

Extent of Utilization of Different ICT Tools by the Teachers of Agricultural Universities

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ABSTRACT

Information and communication technology (ICT) in education is the method of education that use information and communication technology to support, improve, and optimize the delivery of information. The study was conducted in three purposively selected agricultural universities in Rajasthan total nine constituent colleges were selected from these three agricultural universities. For the study purpose. 60 per cent of teachers were selected from every college by using simple Random sampling technique. In all the selected agricultural universities combinedly 59.04 per cent teachers were having medium utilization of selected ICT tools. Among the different ICT tools the agricultural university teachers were having highest utilization of internet (MPS 96.73) followed by e-mail (MPS 96.20). There was no significant difference between the teachers of SKNAU, Jobner, SKRAU, Bikaner and MPUAT, Udaipur with regard to their utilization of different ICT tools.

Keywords: Agricultural universities, ICT tools, Utilization, Teachers

INTRODUCTION

ICT consists of a distinct set of technological tools and resources to create, disseminate, store and manage data and information. Conventional ICT tools like T.V., radio and telephone have already established their credibility and effectiveness in promoting the developmental schemes in rural and backward areas. The modern ICT tools are computers, internet and wireless communication technology in addition of powerful software's which can process and integrate sound, text and video into electronic media. ICT has the ability to prepare learners for a rapidly changing world scenario. They may use ICT as a tool to identify, analyze, exchange and present information as per their need. Information and communication technology (ICT) in education is the method of education that use information and communication technology to support, improve, and optimize the delivery of information. Information and

communication technology can lead to improved student learning and superior teaching methods. The findings regarding utilization of ICT tools by the teachers may help the administrators and policy makers for formulating effective implementation strategy and policies regarding ICT.

METHODOLOGY

The study was conducted in three purposively selected agricultural universities in Rajasthan; namely, Sri Karan Narendra Agriculture University, Jobner, Maharana Pratap University of Agriculture and Technology, Udaipur and Swami Keshwanand Rajasthan Agricultural University, Bikaner. From the selected agricultural university separate lists of all the constituent colleges were procured, out of which three constituent colleges from each agriculture university were selected purposely on the basis of having maximum number of teachers.

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In this way a total nine constituent colleges were selected from these three agricultural universities for study purpose. The selection of teachers was made by using stratified Random sampling technique. For this purpose from the selected constituent colleges separate lists of all the teachers were prepared and out of these 60 per cent of teachers were selected from every college by using simple Random sampling technique. The extent of utilization of ICT tools by the agricultural universities teachers was measured on three point continuum as most aware, aware and less aware with a score of 3, 2 and 1 respectively. The maximum attainable score was 90 and minimum attainable score was 30. Based on the total attainable score, the respondents were classified into three categories namely low, medium and high utilization by using arbitrary method. To determine the extent of utilization of respondents about each ICT tool mean per cent score was worked out and ranked accordingly.

RESULT AND DISCUSSION

Levels of utilization of ICT tools by the teachers of agricultural universities

The levels of utilization of agricultural university teachers were calculated by using the arbitrary method and the data are presented in Table 1. The data in Table 1 indicate that 59.04 per cent agriculture university teachers were having medium utilization about selected ICT tools, 36.74 per cent agricultural universities teachers had high utilization and remaining only 4.22 per cent teachers were having less utilization about selected ICT tools combindly in all the selected 3 agriculture universities of Rajasthan.

The data in Table 1 regarding university wise distribution of agricultural university teachers shows that

majority of the teachers of SKNAU, Jobner (64.62 per cent), SKRAU, Bikaner (50.00 per cent), and MPUAT, Udaipur (59.04 per cent) had medium level utilization of ICT tools, whereas only 4.61 per cent teachers of SKNAU, Jobner, 3.57 per cent teachers of SKRAU, Bikaner and 4.11 per cent teachers of MPUAT, Udaipur were having less utilization of ICT tools.

Extent of utilization of ICT tools by the teachers

The data in Table 2 indicate that among the different ICT tools the agricultural university teachers were having highest utilization of internet (MPS 96.73) which was assigned first rank followed by e-mail (MPS 96.20), mobile phone (MPS 93.90) and desktop (MPS 91.68) which were ranked second, third and fourth, respectively. The Agril. university teachers were having least utilization of kindle (MPS 45.79) which was awarded last rank.

