

THE BEST PRACTICE OF VENDOR PERFORMANCE EVALUATION FOR
THE FISHING REEL MANUFACTURING INDUSTRY

CONNIE TING

A project report submitted in partial fulfillment of
the requirements for the award of the degree of
Master of Management (Technology)

Faculty of Management and Human Resource Development
Universiti Teknologi Malaysia

MAY, 2009

DEDICATION

*“To my beloved husband, father, mother and brothers.
Thanks for the support and encouragement.”*

ACKNOWLEDGEMENT

Praise is to the Almighty God of the Universe from whom I come and belong. This piece of work would not become possible without the contributions from many people and organizations. Most importantly, I would like to acknowledge my supervisor, Assoc. Prof. Dr. Rohaizat Baharun for his kind assistance, constructive criticisms and observations in this master project. A special thank you to Assoc. Prof. Dr. Abu Bakar Abd. Hamid and Dr. Huan Hon Tat as my examiners for comments and advice in enriching the quality of this project. I also like to thank those Shimano's staffs especially Teresa Fong and Huan Pui Woon for their valuable support and co-operation that have provided me with very useful background data and information. Thanks in advance to my fellow postgraduate student such as Anan, Tan Owee Kuwang, and others which had provided full support and encouragement for the completion of this project. Many thanks go to my husband, Toh Tien Choon who has been given me a lot of guidance and supportive all the while. The precious encouragement from parent, Ting Chung Ing and Kiu Sue Ing is very much appreciated. Many more persons participated in various ways to ensure my research succeeded and I am thankful to them all.

ABSTRACT

This research is dealing with the criteria used for vendor performance evaluation in Fishing Reel manufacturing industry. The main objective is to identify the best practice for vendor performance evaluation, investigate the differences between vendor selection criteria and vendor performance evaluation criteria. In addition, this research intended to develop the ideal vendor performance evaluation model and Vendor Performance Evaluation Database System (VPEDS) to enhance the existing vendor performance evaluation. Hence, research questions were design to obtain the appropriate response to meet the research objective. This research is done on Shimano Components (Malaysia) Sdn. Bhd, Pekan Nanas. Questionnaire is used to collect the primary data. The research methodologies used include the Mean comparison analysis, Factor Analysis, Paired T-Test, Regression Analysis, and Microsoft Access. Mean comparison analysis is used to perform mean score analysis for each criterion of vendor performance evaluation. Meanwhile, the best practice for vendor performance evaluation is identified by using factor analysis. Paired T-Test is used to identify the differences between vendor selection criteria and vendor performance evaluation criteria. Regression analysis is used for ideal modeling development. Eventually, Microsoft Access is used for the Vendor Performance Evaluation Database System (VPEDS) development. As a conclusion, the best practices for vendor performance evaluation in Fishing Reel industry are quality, delivery and claims. The research findings also show that there are no different between vendor selection criteria and vendor performance evaluation criteria. The only differences between vendor selection and vendor performance evaluation is the timing of the vendor performance captured.

ABSTRAK

Kajian ini berkaitan dengan ciri-ciri yang digunakan untuk menilaikan prestasi pembekal dalam industri pembuatan alat memancing. Objektif utama bagi kajian ini adalah untuk mengenalpasti praktis terbaik bagi penilaian prestasi pembekal dan perbezaan di antara ciri-ciri pemilihan pembekal dengan ciri-ciri penilaian prestasi pembekal. Tambahan pula, model penilaian prestasi pembekal yang unggul dibentuk dan sistem penilaian prestasi pembekal yang berbentuk pangkalan data dihasilkan bertujuan untuk membaiki sistem penilaian prestasi pembekal yang sedia ada sekarang. Dengan itu, soalan-soalan kajian telah direka untuk menjawab persoalan-persoalan yang bersesuaian dengan kajian ini. Kajian ini dijalankan di Shimano Components (Malaysia) Sdn. Bhd., Pekan Nanas. Soal selidik merupakan cara yang digunakan dalam kajian ini untuk mendapatkan data primer. Kaedah-kaedah penyelidikan yang digunakan termasuklah ujian perbandingan min, ujian faktor analisis, ujian pasangan T, regresi analisis dan Microsoft Access. Ujian perbandingan min digunakan untuk membandingkan tahap min bagi setiap ciri yang terdapat dalam penilain prestasi pembekal. Manakala, praktis terbaik bagi penilaian prestasi pembekal boleh ditentukan dengan menggunakan ujian faktor analisis. Ujian pasangan T digunakan untuk mengenalpastikan perbezaan di antara ciri-ciri pemilihan pembekal dengan ciri-ciri penilaian prestasi pembekal. Model penilaian prestasi pembekal yang unggul direka dengan menggunakan regresi analisis dan Microsoft Access digunakan untuk membentuk sistem penilaian prestasi pembekal yang berdasarkan pangkalan data (VPEDS). Kesimpulannya, praktis terbaik bagi penilaian prestasi pembekal dalam kajian ini ialah quality, penghantaran dan tuntutan. Selain itu, kajian ini juga menunjukkan tidak ada perbezaan di antara ciri-ciri pemilihan pembekal dengan ciri-ciri penilaian prestasi pembekal. Perbezaan yang wujud sebenar adalah tempoh prestasi pembekal dinilai.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENTS	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xiii
	LIST OF FIGURES	xv
	LIST OF ABBREVIATIONS	xvi
	LIST OF APPENDIX	xvii
1	INTRODUCTION	1
	1.1 Introduction	1
	1.2 Issues and Problem Statement	2
	1.3 Research Objectives	5
	1.4 Research Questions	5
	1.5 Scope of Study	6
	1.6 Research Justifications	7
	1.7 Chapters Organization	7

