

**MEDIATING EFFECT OF MANAGEMENT
INFORMATION SYSTEM ON THE RELATIONSHIP OF
WAREHOUSE ATTRIBUTES AND ITS EFFICIENCY IN
MALAYSIA'S SMALL AND MEDIUM ENTERPRISES**

ADAM BIN MOHD SAIFUDIN

**DOCTOR OF BUSINESS ADMINISTRATION
UNIVERSITI UTARA MALAYSIA**

September 2012

**MEDIATING EFFECT OF MANAGEMENT INFORMATION SYSTEM ON
THE RELATIONSHIP OF WAREHOUSE ATTRIBUTES AND ITS
EFFICIENCY IN MALAYSIA'S SMALL AND MEDIUM ENTERPRISES**

By

ADAM BIN MOHD SAIFUDIN

Dissertation Submitted to
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
In Partial Fulfilment of the Requirement for the Degree of
Doctor of Business Administration

OTHMAN YEOP ABDULLAH GRADUATE SCHOOL OF BUSINESS
Universiti Utara Malaysia



PERAKUAN KERJA TESIS / DISERTASI
(Certification of thesis / dissertation)

Kami, yang bertandatangan, memperakukan bahawa
(We, the undersigned, certify that)

ADAM BIN MOHD SAIFUDIN

calon untuk Ijazah
(candidate for the degree of)

DOCTOR OF BUSINESS ADMINISTRATION

telah mengemukakan tesis / disertasi yang bertajuk:
(has presented his/her thesis / dissertation of the following title):

**MEDIATING EFFECT OF MANAGEMENT INFORMATION SYSTEM ON THE RELATIONSHIP OF WAREHOUSE
ATTRIBUTES AND ITS EFFICIENCY IN MALAYSIA'S SMALL AND MEDIUM ENTERPRISES**

seperti yang tercatat di muka surat tajuk dan kulit tesis / disertasi.
(as it appears on the title page and front cover of the thesis / dissertation).

Bahawa tesis/disertasi tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan, sebagaimana yang ditunjukkan oleh calon dalam ujian lisan yang diadakan pada :
30 April 2012.

That the said thesis/dissertation is acceptable in form and content and displays a satisfactory knowledge of the field 30 April 2012.

Pengerusi Viva : Prof. Dr. Rosli bin Mahmood
(Chairman for Viva)

Tandatangan
(Signature)

Pemeriksa Luar : Prof. Dr. Zainal Abidin bin Mohamed
(External Examiner)

Tandatangan
(Signature)

Pemeriksa Luar : Assoc. Prof. Dr. Zafir Khan bin Mohamed Makhbul
(External Examiner)

Tandatangan
(Signature)


Tarikh: 30 April 2012
(Date)

Nama Pelajar
(Name of Student) : Adam bin Mohd Saifudin


Tajuk Tesis/Dissertation
(Title of the Thesis/ Dissertation) : Mediating Effect of Management Information System on the Relationship of Warehouse Attributes and Its Efficiency in Malaysia's Small and Medium Enterprises

Program Pengajian
(Programme of Study) : Doctor of Business Administration

Nama Penyelia/Penyelia-penyelia
(Name of Supervisor/Supervisors) : Assoc. Prof. Dr. Mohamad Basir bin Saud


Tandatangan
(Signature)

Nama Penyelia/Penyelia-penyelia
(Name of Supervisor/Supervisors) : Dr. Haim Hilman bin Abdullah


Tandatangan
(Signature)

PERMISSION TO USE

In presenting this dissertation in partial fulfilment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this dissertation in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of Othman Yeop Abdullah Graduate School of Business where I did my dissertation. It is understood that any copying or publication or use of this dissertation or parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the Universiti Utara Malaysia (UUM) in any scholarly use which may be made of any material in my dissertation.

Request for permission to copy or to make other use of materials in this dissertation in whole or in part should be addressed to:

Dean of Othman Yeop Abdullah Graduate School of Business
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman

ABSTRACT

This dissertation studies the relationship between the influential warehouse efficiency and warehousing attributes (operations, Human Capital Management or HCM, and layout), applied by the Small-Medium Enterprises (SMEs) manufacturing firms in Malaysia. These perspective research objectives are to determine whether there is any relationship between the warehousing attributes, warehouse efficiency, and warehousing Management Information System (MIS). It also examines the mediating effect of warehousing MIS in the relationship between warehousing attributes and warehouse efficiency. A quantitative method approach is applied in this research methodology. Nine hypotheses have been proposed for the research with data collected from the survey of 182 SME manufacturing firm owners in Malaysia as listed in the SME Directory 2009. The findings indicate that the warehousing MIS significantly mediates and has an effect on the warehousing attributes and their relationship with warehouse efficiency in the SME manufacturing firms. Theoretically, the research contributes to the growth development of the warehouse efficiency theories. Practically it could facilitate the owners or warehouse managers of the manufacturing firms in making the right management decisions regarding warehousing. For future research, the study recommends further exploration into the areas of security, environment, safety and health, waste management, and integrated system (International Standards Organisation or better known as ISO 9000, ISO 14000, and ISO 18000). As a conclusion, this study provides new knowledge and important insights of warehousing attributes that will benefit manufacturing firms and other related industries, particularly for SMEs in Malaysia.

Keywords: Warehouse Efficiency, Warehousing Attributes, Management Information System (MIS) and Manufacturing SMEs.

ABSTRAK

Disertasi ini mengkaji mengenai hubungan antara keberkesanan pergudangan yang berpengaruh dan atribusi pergudangan (operasi, Pengurusan Modal Insan atau PMI dan susun atur), yang digunakan oleh Perusahaan Kecil dan Sederhana (PKS) di Malaysia. Perspektif penyelidikan objektif ini adalah untuk menentukan adanya sebarang hubungan antara atribusi pergudangan, keberkesanan pergudangan dan Pengurusan Sistem Maklumat (PSI) pergudangan. Penyelidikan ini juga meneliti kesan pengantara PSI pergudangan antara hubungannya dengan atribusi pergudangan dan keberkesanan pergudangan. Kaedah kuantitatif disampaikan dalam kaedah penyelidikan ini. Sembilan hipotesis dicadangkan untuk penyelidikan ini dengan data dikutip daripada kajian ke atas tuan punya 182 syarikat pengilangan PKS di Malaysia yang disenaraikan dalam Direktori PKS 2009. Hasil kajian menunjukkan keputusan yang signifikan dalam mengantara kesan PSI pergudangan kepada atribusi pergudangan dan hubungan keberkesanan pergudangan dalam syarikat pengilangan PKS. Secara teorinya, sumbangan penyelidikan ini adalah perkembangan dalam pembangunan teori keberkesanan pergudangan. Secara praktik, ia memudahkan pemilik atau pengurus pergudangan syarikat pengilangan membuat keputusan yang betul dalam pengurusan. Bagi penyelidikan akan datang, kajian mendalam boleh dibuat dalam bidang keselamatan, alam sekitar, keselamatan dan kesihatan, pengurusan sisa, dan sistem integrasi (Pertubuhan Penstandardan Antarabangsa atau PPA, yang lebih dikenali sebagai ISO 9000, ISO 14000, dan ISO 18000). Kesimpulannya, kajian ini membekalkan pengetahuan baru dan penting pengertiannya yang akan memberikan faedah kepada syarikat pengilangan dan industri lain yang berkaitan, terutamanya untuk PKS di Malaysia.

Katakunci: Keberkesanan Pergudangan, Atribusi Pergudangan, Perusahaan Kecil dan Sederhana (PKS) dan Pengilangan PKS.

DEDICATION

Aisyah.

Thank you for your patience,

kind understanding,

unwavering love and devotion

during my difficult times.

Atiqah & Aleea.

Remember.

The deeds of your mother

are immeasurable.

ACKNOWLEDGEMENTS

Thanks to ALLAH SWT

I would like to express unreservedly my utmost gratitude to ALLAH, the most Beneficent, and the most Merciful, Whom granted my ability to start and complete this study without too many problems. I am deeply indebted to my supervisors, Associate Professor Dr. Mohammad Basir Saud and Dr. Haim Hilman Abdullah, for their encouragement throughout the whole process in preparing this thesis, right from its initial development; their unwavering support and guidance in providing the constructive comments, direction, expertise, sanguinity, and incredible kindness, all of which have increased my efficacy in accomplishing the dissertation.

