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 Wynarczyk 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. Inproved 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." ** : $p<0.05$; *** : $p<0.01$.