Table 2 regarding university wise extent of utilization of teachers about ICT tools further shows that in SKNAU, Jobner teachers were having highest utilization of mobile phone (MPS 95.89) which was assigned first rank followed by e-mail (MPS 95.38) and internet (MPS 94.87) which were assigned second and third ranks respectively. In SKRAU, Bikaner teachers were having highest utilization of internet (MPS 97.61) which was assigned first rank followed by e-mail (MPS 95.38) and desktop (MPS 95.23) which were assigned rank second and third respectively. Similarly, in MPUAT, Udaipur teachers were having highest utilization of internet (MPS 97.71) which was assigned rank first followed by e-mail (MPS 96.20) and desktop (MPS 93.15) which were assigned second and third ranks, respectively.

SKNAU, Jobner teachers were having least utilization of both digitizer and visualiser (MPS 48.71)

Table 1: Distribution of agriculture university teachers according to their utilization of ICT tools

Levels of utilization	SKNAU, Jobner (n ₁ =65)	SKRAU, Bikaner (n ₂ =28)	MPUAT, Udaipur (n ₃ =73)	Overall (n=166)
Less utilization (Up to 50 score)	03 (04.61)	01 (03.57)	03 (04.11)	07 (04.22)
Medium utilization (From 50-70 score)	42 (64.62)	14 (50.00)	42 (57.53)	98 (59.04)
Highly utilization (Above 70 score)	20 (30.77)	13 (46.43)	28 (38.36)	61 (36.74)
Total	65 (100.00)	28 (100.00)	73 (100.00)	166 (100.00)

Figures in parentheses indicate percentage

Table 2: Extent of utilization of ICT tools by agriculture university teachers

S. No.	ICT Tools	SKNAU, Jobner (n ₁ =65)		SKRAU, Bikaner (n ₂ =28)		MPUAT, Udaipur (n ₃ =73)		Overall (n ₁ =166)	
		MPS	Rank	MPS	Rank	MPS	Rank	MPS	Rank
1	Mobile phone	95.89	I	94.04	IV	91.78	IV	93.90	III
2	Desktop	86.66	VI	95.23	III	93.15	III	91.68	IV
3	Laptop	86.15	VII	88.09	VII	83.56	VIII	85.93	VIII
4	Tablet	53.33	XVIII	55.95	XVI	51.14	XIX	53.47	XVIII
5	Office tools								
i	MS Word	93.33	i	96.42	i	96.80	i	95.52	i
ii	MS Excel	83.58	iii	88.09	iii	87.21	iii	86.29	iii
iii	MS PowerPoint	86.66	ii	89.28	ii	89.04	ii	88.33	ii
	Office tools average	87.86	V	91.26	VI	91.02	VI	90.05	VI
6	Analytic packages								
i	SPSS	65.64	i	64.28	i	63.01	i	64.31	i
ii	SAS	57.94	ii	52.38	ii	49.31	ii	53.21	ii
iii	STATA	46.15	iii	51.19	iii	39.26	iv	45.53	iii
iv	R	45.12	iv	50.00	iv	41.09	iii	45.40	iv
	Analytic packages average	53.71	XVII	54.46	XVII	48.17	XX	52.11	XXI
7	Internet	94.87	III	97.61	I	97.71	I	96.73	I
8	e-mail	95.38	II	96.42	II	96.80	II	96.20	II
9	Storage devices								
I	Video CD	70.25	iii	75.00	iv	69.86	iii	71.70	iv
ii	DVD	70.25	iii	76.19	iii	69.86	iii	72.10	iii
iii	Pen drive	87.69	i	95.23	i	93.15	i	92.02	i
iv	Hard drive	82.56	ii	86.90	ii	81.27	ii	83.58	ii
	Storage devices average	77.69	XI	83.33	VIII	78.54	XI	79.85	XI
10	e-Books	78.46	X	78.57	X	81.27	X	79.43	XII
11	e-journals	79.48	IX	83.33	VIII	81.73	IX	81.51	IX
12	e-agricultural Magazines	73.84	XIII	76.19	XI	68.94	XIV	72.99	XIV
13	Kindle	50.25	XIX	42.85	XVIII	44.29	XXI	45.79	XXII
14	Web based search engine	79.48	IX	82.14	IX	81.73	IX	81.11	X
15	Web-based Agriculture Information portals	75.38	XII	71.42	XIII	74.42	XII	73.74	XIII
16	Multimedia projectors	71.79	XIV	75.00	XII	72.14	XIII	72.98	XV
17	Printer	90.25	IV	94.04	IV	90.41	V	91.57	V
18	Scanner	84.10	VIII	90.47	V	86.30	VII	86.96	VII
19	e- Podium	57.94	XV	66.66	XIV	60.27	XV	61.62	XVI
20	Digitizer	48.71	XX	55.95	XVI	52.05	XVIII	52.23	XX
21	Visualiser	48.71	XX	55.95	XVI	52.51	XVII	52.39	XIX
22	Video-conferencing	57.43	XVI	57.14	XV	55.25	XVI	56.61	XVII
	Overall MPS	73.24		76.07		73.18		74.16	

