DEVELOPMENT OF INFORMATION TECHNOLOGY COMPETENCIES FOR ADMINISTRATIVE SUPPORT STAFF IN NETWORKED ORGANIZATIONS IN MALAYSIA

Feridah Binti Mohd. Nadzar

Perpustakaan Universiti Malaya
A510841093

A Thesis Submitted to the Faculty of Education,
University of Malaya in Fulfillment of the
Requirements for the Degree of Doctor
of Philosophy in Education

2003

ABSTRACT

The purpose of this study was to investigate, identify and validate information technology competencies required of administrative support staff working in networked organizations in Malaysia. The respondents in this study were administrative support staff with a job title classification of stenographer, secretary, executive secretary, executive assistant, and administrative assistant employed in medium to large, networked organizations from the service sector in Klang Valley, Malaysia. Data were gathered through the Information Technology Competency Questionnaire (ITCQ) initially developed through a review of available literature and validated by a 14-member panel of experts using the 3-round Modified Delphi Technique approach. 545 administrative support staff from 250 medium to large service networked organizations were surveyed with a response rate of 62%.

Results of the study found that the tasks most often performed and IT competencies required were related to the traditional function of administrative support staff. These tasks were associated with the competency categories of word processing, communications, manage files and records, basic computer maintenance, security and troubleshooting, perform financial functions and monitor activities and events. There was an indication, however, that administrative support staff were beginning to carry out tasks associated with the use of newer and complex technologies. These tasks included Internet research, presentation and desktop publishing. The tasks associated with developing a Web page

was never performed by respondents in this study. However, all the tasks and related IT competencies were perceived as important in the work of administrative support staff.

Respondents were proficient in performing tasks related to word processing and communications, but rated their competency as marginal for the tasks of presentation, desktop publishing and develop Web page. Areas that needed additional capability in IT was determined through mean weighted discrepancy scores. The study indicated that respondents required additional capabilities in areas related to word processing, create Web page, presentation and manage database.

Significant differences found in task performance, task importance and competency across level of education, age group, job title, years in current position, related work experience and years of computer use can be used as factors in designing, developing and upgrading programs that meet the needs of administrative support staff as a "one size fits all" training is not effective. The findings justify the need for continuous professional development and lifelong learning for administrative support staff who are employed in an ever-changing workplace.

Significant positive relationships between perceptions of task importance and task performance for all competency categories indicate that all the tasks and related IT competencies are perceived as important to administrative support staff. The level of performance for some tasks and related IT competencies may be lower but does not indicate less importance. The results of this study further strengthens the case for including all the tasks and related IT competencies from this study in a curriculum for students wishing to embark on an office management career. It is also recommended that the findings of significant differences in task performance and ability across several demographic variables be used in developing national occupational skill standards for administrative support jobs.

Pembangunan Kecekapan Teknologi Maklumat untuk Staf Sokongan Pentadbiran di dalam Organisasi Berangkaian di Malaysia

ABSTRAK

Kajian ini bertujuan untuk mengkajisiasat, mengenalpasti dan mengesahkan kecekapan teknologi maklumat yang diperlukan oleh staf sokongan pentadbiran yang bekerja di dalam organisasi berangkaian di Malaysia. Responden kajian terdiri daripada staf sokongan pentadbiran yang berjawatan jurutrengkas, setiausaha, setiausaha eksekutif, penolong eksekutif dan pembantu pentadbiran yang bekerja di dalam organisasi berangkaian sederhana dan besar dari sektor perkhidmatan di Lembah Klang, Malaysia. Data dikumpulkan melalui "Information Technology Competency Questionnaire" yang dibina daripada tinjauan literatur dan disahkan oleh satu panel 14 orang pakar menerusi kaedah 3 pusingan Delphi yang diubahsuai. Sebanyak 545 soalselidik telah diedarkan kepada staf sokongan pentadbiran di 250 organisasi berangkaian sederhana dan besar dengan kadar respon sebanyak 62%.

