RESEARCH PAPER

Information and Communication Technology (ICT) Literacy of Teachers Working in Rural and Urban Secondary Schools

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ABSTRACT

The objective of the study was to investigate computer literacy of secondary school teachers working in urban and rural areas with regard to management skill of computer, and knowledge on computer hardware, word processing, spreadsheet, power point and using internet. A sample of 300 secondary school teachers 150 each from urban and rural schools was selected randomly. The Information and Communication Technology Literacy Questionnaire developed by investigators was used for collection of data. Statistical analysis using percentage revealed that i. below the average number of secondary school teachers in both urban and rural areas were having knowledge and skill of computer management, use of computer and its accessories, data processing, knowledge of spreadsheet, and knowledge and skill of accessing to internet sites; and ii. few number of secondary school teachers in urban areas were having the knowledge of creating power point for presentation. Whereas no secondary school teachers in rural area were having the knowledge of creating and using power point for presentation in classroom.

Key words: *Computer literacy, Urban Secondary School, Rural Secondary School, ICT and Teachers*

INTRODUCTION

Research studies conducted in the area of ICT literacy of secondary school teachers revealed that timely acquisition, utilization, communication, and retrieval of relevant and accurate information has become an important attribute for better teaching-learning process (Adebayo, 2008) which improves teachers' professional development and increases self-efficacy through high quality learning materials (Abolade and Yusuf, 2005). Knowledge of ICT skills among secondary school teachers facilitates the teaching and learning procedure (Apanpa and Lawal, 2009; Jegede, 2008). Despite the apparent benefits of ICTs for educational purpose, the learning potential of ICT is deprived of as many teachers who are still not fully ICT literate (Lau and Sim, 2008) not used the ICT resources in the classroom interaction (Rafeedali, 2006) and not used several applications of ICTs frequently (Hutchison, 2009). Pedagogical issues and solutions for the teaching and learning are affected due to lack of ICT content knowledge of teachers in secondary schools (Mary, 2002). Teachers used ICT as trial and error approach (Wanjala, *et al.,* 2011).Though highly experienced teachers showed positive attitude towards ICT (Uniyal and Pandey, 2008; Lau and Sim, 2008), they didn't use in the classroom (Uniyal and Pandey, 2008) and needed for training, and support (Lau and Sim, 2008). The present study has been designed to evaluate ICT literacy of secondary school teachers working in urban and rural social setting.

OBJECTIVES

The objectives of the present study were-
1. To study the computer management skills of urban and rural secondary school teachers.
2. To study the knowledge of urban and rural secondary school teachers on computer hardware.
3. To study the knowledge of urban and rural secondary school teachers on word processing.
4. To study the knowledge of urban and rural secondary school teachers on spreadsheet.
5. To study the knowledge of urban and rural secondary school teachers on PowerPoint.
6. To study the knowledge of urban and rural secondary school teachers on using internet.

SAMPLE

A sample of 300 secondary school teachers 150 each from urban and rural schools was selected randomly.

TOOLS

The Information and Communication Technology Literacy Questionnaire developed by investigator was used for collection of data. The content validity of the questionnaire was ascertained by experts' judgment and the conformity percentage of all items of the questionnaire ranged from 90 percent to cent percent.

RESULTS

As can be seen in Table 1 that teachers working in secondary school situated at urban areas, 42.66% of teachers were able to locate and run a programme, use CD-ROM software, organize files into folder, search files, move and copy files between drives, create backup files, and use printer to print document. Whereas teachers working in secondary school situated at rural areas, 24.66% teachers were able to locate and run a programme, use CD-ROM software, organize files into folder, search files, move and copy files between drives, create backup files, and use printer to print document. As can be seen in Table 1, 42.66% secondary school teachers working in urban areas and 24.66% secondary school teachers working in rural areas were able to connect computer and its accessories.