2	LITERATURE REVIEW	9
2.1	Introduction	9
2.2	Introduction to the Fishing Reel Manufacturing Industry	9
2.3	Definition of Best Practice	10
2.4	Definition of Vendor	11
2.5	Supply Chain Management in the Manufacturing Industry	12
2.6	The Overview Process of Source of Supply	13
2.7	Vendor Selection	15
	2.7.1 Source of Vendor Information	17
	2.7.2 Criteria of Vendor Selection	19
	2.7.2.1 Quality	21
	2.7.2.2 Delivery	21
	2.7.2.3 Performance History	22
	2.7.2.4 Warranties and Claims Policy	23
	2.7.2.5 Price	23
	2.7.3 Process of Vendor Selection	24
	2.7.4 Methods of Vendor Selection	27
	2.7.4.1 Bids	27
	2.7.4.2 Tenders	27
	2.7.4.3 Negotiation	28
2.8	Vendor Performance Evaluation	29
	2.8.1 Criteria of Vendor Performance Evaluation	30
	2.8.1.1 Quality	32
	2.8.1.2 Delivery	32
	2.8.1.3 Customer Claims	33
	2.8.1.4 Cost	33

	2.8.1.5 Scrap Rate	34
	2.8.1.6 Product Capabilities	34
	2.8.1.7 Process Environment	35
2.9	Process of Vendor Performance Evaluation	35
2.10	Vendor Performance Evaluation Method	36
	2.10.1 Categorical Method	37
	2.10.2 Cost – Ratio Method	38
	2.10.3 Linear Averaging/ Weighted-Point Method	40
2.11	Vendor Performance Evaluation System	41
	2.11.1 Supplier Performance Evaluation System (SPES)	41
	2.11.2 Xcitec® Supplier Rating	42
2.11	Conclusion	43
3	RESEARCH METHODOLOGY	45
3.1	Introduction	45
3.2	Research Design	46
3.3	Data Collection Method	47
	3.3.1 Primary Data	47
	3.3.1.1 Questionnaire	47
	3.3.1.1.1 Qualitative Question	48
	3.3.1.1.2 Quantitative Question	49
	3.3.2 Secondary Data	49
3.4	Preliminary Research	50
	3.4.1 Pilot Study	50
3.5	Research Methodology Flow Chart	52
3.6	Population of the Study	53
3.7	Instrument of Study	55
	3.7.1 Section A: Respondents	56

	Demographic	
	3.7.2 Section B: Criteria and Method Used for Vendor Selection and Vendor Performance Evaluation	57
3.8	Data Analysis Method	58
	3.8.1 The Mean Analysis	58
	3.8.2 T- Test	59
	3.8.3 Factor Analysis	60
	3.8.4 Data Transformation	60
	3.8.5 Regression Analysis	61
3.9	An Internet-Based Vendor Performance Evaluation Database System	62
	3.9.1 Microsoft Access	62
3.10	Conclusion	64
4	DATA ANALYSIS	65
4.1	Introduction	65
4.2	Respondent Analysis	66
4.3	Demographic Analysis	67
	4.3.1 Gender of Respondents	67
	4.3.2 Respondents' Length of Service	68
	4.3.3 Respondents' Level of Academic Qualification	69
	4.3.4 Respondents' Work Department	69
	4.3.5 Respondents' Job Involvement	70
4.4	Descriptive Analysis	71
	4.4.1 Reliability Test Analysis	73
	4.4.2 Mean Analysis for Source of New Vendor During Vendor Selection	73
	4.4.3 Mean Analysis for Criteria of Vendor	75

