



**UNIVERSITI PUTRA MALAYSIA**

**EDUCATION AND TRAINING PRACTICES IN FOUR SELECTED  
MALAYSIAN MANUFACTURING COMPANIES**

**KARMEGAM KARUPPIAH.**

**FK 2005 44**

**EDUCATION AND TRAINING PRACTICES IN FOUR SELECTED  
MALAYSIAN MANUFACTURING COMPANIES**

**By**

**KARMEGAM KARUPPIAH**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,  
in Fulfilment of the Requirements for the Degree of Master of Science**

**August 2004**



## **DEDICATION**

To my mother

And

My family members

For all your support and understanding

With love and gratitude



Abstract of thesis presented to the senate of Universiti Putra Malaysia in  
fulfilment of the requirements for the degree of Master of Science

**EDUCATION AND TRAINING PRACTICES IN FOUR SELECTED  
MALAYSIAN MANUFACTURING COMPANIES**

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**August 2004**

**Chairman : Associate Professor Ir. Md. Yusof Ismail, PhD**

**Faculty : Engineering**

One of the company's major problems in education and training is how to identify the results of investments and human resources and how to compare these results with those of others. The lack of good comparative information on education and training expenditures has frustrated training decision makers, to make decisions about training and comparing the results with some standards. The objective of this case study is to identify investments and human resource practices in the education and training in selected companies. Information obtained on education and training from the respondent companies will be compared with the American Society of Training and Development (ASTD) database. These results will serve as a benchmark in education and training in these selected companies. This study was done using adapted questionnaire which are designed by the American Society for Training and Development (ASTD). The questionnaire was sent to 4 selected manufacturing companies from Small and Medium Industries Development Corporation (SMIDEC), Enterprise 50 award winners. The data collected from the 4 companies was compared with the ASTD database.



The results showed that the selected companies are giving less importance to employees' education and training compared to ASTD database. Companies A, B, C and D, overall investments such as total training expenditures per employee (RM), total hours of training eligible employees, trainers' wages and salaries per employee (RM) and training payments to outside companies per employee (RM) were less than the ASTD expenditures. Companies A, B, C and D are using more on classroom delivery method as a tool of training delivery to their employees. The result also showed that Companies A, B, C and D provided more on management and skill type of training to their middle managers, first-line managers and production employees. Based on this study, some recommendations are made for the Companies A, B, C and D. These companies should increase its employee's education and training expenditures as this are important to produce a good quality workforce. It also needs to use more new methods of training delivery. It should take advantage of learning technologies and try to use electronic or computer-based training methods such as CD-ROMs, Electronic Performance Support System (EPSS) and web-based learning. These companies also needs to improve its education and training contents such as the type of training provided, type of employee received training and the amount time of IT training. Type of training provided should included management, soft skills and technical skill training topic. The training should be provided to all type of employee in the Companies A, B, C and D. Overall this study provided the selected companies with helpful data to monitor and improve the effectiveness of their employees' education and training system.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia  
sebagai memenuhi keperluan untuk ijazah Master Sains

**AMALAN DALAM PENDIDIKAN DAN LATIHAN DI EMPAT SYARIKAT  
PEMBUATAN MALAYSIA**

**Oleh**

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Salah satu masalah besar yang dihadapi oleh syarikat di dalam latihan dan pendidikan ialah bagaimana untuk mengenalpasti hasil pelaburan dan amalan sumber manusia dan bagaimana untuk membandingkan hasil tersebut dengan syarikat yang lain. Kekurangan maklumat yang dapat membandingkan pelaburan di dalam latihan dan pendidikan, mengecewakan bagi mereka yang menentukan latihan, yang ingin membuat keputusan mengenai latihan dan membandingkan dengan sesuatu keputusan yang standard. Objektif bagi kajian ini ialah untuk mengenalpasti hasil pelaburan dan amalan sumber manusia di dalam syarikat yang dipilih ini. Maklumat mengenai latihan dan pendidikan diperolehi dari syarikat yang terpilih ini dibandingkan dengan sumber data dari Persatuan Latihan dan Perkembangan Amerika (ASTD). Data ini boleh digunakan sebagai pendarasan di dalam latihan dan pendidikan bagi syarikat tersebut. Kajian ini telah dijalankan dengan menggunakan borang soal selidik yang direka oleh Persatuan Latihan dan Perkembangan Amerika (ASTD). Soal selidik ini telah di hantar kepada 4 organisasi terpilih di kalangan pemenang '50 pemenang anugerah perusahaan' daripada SMIDEC. Hasil maklumbalas daripada 4 organisasi ini telah di bandingkan dengan sumber data dari ASTD. Keputusan kajian