Kajian mendapati bahawa tugas yang kerap dilakukan dan kecekapan teknologi maklumat yang diperlukan berkaitan dengan fungsi tradisi staf sokongan pentadbiran. Tugas-tugas ini berkaitan dengan kategori pemerosesan perkataan, komunikasi, pengurusan fail dan rekod, penyelenggaraan asas komputer dan keselamatan, menjalankan fungsi kewangan, dan memantau acara dan aktiviti. Kajian menunjukkan bahawa staf sokongan pentadbiran telah mula melakukan kerja yang melibatkan teknologi baru dan kompleks seperti penyelidikan Internet, persembahan dan penerbitan desktop. Manakala tugas yang tidak pernah dilakukan ialah mencipta laman Web. Bagaimanapun responden berpendapat bahawa semua tugas adalah penting.

Dapatan kajian menunjukkan bahawa responden "Mahir" di dalam pemprosesan perkataan dan komunikasi tetapi menilai kecekapan mereka sebagai "Marginal" untuk kategori penerbitan desktop dan mencipta laman Web. Latihan tambahan yang diperlukan telah dipastikan melalui kaedah purata skor selisih dengan pemberat (Mean Weighted Discrepancy Score). Hasil kajian mendapati responden perlukan latihan tambahan di dalam pemprosesan perkataan, penciptaan laman Web, persembahan dan pengurusan pengkalan data.

Kajian juga mendapati perbezaan yang signifikan dalam perlakuan tugas, kepentingan tugas dan kecekapan antara peringkat pendidikan, kumpulan umur, jawatan, pengalaman di dalam jawatan semasa, pengalaman kerja yang berkaitan dan tempoh penggunaan komputer. Dapatan ini boleh digunakan untuk merekabentuk, membina dan mempertingkatkan program yang dapat memenuhi keperluan yang berbeza di kalangan staf sokongan pentadbiran. Hasil kajian ini mengukuhkan lagi keperluan untuk pembangunan profesional dan pembelajaran berterusan di kalangan staf sokongan pentadbiran yang bertugas di dalam tempat kerja yang sentiasa berubah.

Kajian mendapati bahawa terdapat hubungan positif yang signifikan antara kepentingan tugas dengan perlakuan tugas untuk semua kategori kecekapan. Ini menandakan bahawa kesemua tugas dan kecekapan IT berkaitan adalah dianggap mustahak kepada staf sokongan pentadbiran. Peringkat perlakuan untuk beberapa tugas mungkin rendah tetapi tidak menandakan kurang mustahak. Hasil kajian ini mengukuhkan lagi bahawa kesemua tugas dan kecekapan IT daripada kajian ini mestilah dimuatkan di dalam kurikulum untuk pelajar-pelajar yang berhajat menceburi kerjaya pengurusan pejabat Adalah dicadangkan agar dapatan signifikan dalam perlakuan tugas dan kecekapan antara peringkat pendidikan dan jawatan digunakan untuk membangunkan Standard Kemahiran Pekerjaan Kebangsaan bagi jawatan staf sokongan pentadbiran.

ACKNOWLEDGEMENTS

The completion of this study would not have been possible if not for the valuable contribution and encouragement of many individuals. Above all, I thank the All Mighty for giving me the strength and commitment to continue in this endeavor.

I am most grateful to my supervisor, Associate Professor Dr. Saedah Hj. Siraj who strongly believed in this academic undertaking and provided the unwavering support and guidance in the research that was carried out. My sincere appreciation and gratitude to my co-supervisor, Associate Professor Dr. Mogana Dhamotharan, whose positive support and brilliant suggestions came just at the right time to keep the work moving forward.

To my friends and colleagues, who knew when and when not to ask regarding my progress and whose support came whenever needed, I am thankful. I am blessed to have my parents, Haji Mohd. Nadzar Shariff and Hajah Zaleha Jamil, who are a source of inspiration and who were responsible for my choosing University of Malaya as a place of study. To my children, Fatimatuzzahrah, Siti Maimunah, and Khairuddin, may this piece of work inspire you to achieve greater heights in life. Last but not least, to my husband Associate Professor Haji Jamaluddin Che Sab without whose encouragement, patience and support this endeavor would not have been possible.

