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Factors effecting E-readiness of students and teachers in agricultural Universities of India

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Abstract

Agricultural professionals in India have an important role in developing and dissemination of agricultural technologies to enhance the productivity of the farming community. But to implement strategic initiatives into effectual function, they must be e- ready. A congenial eco system needs to be created for effective implementation of ICT enabled Agriculture. Hence the present study investigated the preparedness of the teachers and students of Agricultural Universities to adopt and implement ICT enabled education for quality education. In this study e-readiness is defined as the extent of Awareness, Accessibility and Usage of ICTs in agricultural education system. One thousand and fifty one students and two hundred fifty teachers were randomly chosen from the seven universities of India namely ANGRAU, S.V. Veterinary University, Dr. YSR Horticultural University, PJTSAU, Bihar Agricultural University, Dr. Rajendra Prasad Central Agricultural University and Birsa Agricultural University. The data regarding the e readiness of the students and teachers of different universities was assessed in terms of Awareness, Accessibility and Usage of 12 ICT tools such as interactive white board, computer, Projector, Television, Video conference, Teleconference, E – Portfolio, Wi-Fi, digital student report card, Virtual class rooms, e- library and University web site and also the factors influencing the e readiness of teachers and students was analyzed for different universities. All the three universities showed a similar trend with respect to Awareness, Accessibility and Usage of ICT tools by the students and by the teachers. This might be due to the fact that all the three Universities followed similar guidelines and procedures in their education system. The Usage of ICT tools was comparatively lower. This may be attributed to high work load, low availability of e resources, low organizational support. Their performance may not be linked directly or indirectly to the Usage of ICT. Both students and teachers prioritized Internet speed as a limiting factor for e readiness followed by infrastructure facilities, training, access to quality ICT and Organizational support. Thus if these areas could be strengthened then the quality of work and performance could be enhanced by using ICTs.

Keywords: Information Communication Technologies (ICTs), e- readiness

Introduction

The world has witnessed the birth of a new era –the Information Communication era, which has changed considerably the way people live and communicate. The scope and potential of application of ICT tools in agricultural and allied sectors is well recognized. Applying Information and Communication Technology (ICT) in different economic sectors, especially the agricultural sector is increasing in developing countries. A lot is being discussed regarding ICT enabled agricultural and its scope and potential for increasing productivity. Be it agriculture or other allied sectors everybody is for application of ICTs in every sector. Agricultural professionals in India have an important role in developing and dissemination of agricultural technologies to enhance the productivity of the farming community. But to implement strategic initiatives into effectual function, they must be e- ready. A congenial eco system needs to be created for effective implementation of ICT enabled Agriculture.

Teaching is the most challenging profession and a teacher helps one to acquire Knowledge, competence or values. Thus She/he himself should be a lifelong learner and equip with new learnings and skill. Starting from the age old chalk and talk to present e learning, several Information and Communication Technologies were designed by educationists to upgrade the education system so as to facilitate quick and retentive learning for the students. On the other hand, students themselves are enthusiastic to learn and use this technology for academic and social purposes. All ICT tools have proven to have a tremendous effect in the teaching-learning process not only in terms of speedy delivery of the messages but also improved quality of the messages.

Agricultural education is also aimed at developing skilled manpower with updated Knowledge in Agriculture so as transform rural societies and to achieve this ICTs must be harnessed to the fullest to strengthen the education systems and thereby impact Agricultural growth. Hence the

present study investigated the preparedness of the teachers and students of Agricultural Universities to adopt and implement ICT enabled education for quality education. In this study e-readiness is defined as the extent of Awareness, Accessibility and Usage of ICTs in agricultural education system with the following objectives:

1. To assess the e-readiness of the teachers and students of Agricultural Universities in terms of Awareness, Accessibility and Usage of ICT tools
2. To analyze the factors influencing the e-readiness of teachers and students in Agricultural universities

Methodology

The study was conducted in four states namely, Andhra Pradesh, Telangana, Bihar and Jharkhand. Seven universities were chosen for the study – Andhra Pradesh (ANGRAU, Dr. YSRHU, SVVU), Telangana (PJ TSAU), Bihar (BAU, Dr. RPCAU) and Jharkhand (BiAU). 18 Agricultural Colleges from the universities mentioned above were chosen.