	Selection	
4.4.4	Mean Analysis for Method of Vendor Selection	76
4.4.5	Mean Analysis for Method of Vendor Performance Evaluation	77
4.4.6	Mean Analysis for Criteria of Vendor Performance Evaluation	77
4.5	Hypothesis Testing for Criteria of Vendor Selection and Vendor Performance Evaluation	78
4.6	Factor Analysis for Criteria of Vendor Performance Evaluation	79
4.7	Vendor Performance Evaluation Modeling	82
4.8	An Internet-Based Vendor Performance Evaluation Database System Development	83
5	SUMMARY, CONCLUSION AND RECOMMENDATION	85
5.1	Introduction	85
5.2	Summary of Research Finding	86
	5.2.1 Criteria of Vendor Selection and Vendor Performance Evaluation	87
	5.2.2 The Best Practice of Vendor Performance Evaluation	88
	5.2.2.1 Quality	89
	5.2.2.2 Delivery	89
	5.2.2.3 Claims	90
	5.2.3 The Different of Criteria of Vendor Selection and Vendor Performance Evaluation	91

5.2.4 Enhancement of Vendor Performance Evaluation System	92
5.3 Conclusion	93
5.4 Future Research	94
5.4.1 Expanding the Scope of Research	94
5.4.2 A Research on Comparison	95
5.4.3 Expanding the Identified Criteria	95
5.4.4 Enhancement of the System Development	96
5.4.4.1 Various the Sub Criteria	96
5.4.4.2 Advance System Development	96
REFERENCE	97
APPENDIX A	106
APPENDIX B	110
APPENDIX C	111
APPENDIX D	112
APPENDIX E	113

LIST OF TABLES

TABLE NO.	TITLE	PAGE
2.1	Sources of Vendor Information	17
2.2	Dickson's Vendor Selection Criteria	20
2.3	Illustration of the Categorical Method of Vendor Performance Evaluation	38
2.4	Example of Quality Cost	39
2.5	Cost Comparison Utilizing Cost-Ratio Method of Vendor Rating	40
3.1	Reliability Coefficient Result	49
3.2	Table of Sampling Size Introduced by Krejcie and Morgan (1970)	52
3.3	List of Respondents Targeted	53
3.4	5 Points of Likert Scale	55
3.5	Summary of Research Methodology	62
4.1	Distribution Based On Department	64
4.2	Gender of Respondents	66
4.3	Respondents' Length of Service	66

4.4	Respondents' Level of Academic Qualification	67
4.5	Respondents' Work Department	68
4.6	Respondents' Job Involvement	69
4.7	Likert Scale	70
4.8	Mean Level	70
4.9	Reliability Coefficient Result	71
4.10	Rank for Source of New Vendor During Vendor Selection	72
4.11	Rank for Criteria of Vendor Selection	73
4.12	Rank for Method of Vendor Selection	74
4.13	Rank for Method of Vendor Performance Evaluation	75
4.14	Rank for Criteria of Vendor Performance Evaluation	76
4.15	Paired Sample T Test Result for Criteria of Vendor Selection and Vendor Performance Evaluation	77
4.16	Extraction Method Using Principal Axis Factoring – Total Variance Explained	78
4.17	Component Matrix	79
4.18	Model Summary	80

LIST OF FIGURES

FIGURE NO	TITLE	PAGE
2.1	Supplier Relations and Manufacturing Performance	14
2.2	Simplified Three-Stage Decision Tree for Vendor Selection	16
2.3	Vendor Selection Process	26
2.4	Vendor Performance Evaluation With Those Criteria	31
2.5	Vendor Performance Evaluation Process	36
3.1	Research Methodology Flow	50
4.1	An Internet-Based Vendor Performance Evaluation Database System (VPEDS)	82

LIST OF ABBREVIATIONS

μ	– Mean
N	– Number of observations or population sizes
$\sum_{i=1}^N X_i$	– Summation of all X_i
JIS	– Just In Time
Log	– Logarithm
QC	– Quality Control
R&D	– Research and Development
SCM	– Supply Chain Management
SPSS	– Statistical Package for Social Science
US	– United States
VPEDS	– Vendor Performance Evaluation Database System

LIST OF APPENDICES

APPENDICES	TITLE	PAGE
A	Questionnaires	106
B	KMO and Bartlett's Test of Sphericity	110
C	ANOVA Analysis in Regression Analysis	111
D	Coefficient Analysis in Regression Analysis	112
E	Vendor Performance Evaluation Database System (VPEDS) Visual Basic Script	113

CHAPTER 1

INTRODUCTION

1.1 Introduction

Outsourcing is the practice of using outside firms to handle work normally performed within a company. It is a familiar concept to many entrepreneurs. Small companies routinely outsource their payroll processing, accounting, distribution, and many other important functions commonly because they have no other choice. Many large companies turn to outsourcing to cut costs. In response, entire industries have evolved to serve companies outsourcing needs (All Business, 2008).