Table 1: Summary of knowledge on computer management skill of urban and rural secondary school teachers (N=300)

S.No	Description 0f the Items	Urban Secondary School Teachers N = 150		Rural Secondary School Teachers N = 150	
		Number	**%**	**Number**	**%**
1	Locate and run a programme by the secondary school teacher	64	42.66%	37	24.66%
2	Use of CD-ROM based software by the secondary school teacher	64	42.66%	37	24.66%
3	Organize files into the folder by the secondary school teacher	64	42.66%	37	24.66%
4	Search files on the computer system by the secondary school teacher	64	42.66%	37	24.66%
5	Copy and move files between drives by the secondary school teacher	64	42.66%	37	24.66%
6	Create Backup files onto various media types by the secondary school teacher	64	42.66%	37	24.66%
7	Print various networked printers by the secondary school teacher	64	42.66%	37	24.66%

Further, it was found out that 11.33% secondary school teachers working in urban areas used scanner for scanning images and digital camera for capturing images whereas no secondary school teachers working in rural areas used scanner and digital camera. Further, the Table 2 revealed that no secondary school teachers working in both urban and rural areas were able to use data projector, computer security, and were aware of health and safety issues relating to the computer environment.

Table 3 shows that 42.66% secondary school teachers working in urban areas were having knowledge of editing document into bold, italics and font size, whereas 24.66% secondary school teachers working in rural areas were having knowledge of editing document into bold, italics and font size. It can be interpreted that below the average number of secondary school teachers working in urban areas and a few number of secondary school teachers working in rural areas were having knowledge of editing document. Further, Table 3 revealed that 42.66% secondary school teachers working in urban areas were able to check spelling in computer, whereas 16.66%

secondary school teachers working in rural areas were able to check spelling in computer. It can be interpreted that less than average number of secondary school teachers working in urban areas and little number of secondary school teachers working in rural areas were able to check spelling in computer.

Table 2: Summary of knowledge on computer hardware of urban and rural secondary school teachers (N=300)

S.No	Description of the Items	Urban Secondary School Teachers N = 150		Rural Secondary School Teachers N = 150	
		Number	%	Number	%
1	Connect computer and its accessories by the secondary school teacher	64	42.66%	37	24.66%
2	Used a scanner for copy images by the secondary school teacher	17	11.33%	Nil	00%
3	Used digital camera for capturing images by the secondary school teacher	17	11.33%	Nil	00%
4	Used data projector by the secondary school teacher	Nil	00%	Nil	00%
5	Aware of computer security copying and the law by the secondary school teacher	Nil	00%	Nil	00%
6	Aware of Health and Safety issues relating to the computer environment by the secondary school teacher	Nil	00%	Nil	00%

Table 3: Summary of knowledge on word processing of urban and rural area secondary school teachers (N=300)

S.No	Description of the Items	Urban Secondary School Teacher N = 150		Rural Secondary School Teacher N = 150	
		Number	%	Number	%
1	Knowledge of simple editing e.g. Bold/Italics/Font size/etc	64	42.66%	37	24.66%
2	Knowing of spell checker	64	42.66%	25	16.66%
3	Importing text and images into a word processed document	38	25.33%	11	7.33%
4	Inserting tables in to a document	12	08.00%	04	02.66%
5	Knowledge about layout text and images	00	00%	00	00%
6	Using templates for standard documents	00	00%	00	00%
7	Creating new document	64	42.66%	37	24.66%
8	Dividing the page layout into columns	12	08.00%	00	00%
9	Using of header and footer	07	04.66%	00	00%
10	Saving documents in various files formats	64	42.66%	25	16.66%

As can be seen from Table 3, 25.33% secondary school teachers working in urban areas and 7.33% secondary school teachers working in rural areas were able to import text and image into a word document. As can be seen from Table 5, 8% secondary school teachers working in urban, and 2.66% secondary school teachers working in rural areas were able to insert tables into a document. Table 3 revealed that 42.66% secondary school teachers working in urban areas and 24.66% secondary school teachers working in rural areas were able to create new document in word. It was also found out that 42.66% secondary school teachers working in urban areas and 16.66% secondary school teachers working in rural areas were able to save document in various file formats. Table 3 also revealed that 08.00% secondary school teachers working in urban areas could divide the page layout into columns and 04.66% secondary school teachers working in urban areas were having the knowledge of header and footer. Whereas no secondary school teachers working in rural areas were having knowledge and skill of page layout, header, and footer. Further,

Table 3 revealed that no secondary school teachers working in both urban and rural areas were having knowledge and skill of layout text and templates for standardization of documents.