I would like to thank Professor Dr. Rosli Mahmood and Azhar Ahmad, who really put an effort to make sure I actively and continuously focus on the completion of the thesis, Kamal Khalid, my close buddy without whom I would not excel in the SPSS and statistics methods, and Associate Professor Syed Soffian Syed Ismail and his wife, Associate Professor Dr. Faudziah Hanim Fadzil, whom I owe much for their kindness and efforts throughout my journey.

My special thanks also go to all my DBA lecturers, Professor Dato' Dr. Sayed Mushtaq Hussain, Professor Dr. Dawood Ali Mohamed Ali Mithani, Professor Dr. Juhary Ali, Professor Dr. Nik Kamariah Nik Mat, Professor Dr. Mohd Noor Mohd Shariff, Professor Dr. Mahamad Tayib, AP Dr. Abdullah Abdul Ghani, AP Dr. Azila Mohd Noor, AP Dr. Zolkafli Hussin, AP Dr. Hartini Ahmad, and Dr. Nor Idayu Mahat. Also my thanks to Dr. Nor Hasni Osman, who double checked my research analysis and findings, and Faisal Zulhumadi, who tirelessly did the proofreading.

I would also convey my utmost appreciation to both my examiners, Professor Dr. Zainal Abidin Mohammad and Associate Professor Dr. Mohd Zafir Mohamed Makhbul for their detailed assessment that became very educational for me.

Finally, the completion of this thesis would not have been possible without the inspirations of my family, especially my beloved wife, Aisyah, and my two daughters, Atiqah and Aleea, who, with great understanding and patience, have been there on most of my journey while preparing this dissertation.

TABLE OF CONTENTS

TITLE PAGE	i
CERTIFICATION OF DISSERTATION	ii
PERMISSION TO USE	iv
ABSTRACT	v
ABSTRAK	vi
DEDICATION	vii
ACKNOWLEDGEMENTS	viii
TABLE OF CONTENTS	ix
LIST OF TABLES	xiii
LIST OF FIGURES	xiv
LIST OF APPENDICES	xv
ABBREVIATIONS	xvi
 CHAPTER ONE: INTRODUCTION	 1
1.0 BACKGROUND OF THE STUDY	1
1.1 WAREHOUSING BY COMPETITIVENESS	2
1.1.1 Warehousing as a Dedicated Function	4
1.1.2 Operations Management and Warehousing Processes	6
1.1.3 Rationale of Study	11
1.1.4 Warehousing in Malaysian SMEs	12
1.2 PROBLEM STATEMENT	16
1.3 RESEARCH QUESTIONS	20
1.4 RESEARCH OBJECTIVES	20
1.5 OVERVIEW OF THEORETICAL FRAMEWORK	21
1.6 SIGNIFICANCE OF THE STUDY	22
1.7 SCOPE AND LIMITATION OF THE STUDY	23
1.8 ORGANISATION OF THE DISSERTATION	26
 CHAPTER TWO: LITERATURE REVIEW, THEORETICAL FRAMEWORK,AND HYPOTHESES	 27
2.0 INTRODUCTION	27
2.1 BACKGROUND OF MALAYSIAN SMEs	28
2.1.1 SME Manufacturing Performance	30
2.1.2 SME Employment Performance	30
2.1.3 Malaysia SMEs Current and Future Challenges	31
2.2 OVERVIEW ON WAREHOUSING	32
2.2.1 Warehouse Relationships with Efficiency	36
2.2.2 Warehousing Evolution	37
2.2.3 Theories Supporting Warehousing	40
2.3 WAREHOUSING OPERATIONS	42
2.3.1 Warehousing Operations Relationships with Efficiency	47
2.3.2 Theories Supporting Warehousing Operation	49
2.4 WAREHOUSING HUMAN CAPITAL MANAGEMENT (HCM)	52
2.4.1 Warehousing HCM Relationships with Efficiency	55
2.4.2 Theories Supporting Warehousing HCM	58
2.5 WAREHOUSING LAYOUT	58

2.5.1	Warehousing Layout Relationships with Efficiency	61
2.5.2	Theories Supporting Warehousing Layout	63
2.6	WAREHOUSING MANAGEMENT INFORMATION SYSTEM (MIS)	64
2.6.1	Warehousing MIS Relationships with Warehousing Operations	66
2.6.2	Warehousing MIS Relationships with Warehousing HCM	67
2.6.3	Warehousing MIS Relationships with Warehousing Layout	68
2.6.4	Warehousing MIS Relationships with Efficiency	70
2.6.5	Theories Supporting Warehousing MIS	71
2.7	WAREHOUSE EFFICIENCY	73
2.7.1	Warehouse Efficiency with Performance	74
2.7.2	Theories Supporting Warehouse Efficiency	77
2.8	UNDERPINNING THEORIES	79
2.8.1	Force Field Theory and 3-Steps Change Model	79
2.9	THEORETICAL FRAMEWORK AND HYPOTHESES	88
2.9.1	Theoretical Framework	89
2.9.2	Relationships among Warehousing Attributes	90
2.9.3	Development of Hypotheses	94
2.10	CHAPTER SUMMARY	96
CHAPTER THREE: RESEARCH METHODOLOGY		99
3.0	INTRODUCTION	99
3.1	RESEARCH DESIGN	100
3.2	POPULATION	101
3.2.1	Population of Respondents	101
3.2.2	Sample Size	103
3.3	RESEARCH INSTRUMENT AND CONSTRUCTION	105
3.4	DATA GATHERING AND ANALYSIS	107
3.4.1	Data Collection Procedure	107
3.4.2	Data Analysis Procedure	108
3.4.3	Descriptive Analysis	109
3.4.4	Non-Response Bias	110
3.4.5	Preliminary Examination of Data	111
3.4.6	Assessment of Raw Data	111
3.4.7	Assessment of Normality	113
3.4.8	Multicollinearity	115
3.5	RELIABILITY AND VALIDITY	116
3.5.1	Reliability	116
3.5.2	Pre-Test and Post Reliability of Instruments	117
3.5.3	Validity	119
3.6	CORRELATION ANALYSIS	122
3.7	MULTIPLE REGRESSION ANALYSIS	123
3.8	SOBEL TEST	124
3.9	CHAPTER SUMMARY	127

CHAPTER FOUR: FINDINGS AND DISCUSSIONS	129
4.0 OVERVIEW	129
4.1 PROFILE OF RESPONDING FIRMS IN DESCRIPTIVE ANALYSIS	129
4.1.1 Respondents' Characteristics	129
4.1.2 Profile of SME Owners	131
4.2 NON-RESPONSE BIAS	134
4.3 PEARSON CORRELATION	136
4.4 MULTIPLE LINEAR REGRESSIONS	139
4.4.1 Results and Analysis of the Variables	141
4.5 TESTING OF HYPOTHESES	142
4.5.1 Relationship between Warehousing Operations (AWO) and Warehouse Efficiency (AWE)	142
4.5.2 Relationship between Warehousing Operations (AWO) and Warehousing MIS (AMIS)	143
4.5.3 Relationship between Warehousing Operations (AWO), Warehousing MIS (AMIS), and Warehouse Efficiency (AWE)	144
4.5.4 Relationship between Warehousing HCM (AHCM) and Warehouse Efficiency (AWE)	147
4.5.5 Relationship between Warehousing HCM (AHCM) and Warehousing MIS (AMIS)	148
4.5.6 Relationship between Warehousing HCM (AHCM), Warehousing MIS (AMIS), and Warehouse Efficiency (AWE)	149
4.5.7 Relationship between Warehousing Layout (AL) and Warehouse Efficiency (AWE)	152
4.5.8 Relationship between Warehousing Layout (AL) and Warehousing MIS (AMIS)	153
4.5.9 Relationship between Warehousing Layout (AL), Warehousing MIS (AMIS), and Warehouse Efficiency (AWE)	154
4.5.10 Summary of the Hypotheses Results	157
4.6 CHAPTER SUMMARY	158
CHAPTER FIVE: CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS	160
5.0 INTRODUCTION	160
5.1 OVERVIEW OF THE STUDY	160
5.2 CONCLUSION OVERVIEW	162
5.2.1 Distribution of Respondents	162
5.2.2 Distribution of Warehouse Efficiency (AWE)	163
5.2.3 Discussions of Hypothesis Findings	164
5.3 IMPLICATIONS OF STUDY	168
5.3.1 Managerial and Firm Performance Implications	170
5.3.1.1 Relationship between Warehousing Attributes and Warehouse Efficiency	170
5.3.1.2 Mediating Effect of Warehousing MIS in the Relationship between Warehousing Attributes and Warehouse Efficiency	175
5.3.1.3 Overall Implications on Managerial Implications and Firms Performance	177

