

**TRAINING PRACTICES AND THEIR EFFECTIVENESS:
THE EXPERIENCE OF SMALL AND MEDIUM-SIZE
ENTERPRISES IN CHINESE TAIPEI**

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ABSTRACT

To determine whether training programs produce real benefits for small and medium-size enterprises (SMEs), we must investigate the relationships between those programs and their effects on the business performance of SMEs. Although a number of previous studies have attempted to accomplish this task, serious inadequacies, such as inconsistent definitions of training and “rough” methods of training classification and measurement, have raised doubts about the validity of their findings. To remedy these inadequacies and more accurately assess the relationships between training and training effectiveness, this study employs a comprehensive measurement of training including training organization, expenditure, duration, process, and delivery methods. Its findings show that firms with sophisticated training systems and strong management support for training are most successful at maximizing the effectiveness of their training programs.



INTRODUCTION AND RESEARCH OBJECTIVE

An educated and well-trained work force is considered to be essential to the maintenance of a business firm's competitive advantage in a global economy. It is also believed that training can and should be a powerful agent to facilitate a firm's expansion and the development of its capabilities, thus enhancing profitability (Cosh, Duncan, and Hughes, 1998). However, Westhead and Storey (1997) suggest that employees in small and medium-size enterprises (SMEs) are much less likely to receive training than their counterparts in larger organizations. They offer two possible explanations to account for this phenomenon. One is "ignorance," which suggests that small business owners are not aware of the benefits of training and consequently provides less than an optimal amount of it to their employees. Another is the "market-forces" explanation, according to which business owners provide a less-than-optimal level of training because they anticipate that the costs associated with training may exceed the benefits (returns) to be derived from it.

These two opposing arguments have important policy implications. If ignorance is the major reason for inadequate training, then either owners/managers are poorly informed or training programs have not been marketed with sufficient vigor, or both. Such a situation would justify government intervention in the form of minimum training requirements or direct training subsidies for SMEs. If, on the other hand, the market-forces explanation is found to be superior, then government intervention could prove totally ineffective. If we are to intelligently decide which policy direction to follow, we must first carefully examine the relationship between training programs and business performance, and determine the type and extent of benefits which training brings to SMEs.

Despite the growing importance of SME research during the last decade, very little attention has been paid to the effectiveness of training programs for small and medium-size businesses. Cosh, Duncan, and Hughes (1998), Marshall et al (1993, 1995), and Westhead and Storey (1996, 1997) have attempted to rectify this situation. However, their studies are inconclusive and their focus is strictly limited to Western society. Consequently, additional research on this issue from a greater variety of perspectives has been encouraged (Westhead and Storey, 1996).

In a survey of 1,480 SMEs in Canada, Baldwin et al (1994) found both the proportions of employees receiving training and training expenditure per employee to be negatively correlated with business profitability. They also discovered that the most successful firms tend to train fewer workers than less-successful ones. A study by Wyncarczyk et al (1993) of fast-growth SMEs in the UK showed an insignificant relationship between the provision of training and firm performance when other related variables were controlled. Another survey conducted by the Cambridge Small Business Centre in the UK (1992), found no clear link between firm growth and the provision of training. Storey and Westhead (1994) after examining previous research on the relationship between training and small-business performance, concluded that the association between these two variables is not well established. Finally, Marshall et al (1995) suggested that management-training projects have little effect on the

performance of small firms, though they may be successful in larger companies with greater management skill and capacity.

Westhead and Storey claimed that the studies they had reviewed (1997) had failed to substantiate an alleged link between training and improved performance. Noting that training in SMEs may vary according to knowledge or skills conveyed, duration, proportion of the work force participating, and modes of delivery, they advocated studying the effects on firm performance of training programs classified according to their specific contents.

More recently, Cosh, Duncan, and Hughes (1998) investigated a sample of 1,640 UK SMEs that had participated in surveys in 1991 and 1995. As a result of their investigation, they found a positive link between training and firm survival, but one that was not statistically significant. The authors also examined the relationship between formal training and business performance in terms of employment growth and profitability. They found that training was strongly related to employment and sales growth, but unrelated to profit margins. In a subsequent review, Kitching (1998) faulted this investigation for defining “formal training” in a manner subject to differing interpretations by respondents. In addition he criticized the assignment of firms to trainer and non-trainer categories, based on the presence or absence of formal training programs, as “too rough” a system of classification. Kitching suggested a more sensitive conceptualization of the term “training investment,” one which takes account of differences in the nature and duration of training and the extent of employee coverage.

Like earlier research by Westhead and Storey (1997) and Kitching (1998), this study seeks to examine the relationship between training systems and their effectiveness. However, it employs a concept of training that is more comprehensive than that of other studies, one that includes training organization, expenditures, duration, employee coverage, and delivery methods. A key aim is to profile differences in the training practices of SMEs in Chinese Taipei and in the effectiveness of training programs conducted by such firms.

METHODOLOGY

Data Source

The population from which our sample was drawn is the “name list of manufacturing firms in Chinese Taipei,” an electronic file maintained by the Ministry of Economic Affairs. This list contains data on 7,686 firms with a work force of between 50 and 300 employees. Six hundred firms, randomly selected from the population to ensure representation by all size categories, were sent questionnaires regarding their training practices. Of the 568 questionnaires received by these firms (32 were undeliverable), 144 completed questionnaires were returned, for an effective response rate of 25.4%. A comparison of participating firms with non-participating ones showed no significant difference in firm size.

The average number of employees per sample firm was 146. Classified by ascending order of scale, 30.8% of the sample firms had fewer than 100 employees,



36.3% had between 100 and 200 employees, and 32.9% had between 200 and 300 employees. The typical sample firm had been in business for 22 years. Trade unions had been established at 31.6% of the respondent firms, but not at the remaining 68.4%. Ninety-six percent of the sample firms are privately owned, and the remainder are state-owned enterprises.

Classifying Respondent Firms by Training Effectiveness

Respondents were asked to rank the performance of their establishments with regard to ten aspects of training-related effectiveness, in accordance with a five-point scale ranging from “very good” (5) to “very bad” (1). The ten aspects are: product or service quality, work motivation, ability and knowledge, operational safety, profitability, work efficiency, job satisfaction, and the reduction of material wastage and absenteeism. Using the scores for these training-effectiveness indicators, this study employed cluster analysis to categorize the responding firms into “better” and “worse” performance groups. (See Table 1.) As a result, 84 firms were placed in the better training-effectiveness category and 46 in the worse category. (Since 14 of the sample firms did not complete the questionnaire, only 130 firms were classified in this manner.) The two groups were seen to be significantly different with regard to performance on the ten training-effectiveness indicators ($p < 0.01$). The cluster analysis procedure showed that the average scores of the firms in the better group were all higher than firms that in the worse group.

Is training effectiveness related to organizational characteristics? Data show that although the average number of employees per firm in the better training-effectiveness group (155) is a little higher than that of the worse group (141), there is no statistically significant difference between them. The better training-effectiveness group also has a larger amount of capital per firm (US\$69 million) than the worse group (US\$11 million); however, there is no significant difference here either. The only significant difference is that the average firm age (22 years) in the better group is considerably greater than that in the worse one (17 years). The implication is that perceived training effectiveness is not related to firm size as represented by employee number and amount of capital, but that older SMEs seem to achieve better training results than younger ones.

TRAINING ORGANIZATION AND EXPENDITURES, AND TRAINING PROVISIONS

Training consists of organized learning activities capable of improving individual performance through changes in knowledge, skills, or attitudes (Nadler, 1980). The training process includes such activities as identifying employee-training needs, designing annual training plans, devising training objectives, choosing delivery methods, implementing training programs, evaluating training results, and documenting training records. As an organizational subsystem (Goldstein, 1993), training must be closely coordinated with overall business strategy and the activities of line departments. Therefore, setting up a specific department within a firm to organize and implement employee training and development may result in more effective training.

Twenty-seven firms (33.8%) in the better training-effectiveness group responded “yes” to the question of whether they had set up a unit or department in charge of training affairs, while only eight firms (20.0%) in the worse training-effectiveness group did so. The proportion of firms establishing an independent training unit is significantly lower in the worse-effectiveness group than in the better one. This finding implies that establishing a specific department responsible for training does have a positive impact on training effectiveness. However, before taking action on this finding, an SME should first conduct a careful cost-benefit analysis to determine whether it is large enough to reap economies of scale from establishing a separate unit responsible for training.

We may also expect the size of the training budget to be related to training effectiveness. The present study shows that the average annual training expenditure per employee for the better training-effectiveness group was US\$182, higher than the US\$138 spent by the worse training-effectiveness group. However, the difference between the two amounts was not statistically significant. Another important indicator is the percentage of total payroll spent on training. The mean percentage for this indicator was 0.93% for the better training-effectiveness group and 0.84% for the worse one, although the difference was not significant. One possible explanation why no strong positive relationship emerged between training expenditure and training effectiveness is the way that training expenditure was calculated in this study. Specifically, the cost of maintaining an independent training staff, which was found to be more prevalent in the better training-effectiveness group, was not factored into the total cost of training. This practice would obviously place a downward bias on training expenditures incurred by larger firms, those, which are likely to spend the most on training, and thereby weaken the statistical relationship between training expenditure and training effectiveness.