MPS= Mean per cent score

Table 3: Frequency of utilization of ICT tools by the agriculture university teachers

S. No.	ICT tools	SKNAU, Jobner (n ₁ =65)			SKRAU, Bikaner (n ₂ =28)			MPUAT, Udaipur (n ₃ =73)			Overall (n= 166)		
		Fully	Partially	Never	Fully	Partially	Never	Fully	Partially	Never	Fully	Partially	Never
1	Mobile phone	57(87.69)	8(12.31)	0000.00	23(82.14)	5(17.86)	0000.00	55(75.34)	18(24.66)	0(00.00)	135(81.33)	31(18.67)	00(00.00)
2	Desktop	3960.00	2640.00	0000.00	24(85.71)	4(14.29)	0000.00	58(79.45)	15(20.55)	0000.00	121(72.89)	45(27.11)	0000.00
3	Laptop	39(60.00)	25(38.46)	1(1.54)	18(64.29)	10(35.71)	00(00.00)	44(60.27)	22(30.14)	7(9.59)	101(60.84)	57(34.34)	8(4.82)
4	Tablet	6(9.23)	27(41.54)	32(49.23)	2(7.14)	15(53.57)	11(39.29)	7(9.59)	25(34.25)	41(56.16)	15(9.04)	67(40.36)	84(50.60)
5	Office tools												
I	MS Word	52(80.00)	13(20.00)	00(00.00)	25(89.29)	3(10.71)	00(00.00)	66(90.41)	7(9.59)	00(00.00)	143(86.14)	23(13.86)	0000.00
II	MS Excel	34(52.31)	30(46.15)	1(1.54)	18(64.29)	10(35.71)	00(00.00)	45(61.64)	28(38.36)	00(00.00)	97(58.44)	68(40.96)	1(0.60)
III	MS PowerPoint	39(60.00)	26(40.00)	00(00.00)	19(67.86)	9(32.14)	00(00.00)	49(67.12)	24(32.88)	00(00.00)	107(64.46)	59(35.54)	00(00.00)
6	Analytic packages												
I	SPSS	13(20.00)	37(56.92)	15(23.08)	7(25.00)	12(42.86)	9(32.14)	16(21.92)	33(45.20)	24(32.88)	36(21.69)	82(49.40)	48(28.91)
II	SAS	11(16.92)	26(40.00)	28(43.08)	4(14.29)	8(28.57)	16(57.14)	7(9.59)	21(28.77)	45(61.64)	22(13.25)	55(33.13)	89(53.62)
III	STATA	1(1.54)	23(35.38)	41(63.08)	4(14.29)	7(25.00)	17(60.71)	00(00.00)	13(17.81)	60(82.19)	5(3.01)	43(25.90)	118(71.09)
IV	R	1(1.54)	21(32.31)	43(66.15)	3(10.71)	8(28.57)	17(60.72)	2(2.74)	13(17.81)	58(79.45)	6(3.61)	42(25.30)	118(71.09)
7	Internet	55(84.61)	10(15.39)	00(00.00)	26(92.86)	2(7.14)	00(00.00)	68(93.15)	5(6.85)	00(00.00)	149(89.76)	17(10.24)	00(00.00)
8	e-mail	57(87.69)	7(10.77)	1(1.54)	25(89.29)	3(10.71)	0000.00	68(93.15)	3(4.11)	2(2.74)	150(90.36)	13(7.83)	3(1.81)
9	Storage devices												
I	Video CD	20(30.77)	32(49.23)	13(20.00)	12(42.86)	11(39.28)	5(17.86)	33(45.20)	14(19.18)	26(35.62)	65(39.16)	57(34.34)	44(26.50)
II	DVD	20(30.77)	32(49.23)	13(20.00)	13(46.43)	10(35.71)	5(17.86)	33(45.20)	14(19.18)	26(35.62)	66(39.76)	56(33.73)	44(26.51)