Table 4: Summary of knowledge on spreadsheet of urban and rural area secondary school teachers (N=300)

S.No.	Description of the Items	Urban Secondary School Teachers N = 150		Rural Secondary School Teachers N = 150	
		Number	%	Number	%
1	Inputs row and columns	64	42.66%	37	24.66%
2	Knowledge of auto filling series	Nil	00%	Nil	00%
3	Knowledge of input formula	Nil	00%	Nil	00%
4	Producing charts and graphs for data analysis	Nil	00%	Nil	00%
5	Printing selected areas	64	42.66%	37	24.66%
6	Creating password protect a spreadsheet	64	42.66%	37	24.66%

As can be seen in Table 4 that 42.66% secondary school teachers working in urban areas and 24.66% secondary school teachers working in rural areas were able to input row and columns into spreadsheet, able to print selected areas of the spreadsheet, and able to create password to protect a spreadsheet. It can be interpreted that below the average number of secondary school teachers working in urban area and a few number of secondary school teachers working in rural area were having knowledge of spreadsheet. Further, no secondary school teachers working in both urban and rural areas were having knowledge of auto filling series, input formula, and creating charts and graphs for data analysis in spreadsheets

Table 5: Summary of Knowledge on Power Point of urban and rural area secondary school teachers (N=300)

S.No.	Description of the Items	Urban Secondary School Teachers N = 150		Rural Secondary School Teachers N = 150	
		Number	%	Number	%
1	Creating a basic presentation	12	08.00%	00	00%
2	Adding clipart to slides	12	08.00%	00	00%
3	Modifying color of text, lines and spaces on a slide	12	08.00%	00	00%
4	Introducing animation into slides	12	08.00%	00	00%
5	Editing a master slide	12	08.00%	00	00%
6	Rearranging slides with in a presentation	12	08.00%	00	00%

As can be seen in Table 5, Eight percent of secondary school teachers working in urban areas were having knowledge of power point presentation and creating a basic power point presentation through adding clipart into slide. They could modify colour of the text, lines and space on slide, introduce animation to slide, edit master slide of the presentation, and rearrange slide. Whereas, no secondary school teachers working in rural areas were aware of it.
Table 6 shows that 42.66% secondary school teachers working in urban areas could access an internet site in its website address and search engines to find information, whereas 11.33% secondary school teachers working in rural areas could access an internet site in its website address and search engines to find information. Table 6 shows that 42.66% secondary school teachers working in urban areas were able to send and receive emails, and attach files into outgoing emails. Whereas no secondary school teachers working in rural areas were aware of it. Further, it was found out that 10.00% secondary school teachers working in urban areas were

having knowledge of downloading files from internet, saving text and images from web pages, and creating new contacts in address book. It was also found out that no secondary school teachers working in rural areas were aware of internet and its uses.

Table 6: Summary of knowledge on using internet of urban and rural area secondary school teachers (N=300)

S.No.	Description of the Items	Urban Secondary School Teachers N = 150		Rural Secondary School Teachers N = 150	
		Number	%	Number	%
1	Accessing an internet site in its website address	64	42.66%	17	11.33%
2	Using search engines to find information	64	42.66%	17	11.33%
3	Downloading files from the Internet	15	10.00%	Nil	00%
4	Saving text and images from web pages	15	10.00%	Nil	00%
5	Sending and receiving email messages	64	42.66%	Nil	00%
6	Attaching files to outgoing emails	64	42.66%	Nil	00%
7	Creating new contacts in address book	15	10.00%	Nil	00%

MAJOR FINDINGS

1. Below the average number of secondary school teachers in both urban and rural areas were having knowledge and skill of computer management, use of computer and its accessories, data processing, knowledge of spreadsheet and; knowledge and skill of accessing to internet site.
2. A few number of secondary school teachers in urban areas were having the knowledge of creating power point for presentation. Whereas no secondary school teachers in rural area were having the knowledge of creating and using power point for presentation in classroom.

DISCUSSION

The present study attempted to assess the computer literacy of secondary school teachers serving in both the urban and rural areas. The findings revealing that secondary schools in both urban and rural areas did not use ICT resources in teaching and learning might be due to lack of ICT content and pedagogical knowledge of secondary school teachers as it is evident from the finding of Mary (2002) who found out that pedagogical issues and solutions for the teaching and learning were affected by the lack of ICT content knowledge of teachers in secondary schools. It also revealed that there was no school policy to promote and support ICT based innovation in teaching and learning by teachers might be due to the reason that the ICT scheme for schools in India follows top down approach rather than bottom up approach. Further, the personnels at top level involved in implementation of ICT scheme might have failed to perform their role successfully for implementation of the scheme at grass root label. The policy and the scheme which are formulated through grass root approach could be implemented successfully than the policy and scheme imposed for its implementation at the top level.

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