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**EMPLOYEE TRAINING DECISIONS, BUSINESS
STRATEGIES AND HUMAN RESOURCE
MANAGEMENT PRACTICES:
A STUDY BY SIZE OF BUSINESS**

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Abstract

The aim of this study is to investigate in detail the proposition often found in the literature that small businesses train their employees less than medium-sized and large businesses. The small business population is much more heterogeneous than that of medium-sized and large firms in terms of motivation because it includes not only growth firms but also foundation firms, which may be less interested in growth. To account for differences in training rates by firm size as a result of different motivations, the business populations are segmented according to different business strategies and different human resources practices of firms.

Using the 2001 *Workplace and Employee Survey* of Statistics Canada, this study shows that small businesses are less likely to provide training activities to their employees than medium-sized and large businesses. However, it is clear that once they commit to investing in employee training, small businesses do so as intensively as medium-sized and large firms. Moreover, the decision of whether or not to train their employees is clearly related to the business strategies employed by the firm. In particular, the incidence of training in small businesses that pursue an innovation and growth strategy is closer to the incidence of training in medium-sized and large firms than that of other small businesses. In addition, firms that have incentive schemes, use technology intensively or are innovative also exhibit a much higher incidence of training across all firm sizes.

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1. Introduction

Fundamental changes in the global economy and the advent of new technologies have led to major changes in the structure of employment in countries such as Canada. One impact has been that companies have to constantly improve the skills of their workforce as technology changes in order to maintain high productivity. Employee training is essential as it is one of the main ways of raising the skill level of the workforce, the other being the recruitment of skilled personnel.

A growing number of empirical studies address the importance of employee training for businesses. However, few of them focus specifically on small businesses. The results relating business size to employee training are general in nature, and basically state that small businesses provide less training to their employees than medium-sized and large businesses. The aim of this study is to investigate this proposition in greater detail.

The small business population is much more diverse than medium-sized and large firm populations in terms of motivation. It includes not only start-up firms, growth firms, innovative firms and technology-intensive firms, but also lower technology foundation firms, which may not be growth oriented. Therefore, in order to understand why small businesses train their employees less than medium-sized and large firms, it is necessary to segment the small business population. By using data from the 2001 *Workplace and Employee Survey* conducted by Statistics Canada, this paper examines training rates by firm size according to different business strategies, human resources practices, and also technology use and innovation.

The literature on employee training is reviewed in section two, while section three describes the database used for the study. Section four briefly outlines the expected relationship between training decisions and business strategies, human resources management practices, technology use and innovation. Part five presents the empirical results. It compares the incidence and intensity of employee training across firm sizes. For each firm size, it also shows how business strategies and human resources practices are related to firms' decisions on whether or not to train their employees.

2. Literature review

This section reviews a number of Canadian studies related to employee training. Empirical studies present a profile of employee training and identify the obstacles to training that Canadian businesses are facing. Some researchers are also interested in the impact of employee training on corporate performance.

The literature indicates that small businesses provide their employees with less training than larger businesses. Moreover, small businesses tend to prefer on-the-job training to structured training¹ (Leckie *et al.*, 2001; Baldwin and Johnson, 1995). Lack of time, high cost and lack of information are the main reasons often cited. Compared with large firms, small firms are less capable of absorbing the possible temporary reduction in productivity that can occur during training periods. In other words, they are less able to take their employees off the job or replace them during training sessions. In addition, small businesses do not enjoy as many economies of scale as larger businesses when they offer training for their employees. Betcherman, Leckie and McMullen (1998) identified cost as a major obstacle to training for small companies. They concluded that the average cost of training (per employee or person in training) is

1. Structured training is defined as a training activity with specific content that has a predefined objective and predetermined format, and whose progress can be monitored and/or evaluated. On-the-job training, on the other hand, is informal and does not necessarily have a predetermined format. It is generally conducted in the workplace itself (*Guide to the Analysis of the Workplace and Employee Survey*, 2001, Statistics Canada).

appreciably higher in small firms than in large firms. As a result, small firms favour on-the-job training because it is less structured and more accessible. This type of training does not incur the fixed costs associated with structured training (training materials, instructors' salaries, etc.). Lack of information on training opportunities is also cited as a barrier to training for small businesses (e.g. training suppliers and programs available).