One thousand and fifty one students were randomly chosen from the seven universities of India. Out of 1051 respondents, 402 students and 64 teachers were from ANGRAU, 130 students and 29 teachers were from S.V. Veterinary University, 39 students and 18 teachers from Dr. YSR Horticultural University, 158 students and 31 teachers from PJ TSAU, 87 students and 61 teachers from Bihar Agricultural University, 92 Students and 28 teachers were from Dr. Rajendra Prasad Central Agricultural University and 143 students and 23 teachers were from Birsa Agricultural University.

The data regarding the e-readiness of the students and teachers of different universities was assessed in terms of Awareness, Accessibility and Usage of 12 ICT tools such as interactive white board, computer, Projector, Television, Video conference, Teleconference, E – Portfolio, Wi-Fi, digital student report card, Virtual class rooms, e-library and University web site. Data was collected from respondents through structured questionnaires separately for each category. The data were scored on Yes =1 and No =0 for Awareness and Accessibility and for Usage the data were scored on a five point continuum i.e., Never =0, Occasionally =1, Weekly =2 and Daily = 4. The data pertaining to the factors effecting the e-readiness of the respondents in different Universities was analyzed using Correlation analysis to understand the influence of the factors with E Readiness of students and Teachers.

In all, Frequencies, Percentages, Mean, Standard deviation and correlation analysis were the statistical tools used for analysis of data.

Results and Discussion

1. E Readiness of Students and Teachers in Agricultural Universities

The E Readiness was measured in terms of Awareness, Accessibility and Usage of ICT tools and are presented in

table 1.

The results indicated that in Andhra Pradesh, 62.26 percent of the students were aware of the ICT tools, 53.63 percent have access to the ICT tools and 29.85 percent are using the tools. With respect to the Universities in Andhra Pradesh, In ANGRAU 59.45 percent of the students were aware of the ICT tools, 52.52 percent have access to the ICT tools and 27.70 percent are using the tools. In SVVU, 68.46 percent of the students were aware of the ICT tools, 52.63 percent have access to the ICT tools and 33.65 percent are using the tools. In Dr. YSRHU, 71.79 percent of the students were aware of the ICT tools, 68.38 percent have access to the ICT tools and 41.66 percent are using the tools.

Regarding the Teachers, in Andhra Pradesh, 79.13 percent of the teachers were aware of the ICT tools, 58.93 percent have access to the ICT tools and 36.71 percent are using the tools. With respect to the Universities in Andhra Pradesh, In ANGRAU 77.21 percent of the teachers were aware of the ICT tools, 58.07 percent have access to the ICT tools and 36.32 percent are using the tools. In SVVU, 79.02 percent of the teachers were aware of the ICT tools, 57.76 percent have access to the ICT tools and 37.06 percent are using the tools. In Dr. YSRHU, 71.79 percent of the teachers were aware of the ICT tools, 63.89 percent have access to the ICT tools and 34.72 percent are using the tools.

All the three universities showed a similar trend with respect to Awareness, Accessibility and Usage of ICT tools by the students and by the teachers. This may be due to the fact that all the three Universities followed similar guidelines and procedures in their education system.

In Telangana (PJ TSAU) 60 percent of the students were aware of the tools, 54.91 percent had access and 35.12 percent of the students were using ICT tools. With respect to teachers in PJ TSAU 83.60 percent of the teachers were aware of the ICT tools, 72.85 percent have access to the ICT tools and 41.93 percent are using the tools.

In Bihar, 63.97 percent of the students were aware of ICT tools, 65.17 percent have access to the ICT tools and 41.0 percent are using the tools. With respect to the Universities in Bihar, In BAU 60.92 percent of the students were aware of the ICT tools, 52.49 percent have access to the ICT tools and 36.49 percent are using the tools. In Dr. RPCAU, 66.30 percent of the students were aware of the ICT tools, 58.88 percent have access to the ICT tools and 36.77 percent are using the tools.

Regarding the Teachers, in Bihar, 80.99 percent of the teachers were aware of the ICT tools, 65.17 percent have access to the ICT tools and 41.00 percent are using the tools. With respect to the Universities in Bihar, In BAU 84.70 percent of the teachers were aware of the ICT tools, 74.86 percent have access to the ICT tools and 47.90 percent are using the tools. In Dr. RPCAU, 72.92 percent of the teachers were aware of the ICT tools, 44.05 percent have access to the ICT tools and 26.78 percent are using the tools.