menunjukkan bahawa syarikat yang terpilih ini kurang memberikan penekanan kepada kepentingan latihan dan pendidikan pekerja berbanding dengan sumber data dari ASTD. Keseluruhan hasil menunjukkan pelaburan dan amalan sumber manusia di dalam latihan dan pendidikan seperti jumlah perbelanjaan bagi seorang pekerja (RM), jumlah masa latihan bagi seorang pekerja, kadar gaji pelatih kepada seorang pekerja (RM) dan bayaran untuk latihan kepada syarikat luar (RM) untuk seorang pekerja bagi Syarikat A, B, C dan D adalah rendah berbanding dengan pelaburan ASTD. Syarikat A, B, C dan D menggunakan bilik darjah sebagai kaedah utama dalam penyampaian latihan kepada pekerja dengan memberikan banyak latihan berbentuk pengurusan dan kemahiran kepada pengurus pertengahan, pengurus bawahan dan operator pengeluaran. Berpandukan data ini, beberapa cadangan telah di buat bagi Syarikat A, B, C dan D. Syarikat ini perlu meningkatkan pelaburan dalam latihan dan pendidikan bagi menghasilkan kumpulan pekerja yang berkualiti. Syarikat ini perlu menggunakan pelbagai kaedah baru dalam penyampaian latihan. Ia perlu mengambil peluang dalam teknologi pembelajaran dan cuba menggunakan kaedah latihan berasaskan komputer atau elektronik seperti pembelajaran dalam CD-ROM, Sistem Sokongan Prestasi Elektronik dan laman web. Syarikat ini juga perlu meningkatkan kandungan latihan dan pendidikannya seperti jenis latihan yang diberikan, jenis kumpulan pekerja yang menerima latihan dan jumlah masa latihan dalam teknologi maklumat. Jenis latihan yang diberikan perlu merangkumi topik pengurusan, kemahiran halus dan kemahiran teknikal. Latihan ini perlu diberikan kepada semua jenis kumpulan pekerja dalam Syarikat A, B, C dan D. Secara keseluruhannya, hasil kajian ini memberikan syarikat terpilih ini dengan sumber data yang dapat membantu untuk memantau dan memperbaiki kecekapan sistem latihan dan pendidikan pekerja mereka.

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**Karmegam Karuppiah**





I certify that an Examination Committee met on 12 August 2004 to conduct the final examination of Karmegam Karuppiah on his Master of Science thesis entitled "Education And Training Practices In Four Selected Malaysian Manufacturing Companies" in accordance with Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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**DECLARATION**

I hereby declare that the thesis is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any degree at UPM or any other institutions.



---

**KARMEGAM KARUPPIAH**

Date: 7 JUN 2005

## TABLE OF CONTENTS

|                       | <b>Page</b> |
|-----------------------|-------------|
| DEDICATION            | 2           |
| ABSTRACT              | 3           |
| ABSTRAK               | 5           |
| ACKNOWLEDGEMENTS      | 7           |
| APPROVAL              | 8           |
| DECLARATION           | 10          |
| LIST OF TABLES        | 14          |
| LIST OF FIGURES       | 15          |
| LIST OF ABBREVIATIONS | 16          |

### CHAPTER

#### 1.0 INTRODUCTION

|     |                      |    |
|-----|----------------------|----|
| 1.1 | General Background   | 17 |
| 1.2 | Research Need        | 19 |
| 1.3 | Research Objective   | 20 |
| 1.4 | Layout of the Thesis | 20 |