5.3.2	Theoretical Implications	179
5.4	LIMITATIONS OF THE STUDY	181
5.5	RECOMMENDATIONS FOR FUTURE RESEARCH	182
5.6	CONTRIBUTIONS TO KNOWLEDGE	183
5.7	CONCLUSION	184
6.0	REFERENCES	187

LIST OF TABLES

Table	Page
Table 1.1. Activities of Logistics Service Providers	8
Table 1.2. Definitions of SMEs in Malaysia	25
Table 2.1. Malaysia SMEs by Business Sector	28
Table 2.2. Distribution of SMEs in the Manufacturing Sector in 2003	29
Table 2.3. Warehouse Issues and Performance Measurement	75
Table 3.1. The Percentage of Usable Respondents	104
Table 3.2. Cronbach α Coefficient of Reliability (Pre- and Post-Test Analysis)	119
Table 3.3. Investigating Validity: Results of KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity	122
Table 4.1. Summary of Respondent Characteristics	131
Table 4.2. Summary of Profile of SME Owners	133
Table 4.3. Levene's Test on Company Size and Gender for Non-Response Bias	135
Table 4.4. ANOVA Homogeneity of Variances Test in Non-Response Bias	135
Table 4.5. Summary of Pearson correlation results	136
Table 4.6. Measurement of the Degree of AMIS Influence in the Relationship between AWO and AWE	145
Table 4.7. Sobel Test Output Measuring the Mediating Effect of AMIS in the Relationship between AWO and AWE	146
Table 4.8. Measurement of the Degree of AMIS Influence in the Relationship between AHCM and AWE	150
Table 4.9. Sobel Test Output Measuring the Mediating Effect of AMIS in the Relationship between AHCM and AWE	151
Table 4.10. Measurement of the Degree of AMIS Influence in the Relationship between AL and AWE	155
Table 4.11. Sobel Test output Measuring the Mediating Effect of AMIS in the Relationship between AL and AWE	156
Table 4.12. Summary of Hypotheses Results	157

LIST OF FIGURES

Figure	Page
Figure 1.1. Theoretical Framework.	22
Figure 2.1. Evolution of logistics within the supply chain.	38
Figure 2.2. Framework for warehouse design and operation problem flow.	43
Figure 2.3. Warehousing layout capacity setting and information process flow.	60
Figure 2.4. Framework of warehousing layout design 14 steps process flow.	60
Figure 2.5. The framework for warehouse excellence.	76
Figure 2.6. Force Field Theory Model.	81
Figure 2.7. The 3-Steps Change Model.	83
Figure 2.8. Theoretical Framework for the research.	90
Figure 3.1. Histogram graph and normal P-P Plot between dependent variable warehouse efficiency (AWE) and warehousing variables.	115
Figure 3.2. The process of mediation.	126
Figure 3.3. The steps involved in the mediation process.	126
Figure 4.1. Relationship of tested variables (AWO and AWE) after mediation.	142
Figure 4.2. Relationship of tested variables (AWO and AMIS) after mediation.	143
Figure 4.3. Relationship of tested variables (AWO, AMIS, and AWE) after mediation.	146
Figure 4.4. Relationship of tested variables (AHCM and AWE) after mediation.	147
Figure 4.5. Relationship of tested variables (AHCM and AMIS) after mediation.	148
Figure 4.6. Relationship of tested variables (AHCM, AMIS and AWE) after mediation.	151
Figure 4.7. Relationship of tested variables (AL and AWE) after mediation.	152
Figure 4.8. Relationship of tested variables (AL and AMIS) after mediation.	153
Figure 4.9. Relationship of tested variables (AL, AMIS and AWE) after mediation.	156

LIST OF APPENDICES

	Page
APPENDIX	
APPENDIX 1: Linkages Between Research Questions, Research Objectives and Hypotheses	201
APPENDIX 2: Questionnaire	203
APPENDIX 3: Reliability	210
APPENDIX 4: Factor Analysis	211
APPENDIX 5: Multiple Regressions and Correlations (Summary)	212
APPENDIX 6: Multiple Regressions Analysis (Sobel)	219

ABBREVIATIONS

ABC	Activity Based Costing
AI	Artificial Intelligence
AWE	Warehouse Efficiency
AHCM	Warehousing HCM
AL	Warehousing Layout
AMIS	Warehousing MIS
AWO	Warehousing Operations
EDI	Electronic Data Interchange
GDP	Gross Domestic Product
HCM	Human Capital Management
IT	Information Technology
ISO	International Standard Organisation
JIT	Just-In-Time
KMO	Kaiser Meyer Olkin
MIS	Management Information System
MLR	Multiple Linear Regression
MNCs	Multinational Corporations
OL	Organisational Learning
SCM	Supply Chain Management
SKU	Stock Keeping Unit
SME	Small Medium Enterprises
SMI	Small Medium Industries
SMA	Sampling Measure Adequacy
SMIDEC	Small and Medium Industries Development Corporation
SPSS	Statistical Package for the Social Sciences
TQM	Total Quality Management
UNDP	United Nation Development Programme
WMS	Warehouse Management System
WWW	World Wide Web

CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND OF THE STUDY

Issues on warehouse efficiency (general logistics management) are specifically but not comprehensively studied until after the business globalisation process takes place (Rosena, Harlina Suzana, & Sabariah, 2008; Osman & Hariri, 2009; Ismail, Hashim, Ghani, Zulkifli, Kamilah, & Rahman, 2009). The problems keep on developing and continuing with the evolution of logistics roles that became more complex, which took place actively after the 1990s (Bardi, Coyle, & Novack, 2006; Gundlach, Bolumole, Eltanway, & Frankel, 2006). This especially became critical within the last two decades in the supply chain networks, in which warehouse has become an integral part of the major logistics service providers (Sink, Langley, & Gibson, 1996; Lambert, Stock, & Ellram, 1998; Coyle, Bardi, & Langley, 2003; Koster, Le Duc, & Roodbergen, 2007).

Tompkins and Smith (1998) described that warehouse efficiency has now become a core competency or a strategic weapon that many companies use to enhance their positions in the market. At the same time, warehouse efficiency is undergoing unbelievable challenges that make its practice to strive for excellence become harder to achieve. Warehousing before this has been viewed as a supportive industry to other functional areas, but it is now regarded as a strategic industry on its own (Gundlach *et al.*, 2006; Sum, Teo, & Ng, 2001).

The contents of
the thesis is for
internal user
only

REFERENCES

- A very well planned job. (2006, November 21). *The Star*, Star Publication, Malaysia.
- Abdullah, H. H. (2010). *Relationship of competitive strategy, strategic flexibility and sourcing strategy on organisation performance*. Unpublished PhD thesis, Universiti Putra Malaysia (UPM).
- Abeysekera, I., & Guthrie, J. (2004). Human capital reporting in a developing nation. *The British Accounting Review*, 36, 251-268.
- Allen, M. K. (1986). *The development of an artificial development system for inventory management*. Oak Brook, IL: Council of Logistics Management.
- Allen, M. K., & Helferich, O. K. (1990). *Putting expert systems to work in logistics*. Oak Brook, IL: Logistics Council of Logistics Management.
- Alshawhi, S. (2001). Logistics in the Internet age: Towards a holistic information and processes picture. *Logistics Information Management*, 14(4), 235-241.
- Anderson, D. R., Sweeney, D. J., & Williams, T. A. (2000). *Quantitative methods for Business* (8th ed.). Dallas, Texas: South-Western Educational Publishing.
- Annual SME Report. (2008). Retrieved January 10, 2010, from <http://www.smibusinessdirectory.com.my>
- APEC. (1994). *The APEC survey on small and medium enterprises: Member report of Malaysia*. Retrieved August 16, 2005, from <http://www.actetsme.org/archieve/smesurvey.html>
- Armitage, H. M. (1984). The use of management accounting techniques to improve productivity analysis in distribution operations. *International Journal of Physical Distribution and Material Management*, 14(1), 41-51.
- Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(3), 396-402.
- Ary, D., Jacobs, L. C., & Razavieh, A. (2002). *Introduction to research in education*. Belmont, CA: Wadsworth.
- Atkinson, P., & Millar, I. (1999). Accelerated cultural transformation. *Management Services*, 43(3), 8.
- Autry, C. W., Griffis, S. E., Goldsby, T. J., & Bobbitt, L. (2005). Warehouse management systems: Resource commitment, capabilities, and organisational performance. *Journal of Business Logistics*, 26(2), 165-182.
- Ayer, S. J. (1959). *Positivism*. Glencoe, IL: The Free Press.
- Babbie, E. (2004). *The practice of social research* (10th ed.). Thompson: Wadsworth.
- Baglin, G., Bruel, O., Garreau, A., Greif, M., & Van Delft, C. (1996). *Management industriel et logistique* (2nd ed.). Paris: Economica.
- Bagozzi, R. P., & Baumgartner, H. (1994). The evaluation of structural equation models and hypotheses testing. *Principle of Marketing Research*, 386-422.
- Bagozzi, R. P., & Philips, L. W. (1982). Representing and testing organisational theories: A holistic construal. *Administrative Science Quarterly*, 27, 459-489.
- Baker, P. (2004). Aligning distribution centre operations to supply chain strategy. *International Journal of Logistics Management*, 15(1), 111-123.
- Baker, P., & Canessa, M. (2006). Warehouse design: A structured approach. *European Journal of Operational Research*, 193, 425-436.
- Bardi, E. J., Coyle, J. J., & Novack, R. A. (2006). *Management of transportation*. US: Thomson Southwestern.
- Baron, A., & Armstrong, M. (2007). *Human capital management. Achieving added value through people*. UK: Kogan Page Limited.