III	Pen drive	43(66.15)	20(30.77)	2(3.08)	24(85.71)	4(14.29)	00(00.00)	60(82.19)	11(15.07)	2(2.74)	127(76.51)	35(21.08)	4(2.41)
IV	Hard drive	33(50.77)	30(46.15)	2(3.08)	19(67.86)	7(25.00)	2(7.14)	41(56.16)	23(31.51)	9(12.33)	93(56.02)	60(36.15)	13(7.83)
10	e-Books	26(40.00)	36(55.38)	3(4.62)	11(39.29)	16(57.14)	1(3.57)	36(49.31)	33(45.21)	4(5.48)	73(43.98)	85(51.20)	8(4.82)
11	e-journals	27(41.54)	36(55.38)	2(3.08)	14(50.00)	14(50.00)	00(00.00)	36(49.31)	34(46.58)	3(4.11)	77(46.39)	84(50.60)	5(3.01)
12	e-agricultural Magazines	21(32.31)	37(56.92)	7(10.77)	11(39.29)	14(50.00)	3(10.71)	25(34.25)	28(38.35)	20(27.40)	57(34.34)	79(47.59)	30(18.07)
13	Kindle	6(9.23)	25(38.46)	34(52.31)	1(3.57)	6(21.43)	21(75.00)	7(9.59)	10(13.70)	56(76.71)	14(8.43)	41(24.70)	111(66.87)
14	Web based search engine	31(47.69)	28(43.08)	6(9.23)	15(53.57)	11(39.29)	2(7.14)	39(53.42)	28(38.36)	6(8.22)	85(51.21)	67(40.36)	14(8.43)
15	Web-based Agriculture Information portals	22(33.85)	38(58.46)	5(7.69)	8(28.57)	16(57.14)	4(14.29)	26(35.62)	38(52.05)	9(12.33)	56(33.73)	92(55.42)	18(10.85)
16	Multimedia projectors	17(26.15)	41(63.08)	7(10.77)	9(32.14)	17(60.72)	2(7.14)	24(32.88)	37(50.68)	12(16.44)	50(30.12)	95(57.23)	21(12.65)
17	Printer	47(72.31)	17(26.15)	1(1.54)	23(82.14)	5(17.86)	0000.00	55(75.34)	15(20.55)	3(4.11)	125(75.30)	37(22.29)	4(2.41)
18	Scanner	35(53.85)	29(44.61)	1(1.54)	21(75.00)	6(21.43)	1(3.57)	46(63.01)	24(32.88)	3(4.11)	102(61.45)	59(35.54)	5(3.01)
19	e- Podium	9(13.85)	30(46.15)	26(40.00)	5(17.86)	18(64.28)	5(17.86)	18(24.66)	23(31.51)	32(43.83)	32(19.28)	71(42.77)	63(37.95)
20	Digitizer	3(4.62)	24(36.92)	38(58.46)	3(10.71)	13(46.43)	12(42.86)	11(15.07)	19(26.03)	43(58.90)	17(10.24)	56(33.74)	93(56.02)
21	Visualiser	2(3.08)	26(40.00)	37(56.92)	3(10.71)	13(46.43)	12(42.86)	11(15.07)	20(27.40)	42(57.53)	16(9.64)	59(35.54)	91(54.82)
22	Video-conferencing	9(13.85)	29(44.62)	27(41.53)	3(10.71)	14(50.00)	11(39.29)	10(13.70)	28(38.35)	35(47.95)	22(13.25)	71(42.77)	73(43.98)

Figures in parentheses indicate percentage

which were assigned last rank, whereas in SKRAU, Bikaner and MPUAT, Udaipur teachers were having least utilization of kindle (MPS 42.85 and MPS 44.29) respectively, which was assigned last rank.