Feridah Mohd. Nadzar
Faculty of Education, University Malaya
Kuala Lumpur
2003

CONTENTS

		Page
ABSTRACT		ii
ABSTRAK		iv
ACKNOWLEDGEMENTS		vi
LIST OF TABLES		xiii
LIST OF FIGURES		xvi
CHAPTER		
1.	INTRODUCTION	1
	Statement of the Problem	5
	Rationale of Study	7
	Purpose of the Study	9
	Need for Study	10
	Research Objectives	11
	Research Questions	12
	Conceptual Framework	17
	Systematic Curriculum and Instructional Development (SCID)	18
	Competencies as curriculum content	21
	Analyses of job tasks for curriculum content	22
	Delimitations/Limitations of the Study	29
	Definition of Terms	32
2.	LITERATURE REVIEW	36
	Definition of Information Technology	37
	Computing technology—from military use to business use	37
	Telecommunications technology and computing power creates the networked organization	39
	Office technologies and computing power	40

Information Technology Competency 44
Definition of information technology competency 44
Development of competency standards 49
National Occupational Skill Standard (NOSS) 51
Secretary's Commission on Achieving Necessary Standards (SCANS) 53

Competencies of Administrative Support Staff 56
Office competencies and related IT competencies 56

Skills Required by Employers in the Workplace 60
Workplace or general competencies 60
Computer competencies 63
Competency in using major software and network applications 63
Competency in keyboarding 66

Impact of Information Technology on the Secretarial Career Profile 68
Skill Twist—Displacement of old skills with new ones 70
Deskilling—Technology reduces level of skills required 74
Upskilling—Increases the level of skills required 75
Opportunities for promotion from administrative to operative levels of management 77

Developmental Training for Career Progression 79

Emerging Trends in Learning Technologies 81
Use of Intranet for training 83

Related Methodological Studies 85

3. RESEARCH METHODOLOGY 91

Sampling Plan 92

Sampling Technique 95

Sample Size 96

Unit of Analysis 98
The respondents 98

Survey Return Rate 99

Data Collection 100

Development of the Instrument 100
Initial development 101
Modified Three-Round Delphi Technique: Content validity 102
Delphi Technique Round 1 106
Delphi Technique Round 2 108

Delphi Technique Round 3 109
Delphi Technique data analysis 110
Consensus of items 111
Comments for rating outside the majority response 115

Survey Instrument 115
Information Technology Competency Questionnaire (ITCQ) 115

Pilot Test 122

Validity and Reliability of ITCQ 123

Data Analysis 124
Types of Errors 127

4. FINDINGS 128

Profile of Respondents 129
Nature of business 130
Job title 131
Age group 134
Work experience 134
Years in current position 135
Years of computer use 136
IT training in the past year 136
Prior IT training 137
Preference for IT training 137
Method of learning IT 138
Learned computer skills 139

Task Performance of Competency Categories and Related IT Competencies 140
Ranking of overall mean score task performance for competency categories 140
Frequency distribution for performance of tasks and its related IT competencies 141

Task Importance of Competency Categories and Related IT Competencies 148
Ranking for overall mean score task importance of competency categories 148
Frequency distribution for perceived tasks importance and its related IT competencies 149

Self-Rated Ability in Performance of Tasks and Related IT Competencies 155
Frequency distribution for respondent's self-rated ability 156

Determine Priority Areas for Training in IT 162

Significant Differences in Mean Score Task Performance Across Demographic and Situational Variables 165

Significant Differences in Mean Score Task Importance Across Demographic and Situational Variables 183

Significant Differences in Mean Score Task Ability Across Demographic and Situational Variables 198

Relationship Between Mean Score Task Importance and Mean Score Task Performance 221

5. DISCUSSION OF FINDINGS 225

Demographic Profile of Respondents 225

Task Performance of Competency Categories and Related IT Competencies 227

Task Importance of Competency Categories and Related IT Competencies 233

Self-Rated Task Ability of Competency Categories and Related IT Competencies 237

IT Competencies that Require Additional Training 240

Significant Differences in Mean Score Task Performance across Demographic/ Situational Variables 243