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variables distinction in social psychological research: Conceptual, strategic, and statistical consideration. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Bartholdi, J. J., & Hackman, S. T. (2005). *Warehouse and distribution science*. Atlanta, GA: Bartholdi and Hackman.
- Bartholdi, J. J., & Hackman, S. T. (2008). Allocating space in a forward pick area of a distribution centre for small parts. *IIE Transactions*, 40, 1046-1053.
- Bartholomeow, S., & Smith, A. (2006). Improving survey response rates from chief executive officers in small firms: The importance of social networks. *Entrepreneurship Theory and Practice*, 30, 83-96.
- Bartlett, C. A., & Ghoshal, S. (1995). Changing the role of top management: Beyond systems to people. *Harvard Business Review*, 73(3), 132-142.
- Bayo-Moriones, A., Bello-Pintando, A., & Merino-Díaz de Cario, J. (2010). 5S use in manufacturing plant: Contextual factors and impact on operating performance. *International Journal of Quality and Reliability Management*, 27(2), 217-230.
- Becker, S. O. (1993). *Human capital: A theoretical and empirical analysis with special reference to education (3rd ed.)*. Chicago: University of Chicago Press.
- Bendahara, A. (2009, December 29). Talks with PM on Stolen jet engines. *The New Straits Times*, NSTP Publication, Malaysia.
- Bendahara, A. (2010, February 5). Stolen jet engines found. *The New Straits Times*, NSTP Publication, Malaysia.
- Bendahara, A., & Gomez, J. (2010, January 6). Two charged over theft of jet engines. *The New Straits Times*, NSTP Publication, Malaysia.
- Bender, P. S. (1981). Mathematical modelling of the 80/20 rule: Theory and practice. *Journal of Business Logistics*, 2(2), 139-157.
- Bennett, D. J., Hewitt, F., & Robinson, S. L. (1996). Modelling and benchmarking business processes: The supply line example. *Benchmarking for Quality Management and Technology*, 3(2).
- Borowsky, M. (1993). Looking for a net gain. *Credit Card Management*, 6(5), 22-27.
- Bowerman, B. L., O'Connell, R. T., & Koehler, A. B. (2005). *Forecasting, time-series, and regression. An applied approach (4th ed.)*. United States of America: Thomson Brooks/Cole.
- Bowersox, D. J. (1998). Introducing the strategic visioning series. *Journal of Business Logistics*, 19(1), 1-4.
- Bowersox, D. J., & Closs, D. J. (1996). *Logistics management – The integrated supply chain process*. New York, NY: McGraw-Hill.
- Bowersox, D. J., Closs, D. J., & Stank, T. P. (1989). *Leading logistics: Competitive positioning for the 1990s*. Oak Brook, IL: Council of Logistics Management.
- Bowersox, D. J., Closs, D. J., & Stank, T. P. (1999). *21st Century logistics: Making supply chain integration a reality*. Oak Brook, IL: Council of Logistics Management.
- Bowersox, D. J., & Daugherty, P. J. (1987). Emerging patterns of logistical organisation. *Journal of Business Logistics*, 8(1), 46-60.
- Bowersox, D. J., & Daugherty, P. J. (1995). Logistics paradigms: The impact of information technology. *Journal of Business Logistics*, 16(1), 65-80.
- Brace, N., Kemp, R., & Snelgar, R. (2006). *SPSS for psychologists. A guide to data analysis using SPSS for Windows (Version 12 and 13) (3rd ed.)*. New York: Pelgrave Macmillan.

- Brierly, J. E. (1987). On simple graphs applied to logistics. *The Annals of the Society of Logistics Engineers*, 1(2), 33-47.
- Briggs, S. R., & Cheek, J. M. (1986). *The role of factor analysis in the development and evaluation of personality scales*. In J. Pallant (Ed.). (2001). *The SPSS survival manual*. Australia: Allan and Unwin.
- Brown, J. R., Lusch, R. F., & Koenig, H. F. (1984). Environmental uncertainty regarding inventory ordering. *International Journal of Physical Distribution and Material Management*, 14(3), 19-36.
- Brown, J. R., Lusch, R. F., & Smith, L. P. (1991). Conflict and satisfaction in an industrial channel of distribution. *International Journal of Physical Distribution and Logistics Management*, 21(6), 15-26.
- Bryman, A. (1988). *Quantity and quality in social research*. Australia: Unwin Hyman.
- Bryman, A. (2001). *Social research methods*. New York: Oxford University Press.
- Bryman, A., & Bell, E. (2003). *Business research methods*. Oxford: Oxford University Press.
- Burnes, B. (2004). Emergent change and planned change - Competitors or allies? The case of XYZ construction. *International Journal of Operations and Production Management*, 24(9/10), 886.
- Cagliano, A. N., DeMarco, A., & Rafele, C. (2011). Using system dynamics in warehouse management: A set fashion case study. *Journal of Manufacturing Technology Management*, 22(5), 171-188.
- Canen, A. G., & Williamson, G. H. (1996). Facility layout overview, towards competitive advantage. *Facilities*, 14(10/110), 5-10.
- Chaganti, R., & Sanbharya, R. (1987). Strategic orientation and characteristics of upper management. *Strategic Management Journal*, 8(4), 393-401.
- Chan: Stop the finger-pointing and beef up the security. (23 November 2006). *The Star*, Star Publication, Malaysia.
- Chan, W. K. (2005). Competitive strategies and manufacturing logistics: An empirical study of Hong Kong manufacturers. *International Journal of Physical Distribution and Logistics Management*, 35(1), 20-43.
- Charlton, B., & Andras, P. (2003a). *The modernisation imperative*. Tavistock, UK: Imprint Academic.
- Charlton, B. G., & Andras, P. (2003b). What is management and what do managers do? A system theory account. *Philosophy of Management*, 3, 1-15.
- Chiu, H. N. (1995). The integrated logistics management system: A framework and case study. *International Journal of Physical Distribution and Logistics Management*, 25(6), 4-22.
- Chou, C. P., & Bentler, P. M. (1995). Estimates and tests. In R. M. Hoyle (Ed.), *Structural equation modelling in MIS research*. CA: Sage Publication, Inc.
- Chow, G., Heaver, T., & Henricksson, L. (1994). Logistics performance: Definition and measurement. *International Journal of Physical Distribution and Logistics Management*, 8, 501-515.
- Christopher, J. (1992). *Logistics and supply chain management: Strategies for reducing cost and improving cost and improving services*. Boston, MA: Pitman Publishing.
- Christopher, M. (1997). *Marketing logistics*. Oxford: Butterworth-Heinemann.
- Chung, M., Bae, Z. T., & Lee, J. (1997). Evaluating MIS performance: Comparison of three hierarchical evaluation types. *Journal of Systems and Information Technology*, 3(2), 1-16.

- Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16, 64-73.
- Clark, R. L., & Gourdin, K. N. (1991). Measuring the efficiency of logistics process. *Journal of Business Logistics*, 12(2), 17-33.
- Closs, D. J., Goldsby, T. J., & Clinton, S. R. (1997). Information technology influences on world class logistics capabilities. *International Journal of Physical Distribution and Logistics Management*, 27(1), 4-17.
- Coakes, J. J., & Steed, L. G. (2007). *SPSS: Analysis without anguish: Version 14.0 for Windows*. Singapore: Kyodo.
- Combe, I. A. & Greenly, G. E. (2004). Capabilities for strategic flexibility: A cognitive content framework. *European Journal of Marketing*, 38(11/12), 1456-1480.
- Connolly, C. (2008). *Warehouse management technologies*. Wakefield, UK: Stalactite Technology Limited.
- Cooper, D. R., & Schindler, P. S. (2006). *Business research methods (9th ed.)*. McGraw-Hill: New York.
- Cooper, J. (1994). *Logistics and distribution planning: Strategies for management (2nd ed.)*. London: Kogan Page.
- Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78(1), 98-104.
- Comptroller's Handbook. (1995). *Management information system*. Comptroller of the Currency Administrator of National Bank.
- Council of Logistics Management. (1995). *World class logistics: The challenge of managing continuous change*. Oak Brook, IL: Council of Logistics Management.
- Covin, J. G., & Slevin, D. P. (1991). A conceptual entrepreneurship as firm behaviour. *Entrepreneurship Theory and Practice*, 16(1), 7-25.
- Coyle, J. J., Bardi, E. J., & Langley, C. J. (2003). *The management of business logistics: A supply chain perspective*. Louisville, Quebec: Transcontinental.
- Coyle, R. C. (1996). *System dynamics modelling – A practical approach*. London: Chapman and Hall.
- Cunningham, J. B., & Lischeron, J. (1991). Defining entrepreneurship. *Journal of Small Business Management*, 29(1), 45-61.
- Cowan, J. A., & Mathieu, R. G. (1994). Resolving conflict between MIS and manufacturing. *Industrial Management and Data Systems*, 94(8), 21-29.
- Cresswell, J. W. (2002). *Educational research: Planning, conducting and evaluating quantitative, qualitative research*. NJ: Prentice Hall.
- Cresswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches (2nd ed.)*. Thousand Oaks, CA: Sage.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure tests. *Psychometrika*, 16, 297-334.
- Cross, G. J. (2000). How e-business is transforming supply chain management. *Journal of Business Strategy*, 21(21), 36-39.
- Cyert, R. M., & March, J. G. (1963). *A behavioural theory of the firm*. Englewood Cliffs, NJ: Prentice Hall.
- Daugherty, P. J. (2011). Review of logistics and supply chain relationship literature and suggested research agenda. *International Journal of Physical Distribution and Logistics Management*, 41(1), 16-31.
- Davenport, T. O. (1999). *Human capital: What it is and why people invest it*. San Francisco: Jossey-Bass.

- Defee, C. C., Williams, B., & Randall, W. S. (2010). An inventory of theory in logistics and SCM research. *The International Journal of Logistics Management*, 21(3), 404-489.
- Drucker, P. F. (1999). Knowledge-worker productivity: The biggest challenge. *California Management Review*, 41(2), 2.
- Dunn, S. C., Seaker, R. F., & Waller, M. A. (1994). Latent variables in business logistics research: Scale development and validation. *Journal of Business Logistics*, 15(2), 145-172.
- Ehrenberg, R. G., & Smith, R. S. (1997). *Modern labour economics* (6th ed.). New York: Harper Collins.
- Ellinger, A. E., Ellinger, A. D., & Keller, S. B. (2005). Supervisory coaching in a logistics context. *International Journal of Physical Distribution and Logistics Management*, 35(9), 620-636.
- Else, B., & Tse, R. C.-H. (2007). Changing the behaviour of traditional bakers in a Chinese multi-family owned food company through workplace action learning in Hong Kong. *Journal of Workplace Learning*, 19(8), 511-525.
- Emmett, S. (2005). *Excellence in warehouse management*. England: John Wiley and Sons.
- Encyclopaedia of Business. (2011). *Warehousing and warehouse management*. Retrieved August 27, 2011, from <http://www.referenceforbusiness.com/management/Tr-Z/Warehousing-and-Warehouse-Management.html>
- Ernest & Whinney (1983). *Transportation accounting and control: Guidelines for distribution and financial managers*. Oak Brook, IL: National Council of Physical Distribution Management.
- Ernest & Whinney (1985). *Warehousing accounting and control: Guidelines for distribution and financial managers*. Oak Brook, IL: National Council of Physical Distribution Management.
- Esper, T. L., Defee, C. C., & Mentzer, J. T. (2010). A framework of supply chain orientation. *The International Journal of Logistics Management*, 21(2), 161-179.
- Faber, N., De Koster, R. B. M., & Van de Velde, S. L. (2002). Linking warehouse complexity to warehouse planning and control structure. *International Journal of Physical Distribution and Logistics Management*, 32(5), 381-395.
- Frankel, R., Naslund, D., & Bolumale, Y. (2005). The 'white space' of logistics research: A look at the role of methods usage. *Journal of Business Logistics*, 26(2), 185-208.
- Frazelle, E. H. (2002). *World class warehousing and material handling*. US: The McGraw-Hill Companies, Incorporated.
- Feraud, G. J. S. (1998). Improving strategic decision making in logistics information management – A framework. *Logistics Information Management*, 11(4), 232-243.
- Gadamar, H. G. (1976). *Philosophical hermeneutics*. Translated and edited by D. E. Linge. Berkeley, CA: University of California Press.
- Garver, M. S., & Williams, Z. (2010). Measuring the importance of attributes in logistics research. *The International Journal of Logistics Management*, 21(1), 22-44.
- Gaski, J. F. (1984). The theory of power and conflicting channels of distribution. *Journal of Marketing*, 48, 9-29.

- Gilley, K. M., & Walters, B. A. (2002). Top management team risk taking propensities and firm performance: Direct and moderating effects. *Journal of Business Strategies*, 19(2), 95-114.
- Gilley, K. M., Greer, C. R., & Rasheed, A. A. (2002). Human resource outsourcing and organisational performance in manufacturing firms. *Journal of Business*, 57(3), 232-240.
- Gonzalez, J. J. (2000). Merging organisational learning with learning theory: A task for the 21st Century. *Conference at AERA 2000 by AERA SIG. P. I.*
- Gopalakrishnan, B., Turuvekere, R., & Gupta, D. P. (2004). Computer integrated facilities planning and design. *Facilities*, 22(7/8), 199-209.
- Gowen, C. R., III, & Tallon, W. J. (2003). Enhancing supply chain practices through human resource management. *Journal of Management Development*, 22(1), 32-44.
- Govindaraj, T., Blanco, E. E., Bodner, D. A., Goetschalckx, M., McGinnis, L. F., & Sharp, G. P. (2000). Design of warehousing and distribution systems: An object model of facilities, functions, and information. *IEEE International Conference on System, Man and Cybernetics*, Nashville, Tennessee, US, 1099-1104.
- Gray, A. E., Karmarkar, U. S., & Seidmann, A. (1992). Design and operation of an order-consolidation warehouse: Models and application. *European Journal of Operational Research*, 58, 14-36.
- Gu, J., Goetschalckx, M., & McGinnis, L. F. (2007). Research on warehouse operation: A comprehensive review. *European Journal of Operational Research*, 177(1), 1-21.
- Gujarati, D. N. (1995). *Basic econometrics*. NY: McGraw-Hill Incorporated.
- Gunasekaran, A., Marri, H. B., & Menci, F. (1999). Improving the effectiveness of warehousing operations: A case study. *Industrial Management and Data System*, 328-339.
- Gundlach, G. T., Bolumole, Y. A., Eltanway, R. A., & Frankel, R. (2006). The changing landscapes of supply chain management, marketing channels of distribution, logistics and purchasing. *Journal of Business and Industrial Marketing*, 21(7), 428-438.
- Haag, A., Cummings, M., & Philips, A. (2007). *Management information system for the information age (6th ed.)*. Singapore: McGraw-Hill (Asia).
- Hair, J. F., Anderson, R. E., & Tatham, R. (1995). *Multivariate data analysis (4th ed.)*. New York: MacMillan College Publications Company.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate analysis (5th ed.)*. New Jersey: Prentice Hall.
- Hair, J. F., Black, W. C., Babin, Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis*. Upper Saddle River, NJ: Pearson Education.
- Hamel, G., & Prahalad, C. K. (1994). *Competing for the future*. Boston, MA: Harvard Business School Press.
- Hammer, M., & Champy, J. (1993). *Reengineering the corporation*. London: Nicholas Brealey Publishing.
- Harmon, R. L. (1993). *Reinventing the warehouse, world-class distribution logistics*. New York, NY: The Free Press.
- Hashim, M. K. (2000). SMEs in Malaysia: Past, present, and future. *Malaysian Management Review*, 35(1), 22-30.