Nowadays, outsourcing is critical for the success of contemporary companies in the current competitive marketplace, and thus, vendor selection at this moment is an important process as new products development (Lakey, 2005). In addition, the project management methodologies have also emphasized the working relationship with external organization such as suppliers. Outsourcing has become a major trend because it allows companies to bring their products and services to the market faster and often at a more competitive price. Therefore, external partnership can become beneficial for both the vendor and customer (Kerzner, 2006). Bolch (2007) has recently stated that cost is no longer one of the top benefits of outsourcing. In fact,

many of the companies are now looking at strategic value and speed to market as the primary benefits of outsourcing.

The foremost expectation is the vendor's commitment to deliver a quality product or service. This includes all aspects of delivery, such as providing quality customer service, excellent support and a high degree of responsiveness. Vendor commitment is also demonstrated through a combination of customer focus, trust and other relationship-based elements geared to helping a customer succeed. Ultimately, the vendor management office function expects the vendor particularly strategic vendors to be invested in the customer relationship.

Commitment also includes a vendor's demonstrated interest in working with a customer such that each stakeholder in the relationship develops a deeper knowledge of his respective needs and issues. This type of exchange typically leads to relinquishing some control and forfeiting self-interest in favor of mutually compatible objectives. In other words, vendor performance evaluation plays an important role in the vendor management too. It can be a control function to standards for performance of people and processes are set, communicated, and applied. As trust is developed, fears that the vendor or the customer will act opportunistically are alleviated (Guth, 2008).

1.2 Issues and Problem Statement

A successful and valuable product produced mostly depends on the co-operation between manufacturer and its vendor. The right vendor is one who will meet and complement the organization's needs from its corporate culture to long-term future needs (Robinson and Kalakota, 2004). Vendor is the one who plays a very important role in recent industry manufacture context.

Vendor selection decision is a complex process which complicated by the fact of various criteria such as procurement cost, product quality, and delivery performance. Selection of a wrong vendor or source could be enough to upset the company's financial and operational position. Traditionally vendors are selected on their ability to meet the quality requirements, delivery schedule and the price offered. However, in modern management, one needs to consider many other factors with the aim of developing a long-term vendor relationship. Vendors are considered as the best intangible assets of any organization (Gopalkrishnan, 1990).

The analysis of criteria for selection and measuring the performance of vendors has been the focus of many academicians and purchasing practitioners since the 1960's. According to those published article such as Ansari and Modarress (1986), Benton and Krajeski (1990), Bernard (1989), Browning et al. (1983), Burton (1988), Ellram (1990), Hahn et al. (1983), Jackson (1983), Kralijic (1983), and Treleven (1987) as sited in Talluri and Narasimhan (2003), there are plenty of focus on vendor selection, but a minor emphasizes will be on the vendor performance evaluation. Dickson (1966) as sited in Weber et al. (1991) suggested: "From the purchasing literature, it is fairly easily to abstract a list of at least 50 distinct factors (characteristics of vendor performance) that are presented by various authors as being meaningful to consider in a vendor selection decision". Thus, vendor performance evaluation can be a key factor to influence the vendor selection decision making.

The functions of vendor management cycle includes planning, organizing, leading, and controlling - planning moves forward into all the other functions, and controlling reaches back. Controlling is directly related to planning. The controlling process ensures that plans are being implemented properly. Controlling is the final link in the functional chain of management activities and brings the functions of management cycle full circle. A management function will not run smoothly without control (Allen, 1998). This concept applies in vendor management cycle. Vendor performance evaluation is a control function to standards for performance of people

and processes are set, communicated, and applied. Effective control systems use mechanisms to monitor activities and take corrective action, if necessary.

Traditionally, performance checks have been made on price, quality, and delivery of incoming materials. However, other factors may also be relevant and helpful in assessing the performance of vendors (Weber et al., 1991). In addition, a clearly defined method of relating these performance factors to reflect the relationships among them can serve the vital function of generating a measure of the value delivered, as a means of comparing vendors and extending the value of the purchasing dollar.

Recently there are a plenty of criteria have been used to evaluate those vendors performance in current manufacturing industry. Meanwhile, there is also no standard vendor performance evaluation criteria specified for any manufacturing industry include organization in Fishing Reel manufacturing industry. By the way, Shimano Component (Malaysia) Sdn. Bhd., Pekan Nanas which one of the multi organization in Fishing Reel manufacturing industry realized the important of vendor performance evaluation as a control function to a organization. But, what are the vendor performance evaluation criteria that used in Shimano Component (Malaysia) Sdn. Bhd? What are the best practices for vendor performance evaluation in Shimano Component (Malaysia) Sdn. Bhd? Are the criteria of the vendor performance evaluation almost similar with criteria of vendor selection?