Significant Differences in Mean Score Task Importance across Demographic/ Situational Variables 247

Significant Differences in Mean Score Task Ability across Demographic/ Situational Variables 248

Relationship between Perceptions of Task Importance and Task Performance 250

6. CONCLUSIONS AND RECOMMENDATIONS 253

Conclusions 253

Recommendations 257
- Recommendations for future research 257
- Recommendations for Office Educators 259
- Recommendations for Trainers 261
- Recommendations for Management 262

REFERENCES 264

APPENDICES

A	Letter of request to human resource managers	293
B	Cover letter to respondents	299
C	First follow-up letter to respondents	300
D	Information Technology Competency Questionnaire	301
E	Letter inviting experts to serve on Delphi panel	308
F	Letter to Delphi panel of experts and round 1 list of task/competency	310
G	Additional tasks and IT competencies generated from round 1 Delphi technique	318
H	Cover letter and the round 2 list of IT competencies	320
I	Cover letter and the round 3 list of IT competencies	340
J	Results for Delphi technique rounds 1, 2 and 3	350
K	Reasons for rating outside majority response Delphi panel of experts	356
L	Permission to use and adapt questionnaire from Dr. Brenda Erickson	358
M	Ranking of mean weighted discrepancy scores for IT competencies needed by respondents	359
N	Means and standard deviations for performance of task competency categories across age group of respondents	361
O	Means plot: Mean score task ability according to age group of respondents	362
P	Other comments made by respondents in the survey	363
Q	Permission to reproduce computer competencies from Western Illinois University	367
R	Permission to adapt competencies from Dr. Beryl McEwen	368

S Permission to reproduce and adapt the SCID model from Dr. Robert Norton 369

T Permission to reproduce figure from Dr. Philip Craiger 370

LIST OF TABLES

Table		Page
1.1	A Summary of Research Questions, Hypotheses, Type of Scale and Statistical Test	14
3.2	Occupational Group – Delphi Panel of Experts	106
3.3	IT Competencies Required for Employment	110
3.4	Breakdown of IT Competencies	111
3.5	IT Competencies that Achieved High And Moderate Consensus	112
3.6	IT Competencies That Achieved No Consensus	114
3.7	Cronbach Alpha Scores for the Information Technology Competency Questionnaire (ITCQ)	124
4.8	Percentage of Respondents According to Highest Level of Education	129
4.9	Percentage of Respondents According to Nature of Business	131
4.10	Percentage of Respondents According to Job Title	132
4.11	Breakdown of Job Titles According to Business Sectors	133
4.12	Percentage of Respondents According to Age Group	134
4.13	Percentage of Respondents According to Years of Work Experience	135
4.14	Percentage of Respondents According to Years in Current Position	135
4.15	Percentage of Respondents According to Years of Computer Use in the Workplace	136
4.16	Percentage of Respondents According to IT Training Attended in the Past Year	136
4.17	Percentage of Respondents According to Prior Training in IT	137
4.18	Percentage of Respondents According to Preference for IT Training	138

4.19 PERCENTAGE OF RESPONDENTS ACCORDING TO METHOD OF LEARNING IT 139

4.20 PERCENTAGE OF RESPONDENTS ACCORDING TO METHOD OF ACQUIRING IT SKILLS 139

4.21 FREQUENCY DISTRIBUTION OF TASK PERFORMANCE AND RELATED IT COMPETENCIES 142

4.22 FREQUENCY DISTRIBUTION FOR PERCEIVED IMPORTANCE OF TASKS AND RELATED IT COMPETENCIES 150

4.23 FREQUENCY DISTRIBUTION FOR RESPONDENT'S SELF-RATED ABILITY IN PERFORMANCE OF TASKS AND ITS RELATED IT COMPETENCIES 157