Training is also more likely to be given to the more educated employees. Leckie *et al.* (2001) found that Canadian workers who hold a university degree are twice as likely to take part in employer-sponsored training activities as their colleagues with a high-school diploma. In addition, highly qualified workers (managers and professionals) are more likely to have access to training programs than sales staff, administrative personnel and production workers with no certification. The rationale is that the more education employees have the more likely they are to succeed in training, thus reducing the employer's training investment risk.

Turcotte *et al.* (2003) highlighted a strong link between business strategy and employee training. The authors found that firms emphasizing a human resources strategy or research and development strategy are much more likely to sponsor training than those with no strategy.

Technology and innovation are also among the most cited determinants of employer support for training. Baldwin and Johnson (1995) found that companies that innovate, are more technologically advanced, emphasize quality management and have human resources strategies will more frequently support training initiatives. Baldwin and Peters (2001) similarly demonstrated that innovative firms are more likely to support training activities than non-innovative firms, but the former have a preference for on-the-job training. Innovative firms particularly favour acquiring experience, in the context of learning by doing, to enhance the ability of employees to innovate and solve problems. Chowhan (2005) concluded that the existence and intensity of training activities in a firm depend on the level of technological competency that exists in that firm, rather than on its being a member of a technology-based industry.

A number of studies indicate that employee training has a positive impact on corporate performance. They generally test the hypothesis that, by improving the competency of employees, training also improves their productivity, which is reflected in an improvement in the firm's performance. Betcherman, McMullen and Davidman (1998) concluded that firms that have training programs tended to perform better in terms of productivity, revenues, profitability, viability and prospects. Saks *et al.* (2002) also found a positive relation between training and productivity, profit, revenue and client satisfaction, a relation that is more significant when the training is accompanied by incentives for the employees.

These studies present the profile of employee training and the importance of this activity for businesses; however, none focus specifically on small businesses. The results relating business size to employee training are general in nature, and basically state that medium-sized and large firms provide more training to their employees than small businesses. This paper segments the business population by firm size in order to understand the differences in training rates and examines training rates by firm size according to different business strategies and human resources practices.

3. Data source

The data used in this study are from the 2001 *Workplace and Employee Survey* (WES) conducted by Statistics Canada. It is a longitudinal survey of establishments² designed to explore a broad range of questions related to employers and their employees. The survey collects information on the organization of work, compensation, corporate performance, competitiveness, innovation, technology use, employee training, human resources management, employment and revenues. All business establishments operating in Canada with paid employees are represented in the target population, with the exception of those in the Northwest Territories, Nunavut and Yukon. Establishments related to agriculture, fishing, hunting and trapping, private households, religious organizations and governments are also excluded from the survey.

The data are from the workplace component of the 2001 WES. The data were collected from an overall sample of 6223 establishments, representing an estimated population of 701 123 establishments.³ Unfortunately, establishments with fewer than 10 employees are excluded from the sample used in this study as a great many of them did not respond to a number of the questions of interest to this study. This brings the relevant sample to 4189 observations, representing a population of 199 163 establishments.

Small and medium-sized establishments account for 99 percent of establishments in the sample. Small establishments (under 100 employees) make up the largest share (92.5 percent). Just over half (51.3 percent) of the establishments have 10 to 19 employees. Furthermore, nearly half of the employees (48.9 percent) in the sample are in small establishments. However, even though they represent only 1 percent of the target population, large establishments account for over a quarter of the employment (26.8 percent).

