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Preparation Of Using Information Communication And Technology In Teaching And Learning Among The Enginering Teachers In Technical School

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Abstract

The aim of this study was to identify the preparation of using Information Communication and Technology (ICT) in teaching and learning from aspects of knowledge, skills, attitude and confidence among the technical teachers of technique schools in Johore, Malacca and Negeri Sembilan. A total of 92 teachers from nine technical schools in three states were randomly selected (cluster over cluster method) in this study. The findings showed that the preparation of Technical teachers' knowledge, skills, attitude and confidence in using Information Communication and Technology in teaching and learning was at high level. The findings also showed that the level of preparation have significant difference with frequency in using computer and computer ownership.

Introduction

Nowadays, new generation face the challenges and influences of Information Communication and Technology (ICT). As Malaysia Government (1999) point out, Information Communication and Technology explosion and globalizing challenges which get along more conspicuous and it should manage by judicious and increase the awareness of risk that bring. This is because Information Communication and Technology development already make a change in human work, communication and their thinking (Ding, 1998). Education Development 2001-2010 (2001) also believe that using Information Communication and Technology potential to bring Malaysia's education system toward international level. Now, whatever the Malaysian resident appreciate it or not, but the reality Information Communication and Technology particular period already start long time ago.

Information Communication and Technology can be recognize as a combination of one set technology especially micro electronic computer and communication technology which help in collecting, saving, processing, sending and presentation data or information through various media such as image, graphic, video, audio and texts (Hamidah Baba, 2000). In addition, Information Communication and Technology also as an agent of great positive changing until it influence all aspect in various sectors like sector of education, industry, business, medical, agriculture and others (Abdul Razak *et al.*, 2004).

Intelligent in Information Communication and Technology of insistence for every body in the future (Abu Bakar, 2000). With this, principles of education country always have been study and the education curriculums to upgrade education quality and make sure it was effectiveness in execute to face the challenges of Information Communication and Technology. This can see from the program which organize by Ministry of Education Malaysia such as smart school, computer in education, program teaching and learning Science and Mathematic in English, Malaysian Great For Learning (Eleventh Parliament Report, 2005).

As Education Development 2001-2020 (2001) point out, program training in service for teachers in Information Communication and Technology field also execute by Ministry of Education Malaysia such as smart school teacher training, computer education fourteen weeks in service course and basic compute literacy and others. Until year of 2000, almost 60,000 teachers already take the training program. In this situation, teacher suppose should effort using Information Communication and Technology in teaching and learning or in education management. While since 1996 until 2000, only have 30 percent out of all

teachers just have training in Information Communication and Technology and only small amount of teachers out of that percentage can integration Information Communication and Technology in teaching and learning. Besides from that small amount of teachers, only have knowledge and skills to develop course software (Education Development 2001-2010, 2001).

In addition, still got many teachers lack effort in using Information Communication and Technology in teaching and learning. They also not expert using Information Communication and Technology in teaching design and lack skills of selecting, evaluating and using course software based on student needs (Education Development 2001-2010). As Gan (2000) point out among 280 thousands teachers who in service, lots of teacher just mastering basic knowledge and skills in Information Communication and Technology when they studied in university.

Besides, failure mastering Information Communication and Technology field already defined as root of pressure which face by many teachers who teach Science and Mathematics subject in English (Rohani, 2003). Findings of the Mazyla's (2004) study also showed that skill in using Information Communication and Technology among technical teachers were in moderate level. In addition, appear negative attitude towards Information Communication and Technology among teachers especially teachers who teach Science and Mathematics and followed by language teachers (Williams *et al.*, 1998). Most of teachers seldom using Information Communication and Technology because they not confidence using it (Cox *et al.*, 2003).

Because of this, researcher comment that its important to define the preparation level of technical teachers in technique school towards using Information Communication and Technology in teaching and learning from aspect of knowledge, skills, attitude and confidence.

Aspect of Knowledge in Information Communication and Technology

Khairul 'Azmi Mohamad (2000) comment, mastering Information Communication and Technology knowledge already became insistence in the future. Individual who defined knowledgeable in computer if that person have positive attitude and responsible in using computer; effort to evaluate, elect and using various computer application; can using hardware and software which appropriate with computer application; and expert in computer operating through the programming (Simonson *et al.*, 1987).

Aspect of Knowledge in Information Communication and Technology

Technology development moving quickly make happen knowledge and skills in Information Communication and Technology increase important to fulfill the work market need s and industry which need the workers who expert in using Information Communication and Technology. Effectiveness using Information Communication and Technology in some matter always related to skills of Information Communication and Technology in that person.

Aspect of Attitude towards Using Information Communication and Technology in Teaching and Learning

Attitude was important element in education field. Teachers who have positive attitude can make teaching and learning process more effective. This is because they can actuate students learning in the class. As Zulkifli and Raja Maznah (1994) comment, positive attitude was essential to actuate someone to learn something. If the teachers have negative attitude towards using Information Communication and Technology in teaching and learning, it will become barrier to teaching and learning process.