Vendor performance evaluation is a crucial and time-consuming activity for all organization in manufacturing industry includes Shimano Component (Malaysia) Sdn. Bhd. The entire vendor performance evaluation in Shimano Component (Malaysia) Sdn. Bhd is done by manual key system and all the report need to be compiled one by one by using Microsoft Excel. Manual key in system in recent competitive era will be a disadvantage because it will delay duration of project completed and reduce productivity. Besides, extra time is needed for data compilation during vendor performance evaluation process. Hence, how to enhance

the existing vendor performance evaluation system in Shimano Component (Malaysia) Sdn. Bhd in terms of accuracy and speed?

1.3 Research Objectives

The objectives of this study are as follows:

- i. To identify the criteria of vendor selection and vendor performance evaluation.
- ii. To identify the best practice for vendor performance evaluation.
- iii. To investigate the differences between vendor selection criteria and vendor performance evaluation criteria.
- iv. To develop an ideal vendor performance evaluation model and Vendor Performance Evaluation Database System (VPEDS).

1.4 Research Questions

- i. What are the criteria of vendor selection and vendor performance evaluation?

- ii. What is the best practice for vendor performance evaluation?
- iii. Is there any difference between vendor selection criteria and vendor performance evaluation criteria?
- iv. How to enhance the manual system for vendor performance evaluation in terms of accuracy and speed?

1.5 Scope of the Study

Basically, this research project focuses on determination of the best practice for vendor performance evaluation in fishing reel manufacturing industry Malaysia. The setting of study will be at Shimano Component (Malaysia) Sdn. Bhd., Pekan Nanas, located in Johore.

Shimano Component (Malaysia) Sdn. Bhd is the only Fishing Reel Company in Malaysia and the manufacturing operation started since 1986. Respondents for this research project comprises of employees of Top Management, ISO department, Human Resource department, Finance department, Process department, Project department, R&D department, Quality department and Purchasing department in Shimano Component (Malaysia) Sdn. Bhd. The study will look in-depth into the views of employees regarding the best practice for vendor performance evaluation in fishing reel manufacturing industry in Malaysia.

1.6 Research Justifications

This research is important for the organization to understand the significant criteria of vendor selection and vendor performance evaluation. Identifying the significant criteria of vendor selection and vendor performance evaluation will provide a check list for vendor selection and vendor performance evaluation activities that could assist the organization in better decision-making.

The significance of this study can be an important value to the company when they are selecting and evaluating vendor performance. Therefore, the findings may assist the organization to do the right decision in selecting the vendors and evaluate vendor's performance after selection. A successful outsource relationship can be built and directly increased the organization's competitive advantage in the market. As a result, it may increase their ability to make better choices regarding how these resources are employed.

On the others hand, the development system in this research might simplify the job for the organization those still using manual system. Enhancement of the system in vendor performance evaluation could save up the time and increase the speed for evaluation process. These research findings can also be used as a reference guide to assist the managers in future planning by creating a strategy to perform better in their existing practices.

1.7 Chapters Organization

The write-up in this research comprises of five (5) main chapters including the introduction, literature review, research methodology, data analysis and lastly the

conclusion and suggestion. These chapters are arranged and organized in such a way so that they are inter-related consequentially among each of the topics stated as above (Glatthorn, 1998).

Chapter 1: Introduction, discusses on the matters which are relevant to the fundamentals of research such as topic introduction, issues and problem statement, research aims and objectives, research scopes, research justification and the chapters organization. The first chapter is significant in determining the “4 WH 1 H” concept representing what, when, where, who and how.

Later, the second chapter focuses on the literature review. Chapter 2: Literature Review is written as to explain, review and gather the information related to the current state of the art regarding the criteria of vendor selection and vendor performance evaluation. Besides that, this chapter would also touch in detail about information regarding the current methods used in the vendor selection and vendor performance evaluation process. Meanwhile, those information are also source from reference books, articles and journals either in hardcopy format or online web-resources as well. Accordingly, Chapter 3: Research Methodology emphasize on the methods used in collecting data, including the secondary data through articles, books and journal reviews and primary data through questionnaires.

Chapter 4: Data Analysis is focus on the way data being analyzed. Data will be analyzed once data are collected through questionnaires completed. There are two types of data analysis method which is qualitative method employed and quantitative method. Chapter 5: Conclusion and Recommendation are written to draw conclusions of the study. A section is also devoted to limitations in this study output where there is a need for possible areas to further research in the system development of vendor performance evaluation.