#### 2.0 LITERATURE REVIEW

|      |   |    |
|------|---|----|
| 2.1  | Introduction  | 21 |
| 2.2  | Definition of Education and Training                                      | 22 |
| 2.3  | An Overview of Education and Training                                     | 23 |
|      | 2.3.1 Methods of Training   | 23 |
|      | 2.3.2 Source of Training  | 24 |
|      | 2.3.3 Method of Training Instruction                                      | 26 |
|      | 2.3.4 Human Resources Policies and Practices on<br>Education and Training | 33 |
| 2.4  | Training Content  | 35 |
| 2.5  | Education and Training Expenditures                                       | 36 |
|      | 2.5.1 Number of Employees Trained   | 38 |
|      | 2.5.2 Number Hours of Training  | 40 |
| 2.6  | Rationale for Education and Training                                      | 40 |
|      | 2.6.1 Quality of existing labour pool                                     | 41 |
|      | 2.6.2 Global Competition  | 43 |
|      | 2.6.3 Rapid and Continual Change In Knowledge and Skill                   | 45 |
|      | 2.6.4 Technology Transfer Problems  | 49 |
|      | 2.6.5 Changing Demographics   | 52 |
| 2.7  | Education and Training Correlation with TQM                               | 53 |
| 2.8  | Potential Benefits of Education and Training                              | 57 |
| 2.9  | Profile of Global Education and Training                                  | 59 |
| 2.10 | Education and Training Obstacles  | 70 |
| 2.11 | American Society for Training & Development (ASTD)                        | 72 |
|      | 2.9.1 Background of ASTD  | 72 |
|      | 2.9.2 The ASTD Benchmarking Services                                      | 73 |



|            |  |     |
|------------|--|-----|
| 2.12       | Benchmarking   | 74  |
| 2.12.1     | Definition of Benchmarking   | 74  |
| 2.12.2     | The Importance of Benchmarking   | 75  |
| <b>3.0</b> | <b>METHODOLOGY</b>   |     |
| 3.1        | Research Design  | 76  |
| 3.2        | Design of Questionnaire  | 78  |
| 3.3        | Case Study Population  | 79  |
| 3.4        | Data Analysis  | 82  |
| <b>4.0</b> | <b>RESULTS AND DISCUSSION</b>  |     |
| 4.1        | Company Background   | 83  |
| 4.2        | Comparisons Groups   | 83  |
| 4.3        | Basic Information  | 84  |
| 4.4        | Education and Training Key Ratios  | 85  |
| 4.4.1      | Total Education and Training Expenditures Per Employee                         | 85  |
| 4.4.2      | Total Education and Training Expenditures as a Percentage of Payroll           | 87  |
| 4.4.3      | Percentage of Eligible Employees Receiving Education and Training              | 88  |
| 4.5        | Education and Training Expenditures  | 90  |
| 4.5.1      | Total Hours of Training Per Eligible Employee                                  | 90  |
| 4.5.2      | Training – Eligible Employees Per Training FTE                                 | 91  |
| 4.5.3      | Trainers’ Wages and Salaries   | 92  |
| 4.5.4      | Education and Training Payments to Outside Companies Per Employees             | 94  |
| 4.5.5      | Total Tuition Reimbursement Per Employee                                       | 95  |
| 4.5.6      | Learning Technologies Expenditures   | 97  |
| 4.5.7      | Education and Training Payments to Outside Companies                           | 98  |
| 4.5.8      | Training Wages and Salaries as a Percentage of Total Expenditures              | 100 |
| 4.5.9      | Estimated Education and Training Expenditures Changes                          | 101 |
| 4.6        | Education and Training Delivery Methods  | 102 |
| 4.7        | Who Receives Education and Training  | 106 |
| 4.8        | Employees With 12 or Fewer Years of Formal Education                           | 108 |
| 4.9        | Training Content   | 109 |
| 4.9.1      | Percentage of Total Training Expenditures by Training Type                     | 109 |
| 4.9.2      | Training Expenditure by Employee Type  | 113 |
| 4.9.3      | Information Technology Training by Employee Type                               | 115 |
| 4.10       | Learning Technologies  | 117 |
| 4.11       | The Use of Education and Training Providers                                    | 120 |
| 4.12       | Summary of Expenditures and Human Resource Practices in Education and Training | 123 |