In a comparison with training expenditures in other countries (Lynch, 1994), this study found that the percentage of total payroll spent on average by firms of Chinese Taipei on training exceeded that of Japanese firms (0.4%) and roughly approximated the average percentage spent by Canadian firms (0.90%). However, the 0.93% of payroll expended by the average firm of Chinese Taipei on training was well below the 1.8% spent by the typical firm in the United States (including large firms), 1.8% in West Germany, 1.5% in the Netherlands, and 1.7% in Australia. The percentages for these other countries were obtained by surveys taken ten to 15 years ago (1984-89), and we may expect that in the interim the gap in training expenditure between Western firms and SMEs of Chinese Taipei have, if anything, widened even further.

This study found a statistically significant relationship between the percentage of employees that received training and training effectiveness ($p < 0.1$). Firms in the better training-effectiveness group reported that 45.7% of their staff had received some type of training in 1998, versus 36.3% for the worse group. Differences were also reported according to position and job function. In the better firms, managers and supervisors received an average of 33.5 hours of training in 1998, professional and technical employees 32.4 hours, and clerical and manual workers 20.8 hours, respectively. The corresponding figures for firms in the worse group — 27.2, 22.0, and 14.2 hours — were considerably lower. However, the only job position to show a statistically significant difference ($p < 0.1$) in training time across the two types of firms was that of professional



and technical employee. Data used in this study indicate that the extent of training coverage and emphasis on technical training are closely related to training effectiveness, especially in the manufacturing sector.

MANAGING THE TRAINING PROCESS AND ENHANCING TRAINING EFFECTIVENESS

The training process includes such items as needs assessment, the setting of goals and objectives, the delivery of training services, the evaluation of results, and the coordination of training activities with other HRM functions. All of these steps are essential to the success of a training program.

Assessing the need for training is particularly important, because if this is not done an organization cannot be assured that the right type of training is being provided to its employees. As Table 2 indicates, there is a significant positive relationship between needs assessment and training effectiveness ($p < 0.1$). About 70% of the SMEs in the better training-effectiveness group had conducted needs analysis, while only 64.0% in the worse group had done so.

Training objectives provide a link between needs and results, helping to identify the type of instruction required in order closing performance gaps. Training objectives also serve as benchmarks against which to evaluate progress achieved in the realization of organizational goals. This study finds a significant difference ($p < 0.05$) between the proportion of firms in the better training-effectiveness group that designate training objectives (75.6%) and that in the worse group (57.8%) that do so. The implication is that firms that have a clear vision of their training objectives and know for what purposes training is being provided are more likely to achieve better training effectiveness.

This study does not find a significant relationship between results evaluation and training effectiveness, even though firms in the better training-effectiveness group are more likely to evaluate the effectiveness of their training programs than those in the other group are. However, the proportion of firms that submit the results of training evaluation to higher-level management is markedly greater ($p < 0.01$) in the better training-effectiveness group (78.5%) than in the worse one (48.8%). Similarly, the practice of applying the results of training evaluation to other HRM functions (promotions, job assignments, and the determination of compensation) is much more common in the better group (38.7%) than in the worse one (14.3%). This finding suggests that while there may not be a strong linkage between the evaluation of training results and training effectiveness, the manner in which SMEs employ evaluation results may have an important impact on the success of their training programs.

CATEGORIES OF TRAINING AND DELIVERY METHODS

There are three major venues for the delivery of training services: on-the-job, on-site off-the-job, and off-site off-the-job. Schuler and Jackson (1996) suggested that decisions concerning delivery sites and methods might be constrained by the type of learning that is to occur, as well as by considerations of cost and time. Table 2 lists three

venues and 14 delivery methods employed by firms participating in this study. Respondents were asked to report the frequency with which their organizations adopted each method, with 1 standing for “never,” 2 for “seldom,” 3 for “sometimes,” 4 for “often,” and 5 for “always.” Also presented are mean frequency scores and ANOVA test results for firms in the better and worse training-effectiveness groups.

On-the-job training allows trainees to learn how to perform their jobs under direct supervision. This type of training can be implemented by using such methods as apprenticeship training, job rotation, and assignment to a task-force team. Data indicate that SMEs in the better training-effectiveness group consistently employ all three methods of on-the-job training more frequently than do those in the worse group. However, the only statistically significant difference between the two groups was found to occur in the frequency with which they adopted the task-force-assignment method.

Many methods can be used to deliver training at the workplace but off the job, ranging from the traditional lecture to high-tech Internet learning. Firms in the better training-effectiveness group were seen to employ all nine off-the-job-training methods more frequently than did those in the other group. Moreover, there were found to be statistically significant differences in the frequency with which these groups employed all nine methods, with the exceptions of case studies and Internet teaching.

Two common methods by which business firms of Chinese Taipei deliver off-site training services to employees are enrolling them in college courses part-time and sending them to participate in workshops overseas. Since off-site training tends to be quite expensive, SMEs of Chinese Taipei employ it far less frequently than on-the-job or on-site training. Firms in the better training-effectiveness group are more likely to use both of the off-site training methods mentioned above than are firms in the worse group. This implies that the breadth and depth with which firms apply methods of delivering training are strongly and positively related to training effectiveness.

MANAGEMENT SUPPORT AND TRAINING EFFECTIVENESS

SME owners and managers play a pivotal role in making decisions relating to the provision of formal, job-related training (Matlay, 1996). The literature suggests that owners and managers of smaller firms tend to demand less training than those of larger ones do (Westhead and Storey, 1997). One possible explanation of this tendency is that time-related pressures and the high direct cost of training may make SMEs reluctant to invest in training or to allow their employees to attend training courses. If top management does not provide support for or undertake a commitment to employee training, a firm may focus little attention on training activities. We may thus expect a strong correlation to exist between the degree of management support for training and training effectiveness.

The present study poses two questions designed to evaluate the degree of management support for training. The first one asks whether line managers in a respondent firm encourage subordinates to participate in training programs. Possible response range from 1, “strongly disagree” to 5, “strongly agree.” The second question



asks whether, during business downturns and economic recessions, top management usually gives priority to cutting training expenditures in an effort to reduce operating costs. Responses to this question are: 1, “strongly agree”; 2, “agree”; 3, “it is hard to say”; 4, “disagree”; and 5, “strongly disagree.” (Note that the order of ranking responses is the reverse of that used for the previous question.) The mean score for responses to these two questions is used to indicate management support for training. The mean score for firms in the better training-effectiveness group (3.69) is markedly higher than that for firms in the worse group (3.26), and an ANOVA test indicates that the difference between the two is significant at $p < 0.01$. Thus management support is shown to be strongly related to training effectiveness.

RESEARCH IMPLICATIONS

The findings of this study have important implications for both academic researchers and training specialists. Previous studies attempted to estimate the impact of training on firm performance but did not achieve consistent findings. One of the major reasons for this inconsistency is the widely varying definition of training that these studies employed. Many of them measured only the amount of training provided. However, the provision of training may vary in the types of knowledge or skills conveyed, duration, numbers and percentages of employees covered, and modes of delivery. As a result of such variances, some types of training are more effective in improving individual firm performance than others improve. This study presents evidence that firms that have achieved greater effectiveness in training tend to have a more sophisticated training organization and training system than do those firms whose training methods have been less effective. The implication is that future studies seeking to investigate the relationship between training and performance should take special care in measuring training effectiveness. Simply determining whether formal training is offered and the amount of it that is provided to employees is not adequate, since poor training programs, even those that provide many hours of instruction, may not benefit individual employees or firm performance at all.

To managers and training specialists in SMEs, the findings of this study provide clear direction and guidance. Maintaining a separate unit responsible for training affairs helps improve training effectiveness. However, owners and managers of SMEs should evaluate the costs and benefits of establishing such an independent training unit before they take that step. Amid intensifying global competition and rapid technological change, expanding the proportion of the work force that receives training and increasing training hours, especially for professional and technical staff, are also conducive to better training effectiveness.

The training process in firms that have achieved better training effectiveness is more comprehensive than that in firms that have been less successful in training. In general, a firm that has conducted needs assessment, devised training objectives, submitted training results to management, and coordinated training activities with other HRM practices is more likely to achieve success in training than are those firms that have not made such efforts. For this reason, instituting a more comprehensive training process in SMEs is strongly encouraged. Also recommended is that training specialists should seek

to improve their knowledge of various training delivery methods and apply that knowledge broadly and frequently in implementing training programs.

Finally, but certainly not least important, are the commitment and support of top management for training. This study reveals a very strong relationship between management support and training effectiveness. With the size of the training budget, number of training hours, and proportion of training coverage all varying directly with the degree of management support, support from management may be the most critical element of all in achieving training effectiveness.

LIMITATIONS

The training-effectiveness indicators used in this study are based on subjective responses to questions about the impact of training on enhancing product or service quality, work motivation, ability, knowledge, and so on. A few scholars believe that subjective measures may be as reliable as more objective indicators (Dess & Robinson, 1984). However, since objective indicators are believed to achieve greater accuracy, it is hoped that future studies, time and resources permitting, will employ both subjective and objective measures of training effectiveness, so that comparisons can be made between the two.