Table 1: E Readiness of the students in the agricultural universities of four states (n=1051 Students + n=254 Teachers)

State / University	Awareness		Accessibility		Usage	
	Students	Teachers	Students	Teachers	Students	Teachers
ANDHRA PRADESH						
ANGRAU	239(59.45)	49(77.21)	211(52.52)	37(58.07)	446(27.70)	93(36.32)
SVVU	89(68.46)	23(79.02)	68(52.63)	17(57.76)	175(33.65)	43(37.06)
Dr. YSRHU	28(71.79)	16(86.11)	27(68.38)	12(63.89)	65(41.66)	25(34.72)
TOTAL	356(62.26)	88(79.13)	306(53.63)	65(58.93)	571(29.85)	163(36.71)
TELANGANA						
PJTSAU	96(60)	26(83.60)	87(54.91)	23(72.85)	222(35.126)	52(41.93)
TOTAL	96(60)	26(83.60)	87(54.91)	23(72.85)	222(35.126)	52(41.93)
BIHAR						
BAU	53(60.92)	52(84.70)	46(52.49)	46(74.86)	127(36.49)	117(47.9)
Dr. RPCAU	61(66.30)	20(72.92)	54(58.88)	12(44.05)	139(37.77)	30(26.78)
TOTAL	115(63.97)	72(80.99)	100(55.77)	58(65.17)	268(37.43)	146(41.0)
JHARKHAND						
BiAU	93(64.86)	16(67.39)	75(52.56)	16(67.39)	174(30.419)	39(42.39)
TOTAL	93(64.86)	16(67.39)	75(52.56)	16(67.39)	174(30.419)	39(42.39)

*Figures in parenthesis indicate percentages

In the state of Jharkhand, (BiAU), 60.64.86 percent of the students were aware of the tools, 52.56 percent had access and 30.42 percent of the students were using ICT tools. With respect to teachers in BiAU 67.39 percent of the teachers were aware of the ICT tools, 67.39 percent have access to the ICT tools and 42.39 percent are using the tools.

It could be concluded from the findings that though there was similar trend with respect to teachers and students regarding Awareness and Accessibility, the Usage of ICT tools was comparatively lower. This may be attributed to high work load, low availability of e resources, low organizational support. Their performance may be linked directly or indirectly to the Usage of ICT.

2. Factors influencing the E Readiness of Students and Teachers

The factors influencing the E Readiness of the Students and Teachers is presented in Table 2. The results indicated that with respect to the students, majority fell in the medium category regarding Initial time requirement (44.25%), Operational Knowledge (38.53%) and Work load (42.34%). The students were categorized as low with infrastructure facilities (51.85%), Training (64.22%), access to quality ICT (71.93%), internet speed (74.97%), availability of e resources (74.02%) and Organizational support (53.75%).

Table 2: Distribution of the respondents based on the factors influencing their E readiness

Factor	Category	Students (n=1051)		Teachers (n= 254)	
		Frequency	Percentage	Frequency	Percentage
Initial time requirement	Low	178	16.93	48	18.89
	Medium	465	44.25	97	38.18
	High	408	38.82	109	42.91
Infrastructure	Low	545	51.85	167	65.74
	Medium	378	35.96	52	20.47
	High	128	12.17	35	13.77
Training	Low	675	64.22	123	48.42
	Medium	291	27.68	85	33.46
	High	85	8.08	46	18.11
Operational knowledge	Low	347	33.01	79	31.10
	Medium	405	38.53	104	40.94
	High	299	28.44	71	27.95
Access to Quality ICT	Low	756	71.93	107	42.12
	Medium	206	19.6	98	38.58
	High	89	8.46	49	19.29
Internet speed	Low	788	74.97	157	61.81
	Medium	203	19.31	43	16.92
	High	60	5.70	54	21.25
Availability of e resources	Low	778	74.02	85	33.46
	Medium	239	22.74	96	37.79
	High	34	3.23	73	28.74
Work load	Low	133	12.65	41	16.14
	Medium	445	42.34	118	46.45
	High	428	40.71	95	37.40
Organizational support	Low	565	53.75	100	39.37
	Medium	403	38.34	88	34.64
	High	83	7.89	66	25.98

Regarding the teachers of the Universities, majority fell in the medium category regarding Operational Knowledge (40.94%), availability of e resources (37.79%) and Work load (46.45%).

