and Communication Technology (ICT) concept involves the transfer and use of all kinds of information. It is the foundation of the economy and a driving force of social changes in the 21st century. It influences all facets of life, and without it, life will be virtually impossible in times to come. Stevenson coined the term ICT in 1997 that is currently used to malicious an extensive range of services, applications, and technologies, using various types of tools and software, often running over the telecommunication network. The importance of ICTs is not the technology as such, but it's enabling the function in access to knowledge, information, and communications, increasingly important elements in today's economic and social interactions. The word ICT contains all technical words that are used for handling information and facilitating communication, including computers, network hardware, communication, and all the necessary software. In other words, ICT consists of information technology, telephony, electronic media, all forms of audio and video signal processing and transmission, as well as all control and management functions focused on network technology. Although ICT is considered to be an umbrella term consisting of any communication device or application, such as radio, television, mobile phones, networks, computer hardware, software, satellite systems, and so on, whereas separate

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services and applications are associated with videoconferencing and distance learning (Rouse, 2005). E-learning covers a broad set of ICT technology-based applications and processes, including computer-based learning, web-based learning, virtual classrooms, and digital collaboration and networking Hambrecht (2000). The use of ICT to improve or facilitate educational learning and teaching has become increasingly relevant in tertiary education OECD (2005). The trend of using e-learning as a medium for learning and teaching is now expanding rapidly into education (Liaw *et al*., 2007).

METHODOLOGY

The study was conducted in purposively selected Uttar Pradesh having four state agriculture universities namely CSAUAT, NDUAT, SVBPUAT, AND BUAT. The College of agriculture was selected purposively because these colleges hold the maximum student strength of the agricultural university. Two Hundred Thirty-Five students were selected based on proportion to their size of the population. Through the use of the literature review, expert opinion, different forms of constraints were collected. Data were obtained using a structured interview schedule. Garrett's score was used to determine the most important constraints among the three groups as perceived by students. The formula for percent position suggested by Garret (1981) is

$$\text{Percent position} = 100\ (Rij-0.5) / Nj$$

Where, Rij = Rank given for the i^{th} variable by j^{th} respondents, Nj = Number of variables ranked by j^{th} respondents

RESULTS AND DISCUSSION

The level of constraints encountered by students and their ranking of different level (both group-wise and overall ranking) as perceived by students in the usage of ICT initiatives in agricultural education is presented in Table 1. The high cost of ICTs Tools/Gadgets (79.50) was assigned an overall second rank and group ranked first, Lack of awareness about the availability of different ICT tools (74.83) overall ranked seventh and group ranked second, Lack of Initial time requirement for updating ICT skills (71.42) overall ranked eleventh and group ranked third, Information Search and Retrieval skills (64.46) overall ranked fourteenth and group ranked fourth, Lack of time to access ICT resources (61.16) overall ranked fifteenth and group ranked fifth respectively. This result was similar to the finding of Ahmed *et. al.* (2008) indicated that high cost was the major constraint in using the computer and other ICT tools. Kumar *et al.* (20017) found that farmers face the problem of the Cost of computers/smartphones.

Among the technical/infrastructural constraints as viewed by the student's internet Speed/Connectivity (80.57) overall ranked First and group ranked first, Lack of up-gradation of ICT equipment (78.95) overall ranked third and group ranked second, The problem of maintenance\Poor maintenance of ICT tools (78.36) overall ranked fourth and group ranked third, Insufficient number of ICT tools in the University (76.09) overall ranked fifth and group ranked fourth, Lack of Infrastructure facilities for accessing ICT skills (75.68) overall ranked sixth and group ranked fifth respectively. This result was similar to the finding of Malik and Godara (2020). Found that slow functioning of the internet were the major constraints faced by the students in using ICTs. Kumar *et al.* (20017) found that farmers face the problem of the poor connectivity of the internet, whereas, Panda *et al.* (2019) suggested developing awareness and skill of the farmers to use ICT tools for their farming benefits.

Among the organizational constraints as viewed by the students, subscription of relevant Journals and e-resources (74.71) overall ranked eighth and group ranked first, lack of training on ICT tools (74.42) overall ranked ninth and group ranked second, lack of training opportunities to improve ICT skills (72.04) overall ranked tenth and group ranked third, insufficient budget allocation for ICTs (70.46) overall ranked twelfth and group ranked fourth, organizational support and policy (66.43) overall ranked thirteenth and group ranked the fifth respectively.

CONCLUSION

It was found that students faced personal constraints like; the high cost of ICTs Tools/Gadgets, lack of

Table 1: Distribution of the students according to Constraints faced in the usages of the ICTs initiatives

S.No.	Particular	Sum of the Garrett's score scores	Mean	Overall ranks	Group ranks
A	**Personal/Cognitive**				
1.	Lack of time to access ICT resources	14373	61.16	XV	V
2.	The high cost of ICTs Tools/Gadgets	18682	79.50	II	I
3.	Information Search and Retrieval skills	15148	64.46	XIV	IV
4.	Lack of awareness about the availability of different ICT tools	17584	74.83	VII	II
5.	Lack of Initial time requirement for updating ICT skills	16784	71.42	XI	III
B	**Infrastructural/ Technical**				
1.	Lack of Infrastructure facilities for accessing ICT skills	17785	75.68	VI	V
2.	Internet Speed/ Connectivity	18933	80.57	I	I
3.	Insufficient number of ICT tools in the University	17880	76.09	V	IV
4.	Lack of up-gradation of ICT equipment	18553	78.95	III	II
5.	The problem of maintenance\Poor maintenance of ICT tools	18415	78.36	IV	III
C	**Organizational**				
1.	Organizational support and Policy	15611	66.43	XIII	V
2.	Insufficient budget allocation for ICTs	16557	70.46	XII	IV
3.	Lack of training opportunities to improve ICT skills	16930	72.04	X	III
4.	Lack of Training on ICT tools	17489	74.42	IX	II
5.	Subscription of relevant Journals and e-resources	17557	74.71	VIII	I

awareness about the availability of different ICT tools, lack of Initial time requirement for updating ICT skills information, internet Speed/Connectivity, lack of up-gradation of ICT equipment, problem of maintenance\ poor maintenance of ICT tools, insufficient number of ICT tools in the University, lack of Infrastructure facilities for accessing ICT skills as the major constraints faced by the students in using ICTs under three different group i.e. personal, infrastructural/technical and organizational. Although these constraints could be resolved by implementing the remedies proposed by students like; the government and universities should also invest more in improving the infrastructure of ICTs to resolve students' ICT-related problems. In their computer course of the degree program, some essential ICT skill programs should be added that can aid them in their studies, such as MS Excel, Windows and File Management, Digital Library Usage, Photoshop, Discussion Forums and Blogs, and SPSS. Also, the government should promote and encourage investments by private and internet service providers in ICTs, such as fiber-optics technologies, which have the potential to make Internet connectivity affordable for educational purposes. To resolve these challenges, a well-structured and sound national policy on pricing, infrastructure facilities, software licenses, the availability of high-quality ICT gadgets at discounted rates, free and regular training programs, scholarships, etc. will help.

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