A second limitation of this study is that a causal relationship between methods of delivering training and training effectiveness has not been established. Since the data used are cross-sectional, the only conclusion that can be made here is that better training systems are strongly correlated with training effectiveness. Longitudinal data must be collected and studied over the long term, or comparison made with an appropriate control group (Westhead and Storey, 1997), if we are to determine whether there is a causal linkage between comprehensive training systems and improved business performance. Furthermore, even if improvement in training systems leads to more effective training, how can we be certain that the benefits of better training justify its cost? Utility analysis may be helpful in answering such questions. Finally, due to the limited size of our sample, conclusions reached by this study may not be entirely applicable to very small manufacturing firms or service-sector firms in Chinese Taipei.



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Table 1. Results of Cluster Analysis of Training Effectiveness

Aspects of training effectiveness	Cluster mean		
	Better Training- Effectiveness Group (N=84)	Worse Training- Effectiveness Group (N=46)	F- Value
1. Enhanced product or service quality	3.96	3.00	107.6***
2. Improved work motivation	3.81	3.09	40.9***
3. Reduced turnover rate	3.31	2.70	23.2***
4. Improved ability and knowledge	4.17	3.50	48.1***
5. Improved operational safety	4.07	3.37	51.6***
6. Decreased materials wastage	3.70	2.85	58.5***
7. Improved profitability	3.55	2.76	47.9***
8. Increased work efficiency	3.88	3.00	63.1***
9. Increased job satisfaction	3.77	2.91	68.9***
10. Reduced absenteeism	3.42	2.59	47.1***

Note: The scale ranging from “strongly agree (5)” to “strongly disagree (1)”.

*** : $p < 0.01$



Table 2. Mean Frequency of Adoption of Training Delivery Methods by Two Training-Effectiveness Groups

Types of training and delivery methods	Better Training-Effectiveness Group	Worse Training-Effectiveness Group	F-Value
On-job-training			
Job rotation	2.79	2.57	1.39
Apprenticeship training	2.94	2.86	.09
Assigning trainee as member of task force	3.34	2.32	28.68***
On-site off-job-training			
Lecture	3.18	2.67	5.84**
Group discussion	3.27	2.89	4.12**
Role playing	2.27	1.86	5.55**
Sensitivity training	1.88	1.44	7.38***
Videotapes	2.60	2.05	7.90***
Simulations	2.50	2.09	5.18**
Case study	2.91	2.64	1.83
Computer software	2.56	1.95	8.30***
Internet teaching	1.84	1.64	1.39
Off-site off-job training			
Part-time college courses	2.10	1.64	6.47***
Overseas workshops	2.13	1.41	15.53***

Note: The scale is scored as 1 for “never,” 2 for “seldom,” 3 for “sometimes,” 4 for “often,” and 5 for “always.”

** : $p < 0.05$; *** : $p < 0.01$.

**RESEARCH OF CORE COMPETENCE FOR R&D PERSONS AT
IC COMPANIES IN CHINESE TAIPEI**

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RESEARCH OF CORE COMPETENCE FOR R&D PERSONS AT IC COMPANIES IN CHINESE TAIPEI

ABSTRACT

This research extracts some essences of Intelligence Capital(or IC. here after) and refers them to aspects of key competence currently defined or used by different organization. Based on three developed IC indices, a theoretical and practical study aimed at the feature of technical creativity and key competence of R&D person at high-technology, especially IC(Integrated Circuit) companies has been followed. In addition, employees' education distribution from five high-tech enterprises(TSMC, Weltrend, Holtek, Realtek and Vanguard International Semiconductor) in Chinese, Taipei, were especially ranked at this research, as become the background of later proposed checklist, which will serve the purpose of key competence assessment for R&D personnel at Taiwan's high-tech enterprises particularly. At last, it is also suggested that enterprise should implement a set of standardized assessment to measure R&D person's key competence since recruiting. Thereafter, it consequently benefits, such as, R&D person recruiting efficiency, later technology driven speed, and may even reducing engineer resign rate , eventually keeps enterprise with good competition.

KEY WORDs: high-tech enterprise ? core competence ? attitude? intellectual agility



INTRODUCTION

In current day, high-tech industry receives dramatic competition just as area, R&D human resource becomes especially important factor for enterprises in promoting their competition. So far, there seems no suitable checklist for high-tech enterprise to evaluate what type of core intelligence should R&D human possess? This research, therefore, focus on subjects like, how enterprise analyze and evaluate core intelligence of their R&D person? What correlation exists between core intelligence and their future achievement? Are there some models or instruments can be used during recruiting R&D people? All subjects are points, which need to be concerned for all high-tech enterprises in Chinese, Taipei.

How enterprise recruit new R&D person efficiently become more important especially in economic recession time. For example, twenty years ago a sales manager of Casio left. Cost, including training and possible trouble cause of task disconnection, was equal to \$185,000, while ten years later, it jumped to \$418,000. In addition, the cost of absence, American enterprise needs at least waste \$350,000,000 and more annually. Similar study at Chinese, Taipei also claims, cost at least NT1,500,000 for an electronic engineer quit out from high-tech enterprise. Besides that, many researches also point out that improper recruiting will increase human resource spending and other draw backs. Such as, employee resign, absence of illness, organization's bad work attitude, group counsel...etc.. Although engineer resign rate sometime is helpful for organization's human resource bringing up to date, it also costs a lot (Kao & Chan, 1999).

This research extracts some essences of Intelligence Capital(or IC. here after) and refers them to the aspects of key competence currently defined or used by different organization. Based on three developed IC indices, a theoretical and practical study aimed at the feature of technical creativity and key competence of R&D person at high-tech, especially IC(Integrated Circuit) companies have been followed. In addition, employees' education distribution from five high-tech enterprises(TSMC, Weltrend, Holtek, Realtek and Vanguard International Semiconductor), were especially ranked at this research, as become the background of later proposed checklist, which will serve the purpose of key competence assessment for R&D personnel at high-tech enterprises particularly. At last, it is also suggested that enterprise should implement a set of standardized assessment to measure R&D person's key competence since recruiting. Thereafter, it consequently benefits, such as R&D person recruiting efficiency, later technology driven speed, and may even reducing engineer resign rate , eventually keeps enterprise with good competition.

THE RESEARCH OF HIGH-TECH ENTERPRISES

Technology development and innovation has made economic evolution at this century significantly grown. It is more obvious at high-tech enterprises in Chinese, Taipei have created major economic efficiency at recent years. To begin with, high-tech enterprise at this research is first confined by four following dimensions (Ministry of Economic, 1998):

- Property: 1. New technology. 2. The technology with pioneering, international competition, the development of technology, and the improvement of marketing.
- Profile of enterprise: 1. The ratios of R&D cost in total production; 2. The ratios of employees' occupation; 3. The ratios of R&D cost and the technical levels of employees.
- Product of enterprise: 1. The amount of patents; 2. The revenue rate on innovated product sales; 3. The complexity of product and innovation.
- Overall: 1. High-tech employees, the ratios of R&D cost in sales quota, and the global market share; 2. The employee rates, amount of production, dependence, marketing, knowledge degree, power of production, related efficiency, the cost of R&D, the problem of money concentration, land, water resource, energy spend and pollution.

High-tech companies are encouraged with incentive from government and growth in a steady speed in Chinese, Taipei. The current condition trends to be in a mature period. To further march to new target of forming technology island. ? How to increase enterprise's R&D competence? becomes one of the most important strategy of enterprises in the future. Analyze from employees' condition in three consecutive years. Some common features, such as high education degree, young, and short working experience are found.

Profile of Employees (such as working department, average age, and average service duration).

Employees at the five companies mentioned before, including TSMC, Weltrend, Holtek, Realtek, and VIS, have the common characteristics of high schooling, young, and little working experience. We would get ideas for the characteristics of the employees from the annual report of these businesses(TSMC, 1998; Weltrend, 1998; Holtek, 1998; Realtek, 1998; VIS, 1998). (TSMC, 1998; Weltrend, 1998; Holtek, 1998; Realtek, 1998; VIS, 1998).