This study focuses primarily on structured training. The WES provides little information about on-the-job training activities, and in particular their associated costs. This simplifies our analysis as structured training is an acceptable indicator of general training activities. Establishments that support structured training are those that are most strongly committed to overall training activities⁴ (Betcherman, McMullen and Davidman, 1998). Nevertheless, more flexible and less expensive on-the-job training deserves more thorough exploration in future research.

4. Expected relations between training decisions and business strategies, human resources management practices, technology use and innovation

Decisions about training are generally made at the top of the corporate pyramid: training-related strategies and funding levels are determined by senior management. Generally, the employer considers training as an investment in human capital from which it expects future benefits. The employer, therefore, must consider the costs and benefits of the training. The rational employer decides to train employees if the total expected benefit is greater than the total cost. The first decision the employer makes is whether or

2. The WES establishment sample is taken from the Statistics Canada Business Register. An establishment is defined as a business location operating in Canada that has paid employees in March of the reference year. A number of establishments may be owned by one business, and a business must own at least one establishment. In the rest of this study, we will speak specifically of establishments.

3. A final weight is assigned to each sampled unit so that it represents other similar units that have not been selected. In this way, the estimates from the sampled units produced with the application of final weights will be in line with the estimates for the target population.

4. The 2001 WES data show that 84.4 percent of the establishments that support structured training activities also offer on-the-job training. However, only 61.4 percent of establishments offering their employees on-the-job training also support structured training.

not to undertake a training activity. Given that training is undertaken, the employer must then decide on the extent of the training to support.

Consequently, at this point, it is important to distinguish two concepts that will be used throughout this study. **Incidence of training** refers to the decision by establishments on whether or not to sponsor training activities. It will be analysed based on the entire sample (N = 4189). **Intensity of training**, on the other hand, corresponds to the extent of the training offered by establishments, once they have decided to undertake training. This is measured by the proportion of employees who have taken training and by the ratio of structured training expenditures to operating revenue. Since it concerns only those establishments that have decided to support training activities, a smaller sample (2995 establishments) is used.

Business strategy

The business strategy not only defines the organization of work, but also influences the level of competency of the human capital needed to run the firm. Consequently, the various business strategies of firms are linked to the training offered. In this study, business strategies are grouped into four categories:

Cost reduction: The main characteristics of this strategy are generally control of expenses and expenditures. It is probable, therefore, that establishments that adopt such a strategy are less likely to train their employees.

Innovation and expansion: A firm pursuing this strategy places great importance on research and development (R&D), innovation and market expansion. Firms that adopt such a strategy are striving to create or increase comparative advantages to increase (or at least maintain) market share by broadening their range of products and services and by expanding their market geographically. A person who has developed a new idea can derive a certain market power over the market. It is reasonable to believe that such firms need a relatively high-knowledge workforce and are more likely to train their employees.

Quality improvement: Firms that consider this strategy important are attempting to increase their comparative advantages by distinguishing themselves for the quality of their products and services. One would expect that such firms would invest in their workforce in order to increase their employees' abilities to constantly search for ways to improve quality.

Human resource-based strategy: This strategy includes heightened labour–management cooperation, development of employees' skills, improvement of employee involvement and improvement of performance measures. This type of strategy permits companies to stimulate individual employee effort by instilling a sense of belonging to the company. Employee productivity is thereby improved. It is reasonable to believe that such a strategy favours employee training.

Human resources management practices⁵

Different human resources management practices can also act to influence the level of training, particularly those that are concerned with organizational design and incentives. It is preferable to consider a combination or bundle human resources practices, as expressed by Arthur (1994), since different impacts on training are likely across different workplaces. In this study, three human resources management practices are considered:

Flexible job design. The WES defines flexible job design as including job rotation, assignment of personnel to a variety of tasks and a high degree of autonomy. Such practices make employees more

5. As defined in the WES.

versatile. One may think, therefore, that employees of firms that practise flexible job design, given their autonomy, find it easier to organize their tasks so they can free up the time off needed to take part in a training activity. In addition, the mobility that exists in such establishments makes it easier to replace, or at least partly replace, employees going on training.