Aspect of Confidence towards Using Information Communication and Technology in Teaching and Learning

As Tom (1999) point out, self confidence was expecting which may be will achieve by someone in certain situation. Positive attitude and self confidence as a basic support need to achieve objective (Robiah *et al.*, 2003). As Fitzallen (2005) comment, confidence of the teachers also will influence them in using Information Communication and Technology in teaching and learning.

Hence, this study done for purpose to define preparation of using Information Communication and Technology in teaching and learning from aspect of knowledge, skills, attitude and confidence among technical teachers of technique school in Johore, Malacca and Negeri Sembilan.

Methodology

This study was descriptive study to get quantitative data which related with preparation of using Information Communication and Technology in teaching and learning. The sample in this study was 92 technical teachers from nine technique school in state of Johore, Malacca and Negeri Sembilan. Instrument of the study was modified inventory from Information Technology Knowledge and Skills Diagnostic Tool (2003) and Computer Attitude Scale. Pilot test have been done to determine consistency of questionnaire. After analysis, the Alpha Cronbach of the questionnaire was 0.9885.

Finding Study

Analysis Preparation of Respondent towards Using Information Communication and Technology in Teaching and Learning

Analysis finding the preparation of using Information Communication and Technology in teaching and learning will categories as below.

Table 1: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – word processing

I know the terms and concepts	Do not know 1	2	3	4	Really know 5	**MEAN**	**SD**
'Documents'	0	5.5	13.0	25.0	56.5	4.33	0.903
'Templates'	4.3	8.7	14.2	34.8	38.0	3.93	1.127
'Page Orientation'	9.8	7.6	19.6	26.0	37.0	3.73	1.302
'Margins'	1.1	6.5	12.0	22.8	57.6	4.29	0.989
'Headers'	2.2	5.4	9.8	29.3	53.3	4.26	0.993
'Footers'	3.3	4.3	12.0	29.3	51.1	4.21	1.033
'Table Layout'	2.2	4.3	14.1	33.7	45.7	4.16	0.975
'Column Layout '	3.3	4.3	12.0	31.5	48.9	4.18	1.026
'Print Preview'	1.1	1.1	8.7	26.1	63.0	4.49	0.791

Total mean score = 4.1763 Standard Deviation = 0.79821

Table 1 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – Word processing. As a result the statement "I know about the terms and the concept of print preview" recorded the highest mean score of 4.49 (63percent-really know and 1.1percent- do not know). For the statement, "I know about the terms and concept of page orientation" recorded the lowest mean score of 3.37 (37percent-really know and 9.8percent- do not know). As a whole, we can see that the total mean score is 4.1763 with standard deviation of 0.79821.

Table 2: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Electronic Interface

I know the terms and concepts	Do not know 1	2	3	4	Really know 5	MEAN	SD
'Spreadsheet'	8.7	8.7	26.1	26.1	30.4	3.61	1.249
'Workbook'	8.7	9.8	30.4	28.3	22.8	3.47	1.199
'Worksheet'	3.3	5.4	26.1	28.3	37.0	3.90	1.070
'Graphs'	4.3	9.8	23.9	29.4	32.6	3.76	1.142
'Functions'	5.4	9.8	23.9	28.3	32.6	3.73	1.178
'Charts'	5.4	7.6	25.0	32.7	29.3	3.73	1.130
'Formulas'	8.7	10.9	35.8	23.9	20.7	3.37	1.183
'Data Analysis'	17.4	18.5	31.5	14.1	18.5	2.98	1.334

Total mean score = 3.5679 Standard Deviation = 0.99784

Table 2 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – electronic interface. As a result the statement "I know about the terms and the concept of worksheet" recorded the highest mean score of 3.90 (37percent-really know and 3.3percent- do not know). For the statement, "I know about the terms and concept of data analysis" recorded the lowest mean score of 2.98 (18.5percent-really know and 17.4percent- does not know). As a whole, we can see that the total mean score is 3.576 with standard deviation of 0.99784.

Table 3: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Database
(n =92)

I know the terms and concepts	Do not know 1	2	3	4	Really know 5	MEAN	SD
'Database'	17.4	19.6	31.5	13.0	18.5	2.96	1.334
'Record'	19.6	7.5	38.0	14.1	20.7	3.09	1.356
'Field'	13.0	17.4	31.5	19.6	18.5	3.13	1.277
'Table'	1.1	4.3	18.5	27.2	48.9	4.18	0.960
'Data Types'	14.1	9.8	37.0	13.0	26.1	3.27	1.335

Total mean score = 3.3261 Standard Deviation = 1.05026

Table 3 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – database. As a result the statement "I know about the terms and the concept of table" recorded the highest mean score of 4.18 (48.9percent-really know and 1.1percent- do not know). For the statement, "I know about the terms and concept of database" recorded the lowest mean score of 2.96 (18.5percent-really know and 17.4percent- does not know). As a whole, we can see that the total mean score is 3.3261 with standard deviation of 1.05026.