Table 1-1 -The Number of Employees (by position category) at TSMC

Year	Direct Employees	Engineering Division	Management Division	Total
1995	1,578	1,372	462	3,412
1996	1,830	1,715	572	4,117
1997	2,712	2,200	681	5,593



Table 1-2-The Number of Employees at TSMC

<i>Year</i>	<i>Total Number</i>	<i>Average Age</i>	<i>Average Service Duration</i>
1995	3,412	28	3.3
1996	4,117	28	3.3
1997	5,593	28	3.3

Table 2 -The Number of Employees (by Division Category) at Weltrend

<i>Year</i>	<i>Administration /Finance</i>	<i>Sales</i>	<i>Technique</i>	<i>Total</i>	<i>Average Age</i>	<i>Average Service Duration</i>
1995	6	8	39	53	30	2.6
1996	7	7	42	56	31.5	3.5
1997	6	7	48	62	32.5	4.2

Table 3- The Number of Employees(by Division Category) in Holtek

<i>Year</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>
<i>Engineer</i>	454	609	894
<i>Administration/ Sales</i>	171	201	187
<i>Technician</i>	333	340	440
<i>Driver/Guard/Janitor</i>	12	12	12
<i>Total</i>	970	1162	1533
<i>Average Age</i>	28.5	29.7	30.6
<i>Average Service Duration</i>	2.8	2.9	2.8

Table 4 -The Number of Employees in Realtek

<i>Year</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>
<i>R&D</i>	117(54%)	109(54%)	118(54%)
<i>Administration/ Sales</i>	76(35%)	71(35%)	74(34%)
<i>Quality Controlling</i>	24(11%)	23(11%)	27(12%)
<i>Total</i>	217	203	219
<i>Average Age</i>	31	31	32
<i>Average Service Duration</i>	4	4	4

Table 5 - The Number of Employees (by Division Category) in VIS

<i>Year</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>
<i>Direct Employee</i>	1160	1007	680
<i>Indirect Employee</i>	731	581	361
<i>Total</i>	1891	1588	1041
<i>Average Age</i>	29.2	28.8	29.8
<i>Average Service Duration</i>	0.82	1.34	2.7

There are findings can be extracted from above tables. First, the average age of employees at these companies are between 28 and 32.5 year-old, and have work experience from 0.52 to 4 years. Second, the population of engineers is higher than that administrative staff. Except that with professional context, the R&D of the technology needs engineers with the ability throwing themselves into product improvement and with unique creative thinking ability. From this point, it can be found that if employees with product improvement ability or potentials or ability to do the R&D job is important in the high-tech enterprises.

Profile of Employees' education

Employees at the five companies mentioned before, including TSMC, Weltrend, Holtek, Realtek, and VIS, have the common characteristics of high schooling, young, and little working experience. We would get ideas for the characteristics of the employees from the annual report of these businesses (TSMC, 1998; Weltrend, 1998; Holtek, 1998; Realtek, 1998; VIS, 1998).

Table 6 -The Ratio of Employees' education background at TSMC

<i>Year</i>	<i>Doctor Degree</i>	<i>Master Degree</i>	<i>University/ Collage Degree</i>	<i>Senior High School</i>	<i>Under Senior High School</i>	<i>Total</i>
<i>1995</i>	1.6	15.3	38.7	43.3	1.1	100
<i>1996</i>	1.8	19	37.8	41.3	0.1	100
<i>1997</i>	1.8	20	37.6	40.5	0.1	100

Table 7-The Ratio of Employees' education background in Weltrend

<i>Year</i>	<i>Doctor Degree</i>	<i>Master Degree</i>	<i>University/ Collage Degree</i>	<i>Senior High School</i>	<i>Total</i>
<i>1995</i>	1	5	39	8	53
<i>1996</i>	1	5	42	8	56
<i>1997</i>	2	5	42	12	61

**Table 8 - The Ratio of Employees' education background at Holtek**

<i>Year</i>	<i>Doctor Degree</i>	<i>Master Degree</i>	<i>University/ Collage Degree</i>	<i>Senior High School</i>	<i>Under Senior High School</i>
1995	0.1%	12.27%	54.12%	32.47%	1.03%
1996	0.6%	17.9%	53.53%	27.19%	0.77%
1997	0.65%	18.4%	56.88%	23.42%	0.65%

Table 9- The Ratio of Employees' education background at Realtek

<i>Year</i>	<i>Doctor/ Master Degree</i>	<i>University/Collage Degree</i>	<i>Senior High School</i>
1995	19%	60%	21%
1996	20%	58%	22%
1997	29%	51%	20%

Table10 - The Ratio of Employees' education background in VIS

<i>Year</i>	<i>Doctor Degree</i>	<i>Master Degree</i>	<i>University/ Collage Degree</i>	<i>Senior High School</i>	<i>Under Senior High School</i>
1995	45	214	418	356	8
1996	57	369	626	528	8
<i>Growing Rate</i>	26.6%	72.4%	50%	48.3%	0
1997	63	428	771	621	8
<i>Growing Rate</i>	0.1%	16%	23%	17.6%	0

In the beginning of high-tech enterprises, the original main human power is graduated from senior high school, college, and university. But it appears from above data that the trend is more and more needs to recruit more bachelor, master, and doctor to join this working field. Because R&D of high-tech company requires not only professional knowledge but also the ability in improving products and creativity. Therefore, high-tech industries value the importance of employees' potential talent in product improvement or in R&D. The developments of human resources mainly depend on the trend of enterprises' need; it makes business thriving and vigorous when raising the employees' capabilities and cultivating the core competency of business.

THE CORE COMPETENCE OF THE R&D HUMAN RESOURCE IN HIGH-TECH ENTERPRISE

The flourishing achievement on economical development in past 30 years in Chinese, Taipei have gained the international recognition. In recent years, because the prosperous development on industrial enterprises, many talent persons from ITRI (Industrial Technology Research Institute, a high-tech research institute sponsored by government.) were recruited to the private enterprises. The R&D capabilities have been improved(ITRI, 1998).

At the meantime, besides the output of semiconductor are the fourth place in the world, computer hardware get the third place, and many products get the first place of market share(ITRI, 1998). These achievements are contributed by the efforts of R&D staff and other members in the high-tech industries.

There are still several expectations for the R&D developments at the high-tech enterprises in Chinese, Taipei. So it is important to explore the core competence and its related theory of the R&D human resource in high-tech enterprise. It is going to be discussed by the following three dimensions, first is core competence, second is attitude, and the third is intellectual agility:

1. *The core competence*: Competence generates value through the knowledge, skills, talents and know-how of employees. And with the core competence, enterprise could surpass others' competition and get a new market share. The core competence, in this classification, indicates the technical or academic knowledge, which is belonging to enterprise's property. It represents some part of competition, but not all. One kind of core competence can create many kinds of product. One kind of product could also be created by many kinds of core competence. Only the company holder can decide which kind of monetary property or realty is belong to core or non-core property (Roos, et al., 1997). For example,
 - a) At VIS (Vanguard International semiconductor, 1998), the core competencies are the process of product development and manufacturing of DRAM.
 - b) The competitive advantages of TSMC is R&D for production process(TSMC, 1998) . The core competence of TSMC is on logical memory, advanced process module, CAD, and mask process, ...etc.
 - c) Holtek focuses on logical IC products (54.3%)(Holtek, 1998) . The rest of its products includes communication IC (9.2%), peripheral IC (8.7%), consumer electronic IC (36.4%), memory IC (12.5%), and wafer foundry (33.2%). Holtek's expertise is at diverse technologies of process, such as photo-electronic, high-voltage, special low-voltage, and non-volatile...etc. R&D for IC, Memory Process, 3C Integration, and System-on-wafer...etc. are all Holtek's core competence.
 - d) Weltrend is doing business in the R&D, production, testing and sale of the products of digital & analogue combined application-specific IC (ASIC), Digital



IC and Analogue IC (Weltrend, 1998). Weltrend's products include Peripheral ICs, Consumer Electronics ICs, and ASICs...etc. Therefore, the core competency of Weltrend is focused on R&D and testing of electronic products.

- e) Realtek is developing, manufacturing and selling the following products: consumer electronics ICs, peripheral & multimedia ICs, other ASIC and related application software(Realtek, 1998,) . Table 11 shows the sales percentage of all products and annual growth of Realtek in 1997. It also indicates the core competence of Realtek.

Table 11 -Realtek 1997 Annual Sales & Growth Report (Unit: NT\$ 1,000)

<i>1997 Net income</i>	<i>Consumer electronics Div.</i>	<i>Peripheral Multimedia Div.</i>	<i>& Communication & Network Div.</i>
1,835,728	545,743	535,057	754,928
Sales (%)	29.8%	29.1%	41.1%
Growth (%)	22.5%	2.4%	40.3%

From above tables, it appears that the core competence can not be separated from enterprise's competition. And it also can be concluded by some examples of indicators in this competence field, such as :

- Percentage of company employees holding an advanced degree
 - IT literacy
 - Hours of training per employee
 - Average duration of employment
2. *The behavior and work attitude:* knowledge and skills are not everything. Companies need employees who are capable and willing to use their skills and abilities to the advantage of the company and who can motivate the whole company to reach its goal.

Attitude, therefore, is a 'soft' component. The company has very little impact on this side. Attitude depends mostly on personality traits and therefore can be improved very little by company efforts. Attitude, primary included by three factors: Motivation, behavior, and conduct, covers the value generated by the behavior of the employees on the workplace(Roos, et al., 1997). And it also can be concluded by some examples of indicators in this attitude field, such as:

- Communicated with others very well
- Get along with others very well
- With work empathy
- Explore difficult problem with comrades to solve the problem

McKinsey and Procter & Gamble companies believe that the work attitude is at least as important as competence, and both have known to hire university graduates with non-specialist degrees (such as architecture, physics or humanities) and give them specific training afterwards: thus, they select an attitude in the candidates and then create the competencies.

3. *Intellectual agility*: In a fast changing world like ours, the ability to apply knowledge in very different situations, as well as the ability to innovate and transform ideas in products, is crucial to the success of a company. Intellectual agility indicates the ability to see common factors in two distinct pieces of information and link them together, and the ability to improve both knowledge and company output through innovation and adaptation.