REFERENCES

- Abdul Ghafar, M. N. (2003). "Penyelidikan Pendidikan." Skudai: Penerbit Universiti Teknologi Malaysia. 88-117.
- Abdul Hamid, A.B. and Krishnapillai, G. (2006). "The Impact of Purchasing and Early Supplier Involvement (ESI) in a Manufacturing Firm", Research Vot 75211, Universiti Teknologi Malaysia.
- All Business (2008). "The Benefits of Outsourcing for Small Businesses." Available: <http://www.allbusiness.com/human-resources/workforce-management-hiring/1084-1.html>. Last accessed: 5th July 2008.
- Allen G. (1998). "Management Modern". Available: http://telecollege.dcccd.edu/mgmt1374/book_contents/5controlling/ctrlproc/ctrlprocess.htm. . Last accessed: 14th July 2008.
- Amazines (2008). "Definition of Quantitative." Available: https://www.amazines.com/Quantitative_related.html. Last accessed: 10th August 2008.
- Anderson, D.L. and Lee, H. (1999), "Synchronised Supply Chain Excellence: The New Frontier", Achieving Supply Chain Excellence Through Technology, Montgomery Research, San Francisco, CA.
- Answer (2008). "Definition of Best Practices." Available: <http://www.answers.com/best%20practice>. Last accessed: 10th August 2008.

Answer (2008). "Definition of Vendor." Available:

<http://www.answers.com/topic/vendor>. Last accessed: 10th August 2008.

Answer (2008). "Definition of Quantitative." Available:

<http://www.answers.com/topic/quantitative>. Last accessed: 10th August 2008.

Anukul M. and Deshmukh S.G. (1993), Vendor Selection Using Interpretive Structural Modelling (ISM), International Journal of Operations & Production Management, Vol. 14, No. 6.

Arnolds, H., Heege, F. and Tussing, W. (1998). Materialwirtschaft und Einkauf, Gabler Verlag, Wiesbaden.

Ary, D., Jacobs, L. C., and Razavieh, A. (1979). "Introduction to Research in Education." Texas: Harcourt Brace College Publishers.

AskAWord, (2008). "Fishing Reel." Available:

<http://www.askaword.com/search.jsp?q=Fishing+reel&d=gg&libs=>. Last accessed: 28th September 2008.

Bairly P.J.H. (1987). "Purchasing and Supply Management". 5th Ed., London: Chapman & Hall.

BASS, (2008). "Glossary of Bass Fishing Terms and Expressions." Available:

http://sports.espn.go.com/outdoors/bassmaster/fishingtips/news/story?page=b_story_BASS_Glossary. Last accessed: 28th September 2008.

Best, J. W. and Kahn, J. V. (1998). "Research in Education." Boston, MASS: Allyn and Bacon. 20 – 38.

Besterfield, D.L. (2004). "Quality Control." 7th Ed. New Jersey: Pearson Education, Inc. 7,8,54.

Bolch M. (2007). "Benefits of Outsourcing Go Beyond Pricing." Available:
http://searchcio.techtarget.com/loginMembersOnly/1,289498,sid182_gci1254219,00.html?NextURL=http%3A//searchcio.techtarget.com/tip/0%2C289483%2Csid182_gci1254219%2C00.html. Last accessed: Last accessed: 5th July 2008.

Bussiness Dictionary (2008). "Definition of Best Practice." Available:
<http://www.businessdictionary.com/definition/best-practice.html>. Last accessed: 10th August 2008.

Bussiness Dictionary (2008). "Definition of Scrap Rate." Available:
<http://www.businessdictionary.com/definition/scrap-rate.html>. Last accessed: 20th September 2008.

Bossert, J.L. (1998), "Supplier Management Handbook", ASQC Quality Press, Milwaukee, Wisconsin.

Chapman, S.N., and Carter, P.L., 1990. "Supplier/Customer Inventory Relationships Under Just-In-Time." *Decision Sciences* 21 (1), 35 - 51.

Cebi, F. and Bayaktar, D. (2003). "An Integrated Approach For Supplier Selection", *Logistics Information Management*, Vol. 16 No. 6, pp. 395-400.

Cormican, K. and Cunningham, M. (2006). "Supplier Performance Evaluation: Lessons From A Large Multinational Organisation", *Journal of Manufacturing Technology Management*, Vol. 18 No. 4, National University of Ireland, Galway, Ireland

Dictionary (2008). "Definition of Best Practice." Available:
<http://dictionary.reference.com/browse/best%20practice>. Last accessed: 10th August 2008.

Erridge A. (1995). "Managing Purchasing", Butterworth-Heinemann Ltd, Linacre House, Jordan Hill, Oxford.