4.24 RANKING OF MEAN WEIGHTED DISCREPANCY SCORES (MWDS) FOR COMPETENCY CATEGORIES 163

4.25 ANALYSIS OF VARIANCE FOR MEAN SCORE TASK PERFORMANCE ACROSS RESPONDENTS LEVEL OF EDUCATION 167

4.26 ANALYSIS OF VARIANCE FOR THE MEAN SCORE TASK PERFORMANCE ACROSS THE JOB TITLE OF RESPONDENTS 170

4.27 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK PERFORMANCE ACROSS AGE GROUP OF RESPONDENTS 174

4.28 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK PERFORMANCE ACROSS RESPONDENTS YEARS IN CURRENT POSITION 177

4.29 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK PERFORMANCE ACROSS RESPONDENTS RELATED WORK EXPERIENCE 180

4.30 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK IMPORTANCE ACROSS RESPONDENTS LEVEL OF EDUCATION 184

4.31 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK IMPORTANCE ACROSS AGE GROUP OF RESPONDENTS 188

4.32 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK IMPORTANCE ACROSS RESPONDENT'S YEARS IN CURRENT POSITION 192

4.33 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK IMPORTANCE ACROSS RESPONDENTS RELATED WORK EXPERIENCE 195

4.34 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK ABILITY ACROSS RESPONDENTS LEVEL OF EDUCATION 199

4.35 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK ABILITY ACROSS JOB TITLE OF RESPONDENTS 203

4.36 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK ABILITY ACROSS THE AGE GROUP OF RESPONDENTS 208

4.37 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK ABILITY ACROSS RESPONDENT YEARS IN CURRENT POSITION 211

4.38 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK ABILITY ACROSS RELATED WORK EXPERIENCE OF RESPONDENTS 215

4.39 ANALYSIS OF VARIANCE OF THE MEAN SCORE TASK ABILITY ACROSS YEARS OF COMPUTER USE 218

4.40 RELATIONSHIP BETWEEN TASK IMPORTANCE AND TASK PERFORMANCE 222

LIST OF FIGURES

Figure		Page
1.1	SYSTEMATIC CURRICULUM AND INSTRUCTION DEVELOPMENT (SCID) MODEL MAJOR COMPONENTS	19
1.2	RESEARCH FRAMEWORK BASED ON THE SCID MODEL	21
1.3	RELATIONSHIP BETWEEN TASK IMPORTANCE AND TASK PERFORMANCE	26
1.4	THE DEVELOPMENT OF IT COMPETENCIES AMONG ADMINISTRATIVE SUPPORT STAFF IN NETWORKED ORGANIZATIONS: A FLOWCHART	28
2.5	SHIFT FROM STANDALONE PC TO WORK-GROUP COMPUTING	42
2.6	COMPUTER COMPETENCIES REQUIRED FOR GRADUATION AT WESTERN ILLINOIS UNIVERSITY	48
2.7	NATIONAL OCCUPATIONAL SKILL STANDARDS (NOSS)	52
2.8	SECRETARY'S COMMISSION ON ACHIEVING NECESSARY SKILLS (SCANS)	55
2.9	JOB FUNCTIONS AND RELATED IT COMPETENCIES FREQUENTLY NEEDED IN OFFICE SUPPORT ROLES	59
3.10	STRATIFIED RANDOM SAMPLING METHOD	96
3.11	RATING SCALE TO INDICATE LEVEL OF TASK PERFORMANCE	120
3.12	RATING SCALE TO INDICATE LEVEL OF TASK IMPORTANCE	120
3.13	RATING SCALE TO INDICATE LEVEL OF COMPETENCE IN TASK PERFORMANCE	121
4.14	RANKING OF MEAN SCORES FOR OVERALL TASK PERFORMANCE	141
4.15	RANKING OF MEAN SCORES FOR OVERALL TASK IMPORTANCE	149
4.16	RANKING OF MEAN SCORES FOR OVERALL COMPETENCE IN TASK PERFORMANCE	155
4.17	RELATIONSHIP BETWEEN TASK IMPORTANCE AND TASK PERFORMANCE	224
5.18	COMPARISON OF MEAN SCORE TASK PERFORMANCE AND MEAN SCORE TASK IMPORTANCE FOR THE 10 COMPETENCY CATEGORIES	236