Intellectual agility is tightly linked to competence, more so than attitude is. If competence is the content, intellectual agility is the ability to use the knowledge and skills, building on it, applying it in practical contexts and increasing it through learning. Intellectual agility can include the following wits, such as: innovation, imitation, adaptation, and packaging. Especially, innovation can create an ability on the basis of exist knowledge and push an enterprise successfully into a multiple goals.

Intellectual agility also has some examples of indicator, such as :

- Savings from implemented suggestions from employees
- New solutions/ products/processes suggested
- Background variety index (individual and group level)
- Company diversification index

CONCLUSION & SUGGESTION

Conclusion

As we know that the most popular IQ tests in the whole world are Binet & Wechsler (Wechsler, 1958). It's for measurement and appraisal of adult intelligence. Since the evaluation tools were the product forty years ago. It also convinced us those tests are improper for test high-tech R&D person living in this high-tech era. Many scholars also doubt about the problems of intelligence recent years, such as, if the test with discrimination to different tribes, culture, educated or not ...etc.. (Hallahan & Kauffman, 1991). So the conclusion is that there is no such a proper instrument for measuring high-tech R&D person.

The core competence is composed by lots of knowledge skills and technologies. And with core competence, the enterprise could surpass comrade's competition and get into a new market. From above exploration it is found that the core competence can not be separated from enterprise's competition. And only the company holder can decide which kind of monetary property or realty belongs to core or non-core property.



Conclusion is made after exploring and studying on R&D human resource of several high-tech enterprises and related core competence theory. It is firmed if the enterprise can have a set of instrument to evaluate R&D people's core competence at the recruiting stage. It will help not only upgrade high-tech enterprises' recruiting efficiency, but also promote R&D person's technical creativity and enterprise's competition at market.

Suggestion

This research has explored the core competencies of the R&D human resource in high-tech enterprise. It's found that the key essences to impact the development of enterprise is if their employee's ability is equal to the core competence which is needed by the company. Therefore, It can be concluded and also suggested the items of the checklist for the core competence of the R&D human resource in high-tech enterprise after synthesizing the above theory and some high-tech company's employee performance assessment forms. The following lists five directions: The first is professional attitude and enthusiasm, the second is professional knowledge and ability, the third is communication/team work/ work with others effectively, the fourth is justification and problem solving, and the fifth is innovation and improvement. The following is items of the checklist for the core competence of the R&D human resource in high-tech enterprise:

1. Professional attitude and enthusiasm

- Predicting and understanding the needs of the business, and managing it carefully.
- Aiming actively to the content of business which is provided by the company, giving it an evaluation and according to the result, takes an improvement action plan.
- Planning and participating every communication and coordination actively between tasks, smoothing the work proceeding.
- Joining TQM activity aggressively, and applying TQM's concept at work to promote the quality of the task.
- Demanding self to reach the request of work quality strongly.
- Obeying the work standard when the work is proceeding.
- Valuing and protecting the customer's Intellectual Property Right (IPR).

2. Professional knowledge and ability

- Studying consecutively related professional knowledge and skills and applying it properly in order to reach the best performance.
- Owning professional knowledge and skills to adapt current work needs.
- Owning the ability of project management.

- Being able to definitely understand and develop the skills which can reach the needs of task.
- Being able to actively take timing, not to need to be pushed or waked, can keep time management and accomplish task of his part with alignment.

3. munication/teamwork/effectively work with others

- Being able to coordinate with other related department/person and make work smoothly proceeding.
- Being able to quickly learn how to do a new additional task and also can discuss with comrade about the difficult task and its steps.
- Having different ideal from comrades, still respect them and effectively work with different personality people to accomplish the achievement.
- Cooperating through teamwork, with the most effectively route to reach the achievement.

4. Justification and problem solving

- Analyzing actively which task should be improved, reasonably explaining and proposing a recommendation.
- Being able to apply multiple thinking method, reasonably justifies the source of problem, and finds the best strategy to solve the problem.
- Being able to perceive potential problem, prevents it before and after in advance.
- Being able to find the best idea to solve problem in an extremely short time.

5. Innovation and improvement

- Being able to improve and apply tried concept and method to solve problem under a new additional task condition.
- Being able to introduce the concept of new knowledge and skill into available program.
- Having the aspect which is over imagined for work innovation and improvement., and it really benefits to the task improvement.
- Being able to understand the same enterprises' activities and working methods, and can propose a more innovated method.

R&D person is contributing more and more influence to life of enterprise in this technology booming era. Enterprise needs ceaseless innovation to support highly competitive market. The cultivation of R&D person can not be accomplished in one day or one night. However, without a standardized assessment for enterprise's recruiting, the



loss is not only enterprise can not find suitable R&D person but also review. Sometimes hiring wrong person might badly retard progression. Therefore, how to aim at the feature of technical creativity and key competence of R&D person at high-tech and excite teamwork's cooperation to generate creative ideas or inventions with performance index are main target of this research.

At last, this research recommends a set of assessment tools to measure applicants' key competence when they are recruited and help enterprises select suitable R&D persons. It will benefit high-tech R&D recruiting efficiency, later technology driven speed, and may even reducing engineer resign rate, eventually keeps enterprise with good competition.

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**MALAYSIA'S FINANCIAL CRISIS AND CONTRACTION IN
HUMAN RESOURCE:
POLICIES AND LESSONS FOR SMIS**

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MALAYSIA'S FINANCIAL CRISIS AND CONTRACTION IN HUMAN RESOURCE: POLICIES AND LESSONS FOR SMIS

ABSTRACT

The economic crisis, which has recently occurred in Malaysia, has affected not only the economy in aggregate, but also to the labor market. The 6.7 per cent contraction of the economy in 1998 caused the employment growth to slacken and the unemployment rate to soar to 3.9 per cent. The 3.9 per cent unemployment rate was of great concern, as rising unemployment had implications on efforts to reduce poverty. The crisis has also resulted in the closure of some SMIs enterprises, particularly when tight monetary policies were implemented at the beginning of the crisis, causing disruption in operations and severe liquidity problems. The widespread of the crisis in Malaysia has triggered policy makers to immediately address the shortcomings pertaining to the labor market. The facilitating and regulatory role played by the Government in the labor market had eased tension among workers arising from the economic crisis. The harmonious industrial environment had in a way helped to expedite the economic recovery. The holistic approach by the government in addressing the labor issues incorporated both the demand and supply sides of the labor market. Accessibility of information is considered important, thus the government making it compulsory for employers to report any step taken that can give a signal to the labor market. In addition, policies designed during period of crisis involved the players in the market, the employers and employees. The holistic approach did not segregate policies according to sectors, ownership, gender or sizes of firms. Firms irrespective of the ownership functions and sizes are treated equally when addressing labor issues. Thus employees working in small and medium industries should not expect to receive better or lesser treatments when confronting economic crisis.



INTRODUCTION

The economic crisis which has recently occurred in East Asia, has affected not only the economy in aggregate, but also more important the labor market. Thus, this paper attempts to analyze the effect of the economic crisis on the labor market in Malaysia. The macroeconomic overview will be discussed in the first section, followed by manpower demand and supply, the issues of retrenchment and human resource contraction, and the current and future trends in retrenchment. After highlighting the structure and performance of the market, this paper proceeds with policy responses and conclusion. The case provided in this paper could provide lessons to small and medium industries (SMIs) in the developing countries.

MACROECONOMIC OVERVIEW

Before the Thai baht came under attack and was devalued in July 1997, the countries of East Asia were prosperous. By July 1997, however, the economies of East Asia suddenly experienced economic turmoil and began collapsing one after another. Since then, the crisis has spread from the currency to banking and financial sectors, and then to the real economy. It has affected giant corporations, medium to small enterprises and individual workers as well as governments. As consequences, banks and businesses collapsed, some government leaders were replaced, and millions of workers lost their jobs.

Perhaps the clearest and harshest examples of the effects of the crisis are in Indonesia's economic and social situation. The rupiah plunged by as much as 80 per cent of its value, and the stock market shed 50 per cent of its value. Per capita income has dropped from US\$1,100 in 1996 to US\$460 or less in 1998. Some 6.6 million workers have lost their jobs since the beginning of the crisis. It is estimated that about 30 to 45 per cent of the population living below the poverty line.

While in Malaysia, the Malaysian economy had experienced high economic growths for almost ten years. During 1988-1997 periods, the GDP grew at an average rate of above 8.0 per cent per annum.¹ The high growth rates for this period was accompanied by low rates of inflation, rising per capita income and reduction in the incidence of poverty. For the period January-July 1997, the CPI in Malaysia averaged 2.7 per cent, compared to 4.5 per cent in South Korea, 5.6 per cent in Thailand and 11.6 per cent in Indonesia.² The per capita income increased significantly in 1997.

From the human resource perspective, this high economic growth was accompanied by very low rates of unemployment. The unemployment rate in 1997 was only about 2.6 per cent. If this figure is to be compared with the unemployment rate in the Organization of Economic Cooperation and Development (OECD) countries, which was about 7.5 per cent, the Malaysia's unemployment status is considered to be at full employment level, as the 2.6 per cent accounted the natural rate of unemployment.