Table 4: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Presentation
(n =92)

I know the terms and concepts	Do not know 1	2	3	4	Really know 5	**MEAN**	**SD**
'Presentation Styles'	8.7	8.7	22.8	27.2	32.6	3.66	1.260
'Information display strategies'	22.8	23.9	30.5	17.4	5.4	2.59	1.178
'Layout Elements'	19.6	20.7	29.3	18.4	12.0	2.83	1.281
'Audio Format'	13.0	21.7	33.9	21.7	9.8	2.93	1.165
'Multimedia'	12.0	16.3	32.6	23.9	15.2	3.14	1.219
'Video Formats'	18.5	18.5	26.1	26.1	10.8	2.92	1.277

Total mean score = 3.0127 Standard Deviation = 1.00676

Table 4 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – presentation. As a result the statement "I know about the terms and the concept of presentation style" recorded the highest mean score of 3.66 (32.6percent-really know and 8.7percent- do not know). For the statement, "I know about the terms and concept of information display strategies" recorded the lowest mean score of 2.59 (5.4percent-really know and 22.8percent- does not know). As a whole, we can see that the total mean score is 3.0127 with standard deviation of 1.00676.

Table 5: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Internet

I know the terms and concepts	Do not know 1	2	3	4	Really know 5	**MEAN**	**SD**
'Internet'	4.3	6.5	22.8	39.2	27.2	3.78	1.057
'FTP'	29.3	17.4	31.6	14.1	7.6	2.53	1.262
'Telnet'	31.5	14.1	29.3	20.8	4.3	2.52	1.253
'http'	7.6	10.9	26.1	31.5	23.9	3.53	1.190
'Email'	4.3	9.8	28.3	31.5	26.1	3.65	1.104
'Intranet'	22.8	10.9	38.0	18.5	9.8	2.82	1.257
'Client'	17.4	14.1	42.4	15.2	10.9	2.88	1.194
'server'	9.8	12.0	46.7	16.3	15.2	3.15	1.128
'URL'	19.6	18.5	42.4	13.0	6.5	2.68	1.128
'Web Browser'	13.0	16.3	41.3	18.5	10.9	2.98	1.148
'File Attachment'	17.4	7.6	42.4	19.6	13.0	3.03	1.227

Total mean score = 3.0514 Standard Deviation = 0.89655

Table 5 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – Internet. As a result the statement "I know about the terms and the concept of Internet" recorded the highest mean score of 3.78 (27.2percent-really know and 4.3percent- do not know). For the statement, "I know about the terms and concept of TELnet" recorded the lowest mean score of 2.52 (4.3percent-really know and 31.5percent- does not know). As a whole, we can

see that the total mean score is 3.0514 with standard deviation of 0.89655.

Table 6: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Communication technology

(n =92)

I know the terms and concepts	Do not know 1	2	3	Really know 4	5	**MEAN**	**SD**
'Computer'	1.1	4.3	18.5	39.1	37.0	4.07	0.912
'Fax'	3.3	9.8	21.6	37.0	28.3	3.77	1.070
'Digital camera'	5.4	8.7	19.6	31.5	34.8	3.82	1.167
'Printer'	1.1	1.1	10.9	33.6	53.3	4.37	0.808
'Scanner'	1.1	4.2	22.8	34.8	37.0	4.02	0.937
'CD-ROM'	3.3	8.7	18.5	29.3	40.2	3.95	1.113
'CD-writer'	4.3	6.5	27.2	26.1	35.9	3.83	1.125
'DVD'	3.3	5.4	23.9	30.4	37.0	3.92	1.061
'Video conference'	6.5	23.9	29.4	25.0	15.2	3.18	1.157
'Projector'	2.2	8.7	14.1	40.2	34.8	3.97	1.021

Total mean score = 3.8891 Standard Deviation = 0.81880

Table 6 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – Communication Technology. As a result the statement "I know about the terms and the concept of printer" recorded the highest mean score of 4.37 (53.3percent-really know and 1.1percent- do not know). For the statement, "I know about the terms and concept of video-conference" recorded the lowest mean score of 3.18 (15.2percent-really know and 6.5percent- does not know). As a whole, we can see that the total mean score is 3.8891 with standard deviation of 0.81880.

Table 7: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – all elements

(n =92)

NO.	**Elements**	**MEAN**	**SD**
1.	Word processing	4.1763	0.79821
2.	Electronic Interface	3.5679	0.99784
3.	Database	3.3261	1.05026
4.	Presentation	3.0127	1.00676
5.	Internet	3.0514	0.89655
6.	Communication technology	3.8891	0.81880

Total mean score = 3.5039 Standard Deviation = 0.76642

Table 7 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications of all the elements involved. As a result "word processing" recorded the highest mean score of 4.1763 with standard deviation of 0.79821. For the rest of the elements, the mean score are as followed Electronic Interface (3.5679), Database (3.3261), Presentation (3.0127), Internet (3.0514) and Communication technology (3.8891). As a whole the total mean score is 3.5039 with

standard deviation of 0.76642 which has shown that the knowledge that has been mastered by the respondents is at intermediate level.