|            |  |            |
|------------|--|------------|
| <b>5.0</b> | <b>CONCLUSIONS AND RECOMMENDATIONS</b> |            |
| 5.1        | Conclusions                            | 131        |
| 5.2        | Recommendations                        | 134        |
|            | <b>REFERENCES</b>                      | <b>136</b> |
|            | <b>APPENDICES</b>                      |            |
| A          | Cover Letter                           | 144        |
| B          | Survey Questionnaire                   | 145        |
| C          | Questionnaire Report                   | 174        |
|            | <b>BIODATA OF THE AUTHOR</b>           | <b>182</b> |



## LIST OF TABLES

| <b>Table</b>  | <b>Page</b> |
|---|-------------|
| 2.1 List of training topics   | 36          |
| 4.1 Comparison group  | 83          |
| 4.2 Basic information about compared groups   | 84          |
| 4.3 Estimated changes in education and training expenditures from 2002 to 2004                  | 102         |
| 4.4 Percentages of estimated changes from 2002 to 2005 in training delivered by various methods | 106         |
| 4.5 Estimated changes in employee receiving education and training                              | 107         |
| 4.6 Percentage of employees with 12 or fewer years of formal education                          | 109         |
| 4.7 Percentage of total training expenditures by training type, 2002                            | 112         |
| 4.8 Percentage of total training expenditures by employees type, 2002                           | 115         |
| 4.9 Percentage of training on information technology by employee type, 2002                     | 117         |
| 4.10 Percentage of courses using various presentation methods in 2002                           | 120         |
| 4.11 Estimated percentage point change in use of methods by 2005                                | 120         |
| 4.12 Sources of education and training providers  | 122         |
| 4.13 Summary of education and training expenditures   | 129         |
| 4.14 Summary of Human Resources Practices in Education and Training                             | 130         |



## LIST OF FIGURES

| <b>Figure</b> |  | <b>Page</b> |
|---------------|--|-------------|
| 2.1           | Organizational relationship  | 46          |
| 3.1           | Research flowchart   | 77          |
| 4.1           | Total training expenditure per employee (RM)                                 | 86          |
| 4.2           | Total education and training expenditures as a percentage of payrolls        | 88          |
| 4.3           | Percentage of eligible employee receiving education and training             | 89          |
| 4.4           | Total hours of training per eligible employee                                | 91          |
| 4.5           | Training – eligible employees per training FTE                               | 92          |
| 4.6           | Trainers' wages and salaries per employee                                    | 93          |
| 4.7           | Education and training payments to outside companies                         | 95          |
| 4.8           | Total tuition reimbursement per employee                                     | 96          |
| 4.9           | Learning technologies expenditures   | 98          |
| 4.10          | Training payments to outside companies as a percentage of total expenditures | 99          |
| 4.11          | Training wages and salaries as a percentage of total expenditures            | 100         |
| 4.12          | Percentage of education and training delivery methods                        | 105         |



## LIST OF ABBREVIATIONS

|        |   |  |
|--------|---|--|
| AFTA   | - | Asian Free Trade Zone                                  |
| ASTD   | - | American Society for Training and Development          |
| CBT    | - | Computer-based training                                |
| EDB    | - | Economic Development Board                             |
| EPSS   | - | Electronic performance support system                  |
| EPU    | - | Economic Planning Unit                                 |
| FTE    | - | Full-Time-Equivalent                                   |
| GNP    | - | Gross National Product                                 |
| HR     | - | Human Resources  |
| ILO    | - | International Labour Organization                      |
| IMP2   | - | The Second Industrial Master Plan                      |
| JICA   | - | Japan International Co-operation Agency                |
| MSC    | - | Manpower Services Commission                           |
| NPC    | - | National Productivity Corporation                      |
| OJT    | - | On-the-job training                                    |
| SIRIM  | - | Standard and Industrial Research Institute of Malaysia |
| SMIDEC | - | Small and Medium Industries Development Corporation    |
| SIMs   | - | Small and Medium Industries                            |
| TQC    | - | Total Quality Control                                  |
| TQM    | - | Total Quality Management                               |