¹ Excluding the year 1992 with 7.8 per cent per annum.

² IMF, *International Financial Statistics*, Aug. 1998.

The financial crisis spread very quickly to the other regional economies. The crisis has spread from one country to another, and also extended beyond the Asian region, to Russia and Brazil, and the whole world. Having experienced 8.0 per cent economic growth for ten consecutive years, the contagion effect of the financial crisis that erupted due to currency devaluation in Asian countries spread to impact the Malaysian economy in mid 1997. It did not only adversely affected the real economy and weakened the financial sector, but also had some socio-economic implications to the nation.

The real Gross Domestic Product (GDP) registered a negative growth for the first time since 1985 beginning in the first quarter of 1998 with -2.8 per cent and further down to -9.0 in third quarter of 1998 (Table 1). This clearly shows that after 10 years of good performance, high economic growth began to slow down towards the end of 1997 with 7.7 per cent, slightly lower than the 8.6 per cent of the preceding year. The labor market was not being affected at the onset of the crisis as the unemployment rate maintained at 2.6 per cent in 1997 (Table 2).

Table 1: Quarterly GDP Growth Rate 1995-1998

	1995	1996	1997	1998	1999
1 st Q	10.1	6.8	9.2	-2.8	-1.1
2 nd Q	10.7	7.6	8.4	-6.8	4.1
3 rd Q	9.3	8.8	7.5	-9.0	
4 th Q	7.5	11.0	6.0	-8.1	

Source: White Paper on the Status of Malaysian Economy, April 1999.

Table 2: Macroeconomic Framework

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
GDP Growth rate (%)	8.9	9.0	9.7	8.6	7.8	8.3	9.3	9.4	8.6	7.7	-6.7
Unemployment rate (%)						3.0	2.9	2.8	2.6	2.6	3.9
Per Capita Income (RM at current price)						8,024	8,996	10,068	11,228	12,051	11,835
Consumer Price Index (%)	2.6	2.8	2.6	4.4	4.8	3.6	3.7	3.4	3.5	2.7	5.3
National Saving rate (% of GNP)						34.7	34.4	35.3	38.5	39.4	41.2
Net Bank Negara Reserve (RM million)						76.4	68.2	63.8	70.0	59.1	99.4

Source: IMF, International Financial Statistics, and August 1998.

White Paper on the Status of Malaysian Economy, April 1999.

However, the prolonged financial crisis and economic downturn have deeply affected the scenario of employment. They have caused an unemployment crisis to gather force. The 6.7 per cent contraction of the economy in 1998 caused the employment growth to slacken and the unemployment rate to soar to 3.9 per cent. The 3.9 per cent unemployment rate was of great concern, as rising unemployment had implications on efforts to reduce poverty.



The crisis has also resulted in the closure of some SMIs enterprises, particularly when tight monetary policies were implemented at the beginning of the crisis, causing disruption in operations and severe liquidity problems. Data from Ministry of International Trade and Industry (MITI) shows that by the end of 1998, an estimated 10 per cent of SMIs in the manufacturing sector has ceased operation due to the crisis.

MANPOWER DEMAND AND SUPPLY

In 1998, a total of 74,610 vacancies were reported to the Department of Manpower (DOM), Ministry of Human Resource (MHR), an increase of 15.7 per cent compared to 64,643 vacancies in 1997. The vacancies represented only a portion of the actual number of vacancies in the labor market since employers are not required to report them to DOM.

Vacancies trend by sector and state did not differ much between the years 1997 and 1998. The majority of the vacancies reported were in the manufacturing sector: 63.1 per cent in 1997 compared with 69.9 per cent in 1998. State wise, Penang recorded the highest number of vacancies reported (9,408) in 1997 compared to 16,833 in 1998. Vacancies in production and related, equipment transport operator and manual workers category constituted 75.3 per cent of total vacancies reported in 1998 compared with 52.4 per cent in 1997.

In the first quarter of 1999, a total of 19,403 vacancies were reported to the DOM, MHR. In the second quarter, the number increased to 26,091 vacancies, an increase of 43 per cent compared to the same quarter in 1998. Further details are as shown in Table 3 below.

Table 3: New Registrants and Vacancies Reported

	Second Quarter		Change(%)	First Quarter 1999
	1998	1999		
New Registrants	33,497	34,407	+2.7	30,017
Vacancies	18,240	26,091	+43.0	19,403

Source: Department of Manpower, Ministry of Human Resource.

Employment opportunities were also apparent in terms of the number of new registrants registered in Employees Provident Fund's (EPF) record. From January to September 1998, the EPF registered a total of 285,825 new members representing an average of 31,760 new members per month during the period.

Demand for manpower is further evidenced in the number of foreign workers application received by the Technical Committee on Foreign Workers at the Ministry of Home Affairs (MHA). From February to 19 November 1998, the Committee has considered applications for the importation and redistribution of 179,480 foreign

workers in the plantation and manufacturing sectors. Of the total, 49.5 per cent was approved by the MHA. The per centage approved was quite low so as to ensure that locals are not deprived of job opportunities.

According to the Business Expectation Survey of Limited Companies 1998 (Department of Statistics), industries that indicated positive growth in employment include: coconut (4.5per cent), palm oil (4.8per cent), insurance, real estates and business services (4.2per cent), retail (3.6per cent) and wholesale (0.8per cent). Industries in the manufacturing sector that recorded growth in employment include crude oil refineries (10.9per cent), industrial chemicals (4.3per cent), wood and wood and cork products except furniture (3.3per cent), other chemical products (1.6per cent), textile (1.5per cent) and rubber products (0.3per cent).

On the supply side, there were 33,345 active registered job seekers with DOM in 1998 (job seekers) compared with 23,762 in 1997. The average number of new registrants also increased to 10,116 per month in 1998 compared with an average of 7,624 registrants per month in 1997. The increase can be attributed to the intensive efforts undertaken by DOM and Labor Department to register workers who had been retrenched.

ISSUES OF RETRENCHMENT AND HUMAN RESOURCE CONTRACTION

Retrenchment occurs when an employee's service is terminated, as the company can no longer provide work for the employee. Retrenchment is often due to reduced demand for the company's products or services, financial losses, mergers, organizational restructuring, bankruptcy, closing of plants, relocation across international boundaries, and changes in technology such as automation at the operational level. Excess of workers due to one of the above reasons will eventually result in retrenchment.

Retrenchment has almost become a taboo among Malaysian employees following the economic downturn. Negative implications on the retrenched workers should not be overlooked, as loss of job is likely to cause financial problems, psychological stress and even physical illness. A worker who lost his job will face difficulties servicing loans and once savings are used up, may not be able to support himself or his family. Financial problems due to loss of employment, coupled with mental stress and embarrassment can lead to ill health.

From an employer's point of view, retrenchment is to be avoided by all means as it causes a loss of public confidence in the company. It will not only lower the morale amongst remaining employees, but also tighten the cash flow, as funds must be set aside for payment of termination benefits. Before retrenching staff, an employer will usually consider other alternatives such as cost cutting, job freeze, early retirement, tight control upon overhead, reduced working hours and wages.

Employees who are entitled to retrenchment benefits are those covered by the Employment Act and its 1980 regulations on termination and lay-off benefits.



Besides, employees covered by a collective agreement or contract of employment with a termination provision are also entitled to such benefits.

Although the Malaysian industrial law recognizes the right for employer to determine the appropriate size of its workforce, a worker whose service is terminated for any reason can claim unfair dismissal through the machinery of the Department of Industrial Relations and the Industrial Court. The Court will judge whether the retrenchment is genuine and reasonable procedures have been followed before dismissing workers. Should the worker choose to challenge the termination, he can claim unfair dismissal according to the procedures in the Industrial Relations Act Section 20.

According to the Act, the quantum of benefits depends upon the worker's length of service. Employees with less than a year's service are not entitled to benefits. For those with 1 to 2 years of service, they are entitled to 10 days' wages for every year of service. For 2 to 5 years of service, 15 days' wages for every year of service, whilst for more than 5 years of service, they are entitled to 20 days' wages for every year of service. For an incomplete year, the payment is pro-rata.

The recent economic downturn in Malaysia has an impact on the working class when it raises negative implication on the employment scenario. Many companies opted to terminate workers since the crisis broke out in 1997. Based on the statistics provided by the MHR, 18,863 workers were retrenched by over 140 companies³. Seventy-eights per cent of them were from manufacturing sector, while the rest were from transport, commerce, mining and construction sectors. The layoff scenario also had a negative impact on the serving employees, as there were uncertainty on their jobs. In addition, there was also a growing concern among the trade unions and MHR that employers were taking advantage of the economic slowdown to implement unnecessary pay cut and other measures that would seriously jeopardize the well being of the employees.

The economic situation had worsened in 1998, resulting in contraction in employment growth: rising retrenchment and high unemployment rate. A total of 83,865 workers were retrenched in 1998 compared with only 18,863 workers in 1997. Out of the figure, 20,082 of them were in Selangor, 16,884 in Penang and 10,863 in F.T Kuala Lumpur.