Hours of work. Loss of production time is, according to firms, one of the major obstacles to offering training activities. It is especially problematical in small firms, which suggest that they have trouble sending employees to training for fear of being unable to replace them during the training period (Betcherman, Leckie and McMullen, 1998; Kapsalis, 1996). Unfortunately, the WES offers no information on the allocation to employees of time specifically devoted to training.⁶ Therefore, the average number of working hours is chosen to measure the opportunity cost (in terms of production hours) of time allocated to training. It is assumed in this study that employees of firms with a lower average number of working hours have more time available for activities other than production (e.g. training). So the higher the number of hours of work, the higher the opportunity cost.⁷

*Incentive system.*⁸ Such a system includes practices linking employees' compensation to their work performance. Studies have found that employee training is much more likely to increase productivity when it is combined with variable compensation (Saks *et al.*, 2002; Black and Lynch, 1997). Therefore, it is reasonable to believe that employees of firms where such systems exist would be more interested in training to increase their competency and performance in order to receive better compensation.

Technology use and innovation

Technology and innovation will also affect training decisions because of the demands they make on the skills composition of the workforce.

Technology use. Degree of technology use is likely to have a positive effect on employee training decisions as employees' abilities and skills in using technological equipment have to be regularly updated. Technology use and training, therefore, are complements. In this study, technology use is measured by the proportion of employees using a computer.⁹

Innovation. The innovation processes of firms generally require skilled workers with advanced competencies. It can be expected that innovative firms are more likely to provide employee training. Four types of innovation are defined: new products or services, improved products or services, new processes and improved processes. To measure the degree of innovation in this study, a rating of 0 to 4 was assigned to each establishment, with 0 indicating that the establishment has introduced none of the four types of innovation, 1 indicating that it has introduced one type of innovation, and so forth.

5. Results

The first part of this section compares the incidence and the intensity of employee training in small, medium-sized and large establishments. It shows that, among establishments that commit to investing in employee training, the intensity of training is very similar across different firm-size groups. By using

6. Training activities may be held both during and outside normal working hours.

7. We acknowledge the weakness of this hypothesis. However, the results of our analyses seem to be consistent.

8. The WES identifies five types of incentive compensation: individual incentive systems, group incentive systems, profit-sharing plans, merit pay and skill-based pay, and employee stock plans.

9. Computer here means a microcomputer, minicomputer, personal computer or mainframe that can be programmed to perform a variety of operations (*Guide to the Analysis of the Workplace and Employee Survey*, 2001, Statistics Canada).

descriptive analysis, the second part of this section examines, for each firm-size group, which factors are associated with the incidence of training.

a. Incidence of training, by establishment size

This study, like previous studies, found that training enjoys less than universal support. Table 1 shows that just over half of the establishments surveyed (51.9 percent) reported that they sponsored structured training and 71.4 percent offered their employees on-the-job training. It is also not surprising that, for both types of training, the rate of support increases with firm size. Less than half of the small establishments (49.2 percent) sponsored structured training activities compared with 86.3 percent of medium-sized establishments and 96.1 percent of large establishments. The same trend also occurs for on-the-job training.

Among small establishments, those with fewer than 50 employees are far less likely to offer training activities. Structured training is offered by only 39.0 percent of establishments with 10 to 19 employees, and 53.8 percent of those with 20 to 49 employees. On the other hand, 79.2 percent of establishments with 50 to 99 employees support structured training, a percentage that is closer to those for medium-sized establishments than for other categories of small establishments.