- Hashim, M. K. (2011). *Developing sustainable small and medium sized enterprises through the strategic management approach*. Sintok: Universiti Utara Malaysia Press.
- Hassan, M. D. (2002). A framework for the design of warehouse layout. *Facilities*, 20(13/14), 432-440.
- Heizer, J., & Render, B. (2006). *Principles of operations management* (6th ed.). Upper-Saddle River, NJ: Pearson Education Incorporated.
- Hornby, A. S. (2005). *Oxford advanced learner's dictionary* (7th ed.). New York: Oxford University Press.
- Hout, T. M., & Carter, J. C. (1995). Getting it done: New roles for senior executives. *Harvard Business Review*, 73(6), 133-145.
- Hoyle, R. H. (1995). *Structural equation modelling. Concepts, issues and applications*. CA: Sage publications, Incorporated.
- Huertas, J. I., Ramirez, J. D., & Salazar, F. T. (2007). Layout evaluation of large capacity warehouses. *Facilities*, 25(7/8), 259-270.
- Ismail, A. R., Hashim, E., Ghani, J. A., Zulkifli, R., Kamilah, N., & Rahman, M. N. A. (2009). Implementation of EIS: A study at Malaysian SMEs. *European Journal of Scientific Research*, 30(2), 215-223.
- Jenkins, C. H. (1990). *Complete guide to modern warehouse management*. NJ: Prentice-Hall Incorporated.
- Jobber, D. (1990). Maximising response rates in industrial mail surveys: A review of the evidence. *Advances in Business Marketing*, 4, 121-146.
- Jobber, D., & Saunders, J. (1989). The prediction of industrial mail survey response rates. *Journal of the Operational Research Society*, 40, 839-847.
- Johnston, R. B. (1995). Making manufacturing tacit: A case study of computer aided production management and lean production. *Journal of Operational Research Society*, 46(10), 432-440.
- Judd, C. M., & Kenny, J. M. (1981). Process analysis: Estimating mediation in treatment evaluations. *Evaluation Review*, 5, 602-619.
- Kalafsky, R. V. (2004). Export activity and firm size: An examination of machine tool sector. *Journal of Small Business and Enterprise Development*, 11(2), 159-165.
- Kaminsky, P. F., & Rink, D. R. (1984). PLC: The missing link between physical distribution and marketing planning. *International Journal of Physical Distribution and Material Management*, 14(6), 77-92.
- Kanter, R. M. (1989). *When giants learn to dance*. New York: Simon and Schuster.
- Keller, G., & Warrack, B. (1997). *Statistics for management and economics* (4th ed.). US: Duxbury Press.
- Kenny, D. (2012). *Mediation*. Retrieved January 10, 2011, from <http://davidakenny.net/cm/mediate.htm>
- Kim, S. W. (2006). The effect of supply chain integration on the alignment between corporate competitive capability and supply chain operational capability. *International Journal of Operations and Production Management*, 26(10), 1084-1107.
- Kinicki, A., & Williams, B. (2006). *Management a practical introduction* (2nd ed.). New York: McGraw-Hill/Irwin.
- Kirkpatrick, D. L. (1977). Evaluating training programmes: Evidence versus proof. *Training and Development Journal*, 31(11), 9-12.
- Kline, R. B. (1998). *Principles and practice of structural equation modelling*. New York: The Guilford Press.

- Koster, R. (1998). *Recent developments in warehousing*. Working Paper, Rotterdam, Erasmus University, Rotterdam.
- Koster, R. (2008). Warehouse assessment in a single tour. Facility Logistics. In M. Lahnar (Ed.). *Approaches and solutions to next generation challenges* (pp. 39-60). New York: Aubach-Taylor and Francis Group.
- Koster, R., & Warffemius, P. M. J. (2005). American, Asian, and third party international warehouse operations in Europe. *International Journal of Operations and Production Management*, 25(8), 762-780.
- Koster, R., Le Duc, T., & Roodbergen, H. J. (2007). Design and control of warehouse order picking: A literature review. *European Journal of Operation Research*, 182, 481-501.
- Krauth, E., Moonen, H., Popova, V., & Schut, M. C. (2005a). Performance indicators in logistics service provision and warehouse management – A literature review and framework. *Proceedings of work part of DEAL (Distributed Engine for Advanced Logistics), supported as project EETK01141, under the Dutch government funded EET programme*.
- Krauth, E., Moonen, H., Popova, V., & Schut, M. C. (2005b). Performance measurement in control and logistics service providing. *Proceedings of the international conference on Enterprise Information Systems (forth coming)*.
- Krauth, E., Moonen, H., Popova, V., & Schut, M. C. (2005c). Understanding performance measurement and control in third party logistics. *Proceedings of the 13th European Conference on Information Systems (forth coming)*.
- Krejcie & Morgan (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 60, 607-610.
- Lambert, D. M., Cooper, M. C., & Pagh, J. D. (1998). Supply chain management: Implementation issues and research opportunities. *The International Journal of Logistics Management*, 2(9), 1-19.
- Lambert, D. M., & Stock, J. R. (1993). *Strategic logistics management* (3rd ed.). Homewood, IL: Irwin.
- Lambert, D. M., Stock, J. R., & Ellram, L. M. (1998). *Fundamentals of logistics management*. US: McGraw Hill.
- Langley, C. J., Coyle, J. J., Gibson, B. J., Novack, R. A., & Bardi, E. J. (2008). *Managing supply chains: A logistics approach* (8th ed.). South Western: Cengage Learning.
- Larson, P. D. (1994). An empirical study of inter-organisational functional integration and total costs. *Journal of Business Logistics*, 15(1), 153-169.
- Laudon, C., & Laudon, P. (2003). *Essentials of management information systems*. Upper Saddle River, New Jersey: Prentice Hall Incorporated.
- Lee, C., & Lee, C. G. (2007). SME Innovation in the Malaysian manufacturing sector. *Economics Bulletin*, 12(30), 1-12.
- Leedy, P., & Ormrod, J. (2005). *Practical research: Planning and design* (8th ed.). Upper Saddle, NJ: Prentice Hall.
- LeMay, S. A., Carr, J. C., Periatt, J. A., & McMahon, R. D., Jr. (1999). *The growth and development of logistics personnel*. Oak Brook, IL: Council of Logistics Management.
- Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues*, 2, 34-36.
- Lewin, K. (1947). Frontiers in group dynamics. *Human Relations*, 1(1), 5-41.
- Lewin, K. (1948). *Field theory in social sciences*. New York: Harper.

