

In-service science teachers' attitudes towards information communication technology

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Introduction

- Teachers' attitudes predict the use of ICT in teaching (Abas, 1995; Isleem, 2003)
- Education requires teachers' positive attitude development towards ICT (Woodrow, 1992)
- Teachers' positive attitudes towards ICT is key to integration in classroom (Watson, 1992)
- Learners do not link computers with their majors (Durdell & Thomson, 1997)
- Teachers are implementers of curriculum change (Ogunniyi, 2004), including ICT in teaching science

Aim of the study

- The study aimed at investigating in-service science teachers' attitudes towards ICT at the University of Limpopo, South Africa

Research Questions

- 1) What are the attitudes of in-service science teachers at the University of Limpopo, South Africa?
- 2) What are the teachers' perceptions of cultural relevance of ICT to Limpopo society and the schools?
- 3) What proportion of variance in teachers' attitudes is explained by the selected independent variables?

Methodology

Subjects : 25 in-service teachers (20 males; 5 females)

Instruments:

1) Questionnaire - 48 questions were used; 41 questions 5-point Likert scale, & 7 were the teachers' profile

Cronbach's alpha:

computer attitudes = 0.92, cultural perception = 0.88, computer access 0.76 & computer competence = 0.81

2) Personal interview of 10 teachers (5 males & 5 females)

Data Analysis

- Data were analyzed using (SPSS) version 13
- Descriptive statistics summarized responses; and Pearson & Spearman correlations (D.V): Attitudes towards ICT with (I.Vs): attitudes to computer; cultural perceptions toward ICT; computer competence; & computer access (Gay and Airasian, 2000)
- Furthermore, multiple regression analysis using D.V and I.Vs
- Data from interviews were coded and themes developed to explain the underlying issues

Results & Discussion

Table 1 Mean scores of in-service teachers' attitude towards ICT

Domain	Percentage (%)					Positive	Mean	SD
	SD	D	N	A	SA			
Affective	4	0	0	80	16	96	4.0	0.8
Cognitive	0	8	4	60	28	88	3.9	1.1
Behaviour	4	4	0	72	20	92	3.9	0.9
Overall attitude	3	4	1	71	21	92	4.0	0.9

SD-strongly disagree (1); D-disagree (2); N-neutral (3); A-agree (4); SA-strongly agree (5)

Table 2 Mean scores of in-service teachers' computer attitudes.

Domain	Percentage (%)					Positive	Mean	SD
	SD	D	N	A	SA			
Perceptions	8	4	8	64	16	80	3.7	1.1
Compatibility	4	8	28	40	20	60	3.6	1.0
Observability	4	8	20	44	24	68	3.7	1.1
Simplicity in use	20	4	16	40	20	69	3.3	1.4
Overall attitude	9	6	18	47	20	69	3.5	1.2

SD-strongly disagree (1); D-disagree (2); N-neutral (3); A-agree (4); SA-strongly agree (5)

Table 3 Mean scores of in-service teachers' cultural perceptions towards ICT

Domain	Percentage (%)					Positive	Mean	SD
	SD	D	N	A	SA			
Jobs	0	4	8	64	24	88	4.0	0.7
Personal relationship	4	12	12	52	20	72	3.7	1.1
Indigenous knowledge	8	8	8	44	32	76	3.8	1.2
Other issues	4	4	20	40	32	79	3.9	1.0
Overall perception	4	7	12	50	27	79	3.8	1.1

SD-strongly disagree (1); D-disagree (2); N-neutral (3); A-agree (4); SA-strongly agree (5)

Table 4 Mean scores of in-service teachers' computer competence

Domain	Percentage (%)					Positive	Mean	SD
	None	Little	Moderate	Much	Very much			
System Operations	4	12	0	60	24	84	3.8	1.1
Internet search	0	4	4	68	24	92	4.1	0.7
Problem solving	4	20	12	36	28	64	3.6	1.2
Overall competence	3	12	5	55	25	80	3.8	1.0

Competence: none (1); little (2); moderate (3); much (4); very much (5)

Table 5 Mean scores of in-service teachers' computer access

Domain	Percentage (%)					Positive	Mean	SD
	Never	Monthly	Weekly	3-day	Daily			
Home ownership	0	12	20	44	24	68	3.7	1.0
School/ University	0	4	16	56	24	80	3.9	0.8
Others	4	20	12	36	28	64	3.7	1.2
Overall access	1	12	16	45	25	71	3.8	1.0

Computer access: never (1); monthly (2); weekly (3); 3-day (4); daily (5)

Table 6 Multiple regression on dependent variable (attitudes towards ICT)


Variable	Unstandardized Coefficients b	Standardized Coefficients b	t	p
Computer competence	0.19	1.58	3.83	0.00
Computer access	1.50	0.44	1.30	0.21
Cultural perceptions towards ICT	-1.09	0.22	2.72	0.01
Attitudes to computer	1.71	-1.18	-2.74	0.01

Table 7 Analysis of variance

Source	Sum of Squares	DF	Mean Square	F value	R ²	Adjusted R ²	p
Model	146.30	4	36.57	41.70	0.89	0.87	0.00
Error	17.54	20	0.87				
Total	163.84	24					

Conclusions

Teachers' attitudes were positive in the affective, cognitive and in the behavioural domains with an overall score of 92%



The teachers' voices:
ICT Can Improve My Teaching!

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Thank you for your attention