- Fowler, F. J. Jr. (1998). "Survey Research Methods." Beverly Hills. CA: Sage Publication.
- Fullan, M. (1991). "The New Meaning of Educational Change (2nd Edition)." London: Cassell.
- Gay, L. R. (1996). "Education Research: Competencies for Analysis and Application." 5th Edition. New Jersey: Prentice Hall, Inc.
- Goffin, K., Szejczewski, M. and New, C. (1997), "Managing Suppliers: When Fewer Can Mean More", International Journal of Physical Distribution & Logistics Management, Vol. 27 No. 7, pp. 422-36.
- Ghodsypour, S.H. and O'Brien, C. (1998), "A Decision Support System for Supplier Selection Using An Integrated Analytic Hierarchy Process and Linear Programming", International Journal of Production Economics, Vol. 56/57, pp. 199-212
- Ghodsypour, S.H. and O'Brien, C. (2001), "The Total Cost of Logistics in Supplier Selection, under Conditions of Multiple Sourcing, Multiple Criteria and Capacity Constraints", International Journal of Production Economics, Vol. 73, pp. 15-27.
- Glatthorn, A.A. (1998). "Writing the Winning Dissertation: A Step-by-Step Guide." California: Corwin Press.
- Groebner D. F. et al. (2008), "Business Statistic-A Decision Making Approach", 7th edition, New Jersey: Pearson Education Inc.
- Gopalkrishnan, P. (1990), "Purchasing and Materials Management", Tata McGraw-Hill, New Delhi.
- Guth S. (2008). "Vendor Management: Price Doesn't Matter." Available: http://www.cio.com/article/183853/Vendor_Management_Price_Doesn_t_Matter/1. Last accessed: 5th July 2008.

- Gunasekaran, A., Patel, C. and McGaughey, R.E. (2004), "A Framework For Supply Chain Performance Measurement", *International Journal of Production Economics*, Vol. 87 No. 3, pp. 333-47.
- Hague, P. (1993), "Questionnaire Design (Market Research)", London: Kogan Page Limited.
- Heizer, J. and Render, B. (2001), *Operations Management*, 6th ed., Englewood Cliffs, NJ: Prentice-Hall.
- Julie Pallant (2005). *SPSS Survival Manual*. USA. McGraw-Hill.
- Kerzner H. (2006). "Project Management: A Systems Approach to Planning, Scheduling and Controlling." Ninth Edition. Hoboken, New Jersey: John Wiley & Sons, Inc.
- Lahey J. (2005). "Simplifying the Vendor Selection Process." Available: <http://www.ciupdate.com/trends/article.php/3559381>. Last accessed: 5th July 2008.
- Lasch R. And Janker C.G. (2004). "Supplier Selection and Controlling Using Multivariate Analysis", Germany: Dresden University of Technology, Dresden.
- Leenders, M.R., Johnson, P.F., Flynn A.E., and Fearon H.E. (2006), "Purchasing and Supply Management", 13th edition, US: McGraw-Hill.
- Levine D. M. et al. (2001), "Applied Statistic For Engineer and Scientists", New Jersey, Prentice Hall Inc.
- Lewin, M. (2003), "Access 2003 In Easy Steps", United Kingdom: Computer Step.
- Malhotra, N.K. (1993), "Marketing Research: An Applied Orientation" Prentice-Hall: Englewood Cliffs, NJ.

- Maron, B. and Bruckner, J. (1998), "Aktives Lieferantenmanagement", *Qualität und Zuverlässigkeit*, Vol. 6, pp. 718-22.
- Merriam-Webster (2008), "Definition of Capability" Available: <http://www.merriam-webster.com/dictionary/capability>. Last accessed: 5th July 2008.
- Mohanty R.P. and Jae S.M. (1988). "Assuring the Quality in Procurement Systems: Some Objectives", *International Journal of Quality & Reliability Management*, Vol. 5 No.1, pp. 5-13.
- Monczka, R.M., Giunipero, L.C., and Reck, R.F. (1981), "Perceived importance of supplier information", *Journal of Purchasing and Materials Management*, pg. 21-29.
- Neely, A. (1999), "The Performance Measurement Revolution: Why Now and What Next?", *International Journal of Operations & Production Management*, Vol. 19 No. 2, pp. 205-28.
- Norusis M. J. (1998). "SPSS 8.0 Guide to Data Analysis", Upper Saddle River: Prentice Hall.
- Norusis M. J. (1997). "SPSS 6.1 Guide to Data Analysis", New Jersey: Prentice Hall.
- Norusis M. J. (1994). "SPSS 6.1 Base System User's Guide Part 1", United States of America: SPSS Inc.
- Norusis M. J. (1994). "SPSS 6.1 Base System User's Guide Part 2", United States of America: SPSS Inc.
- PARAS Solutions (2008). "Supplier Performance Evaluation System for MAPICS" Available: <http://www.parassolutions.com/spes1.htm>. Last accessed: 19th April 2009.