# CHAPTER 1

## INTRODUCTION

### 1.1 General Background

Malaysia has transformed rapidly from a commodity-based producing nation to become a manufacturer of industrial products and geared towards exports. With a good track record of economic growth, the country is well poised to fulfill its vision of becoming a fully industrialized nation by the year 2020. The Federation of Malaysian Manufacturers (FMM) has projected 7.2% growth for the manufacturing sector in 2004 compared with 5% in 2003, in tandem with the country's economic expansion. The importance of the manufacturing industries will become more significant as the country expands its industrial base in meeting the challenges of the next millennium.

Manufacturing companies are expected to complement the activities of the large scale industries through provision of essential inputs and components that will form the critical linkage between industries, thus building and enhancing the backbone of Malaysia's long term industrial development programme. Manufacturing companies assume a critical role in the government aspiration to develop Malaysia into an industrialized nation by the year 2020. In order to successfully compete in today's highly competitive market, manufacturing companies must improve the productivity and competitiveness.

One of the elements to meet this highly competitive market is providing ongoing education and training to the employees as a means of increasing worker productivity and performance and improving worker retention.

Collected human skills, talents, and knowledge of workers are one of the organization's most valuable assets. Today's industrial societies are emphasizing on education and training in order to keep management competitive in the international market. The progressive introduction of improvements in the robotics, information, telecommunications and telemetric technologies is a common phenomenon. It needs greater technical skill for workers to supervise, maintain and reprogram computer-assisted equipment and robots. Workers also must deal with new materials on the job and oversee quality control for the products that they produce. These developments involve new opportunities to improve the organizational processes and the labour life quality in companies' (Susana, 2002). Therefore a continuous education and training program for its workers has become a haste need for any manufacturing organization.

American Society of Training and Development (ASTD) is a world leading association of workplace learning and performance professionals, forming a world-class community of practice. ASTD's 70,000 members consist from more than 100 countries and 15,000 organizations – multinational corporations, medium-sized and small businesses, government, academia, consulting firms, and product suppliers. Founded in 1944, ASTD is now a global force, widening the industry's focus to connect learning and performance to measurable results. ASTD also have been granted Special Consultative Status with the United Nations Economic and Social Council. (Yates, 2001).

As a proof to ASTD creditability in education and training system, the International Labour Organization (ILO) has published ASTD's international comparisons report on worldwide patterns in employer-provided training in 2000. This ASTD report was based on data from 'ASTD's Benchmarking Service' online Measurement Kit, which collects information from all types of organizations on the nature of their education and training investments and practices.

## **1.2 Research Need**

As has already been emphasized, one of company's major problems in education and training is how to identify the results of investments and human resources practices and how to compare the results with those of others. The lack of good comparative information on education and training expenditures have frustrated training decision makers who are hoping to make decisions about training by comparing proven results.

The study will help to provide the selected companies with credible data on their education and training expenditure as compared with the American Society of Training Development (ASTD) database. This data maybe helpful for the companies to monitor and improve the effectiveness of their education and training system. Overall this study will help the selected companies to establish new benchmarking for their education and training system.



### **1.3 Research Objective**

The objective of this case study is:-

- i. To identify the investments and human resource practices in education and training.
- ii. To compare investment and human resource practices in education and training in the respondent companies with the American Society of Training and Development (ASTD) database.
- iii. To make some recommendations for effective education and training system.