Table 8: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Word processing
(n =92)

I am skillful in	Do not know 1	2	3	4	Really know 5	**MEAN**	**SD**
Create a document	2.2	3.3	12.0	30.3	52.2	4.27	0.950
Create and keep a document in word form	0	2.2	5.4	28.3	64.1	4.54	0.702
Keep a document as a webpage	15.2	21.7	32.7	16.3	14.1	2.92	1.251
Cut copy and paste texts.	0	1.1	16.3	19.6	63.0	4.45	0.803
Change texts color,sizes and font	0	1.1	18.5	26.1	54.3	4.34	0.816
formatting, indentation, dan alignment.	2.2	6.5	21.7	27.2	42.4	4.01	1.053
Change margins and tabs	1.1	8.7	14.1	23.9	52.2	4.17	1.044
Create a table	0	0	15.2	25.0	59.8	4.45	0.747
insert and delete row or column in the standard table	0	0	8.7	31.5	59.8	4.51	0.655
Create a table in texts	0	0	6.5	34.8	58.7	4.52	0.620
Merge and split cells in a table.	1.1	5.4	12.0	33.7	47.8	4.22	0.936
Uses border lines in organizing a table	0	1.1	20.6	26.1	52.2	4.29	0.833
Create bulleted and numbered list.	1.1	6.5	17.4	27.2	47.8	4.14	1.001
Change symbols/image of bullets.	1.1	8.7	20.6	26.1	43.5	4.02	1.048
Create multi-level list.	9.8	16.2	27.2	27.2	19.6	3.30	1.238
Create multi-column document	9.8	20.7	28.1	20.7	20.7	3.22	1.265
Create column in layout format.	5.4	14.2	22.8	27.2	30.4	3.63	1.211
Insert header and footer in a document.	3.3	9.8	11.0	28.1	47.8	4.08	1.131
Create header dan footer that includes no of pages and date.	9.8	10.9	7.6	25.0	46.7	3.88	1.366

Total mean score = 4.0509 Standard deviation = 0.73442

Table 8 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – word processing. As a result the statement "I am skillful in create and keep a document in word form" recorded the highest mean score of 4.54 (64.1percent-really know). For the statement, "I am skillful in keeping a document into webpage" recorded the lowest mean score of 2.92 (14.1percent-really know and 15.2percent- does not know). As a whole, we can see that the total mean score is 4.0509 with standard deviation of 0.73442.

Table 9: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Electronic interface

(n =92)

I am skillful in	Do not know 1 2	3	Really know 4 5	**MEAN**	**SD**

Save worksheet as webpage	17.4	14.1	33.7	17.4	17.4	3.03	1.313
Create workbook	17.4	15.2	35.9	17.4	14.1	2.96	1.266
Switch from worksheet to another	8.7	16.2	34.8	12.0	28.3	3.35	1.288
Create multiple wotksheet in a workbook	16.3	18.5	33.7	15.2	16.3	2.97	1.288
copy, cut and paste from other destination to another	2.2	8.7	16.2	27.2	45.7	4.05	1.083
Create various data (text, currency, dates, numbers)	13.0	17.4	19.6	27.2	22.8	3.29	1.347
Selecting suitable data to create formulas	14.1	21.8	35.9	13.0	15.2	2.93	1.239
Selecting suitable data to create graft or chart	9.8	18.4	35.9	20.7	15.2	3.13	1.179
Selecting suitable data to print	8.7	15.2	23.9	23.9	28.3	3.48	1.288
create, edit, and delete formulas in single worksheet	9.8	17.4	28.3	23.9	20.7	3.28	1.252
create, edit, and delete formulas in multiple worksheet.	15.2	17.4	29.4	21.7	16.3	3.07	1.291
using conditional statement in formulas.	17.4	20.6	37.0	12.0	13.0	2.83	1.237
Create charts and grafts using at least four variables	12.0	23.9	33.7	13.0	17.4	3.00	1.249
Change information of charts and grafts (legend, color, titles, captioned)	12.0	22.8	32.6	18.5	14.1	3.00	1.213
edit and delete charts dan graft.	8.7	19.6	23.9	25.0	22.8	3.34	1.269
Create header and footer to be print	4.3	17.4	20.7	27.2	30.4	3.62	1.212
change margins and page orientation to be print.	4.3	10.9	18.5	33.7	32.6	3.79	1.144
Change width or height of columns or row	2.2	8.7	17.4	34.7	37.0	3.96	1.047
Adjusting width or height of cell according to the content	5.4	12.0	21.7	29.3	31.5	3.70	1.193

Total mean score = 3.3293 Standard Deviation = 0.99206

Table 9 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – electronic interface. As a result the statement "I am skillful in copy, cut and paste from other destination to another" recorded the highest mean score of 4.05 (45.7percent-really know and 2.2percent-does not know). For the statement, "I am skillful in using conditional statement in formula" recorded the lowest mean score of 2.83 (13.0percent-really know and 17.4percent- does not know). As a whole, we can see that the total mean score is 3.3293 with standard deviation of 0.99206.