Table 4: Number of Retrenched by State, 1998

State	Number Retrenched (%)
Selangor	20,082 (23.9)
Penang	16,884 (20.1)
F.T Kuala Lumpur	10,863 (13.0)
Others	36,036 (43.0)
Total	83,865 (100.0)

Source: Labor Market Report, Malaysia, 1998.

³ This figure might be underreported since mandatory reporting of employers started only in 1998.

The highest number of retrenchment for 1998 was registered in the third quarter involving 26,238 workers. However the number of retrenched workers decreased significantly to 18,116 workers in the fourth quarter ie. a decrease of 31 per cent. Overall, the fourth quarter registered the lowest retrenchment for 1998.

The manufacturing sector recorded the highest number of retrenchment in each quarter where, in 1998, 53.8 per cent or 45,151 workers retrenched were from this sector. In terms of category of occupations, the majority of the workers retrenched were from the production and related, transport equipment operator and manual worker category, representing 53.8 per cent or 45,196 workers.

Table 5: Number Retrenched by Sector, 1998

Sector	Number Retrenched (%)
Manufacturing	45,151 (53.8)
Wholesale and Retail Trade, Restaurant and Hotel	10,434 (12.4)
Construction	9,334 (8.8)
Finance, Insurance, Real Estate and Business Services	6,596 (7.9)
Agriculture, Forestry, Livestock and Fishing	5,108 (6.1)
Community, Social and Personal Services	4,242 (5.1)
Others	3,000 (3.6)
Total	83,865 (100)

Source: Labor Market Report, Malaysia, 1998.

Table 6: Distribution by Category of Occupations

Category of Occupation	Number Retrenched (%)
Prod. and Related Workers, Transport Equipment Workers and Laborers	
** Skilled Workers	15,971(19.0)
** Unskilled Workers	14,708(17.5)
** Semi-Skilled Workers	14,517(17.3)
Professional, Technical and Related Workers	12,125(14.5)
Clerical Workers	9,927(11.8)
Administrative and Managerial Workers	6,275 (7.5)
Others	10,342 (12.3)
Total	83,865 (100.0)

Source: Labor Market Report, Malaysia, 1998.

The retrenchment did not only occur in large corporations, but SMIs also opted for dismissing their workers when facing with the economic crisis. In 1998, about 16,521 number of workers being retrenched were from the SMIs.



Table 7: Retrenchment by SMI

State	Number
Selangor	3,304
Pulau Pinang	1,734
F.T. Kuala Lumpur	1,487
Johor	3,303
Trengganu	743
Other states	5,950
Total	16,521

Source: SMI Development Corporation
Labor Market Report, 1998

There were many reasons given by employers cited in the Labor Market Report 1998 for retrenching their workers as shown in Table 9. About 59.9 per cent or 2,867 employers stated reduction in demand for products as the main reason for retrenchment. Another 11 per cent reported high production cost, 8.1 per cent reorganizing their companies, 6.4 per cent had closed their operation, 2.4 had sold their companies and 12.3 per cent stated other reasons for retrenchment.

Table 8: Reason for Retrenchment

Reason for Retrenchment	No. of Employers
Reduction in Demand for Product	2,867 (59.9)
High production cost	526 (11.0)
Company Reorganisation	386 (8.1)
Closure	307 (6.4)
Sale of Company	114 (2.4)
Others	589 (12.3)
Total	4,789 (100.0)

Source: Labor Market Report, Malaysia 1998.

In terms of equity, the distribution are as follows: 69.5 per cent or 3,330 companies were Malaysian owned, 17.9 per cent or 857 companies foreign owned and 12.6 per cent or 601 joint-venture companies.

Certain quarters claimed that retrenchment amongst women was very high. In 1998, 42.3 per cent or 36,284 of 83,865 workers retrenched were women. A majority of the women 64.5 per cent or 23,387 were from the manufacturing sector. In terms of occupational category, some 59.1 per cent or 21,450 workers were from the production and related, transport equipment operator and manual worker category.

Clerical and related workers also exhibited high number of women retrenched representing 17.6 per cent of the total or 6,390 workers.

It is observed that women workers who were retrenched came from the sector and category that employed high number of women workers. It is easier to get alternative jobs in the said sector and category. Women are not victimize in retrenchment exercise as employers are required to institute retrenchment according to LIFO (Last In First Out) principle rather than gender.

CURRENT AND FUTURE RETRENCHMENT TREND

As the economic crisis was getting deeper, the Government had taken a reversal approach in its policies from tight monetary and fiscal policies to expansionary fiscal and monetary policies in middle 1998. This was to induce investment in the economy, and it has shown some positive result especially in relation to the retrenchment figure. In terms of the weekly retrenchment figures, it has shown a declining trend after reaching its peak in the middle July 1998. The weekly number of workers retrenched has dropped from 5,245 in the middle of July 1998 to 316 in late August 1999 (Refer to Appendix I - Graph 1). For the year 1999, as at September 4, a total of 25,592 workers were retrenched. Details sectors are as shown in Appendix II.

The government and Bank of America forecasted the economy will recover and achieve a growth rate of 1.0 per cent in 1999, whilst Goldman Sachs, an international investment bank, forecasted a 2.0 per cent growth in 1999. Based on these forecasted economic growths, the labor market is expected to continue to remain stable.

Table 9 below shows comparison of retrenchment for the second quarter 1998/99 and first quarter 1999. Retrenchment showed a downward trend. The figure for the second quarter 1999 dropped 44.9 per cent to 10,403 workers compared to 18,693 workers in the same quarter last year.

Table 9: Number of Workers Retrenched and Number of Employers Involved

	Second Quarter		Change(%)	First Quarter 1999
	1998	1999		
No. of workers	18,693	10,304	-44.9	11,454
No. of Employers	1,277	680	-46.8	735

Source: Labor Department, Peninsular Malaysia.
 Labor Department, Sabah.
 Labor Department, Sarawak.



Table 10: Retrenchment by State, September 1999

State	Number Retrenched (%)
Selangor	6,474 (25.3)
F.T Kuala Lumpur	4,852 (19.0)
Perak	3,761 (14.7)
Penang	2,655 (10.4)
Kedah/Perlis	1,991 (7.8)
Johor	1,720 (6.7)
Other States	4,139 (16.2)
Total	25,592(100.0)

Source: Labor Market Report, 1998.

Table 11: Number Retrenched by Sector, September 1999

Sector	Number Retrenched (%)
Manufacturing	13,967 (54.6)
Wholesale and Retail Trade, Restaurant and Hotel	3,072 (12.0)
Construction	2,525 (9.9)
Finance, Insurance, Real Estate and Business Services	2,338 (9.1)
Agriculture, Forestry, Livestock and Fishing	1,332 (5.2)
Community, Social and Personal Services	1,246 (4.9)
Others	1,112 (4.3)
Total	25,592 (100.0)

Source: Labor Market Report, 1998.

POLICY RESPONSES

The preceding section has shown that the economic crisis has contracted the work force not only the large but also the SMIs. The widespread of the crisis in Malaysia has triggered policy makers to immediately address the shortcomings pertaining to the labor market. As the economic situation has deeply affected the scenario of employment, it emerges that Malaysia is not only lacking in accurate information on labor market, but also lack of proper human resource (HR) planning in the long run. Labor market information is the information on the interplay of relationship between labor supplies (availability of manpower) and labor demand (availability of vacancies).

At the national level, labor market information is needed for the efficient allocation of human resources throughout the country to influence labor market actions. At the middle level, institutions and persons use labor market information to

match and facilitate supply and demand of labor. The direct participants in the labor market, such as the job seekers or employers, use labor market information either to guide them in their search for employment or in selecting the best-qualified job seekers. On the whole, labor market information can be used to balance the supply of and demand for labor with maximum utilization.

Beginning from January 1998, MHR initiated proactive measures by closely monitoring developments in the collection of labor market data on retrenchment, job vacancies, registration of retrenched workers, re-training, and industrial relation such as the number of strikes, workers involved and man-days lost due to strikes and picket. In addition, employers involved in retrenchment have been encouraged to provide exit services that includes interview techniques, counseling and career guidance to facilitate workers in finding alternative jobs. In retrenchment cases that involve large number of cases, the Labor Department, DOM and Industrial Relations Department under the MHR, gave in-situ service to employers and workers in various aspects such as statutory retrenchment benefits, registration and emplacement to alternative jobs with the cooperation of other employers that demand for workers⁴. The Government has established task forces at district and national levels comprising representatives from relevant Government departments, employers and workers' unions.

Various incentives were given to employers to encourage training and retraining of workers as alternative to retrenchment such as exemption from paying Human Resource Development Council (HRDC) levy to employers facing financial difficulties and credited unclaimed levy amounting to RM66 million to employers' account to encourage employers to continue training their workforce even during the economic downturn. The Government has also established a Training Scheme for Retrenched Workers under HRDC with an initial allocation of RM5 million in May 1998. Workers retrenched from sectors covered by HRDC are eligible to apply for training for any courses up to diploma level. As of 31 December 1998, 572 applications were approved with financial assistance of RM2.52 million.