- Likert, R. A. (1932). Techniques in the measurement of attitudes. *Archives of Psychology*, 140, 11-55.
- Ling, F. Y. Y., Edum-Fotwe, F. T., & Ng, M. T. H. (2008). Designing facilities management needs into warehouse projects. *Facilities*, 26(11/12), 470-483.
- Lu, J. W., & Beamish, P. W. (2001). The international and performance of SMEs. *Strategic Management Journal*, 22, 565-586.
- Lucey, T. (1997). *Management information systems*. New York, NY: Cengage Learning.
- Luhmann, N. (1995). *Social systems* (Translated J. Bednarz, Jr. & D. Baecker). Stanford, CA, USA: Stanford University Press.
- Malhotra, N. K. (2002). *Basic marketing research: Application to contemporary issues*. New Jersey: Prentice Hall.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test the significance of the mediated effect. *Psychological Methods*, 7, 83-104.
- Marimuthu, M., Arokiasamy, L., & Ismail, M. (2009). Human capital development and its impact on firm performance: Evidence from developmental economics. *The Journal of International Social Research*, 2(8), 265-272.
- McAfee, R. B., Glassman, M., & Honeycutt, E. D., Jr. (2002). The effects of culture and human resource management policies on supply chain management strategy. *Journal of Business Logistics*, 23(1), 1-18.
- McGinnis, M. A., & Kohn, J. W. (1993). Logistics strategy, organisational environment, and time competitiveness. *Journal of Logistics Management*, 14(2), 1-23.
- McLeod, R., & Schell J. G. (2001). *Management information systems (8th ed.)*. USA: Prentice-Hall.
- McMillan, J., & Schumacher, S. (2001). *Research in education: A conceptual introduction (5th ed.)*. New York: Addison Wesley Longman.
- Mentzer, J. T., & Kahn, K. B. (1995). A framework of logistics research. *Journal of Business Logistics*, 16(1), 231-250.
- Meredith, J. R., Raturi, A., Amoaka-Gyampah, K., & Kaplan, B. (1989). Alternative research paradigms in operations. *Journal of Operations Management*, 8(4), 297-326.
- Meyers, L. S., Garnst, G., & Guarino, A. J. (2006). *Applied multivariate research: Design and interpretation*. United Kingdom: Sage Publications, Incorporated.
- Miles, M. P., & Arnold, D. R. (1991). The relationship between marketing orientation and entrepreneurial orientation. *Entrepreneurship Theory and Practice*, 15(4), 49-65.
- Miller, D., Coleman, J., Connolly, W., & Ryan, A. (Eds.). (1987). *The Blackwell encyclopaedia of political thought*. New York, NY: Blackwell.
- Min, H. (2007a). Examining sources of warehouse employee turnover. *International Journal of Physical Distribution and Logistics Management*, 37(5), 375-388.
- Min, H. (2007b). The application of warehouse management system: An exploratory study. *International Journal of Logistics: Research and Applications*, 9(2), 111-126.
- Minter, R. L., & Thomas, E. G. (2000). Employee development through coaching, mentoring and counselling: A multidimensional approach. *Review of Business*, 21(1/2), 43-48.

- Ministry of International Trade and Industry Malaysia (MITI) (2006). *Third Industrial Master Plan 2006-2020. Malaysia – Towards Global Competitiveness*. Kuala Lumpur: Percetakan Nasional Malaysia Berhad.
- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20-38.
- Murphy, P. R., & Poist, R. F. (1992). Managing the human side of public warehouse: An overview of modern practices. *Journal of American Society of Transportation and Logistics*, 54-62.
- Murphy, P. R., & Poist, R. F. (1993). In search of warehousing excellence: A multivariate analysis of HRM practices. *Journal of Business Logistics*, 14(2), 145-163.
- Murphy, P. R., & Poist, R. F. (2003). Green perspectives and practices: A comparative logistics study. *Supply Chain Management: An International Journal*, 8(2), 122-131.
- Murphy, P. R., & Wood, D. F. (2004). *Contemporary logistics (8th ed.)*. Upper Saddle River, NJ: Prentice-Hall.
- Narrins, P. (1999). *Get better info from all your questionnaires. 13 important tips to help you pre-test your survey*. Retrieved January 30, 2008, from <http://www.ryerson.ca/~mjoppe/research/Process/Pretesting Tips.htm>
- Neuman, W. L. (2003). *Social research methods – Qualitative and quantitative approaches (5th ed.)*. NY: Pearson Education.
- Noe, R. A., Hollenbeck, J. R., Gerhart, B., & Wright, P. M. (2008). *Fundamentals of human resources management (3rd ed.)*. New York: McGraw-Hill/Irwin.
- Normah, M. A. (2006). *SMEs: Building blocks for economic growth*. Paper presented at the National Statistical Conference, Kuala Lumpur. Retrieved April 11, 2012, from http://www.statistics.gov.my/portal/download_journals/files/2007/Volume1/Contents_smes.pdf
- Novack, R. A., Rinehart, L. M., & Wells, M. V. (1992). Rethinking concept foundations in logistics management. *Journal of Business Logistics*, 13(2), 233-267.
- Nunnally, J. C. (1978). *Psychometric theory (2nd ed.)*. New York: McGraw Hill.
- O'Donnell, D., & Garavan, T. N. (1997). Viewpoint: Linking training policy and practice to organisational goals. *Journal of European Industrial Training*, 21(9), 301-309.
- Offstein, E. H., Gnyawali, D. R., & Cobb, A. T. (2005). A strategic human resource perspective of firm competitive behaviour. *Human Resource Management Review*, 15, 305-318.
- Osman, J., & Hariri, K. (2009). The entrepreneurial of Malaysian small and medium enterprises (SMEs) in logistics: Practice, challenge, performance, and innovation. *Proceedings of the 14th Asia Pacific Management Conference (APMC)*. Air Langgar University, Surabaya, Indonesia, 18-20 November, 2009.
- Oz, E. (2009). *Management information systems (6th ed.)*. United States: Thomson Course Technology.
- Pallant, J. (2001). *SPSS survival manual. A step by step guide to data analysis using SPSS for Windows (version 10)*. New South Wales: Allen and Unwin.
- Pallant, J. (2007). *SPSS survival manual. A step by step guide to data analysis using SPSS for Windows (version 15)*. McGraw-Hill: Open University Press.
- Peschke, R. E. (1986). Logical flow models and the decision making process. *The Annals of the Society of Logistics Engineers*, 1(1), 8-20.

- Peter, J. P. (1979). Reliability: A review of psychometric basics and recent marketing practices. *Journal of Marketing Research*, 16, 6-17.
- Peter, J. P. (1981). Construct validity: A review of basic issues and marketing practices. *Journal of Marketing Research*, 18, 133-145.
- Petersen, C. G. (1999). The impact of routing and storage policies on warehouse efficiency. *International Journal of Operations and Production Management*, 19(10), 1053-1064.
- Petersen, C. G., Siu, C., & Heiser, D. R. (2005). Improving order picking performance utilising slotting and golden zone storage. *International Journal of Operations and Production Management*, 25(10), 997-1012.
- Pfeffer, J. (1998). Seven practices of successful organisations. *California Management Review*, 40(2), 96-123.
- Pfeffer, J. (2000). *The human equation: Building profits by putting people first*. Cambridge, MA: Harvard Business Press.
- Pisharodi, R. M., & Langley, C. J., Jr. (1990). A perceptual process model of customer service based on cybernetic/control theory. *Journal of Business Logistics*, 11(1), 26-48.
- Pohlen, T. L. & La Londe, B. J. (1994). Implementing activity based costing (ABC) in logistics. *Journal of Business Logistics*, 15(2), 1-23.
- Pokharel, S. (2005). Perception on information and communication technology perspectives in technology. *The Journal of Enterprise Information Management*, 18(2), 136-149.
- Pooley, J. M. (1991). Private warehouse cost dynamics. *International Journal of Physical Distributions and Logistics Management*, 21(9), 4-11.
- Preacher, K. J., & Leonardelli, G. J. (2012). *Calculation for the Sobel test. An interactive calculation tool for mediation test*. Retrieved May 12, 2012, from <http://quantpsy.org/sobel/sobel.htm>
- Pyhrr, P. A. (1973). *Zero-base budgeting: A practical management tool for evaluating expenses*. New York, NY: John Willey and Sons.
- Richey, R. G., Jr., & Autry, C. W. (2009). Assessing inter-firm collaboration/technology investment trade-offs: The effect of technological readiness and organisational learning. *The International Journal of Logistics Management*, 20(1), 30-56.
- Rinehart, L. M., & Ragatz, G. L. (1996). Management of facility and human resources in materials and logistics management. *Journal of Business Logistics*, 17(2), 1-18.
- Rizzi, H., & Zamboni, R. (1999). Efficiency improvement in manual warehouse through ERP systems implementation and redesign of the logistics processes. *Logistics Information Management*, 12(5), 367-377.
- Ronnenburg, S. K., Graham, M. E., & Mahmoodi, F. (2009). The important role of change management in environmental management system implementation. *International Journal of Operations and Production Management*, 31(6), 631-647.
- Roscoe, J. T. (1975). *Fundamental research statistics for the behavioural sciences* (2nd ed.). New York: Holt, Rinehart, and Winston.
- Rosena, M. A., Harlina Suzana, J., & Sabariah, M. (2008). Logistics and supply chain in Malaysia: Issues and challenges. *EASTS International Symposium Transportation incorporating Malaysian Universities Transport Research Forum Conference 2008 (MUTRFCO8)*, Universiti Teknologi Malaysia. 12-13 August 2008.