Table 10: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Database

I am skillful in	Do not know			Really know		**MEAN**	**SD**
	1	2	3	4	5		
Create database	27.2	18.5	23.9	18.4	12.0	2.70	1.365
rename, create, and delete tables.	3.3	16.3	18.4	27.2	34.8	3.74	1.194
determine field in table.	12.0	16.3	28.3	26.0	17.4	3.21	1.254

insert data into table through data entry and through external data source.	16.3	22.8	29.4	13.0	18.5	2.95	1.329
sort and index table.	12.0	26.0	25.0	20.7	16.3	3.03	1.271
create, rename, and delete forms.	12.0	21.7	25.0	16.3	25.0	3.21	1.355
create form using wizards form.	17.4	20.7	27.1	17.4	17.4	2.97	1.338
create, rename, and delete reports.	19.6	9.8	28.4	22.8	19.6	3.13	1.377
create report using wizards form.	19.6	18.5	31.5	13.0	17.4	2.90	1.343
Using formula in reports.	20.7	19.6	30.4	16.3	13.0	2.82	1.300

Total mean score = 3.0641 Standard Deviation = 1.15021

Table 10 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – electronic interface. As a result the statement "I am skillful in rename, create and delete tables" recorded the highest mean score of 3.74 (34.8percent-really know and 3.3percent-does not know). For the statement, "I am skillful in creating database" recorded the lowest mean score of 2.70 (12.0percent-really know and 27.2percent- does not know). As a whole, we can see that the total mean score is 3.0641 with standard deviation of 1.15021

Table 11: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Presentation

I am skillful in	Do not 1	know 2	3	Really 4	know 5	**Mean**	**Sd**
create, copy, move, and delete slides	6.5	12.0	22.8	26.1	32.6	3.66	1.234
Determine the layout for the slides	6.5	13.0	27.2	34.8	18.5	3.46	1.133
create color scheme.	10.9	15.2	15.2	33.7	25.0	3.47	1.313
insert texts into slides.	5.4	10.9	22.8	37.0	23.9	3.63	1.126
create slide notes.	10.9	15.2	19.5	33.7	20.7	3.38	1.274
insert object into slides.	6.5	17.4	20.7	32.6	22.8	3.48	1.209
insert transition and effects into slides.	13.0	13.0	20.7	35.9	17.4	3.32	1.275
Change slides oreintation.	10.9	16.2	20.7	33.7	18.5	3.33	1.259
Create presentation handouts.	7.6	19.6	20.7	22.8	29.3	3.47	1.305
Create portable presentation package.	13.0	25.0	23.9	23.9	14.2	3.01	1.262
Save presentation as web page.	17.4	27.2	19.6	28.2	7.6	2.82	1.240

Total mean score = 3.3646 Standard Deviation = 1.08670

Table 11 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – presentation. As a result the statement "I am skillful in create, copy and delete slides" recorded the highest mean score of 3.66 (32.6percent-really know and 6.5percent-does not know). For the statement, "I am skillful in keeping a slideshows as webpage" recorded the lowest mean score of 2.82 (7.6percent-really know and 17.4percent- does not know). As a whole, we can see that the total mean score is 3.3646 with standard deviation of 1.08670

Table 12: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – Internet
(n = 92)

I am skillful in	Do not know 1	2	3	Really know 4	5	**MEAN**	**SD**
Connecting to FTP server	20.7	30.4	29.3	14.2	5.4	2.53	1.133
transfer files from remote server	25.0	29.3	26.1	14.1	5.4	2.46	1.171
Create new messages	23.9	23.9	23.9	20.7	7.6	2.64	1.263
Attach files to messages.	21.7	21.7	34.8	12.0	9.8	2.66	1.225
Send messages to multiple addresses	21.7	22.8	27.3	23.9	4.3	2.66	1.189
Reply and forward messages.	21.7	23.9	23.9	17.5	13.0	2.76	1.329
Arrange messages according to folders	22.8	21.7	26.2	21.7	7.6	2.70	1.256
create, edit, and delete email addresses.	21.7	8.7	34.8	16.3	18.5	3.01	1.371
Use list server mailing list	27.2	21.7	29.4	14.1	7.6	2.53	1.244
open web addresses.	7.6	7.6	31.5	19.6	33.7	3.64	1.237
save web page contents.	15.2	14.1	31.5	19.6	19.6	3.14	1.314
Create bookmarks.	20.7	17.4	34.8	21.7	5.4	2.74	1.175
Save object available on the webpage	23.9	13.0	39.2	14.1	9.8	2.73	1.250
copy, paste information from web page	16.3	20.7	27.1	17.4	18.5	3.01	1.338
Print webpage content	15.2	17.4	28.3	21.7	17.4	3.09	1.306
install browser extensions and plug-ins.	34.8	14.1	31.6	15.2	4.3	2.40	1.232