The students were categorized majority as low with Initial time requirement (44.25 %), infrastructure facilities (65.74%), Training (48.42%), access to quality ICT (42.12%), internet speed (61.81%), and Organizational support (39.37%).

On a general note it could be observed that both students and teachers prioritized Internet speed as a limiting factor for e readiness followed by infrastructure facilities, training, access to quality ICT and Organizational support. Thus if these areas could be strengthened then the quality of work and performance could be enhanced by using ICTs.

3. Relationship between the E Readiness of the respondents and factors influencing the E Readiness of Students and Teachers.

The results pertaining to the influence of different factors on the E Readiness of the students and Teachers is presented in Table 3. The correlation analysis of the three parameters of E readiness i.e., Awareness, Accessibility and Usage with the factors influencing indicated that with regard to the awareness

levels of the students, there was positive significant relationship with Training and Operational Knowledge. Accessibility of the students to ICT tools was positively influenced by Infrastructure facilities, Operational Knowledge and Internet speed whereas the Usage of ICT tools was positively influenced by Infrastructure facilities, Operational Knowledge, Internet speed, availability of e resources and Work load.

With regard to teachers the correlation analysis indicated that the awareness levels of the teachers were positively significant with Training and Accessibility of the teachers to ICT tools was positively influenced by Infrastructure facilities, Operational Knowledge and Internet speed whereas the Usage of ICT tools was positively influenced by Infrastructure facilities, Training, Operational Knowledge, Access to quality ICT Internet speed, availability of e resources and Work load.

It could be interpreted from the results that for the students of Agricultural universities need better facilities and resources to improve their usage of ICT tools. Similarly, the teachers though have better access require training and operational knowledge to have better usage of ICT tools. Hence, these areas need to be strengthened.

Table 3: Relationship between the E Readiness of the respondents and factors influencing the E Readiness of Students and Teachers.

Factors Influencing E readiness	Students			Teachers		
	Awareness (r value)	Accessibility (r value)	Usage (r value)	Awareness (r value)	Accessibility (r value)	Usage (r value)
Initial time requirement	0.143 NS	0.173 NS	0.140 NS	0.177 NS	0.156 NS	0.177NS
Infrastructure	0.033NS	0.212 **	0.287 **	0.143NS	0.277**	0.345**
Training	0.236**	0.199 NS	0.578**	0.213*	0.175NS	0.278**
Operational knowledge	0.235**	0.245*	0.365 **	0.173NS	0.297*	0.235**
Access to Quality ICT	0.0052 NS	0.073 NS	0.017NS	0.193NS	0.122NS	0.235*
Internet speed	0.135 NS	0.445 **	3.134 **	0.143NS	0.240*	0.538**
Availability of e resources	0.070 NS	0.156 NS	0.236 *	-0.054NS	0.136NS	0.456 **
Work load	-0.134NS	-0.028NS	0.223 *	-0.240NS	0.196NS	0.345**
Organizational support	0.155NS	0.073NS	0.161NS	0.045NS	0.058NS	0.155NS

*Significant at 5 percent level

** Significant at 1 percent level

Conclusion

In the present scenario of rapidly changing Agriculture, effective education in Agriculture is considered as essential for generating quality professionals who in turn develop and dissemination innovative technologies to the farmers. In this context, upgrading agricultural professionals with latest ICT technologies is the growing demand on educational institutions. Hence it is high time for Universities to strengthen themselves with more diversified, knowledge intensive and demand driven. ICTs provide an opportunity for professionals to deliver quicker and quality output. Hence congenial environment need to be created for the e ICT enabled education at individual and organizational level.

The study highlighted the areas of concern that need strengthening with respect to adoption of ICTs by students and Teachers. Training in ICTs and provision of better facilities by the universities will be instrumental in providing a favorable environment for ICT based teaching and learning. Technical, Operational Support and financial support is a prerequisite to harness ICTs by the Agricultural universities to the fullest extent.

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