### **1.4 Layout of the Thesis**

The thesis is structured in five chapters as listed below:

- Chapter One gives the introduction and set the foundation for the research undertaking;
- Chapter Two reviews the related literature on the Education and Training and any related study that were done by previous researchers;
- Chapter Three describes the research methodology and design of the questionnaires;
- Chapter Four focuses on the results and discussions of the findings and
- Chapter Five gives the conclusion of the findings and makes some recommendations for future education and training benchmarking in manufacturing industry as well suggestions for future work that can be carried out.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

The international globalization of the World markets for manufactured product has placed an emphasis on nations to improve manufacturing productivity. This need to improve productivity is further prompted by a loss of competitive edge in the global marketplace. The market competitiveness and efficiency of any nation is primarily dependent upon the economy, reliability, quality, quickness to learn, and ease of its manufacturing processes and the resulting quality of outcomes (products). To a major extent, the skills of the workplace determine the effectiveness and efficiency of the process manufacturing and quality of goods produced (Mital, 1999). Therefore human resources are without doubt one of the most important assets of any manufacturing organizations, particularly the people involved in the actual production process (Tenant, *et al.*, 2002).

As technology changes, the skill of workers also need to change. In order to compete successfully in the global market, manufacturing organizations must aim at training workers necessary to produce quality product. Human capital theory suggests that education or training raises the productivity of workers by imparting useful knowledge and skills, hence raising workers' future income by increasing their lifetime earnings (Xiao, 2002). Other researcher also provides an explanation that links investment in training with workers' wages. Therefore a continuous programme of training for employees in a manufacturing process (whether it is a continuous flow,

batch or one-off production) is essential for achieving higher productivity, better on-the-job performance, and improved quality. Japanese companies, which are accepted as leaders of world-class business, are good example of this approach (Tenant and Roberts, 2000).

## **2.2 Definition of Education and Training**

The Total Quality Management (TQM) process requires considerable training to implement and continual training to ensure continuous process, product, and personnel improvements. The ongoing development of personnel is one of the important fundamental elements in the Total Quality. The term development of personnel is referring to education and training. Training is defined as below (David, *et al.*, 1997): -

“Training is an organized, systematic series of activities designed to enhance an individual’s work-related knowledge, skills, understanding, and/or motivation. Training is distinguished from education by its characteristics of practicality, specificity, and immediacy. Education is a broader concept that is more philosophical and theoretical in nature than training.”

## 2.3 An Overview Of Education And Training

### 2.3.1 Methods Of Training

Training methods can be generally categorized as either *on-the-job* or *off-the-job*. On-the-job training is the most frequent method adopted, where the learner develops skills in the real-work environment, by actually using the same machinery and materials during the training as they work post-training. Tenant *et al.* (2002) concludes that it is an effective method, because the learners apply their training in real-time rather than sitting in a classroom environment, and forgetting what they learned when they return to their work.

From a survey done by Patel *et al.* (1994) in small-to-medium-sized companies in Britain shows that more than 90% of these companies use on-the-job training as means of providing staff training. The study shows that the popularity of on-the-job training may be due to its being relatively cheap when compared with other forms of training and to the fact that it does not necessitate staff being absent from work. Furthermore, training is often given only in traditional areas of work to complement existing skills rather than introducing concepts, philosophies or skills that are new to the company.

However according to Tennant (1985), off-the-job training provides opportunities to widen the boundaries of the teaching and can often be a useful initial step ahead of on-the-job training. From the survey done by Patel *et al.* (1994) it was revealed that larger-sized companies in Britain also use on-the-job training but supplement this, in many more cases, with external short courses, college courses and the use of training



consultants. A greater percentage of larger firms also use training manuals and videos as an educational vehicle.

### **2.3.2 Source Of Training**

In Malaysia, the government encourages SMIs to send their workers for continuous training and retraining. There are many sources of training available to the organizations that want to provide education and training to their employees. They include, amongst others, the National Productivity Corporation, Industrial Training Institute and Centre for Instructor and Advanced Skills Training. These institutions mainly focus on training for manufacturing and IT sectors.

The training delivery options for either method (on-the-job and off the job) can be sourced from either in-house or external sources, or a combination of both. All of these sources can be summarized to the three following categories that is in-house training, external training or combination of in-house and external training (Richard, 1993):

i. **In-house training**

According to Tennant (1985) in-house training is more suited to on-the-job training and should be set in the context of “focused learning”, where the learners begin to practice new knowledge and skills for their own work during the actual training courses. In-house training is a broad heading covering on-the-job training, in-house seminars/workshops, on-site media-based instruction (videotape, audiotape, satellite downlinks, etc.), and on-site computer-assisted