Total mean score = 2.7746 Standard Deviation = 1.06840

Table 12 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – internet. As a result the statement "I am skillful in accessing web addresses" recorded the highest mean score of 3.64 (33.7percent-really know and 7.6percent-does not know). For the statement, "I am skillful in installing web browser extention and plug-ins" recorded the lowest mean score of 2.40 (4.3percent-really know and 34.8percent- does not know). As a whole, we can see that the total mean score is 2.7746 with standard deviation of 1.06840.

Table 13: Respondents' Distribution according to percentage, mean and standard deviation of

Information Technology and communications – Communication technology
(n = 92)

I am skillful in	Do not know 1	2	3	4	Really know 5	Mean	Sd
Using computer	0	4.3	22.9	26.1	46.7	4.15	0.925
Using fax machine	8.7	12.0	29.3	23.9	26.1	3.47	1.244
Using digital camera	9.8	8.7	22.8	31.5	27.2	3.58	1.251
Using printer	0	4.3	18.5	28.3	48.9	4.22	0.900
Using scanner	3.3	13.0	25.0	26.1	32.6	3.72	1.151
Using CD-ROM	4.3	14.1	27.2	18.5	35.9	3.67	1.223
Using CD-writer	7.6	16.3	28.3	19.6	28.3	3.45	1.270
Using DVD	6.5	16.3	25.0	19.6	32.6	3.55	1.278
Using video conference	21.7	23.9	31.6	13.0	9.8	2.65	1.235
Using projector	1.1	16.3	23.9	19.6	39.1	3.79	1.163

Total mean score = 3.6250 Standard Deviation = 0.90197

Table 13 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications – communication technology. As a result the statement "I am skillful in using printer" recorded the highest mean score of 4.22 (48.9percent-really know and 0.0percent-does not know). For the statement, "I am skillful in using video conference" recorded the lowest mean score of 2.65 (9.8percent-really know and 21.7percent- does not know). As a whole, we can see that the total mean score is 3.6250 with standard deviation of 0.90197.

Table 14: Respondents' Distribution according to percentage, mean and standard deviation of Information Technology and communications – all elements
(n = 92)

No.	Elements	Mean	Sd
1.	Word processing	4.0509	0.73442
2.	Electronic Interface	3.3293	0.99206
3.	Database	3.0641	1.15021
4.	Presentation	3.3646	1.08670
5.	Internet	2.7746	1.06840
6.	Communication Technology	3.6250	0.90197

Total mean score = 3.3681 Standard Deviation = 0.86562

Table 14 shows the respondent's distribution according to percentage, mean and standard deviation of Information technology and Communications of all the elements involved. As a result "word processing" recorded the highest mean score of 4.0509 with standard deviation of 0.79821. For the rest of the elements, the mean score are as followed Electronic Interface (3.3293), Database (3.0641), Presentation (3.0127),

Internet (2.7746) and Communication technology (3.6250). As a whole the total mean score is 3.3681 with standard deviation of 0.86562 which has shown that the knowledge that has been mastered by the respondents is at intermediate level.

Table 15: Respondents' Distribution according to percentage, mean and standard deviation of the application of Information Communication Technology (ICT) in Teaching and Learning (T&L) (n =92)

Statement	Sd	D	Ud	A	Sa	**Mean**	**Sd**
ICT is a common thing around me.	1.1	4.3	5.4	66.4	22.8	4.05	0.747
ICT helps preventing errors in teaching and learning once implemented	1.1	9.8	18.4	62.0	8.7	3.67	0.813
ICT boost T&L processes	0	2.2	9.8	53.3	34.8	4.21	0.704
ICT can be used in teaching	0	1.1	8.7	46.6	43.5	4.33	0.681
ICT can be used in learning	0	1.1	8.7	46.6	43.5	4.33	0.681
Having a personal laptop helps me in teaching and learning	2.2	2.2	7.6	42.3	45.7	4.27	0.866

Total mean score = 4.1431 Standard Deviation = 0.53142
SD = Strongly Disagree, D = Disagree, UD = Undecided, A = Agree, SA = Strongly Agree

Table 15 shows the respondent's distribution according to percentage, mean and standard deviation of the application of Information Communication Technology (ICT) in Teaching and Learning (T&L). As a result the statement "Information Communication and Technology can be applied in teaching" and "Information Communication and Technology can be applied in learning" recorded the highest mean score of 4.33 (43.5percent-strongly agree, 46.6percent-agree, 8.7percent-undecided, 1.1percent- disagree and none-strongly disagree). For the statement, "ICT helps preventing errors in teaching and learning once implemented" recorded the lowest mean score of 3.67 (8.7percent-strongly agree, 62percent- agree, 18.4percent-undecided, 9.8percent-disagree and 1.1percent-strongly disagree). As a whole, we can see that the total mean score is 4.1431 with standard deviation of 0.53142 has shown that the respondents' mastery level towards ICT in teaching and learning is at high level.