- Roodbergen, K. J., & Vis, I. F. A. (2006). A model of warehouse layout. *IIE Transactions*, 38(10), 799-811.
- Rouwenhorst, B., Reuter, B., Stockrahm, V., Van Houtum, G. J., Mantel, R. J., & Zijm, W. H. M. (2000). Warehouse design and control: Framework and literature review. *European Journal of Operational Research*, 122(3), 515-533.
- Runyon, R. P., & Audrey, H. (1980). *Fundamentals of behavioural statistics* (4th ed.). Harvard University Press.
- Ruriani, D. C. (1999). Managing under pressure. *Warehousing Management*, 6(7), 52-54.
- Russell, R. S., & Taylor, B. W. (2011). *Operation management: International student version* (7th ed.). Asia: John Wiley and Sons, Incorporated.
- Saleh, A. S., & Ndubisi, N. O. (2006a). An evaluation of SME development in Malaysia. *International Review of Business Research Papers*, 2(1), 1-14.
- Saleh, A. S., & Ndubisi, N. O. (2006b). SME development in Malaysia: Domestic and global challenges. *Working Paper 06-03, Department of Economics, University of Wollongong*. Retrieved July 13, 2012, from <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1140&context=commwkpapers>
- Salkind, N. J. (2009). *Exploring research*. New Jersey: Pearson Education.
- Sarant, P. C. (1978). *Zero-based budgeting in the public sector: A pragmatic approach*. Reading, MA: Addison-Wesley.
- Saud, M. B. (2005). *A comparative study of product attributes of Malaysian small and medium industries*. Unpublished PhD dissertation, Birmingham University, UK.
- Schein, E. H. (1988). *Organisational psychology* (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Schiff, M. (1972). *Accounting and control in physical distribution management*. Chicago, IL: National Council of Physical Distribution Management.
- Sekaran, U., & Bougie, R. (2010). *Research methods for business – A skill building approach* (7th ed.). New York: John Wiley.
- Senge, P. M. (1990). The leader's new work: Building learning organisations. *Sloan Management Review*, Fall, 7-23.
- Senge, P. M. (1992). *The fifth discipline – The art and practice of the learning organisation*. London: Century Business.
- Senge, P. M. (1999). *The dance of change: The challenges of sustaining momentum in learning organisations* (1st ed.). New York: Currency/Doubleday.
- Sherman, H., Rowley, D. J., & Armandi, B. R. (2007). Developing a strategic profile: The pre-planning phase of strategic management. *Business Strategy Series*, 8(3), 162-171.
- Sink, I., Langley, C. J., & Gibson, B. J. (1996). Buyer observations of the US third-party logistics market. *International Journal of Physical Distribution and Logistics Management*, 30(5), 34-36.
- Simchi-Levi, D., Kaminsky, P., & Simchi-Levi, E (2003). *Designing and managing the supply chain: Concepts, strategies and case Studies*. New York, NY: McGraw-Hill.
- SME Business Directory. (2009). Retrieved January 10, 2010, from <http://secure.smeinfo.com.my>
- SMI Business Directory. (2009). Retrieved January 10, 2010, from <http://www.smibusinessdirectory.com.my>
- SMIDEC. (2002). *SMI Development Plan (2001-2005)*. Kuala Lumpur: Percetakan Nasional Malaysia Berhad.

- SMIDEC. (2004). *SME Performance 2003: Report*. Kuala Lumpur, Malaysia: SMIDEC.
- Smith, J. D., & Nixon, K. L. (1994). Warehouse space and layout planning. In J. A. Tompkins & D. Hamerlink (Eds.), *The distribution management handbook*. New York, NY: McGraw Hill.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological Methodology 1982* (pp. 290-312). Washington DC: American Sociological Association.
- Sohail, M. S., & Sohail, A. S. (2003). The use of third party logistics service: A Malaysian perspective. *Technovation*, 23, 401-408.
- Stacey, R. (1996). Management and the science of complexity: If organisational life is non-linear, can business strategies prevail? *Research Technology Management*, 39(3), 8-13.
- Stock, J. R. (1997). Applying theories from other disciplines to logistics. *International Journal of Physical Distribution and Logistics Management*, 27(9/10), 515-539.
- Stock, J. R., & Lambert, D. M. (2001). *Strategic logistics management*. Singapore: McGraw-Hill.
- Sum, C. C., Teo, C. B., & Ng, K. K. (2001). Strategic logistics management in Singapore. *International Journal of Operations and Production Management*, 21(9), 1239-1260.
- Suppe, F. (1977). *The Structure of Scientific Theories* (2nd ed.). Champaign-Urbana, IL: University of Illinois Press.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York: HarperCollins Publishers.
- Taylor, G. S. (1991). Using performance appraisals of dispatchers to reduce driver turnover. *Transportation Journal*, 30, 49-55.
- The Antidote (1998). Planned change: Kurt Lewin's legacy. *CSBS*, (14).
- Ting, O. K. (2004). *SMEs in Malaysia: Pivotal points for change*. Retrieved August 16, 2009, from <http://www.mca.org.my>
- Tokar, T. (2010). Behavioural research in logistics and supply chain management. *The International Journal of Logistics Management*, 21(1), 89-103.
- Tompkins, J. A. (1996). Measuring warehouse performance. How are you doing? *Annual International Conference Proceedings – American Production and Inventory Control Society*, 218-223.
- Tompkins, J. A., & Smith, J. D. (1998). *The warehouse management handbook*. US: McGraw-Hill.
- Tompkins, J. A., White, J. A., Bozer, Y. A., Frazelle, E. H., Tanchoco, J. M. A., & Trevino, J. (1996). *Facilities planning* (2nd ed.). New York, NY: John Wiley and Sons.
- Tompkins, J. A., White, J. A., Bozer, Y. A., & Tanchoco, M. A. (2002). *Facilities Planning* (3rd ed.). Hoboken, NJ: John Wiley and Sons, Incorporated.
- Tracey, M., & Smith-Doerflein, K. A. (2001). Supply chain management: What training professionals need to know. *Industrial and Commercial Training*, 33(3), 99-103.
- Tuninga, R. (1988). The international logistics manager and input-output analysis. *Asia International Journal of Business Logistics*, 1(1), 13-17.
- Two charged over theft of jet engines. (2006, November 23). *The Star*. Star Publication, Malaysia.

- UNDP. (2007). *Annual Report 2007*. Retrieved January 10, 2009, from <http://www.undp.org/publications/annual report 2007/>
- United Parcel Services (UPS) (2005). *UPS reveals Asia business monitor survey findings*. Retrieved January 10, 2009, from <http://www.ups.com>
- US Department of Labour. (2000). *Career guide to industries, US Department of Labour, Washington, DC*. Retrieved March 17, 2009, from <http://www.stats.bls.gov/oco/cg>
- Value Based Management.net. (2012). Retrieved January 10, 2009, from http://www.valuebasedmanagement.net/methods_lewin_force_field_analysis.html
- Van den Berg, J. P. (1999). A literature survey on planning and control of warehousing system. *IIE Transactions*, 31, 751-762.
- Ventakaraman, N. (1989). Strategic orientation of business enterprises: The construct, dimensionality, and measurement. *Management Science*, 35(8), 942-962.
- Ventakaraman, N., & Grant, J. H. (1986). Construct measurement in strategy research: A critique and proposal. *Academy of Management Review*, 11, 71-86.
- Warehousing Education and Research Council (WERC) (1999). *A guide to effective motivation and retention programs in the warehouse*. Oak Brook, IL: Warehousing Education and Research Council.
- Warehousing Education and Research Council (WERC) (2001). *Using competencies in the warehouse*. Oak Brook, IL: Warehousing Education and Research Council.
- Wernerfelt, B. (1984). The resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180.
- Wernerfelt, B. (1995). The resource-based view of the firm: Ten years after. *Strategic Management Journal*, 16(3), 171-174.
- Wilkinson, I. F. (1981). Power, conflict, and satisfaction in distribution channels – An empirical study. *International Journal of Physical Distribution and Material Management*, 11(7), 20-30.
- Wilson, E. J., & Woodside, A. G. (1994). A two-step model of influence in group purchasing decisions. *International Journal of Physical Distribution and Logistics Management*, 24(5), 34-44.
- Womack, J. P., Jones, D. T., & Roos, D. (1990). *The machine that changed the world*. New York, NY: Maxwell Macmillan International.
- Yang, C., & Huang, J. B. (2000). A decision model for IS outsourcing. *International Journal of Information Management*, 20, 225-239.
- Zelditch, M. (1962). Some methodological problems of field studies. *American Journal of Sociology*, 69, 566-576.
- Zikmund, W. G. (2003). *Business research methods*. Mason, Ohio: South-Western.