In ensuring the well being of retrenched workers, stepped-up efforts were taken in ensuring that employers pay retrenchment benefits to their workers. As an example, in the case of Saship in Labuan, the Industrial Relations Department (IR) under MHR had persuaded the management to arrange for staggered payments to the 700 affected workers. As at the end of December 1998, approximately RM4 million was already paid-out and the remaining RM4 million was paid in January 1999, RM500 per worker before Hari Raya (Muslim Festival) and the remainder at the end of January 1999. The Employment Act 1955 was also amended with effective from August 1998, where employers are required to retrench foreign workers before retrenching local workers. This step is taken to ensure that the job opportunities of local workers are secured.

⁴ Read-Rite Company retrenched more than 4,000 workers in Penang, In this case, most of the workers were able to secure alternative jobs before the actual effective date of retrenchment.



Measures taken by MHR have helped to maintain the harmonious industrial relations environment. Data from MHR shows that in 1998, 12 strikes involving 1,777 workers with 2,635 man-days lost were recorded compared to five strikes involving 812 workers with 2,396 man-days lost in 1997. Even though, the number of strikes increased significantly, the number of man-days lost almost remain unchanged. Only 14 pickets were recorded in 1998 compared with 34 pickets in 1997. Similarly the number of industrial disputes where the number dropped from 463 disputes involving 139,187 workers in 1997 to 448 disputes involving 85,053 workers in 1998, thus signifying a stable working labor environment.

Overall, the MHR is urging the companies to be empathetic and to consider other retrenchment alternatives such as reduced working hours and working days, flexible working time, pay cut, voluntary lay-off, and making an offer to employees to resign voluntarily. In general, employers responded positively to the government’s call in taking the above measures before resorting to retrenchment. Employers are required to report the implementation of these alternatives to the Labor Department at least one month before the effective date of retrenchment. From August to December 1998, most employers (or 67.2 per cent) chose pay cuts compared to voluntary separation scheme (28.4per cent) and voluntary lay-off (4.4per cent). The number of employers and employees involved between August to December 1998 are shown in the following Table 12:

Table 12: Alternative for Retrenchment

Measures	No. of Employers	No. of Employees
Pay-Cut	795	22,514
Voluntary Lay-Off	52	6,342
Voluntary Separation	336	6,193

Source: Ministry of Human Resource, 1998.

During the economic downturn, industrial harmony is maintained with the cooperation of all parties: workers, employers and the government. Efforts undertaken by the Labor Department and the Industrial Relations Department under MHR have been successful in preventing industrial disputes and maintaining harmonious industrial relations between employers and workers.

CONCLUSION

Economic crisis has not only affected employment in the large corporations but also in small and medium industries. Despite of the contraction of 6.7 per cent of the economy, the retrenchment rate in Malaysia represented only one per cent of the total employment. The low retrenchment rate was accompanied by harmonious industrial environment. This was made possible by the holistic approach taken by the government in addressing the immediate issues confronting the labor market during the economic crisis. The facilitating and regulatory role played by the Government in

the labor market had eased tension among workers arising from the economic crisis. The harmonious industrial environment had in a way helped to expedite the economic recovery.

The holistic approach by the government in addressing the labor issues incorporated both the demand and supply sides of the labor market. Accessibility of information is considered important, thus the government making it compulsory for employers to report any step taken that can give a signal to the labor market. In addition, policies designed during period of crisis involved the players in the market, the employers and employees. The holistic approach did not segregate policies according to sectors, ownership, gender or sizes of firms. Firms irrespective of the ownership functions and sizes are treated equally when addressing labor issues. Thus employees working in small and medium industries should not expect to receive better or lesser treatments when confronting economic crisis.

As employees working in SMI are not likely to be given special treatment during economic crisis, they are expected to be more productive as compared to their counterparts working in large industries. SMI should focus on the export market rather than relying on the domestic market for expansion, as only 20 per cent of SMI were involved in exports. Thus employees in SMI should be more aggressive and competitive rather than being complacent in order to compete in the international market. Being able to capture the export market, means less likely for employees working in SMI to be retrenched in case of economic crisis reoccurring.

APPENDIX II

Weekly Retrenchment Data by Sector, 1 February 1998 - 4 September 1999

Week	Total	Manufacturing	Construction	Commerce	Finance	Others
1/2 - 7/2/98	480	231	60	129	29	31
8/2 - 14/2	1,583	390	263	630	151	149
15/2 - 21/2	3,159	2,744	117	134	135	29
22/2 - 28/2	2,173	1,327	313	136	207	190
1/3 - 7/3	2,578	1,159	990	141	211	77
8/3 - 14/3	3,460	2,301	303	195	248	413
15/3 - 21/3	2,797	1,776	231	445	155	190
22/3 - 28/3	1,463	255	379	325	128	376
29/3 - 4/4	2,200	883	116	216	193	792
5/4 - 11/4	1,041	308	44	158	269	262
12/4 - 18/4	2,473	727	220	310	306	910
19/4 - 25/4	1,181	215	112	266	260	328
26/4 - 2/5	1,150	545	231	91	97	186
3/5 - 9/5	1,381	683	109	213	97	279
10/5 - 16/5	1,262	513	279	203	144	123
17/5 - 23/5	1,741	834	252	176	140	339
24/5 - 30/5	1,487	718	164	188	63	354
31/5 - 6/6	1,467	773	211	245	82	156
7/6 - 13/6	1,519	826	123	254	69	247
14/6 - 20/6	974	185	127	197	302	163
21/6 - 27/6	1,812	776	579	222	95	140
28/6 - 4/7	1,033	590	109	103	209	22
5/7 - 11/7	1,127	593	169	124	118	123
12/7 - 18/7	5,245	4,715	17	296	110	107
19/7 - 25/7	2,919	2,108	232	318	122	139
26/7 - 1/8	2,622	1,278	122	317	143	762
2/8 - 8/8	1,266	567	113	211	241	134
9/8 - 15/8	1,600	1,077	137	161	129	96
16/8 - 22/8	2,277	1,256	337	132	128	424
23/8 - 29/8	1,448	330	201	221	548	148
30/8 - 5/9	1,278	88	279	379	175	357
6/9 - 12/9	1,444	573	91	383	141	259
13/9 - 19/9	1,684	818	114	397	59	296
20/9 - 26/9	1,984	1,420	211	185	48	120
27/9 - 3/10	1,299	444	252	212	154	237
4/10 - 10/10	1,711	1,092	218	185	67	149
11/10 - 17/10	1,465	733	201	257	126	148
18/10 - 24/10	1,080	459	171	117	94	239
25/10 - 31/10	2,214	928	254	162	121	749
1/11 - 7/11	1,132	547	208	156	64	157
8/11 - 14/11	878	199	134	129	61	355
15/11 - 21/11	854	389	108	224	46	87
22/11 - 28/11	2,171	1,280	81	445	15	350
29/11 - 5/12	2,685	154	171	106	72	2,182
6/12 - 12/12	1,047	414	46	93	43	451
13/12 - 19/12	1,350	1,150	69	33	57	41
20/12 - 26/12	371	126	20	90	15	120
27/12 - 2/1/99	734	341	44	127	92	130
3/1 - 9/1	868	260	453	38	45	72
10/1 - 16/1	503	161	34	147	74	87
17/1 - 23/1	864	537	11	72	148	96
24/1 - 30/1	616	444	30	49	24	69
31/1 - 6/2	544	157	102	52	7	226

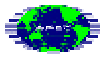


7/2 - 13/2	946	506	208	48	78	106
14/2 - 20/2	659	266	39	127	98	129
21/2 - 27/2	737	331	36	158	28	184
28/2 - 6/3	1,381	1,114	50	122	43	52
7/3 - 13/3	774	401	89	162	35	87
14/3 - 20/3	2,637	1,954	81	102	337	163
21/3 - 27/3	478	68	50	120	80	160
28/3 - 3/4	496	41	146	65	75	169
4/4 - 10/4	1,395	1,022	186	41	74	72
11/4 - 17/4	720	375	38	64	62	181
18/4 - 24/4	1,581	1,043	65	77	101	295
25/4 - 1/5	521	126	145	104	19	127
2/5 - 8/5	623	312	52	134	19	106
9/5 - 15/5	481	50	58	60	127	186
16/5 - 22/5	935	471	123	31	144	166
23/5 - 29/5	793	348	41	193	94	117
30/5 - 5/6	919	578	67	61	171	42
6/6 - 12/6	1,061	874	17	59	50	61
13/6 - 19/6	516	212	13	162	47	82
20/6 - 26/6	274	130	24	44	26	50
27/6 - 3/7	471	182	36	192	45	16
4/7 - 10/7	514	366	28	50	30	40
11/7 - 17/7	428	320	37	20	17	34
18/7 - 24/7	383	86	57	114	36	90
25/7 - 31/7	698	268	29	196	33	172
1/8 - 7/8	374	272	5	57	35	5
8/8 - 14/8	331	140	21	24	40	106
15/8 - 21/8	127	42	17	39	17	12
22/8 - 28/8	408	337	1	5	12	53
29/8 - 4/9	316	67	132	30	59	28

Source: Ministry of Human Resource, 1999.

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