Frequency of utilization of ICT tools

The data in Table 3 indicate the frequency of utilization of different ICT tools by teachers of agricultural universities. Further Table 3 it is clear that the teachers of different agriculture universities combinedly were having highest utilization of e-mail, about which 90.36 per cent teachers fully used e-mail, whereas 7.83 percent teachers partially used and only 1.81 per cent teachers never used e-mail. About internet 89.76 per cent teachers there who fully used, 10.24 percent teachers partially used and not a single teacher was never used internet. About 81.33 per cent agricultural university teachers were fully used mobile phone, whereas remaining 18.67 per cent teachers partially used mobile phone and not a single teachers was that who never used mobile phone. Agricultural university teachers were having least utilization of kindle, about which 66.87 per cent teachers never used kindle, whereas 24.70 percent teachers used it partially and only 8.43 per cent teachers fully used kindle.

The data in Table 3 further indicate that regarding university wise frequency of utilization of ICT tools by teachers in different agricultural universities shows that, in MPUAT Udaipur 90.15 per cent teachers fully used internet, whereas in SKRAU, Bikaner 92.86 per cent teachers and in SKNAU, Jobner 84.61 per cent teachers fully used internet. About e-mail, in MPUAT, Udaipur 93.15 percent teachers fully used e-mail, whereas in SKRAU, Bikaner 89.29 per cent teachers and in SKNAU, Jobner 87.69 per cent teachers were fully used

e-mail. Agricultural university teachers were having least utilization of kindle about which in MPUAT, Udaipur 76.71 percent teaches never used, whereas in SKRAU, Bikaner 75.00 percent teachers never used kindle. In SKNAU, Jobner teachers were having least utilization of digitizer to which 58.46 per cent teachers never used digitizer.

Analysis of variance test was applied to see the significant difference in relation to utilization of ICT tools by the teachers of selected agriculture universities i.e. SKNAU, Jobner, SKRAU, Bikaner and MPUAT, Udaipur. The results are presented in Table 4.

Hypotheses:

H₀: There is no significant difference between teachers of SKNAU, Jobner, SKRAU, Bikaner and MPUAT, Udaipur with respect to their utilization of ICT tools

H₁: There is a significant difference between teachers SKNAU, Jobner, SKRAU, Bikaner and MPUAT, Udaipur with respect to their utilization of ICT tools

The data in Table 4 reveals that the calculated 'F' value. (0.683) is lower than the tabulated value at 5 per cent level of significance and 2 degrees of freedom. Thus, the null hypothesis (H₀) entitled "There is no significant difference between teachers of SKNAU, Jobner, SKRAU, Bikaner and MPUAT, Udaipur with respect to their utilization of ICT tools was accepted and research hypothesis (H₁) was rejected. It infers that there was no significant difference between the teachers of SKNAU, Jobner, SKRAU, Bikaner and MPUAT, Udaipur with regard to their utilization of different ICT tools. It might be due the reason that in every agriculture university there are similar works and responsibilities therefore teachers were having similarly utilization of ICT tools for their work.

Table 4: Analysis of variance of ICT utilization by the teachers of selected agriculture universities

S.No.	Source of variation	df	S.S	M.S.S	"F" cal
1.	Between the universities (SKNAU, Jobner, SKRAU, Bikaner and MPUAT, Udaipur)	2	151.1559	75.578	0.683 NS
2.	Error	163	18024.579	110.5802	
	Total	165	18175.7349		

NS= Non significant

CONCLUSION

In all the selected agricultural universities combinedly 59.04 per cent teachers were having medium utilization about selected ICT tools. Regarding university wise distribution majority of the teachers in SKNAU, Jobner (64.62%), SKRAU, Bikaner (50.00%), and MPUAT, Udaipur (59.04%) had medium level utilization of ICT tools. Among the different ICT tools the agricultural university teachers were having highest utilization of internet (MPS 96.73) followed by e-mail (MPS 96.20). As far as university wise extent of utilization of teachers about ICT tools is concerned in SKNAU, Jobner teachers were having highest utilization of mobile phone (MPS 95.89) followed by e-mail (MPS 95.38), in SKRAU, Bikaner teachers were having highest utilization of internet

(MPS 97.61) followed by e-mail (MPS 95.38) and in MPUAT, Udaipur teachers were having highest utilization of internet (MPS 97.71) followed by e-mail (MPS 96.20).

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