Table 16: Respondents' Distribution according to percentage, mean and standard deviation of determination of the utilization of the Information Communication Technology (ICT) in Teaching and Learning (T&L)
(n =92)

Statement	SD	D	UD	A	SA	Mean	Sd
I am convince can do better with ICT	0	4.3	8.7	57.7	29.3	4.12	0.739
I am an individual that can utilize ICT in T&L superbly	1.1	4.3	20.7	53.2	20.7	3.88	0.823
I am convince in learning to utilize ICT in my T&L	0	5.4	13.0	49.0	32.6	4.09	0.821
I felt that the use of ICT does not burden me in my T&L	0	6.5	12.0	47.8	33.7	4.09	0.847
I am convince will be given great marks if ICT test is given to me	3.3	6.5	30.4	39.1	20.7	3.67	0.985
I am able to conduct ICT program	3.3	20.7	22.8	41.2	12.0	3.38	1.047
I am capable of using ICT in T&L	2.2	2.2	15.2	59.6	20.8	3.95	0.803

Total mean score = 3.8820 Standard Deviation = 0.70069
SD = Strongly Disagree, D = Disagree, UD = Undecided, A = Agree, SA = Strongly Agree

Table 16 shows the respondent's distribution according to percentage, mean and standard deviation of the determination of the utilization of the Information Communication Technology (ICT) in Teaching and Learning (T&L). As a result the statement "Iam convince to do better with the ICT" recorded the highest mean score of 4.12 (29.3percent-strongly agree, 57.7percent-agree, 8.7percent-undecided, 4.3percent-disagree and none-strongly disagree). For the statement, "ICT helps preventing errors in teaching and learning once implemented" recorded the lowest mean score of 3.67 (8.7percent-strongly agree, 62percent-agree, 18.4percent-undecided, 9.8percent-disagree and 1.1percent-strongly disagree). As a whole, we can see that the total mean score is 4.1431 with standard deviation of 0.53142 has shown that the respondents' mastery level towards ICT in teaching and learning is at high level.

Analysis Preparation Level of Using Information Communication and Technology in Teaching and Learning

Table 17: Respondent's Preparation Level of Using Information Communication And Technology in Teaching and Learning

No.	Aspect	Mean	Level
1.	Knowledge	3.5039	Moderate
2.	Skills	3.3681	Moderate
3.	Attitude	4.1431	High
4.	Confidence	3.8820	High

Overall Score Mean = 3.7243 Preparation Level = High

Table 17 showed that the respondent's preparation level using Information Communication and Technology in teaching and learning. The most dominant aspect was attitude where the mean was 4.1431. These were followed by aspect confidence (3.8820), knowledge (3.5039) and skills (3.3681). Overall, analysis showed that preparation level of using Information Communication and Technology was at high level where the overall score mean was 3.7243.

Analysis Difference Preparation Level of Using Information Communication and Technology in Teaching and Learning with Respondent's Demography

Table 18: Difference Preparation Level of Using Information Communication and Technology in Teaching and Learning with Respondent's Gender

(n =92)

	No.	Mean	SD	df	t	Significant
Male	51	3.7686	0.58265	90	0.788	0.432
Female	41	3.6692	0.62372			

* Significant at the .05 level

Table 18 showed that no significant difference among the preparation level of using Information Communication and Technology in Teaching and Learning with respondent's gender. Values mean for male respondents were 3.7686, while for female respondents were 3.6692. Finding of the study also showed that value t was 0.788 and value significant was 0.432 which more than 0.05. Hence, this hypothesis noel was accepted.

Table 19: Difference Preparation Level of Using Information Communication and Technology in Teaching and Learning with Respondent's Age

(n =92)

	df	Mean	F	Significant
Between Groups	26	0.310	0.816	0.712
Within Groups	65	0.380		

* Significant at the .05 level

Table 19 showed that no significant difference among the preparation level of using Information Communication and Technology in Teaching and Learning with respondent's age where the value significant was 0.712 which more than 0.05. Hence, this hypothesis noel was accepted. Value mean for between groups was 0.310 and value mean for within groups was 0.380.