- PARAS Solutions (2008). "Welcome to PARAS Solutions Inc" Available:
<http://www.parassolutions.com/>. Last accessed: 19th April 2009.
- PC Magazine (2008). "Definition of Vendor." Available:
http://www.pcmag.com/encyclopedia_term/0,2542,t=vendor&i=53736,00.asp.
Last accessed: 10th August 2008.
- Piaw, C. Y. (2006). "Kaedah Penyelidikan Buku 1". Malaysia. McGrawHill Education.
- Petty, G. C. (1995). "Vocational-technical Education and the Occupational Work Ethic", *Journal of Industrial Teacher Education*. 32(3): 45-48.
- Rasli, A. (2006). "Data Analysis and Interpretation: A Handbook for Postgraduate Social Scientists". Malaysia, Penerbit University Technology Malaysia.
- Robinson M. and Kalakota R. (2004). "Offshore Outsourcing." Alpharetta: Mivar Press. Kalakota, R. and Robinson, M. (2004). *Offshore Outsourcing: Business Models, ROI and Best Practices*. Mivar Press, Alpharetta (USA), 9-14.
- Sahin, F., Robinson, E.P., (2002). "Flow Coordination and Information Sharing in Supply Chains: Review, Implications, and Directions for Future Research", *Decision Sciences* 33 (4), 505-536.
- Samatli-Pac, G., Taner, M. R., (2008). "The role of repair strategy in warranty cost minimization: An investigation via quasi-renewal processes", *European Journal of Operational Research*, Volume 197, Issue 2, pp. 632-641.
- Sarkis, J. and Talluri, S. (2002), "A Model for Strategic Supplier Selection", *Journal of Supply Chain Management*, Vol. 38 No. 1, pp. 18-23.
- Scheuing E.E. (1988). "Purchasing Management", St. John's University New York, New Jersey: Prentice Hall, Englewood Cliffs.

- Sekaran, Uma (2003), "Research Methods for Business: A Skill Building Approach", 4th Edition, New York: John Willey and Sons.
- Shimano, Y. (2005), "The Keizo Shimano Story", Japan: Shimano Inc.
- Small Bussiness Note (2008). "Definition of Vendor." Available: <http://www.smallbusinessnotes.com/glossary/defvendor.html>. Last accessed: 10th August 2008.
- Supplychainrecruit (2008). "Supply Chain." Available: <http://www.supplychainrecruit.com/content/services-for-candidates-75.htm>. Last accessed: 10th August 2008.
- Talluri, S. and Narasimhan, R. (2003). "Vendor Evaluation with Performance Variability: A Max–Min Approach". *European Journal of Operational Research* 146(3), 543–552.
- Tan, K.C., Kannan, V.R., Handsfield, R.B. and Ghost, S. (1999), "Supply Chain Management: An Empirical Study of Its Impact on Performance", *International Journal of Operations & Production Management*, Vol. 19 No. 10, pp. 1034-52.
- Timmerman, E. (1986), "An Approach to Vendor Performance Evaluation", *Journal of Purchasing and Materials Management*, pg. 2-8.
- Tracey, M. and Tan, C.L. (2001), "Empirical Analysis of Supplier Selection and Involvement, Customer Satisfaction, and Firm Performance", *Supply Chain Management: An International Journal*, Vol. 6 No. 4, pp. 174-88
- Tracey, M. and Vonderembse, M.A. (2000). "Building Supply Chains: A Key to Enhancing Manufacturing Performance." *Mid-American Journal of Business*. 15(2). 11-20.
- Visitask (2008). "Definition of Best Practice." Available: <http://www.visitask.com/best-practice-g.asp>. Last accessed: 10th August 2008

Walliman, N. (2006), “ Social Research Methods”, London: Sage Publication. 109 - 129.

Weber, C.A., Current, J.R., and Benton, W.C. (1991), “Vendor Selection Criteria And Methods”. Faculty of Management Sciences, College of Business, The Ohio State University, Columbus, USA.

Willis, T.H., Huston, C.R., and Pohlkamp, F. (1993), “Evaluation Measures of Just-In-Time Supplier Performance”, *Production and Inventory Management Journal* 34 (2), 1 - 6.

Xcitec (2009). “Supplier Relationship Management” Available:
http://www.xcitec.de/index_en.html. Last accessed: 19th April 2009

Xcitec (2009). “Xcitec®Supplier Rating” Available:
http://www.xcitec.de/en/solutions/supplier_rating.html. Last accessed: 19th April 2009

Yu and Tsai (2008), “A Decision Framework for Supplier Rating and Purchase Allocation: A Case in the Semiconductor Industry”, *Journal of Computers & Industrial Engineering*, National Chi Nan University, Taiwan.