Table 20: Difference Preparation Level of Using Information Communication and Technology in Teaching and Learning with Respondent's Highest Academic Qualification

(n =92)

	df	Mean	F	Significant
Between Groups	2	0.390	1.085	0.342
Within Groups	89	0.359		

* Significant at the .05 level

Table 20 showed that value mean for between groups was 0.390 and value mean for within groups was 0.359. Finding of the study also showed that no significant difference among the preparation level of using Information Communication and Technology in Teaching and Learning with respondent's highest academic qualification where the value significant was 0.342 which more than 0.05. Hence, this hypothesis noel was accepted.

Table 21: Difference Preparation Level of Using Information Communication and Technology in Teaching and Learning with Respondent's Stream

(n =92)

	df	Mean	F	Significant

Between Groups	2	0.223	0.614	0.544
Within Groups	89	0.363		

* Significant at the .05 level

Table 21 showed that no significant difference among the preparation level of using Information Communication and Technology in Teaching and Learning with respondent's stream where the value significant was 0.544 which more than 0.05. Hence, this hypothesis noel was accepted. Value mean for between groups was 0.223 and value mean for within groups was 0.363.

Table 22: Difference Preparation Level of Using Information Communication and Technology in Teaching and Learning with Respondent's Experience in Using Computer
(n =92)

	df	**Mean**	**F**	**Significant**
Between Groups	15	0.547	1.694	0.070
Within Groups	76	0.323		

* Significant at the .05 level

Table 22 showed that value mean for between groups was 0.547 and value mean for within groups was 0.323. Finding of the study also showed that no significant difference among the preparation level of using Information Communication and Technology in Teaching and Learning with respondent's experience in using computer where the value significant was 0.070 which more than 0.05. Hence, this hypothesis noel was accepted.

Table 23: Difference Preparation Level of Using Information Communication and Technology in Teaching and Learning with Respondent's Frequency in Using Computer
(n =92)

	df	**Mean**	**F**	**Significant**
Between Groups	7	1.122	3.786	0.001
Within Groups	84	0.296		

* Significant at the .05 level

Table 23 showed that have significant difference among the preparation level of using Information Communication and Technology in Teaching and Learning with respondent's frequency in using computer where the value significant was 0.001 which less than 0.05. Hence, this hypothesis noel was rejected. Value mean for between groups was 1.122 and value mean for within groups was 0.296.

Table 24: Difference Preparation Level of Using Information Communication and Technology in Teaching and Learning with Respondent's Participating Information Communication and Technology Course
(n =92)

	No.	**Mean**	**SD**	**df**	**t**	**Significant**
Yes	56	3.7985	0.57879	90	1.490	0.140
No	36	3.6088	0.62212			

* Significant at the .05 level

Table 24 showed that no significant difference among the preparation level of using Information Communication and Technology in Teaching and Learning with respondent's participating Information Communication and Technology course. Finding of the study also showed that value t was 1.490 and value significant was 0.140 which more than 0.05. Hence, this hypothesis noel was accepted.

Table 25: Difference Preparation Level of Using Information Communication and Technology in Teaching and Learning with Respondent's Computer Ownership

(n =92)

	No.	**Mean**	**SD**	**df**	**t**	**Significant**
Yes	84	3.7897	0.54376	90	3.608	0.001
No	8	3.0369	0.76341			

* Significant at the .05 level

Table 13 showed that have significant difference among the preparation level of using Information Communication and Technology in Teaching and Learning with respondent's computer ownership because value significant was 0.001 which less than 0.05. Hence, this hypothesis noel was rejected. Finding of the study also showed that value t was 3.608.

Discussion

The finding of this study showed that respondent only at moderate level in mastering knowledge and skills of Information Communication and Technology. Respondent's Information Communication and Technology knowledge and skills were same in level because both the aspects were related each other. It can prove by the mean of each aspect. In aspect of attitude towards using Information Communication and Technology in teaching and learning founded that respondents have positive attitude. Respondents also have high level in confidence towards using Information Communication and Technology in teaching and learning.

Even though knowledge and skills in Information Communication and Technology of the respondents in moderate level but it can improve through education programmed or training in the future. This is because positive attitude and confidence were the aspect which can influence preparation of individual towards using Information Communication and Technology in teaching and learning. Overall, the preparation of technical teachers towards using Information Communication and Technology in teaching and learning was at high level.

The findings of this study also showed that the preparation level of using Information Communication and Technology in teaching and learning have significant difference with frequency in using computer and computer ownership. Whenever, there were no significant difference among the level of preparation with respondent's gender, age, highest academic qualification, stream, experience in using computer and participating Information Communication and Technology course.

Conclusion

The finding of this study showed that respondents have high level in preparation of using Information Communication and Technology in teaching and learning. In opinion of researcher, it was normal for the technical teachers that should have high level in preparation. This is because teachers were the main media in planning teaching and learning activities with using Information Communication and Technology to improve effectiveness of teaching and learning process. Hence, teachers should always prepare themselves

to integrate Information Communication and Technology in teaching and learning to make their students intelligent in Information Communication and Technology.

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