Figures in Table 1 also support the idea that the smaller the establishment, the more on-the-job training is preferred to structured training. The ratio of support for on-the-job training to structured training decreases as the size of the establishment increases. Once again, the phenomenon is more pronounced for establishments with fewer than 50 employees. The ratio drops dramatically from 1.38 for establishments with 20 to 49 employees to 1.09 for establishments with 50 to 99 employees.

Table 1: Proportion of establishments supporting training activities, by size of establishment (percentage), N = 4189

Size of establishment	Structured training (1)	On-the-job training (2)	Ratio (2) / (1)
Small establishments	49.2	69.8	1.42
10–19 employees	39.0	63.8	1.64
20–49 employees	53.8	74.0	1.38
50–99 employees	79.2	86.4	1.09
Medium-sized establishments	86.3	90.4	1.05
100–299 employees	85.2	90.0	1.06
300–499 employees	93.1	93.2	1.00
Large establishments			
500 employees or more	96.1	94.9	0.99
Total	51.9	71.4	

Source: Statistics Canada, *Workplace and Employee Survey*, 2001.

Analysis of the distribution of establishments supporting training activities (Table 2) confirms that small establishments, particularly those with fewer than 50 employees, support training proportionally less than other establishments. Of the establishments that supported structured training, 87.8 percent were small,

whereas small establishments account for 92.8 percent of all establishments (a ratio of 0.95). On the other hand, for medium-sized and large establishments, the proportion of firms supporting training is higher than their representation of all establishments (ratios over 1). Proportionally, far fewer small establishments with less than 50 employees support training activities. Their ratio of representation among establishments that have supported structured training to representation within all establishments is well below that of small establishments with 50 to 99 employees, which is closer to the ratio for medium-sized establishments.

Table 2: Distribution of establishments supporting training activities and distribution of all establishments (percentage), N = 4189

Size of establishment	Structured training (1)	On-the-job training (2)	All establishments (3)	Ratio (1) / (3)	Ratio (2) / (3)
Small establishments	87.8	90.8	92.8	0.95	0.98
10–19 employees	39.5	45.8	51.3	0.77	0.89
20–49 employees	31.8	31.9	30.7	1.04	1.04
50–99 employees	16.4	13.1	10.8	1.52	1.21
Medium-sized establishments	10.3	7.9	6.2	1.66	1.27
100–299 employees	8.8	6.8	5.4	1.63	1.26
300–499 employees	1.5	1.1	0.8	1.88	1.38
Large establishments					
500 employees or more	1.9	1.4	1.0	1.90	1.40
Total	100	100	100		

Source: Statistics Canada, *Workplace and Employee Survey*, 2001.

b. Intensity of training, by establishment size

A more interesting result is that even though proportionally far fewer small establishments commit to employee training, those that do invest in training do so almost as intensively as medium-sized and large establishments. During the reference period, small establishments offered structured training to 39.3 percent of their employees, a figure close to 41.7 percent for medium-sized establishments and 41.4 percent for large establishments¹⁰ (Table 3). In terms of training investment, the difference between the amounts allocated to training does not seem very significant either. Small establishments allocated an average of 0.20 percent of their operating revenue to employee training compared with 0.26 percent for medium-sized establishments and 0.22 percent for large establishments.

Furthermore, among establishments that supported training activities, establishments with 10 to 19 employees are more active in training than most of the other size categories. The proportion of employees taking part in structured training is 44.2 percent in establishments with 10 to 19 employees, a rate higher than that for medium-sized establishments overall and for large establishments. As for expenditures, establishments with 10 to 19 employees allocated a greater portion of their operating

10. Although the proportions of employees having taken training in medium-sized establishments (41.7 percent) and in large establishments (41.4 percent) are very close, they are statistically different at the 95 percent level of confidence.

revenue to training (0.24 percent) than large establishments (0.22 percent). Clearly, small establishments that provide training do so actively.

These results on intensity of training are consistent with the findings of Turcotte *et al.* (2003), who also showed that firm size is positively related to incidence of training but negatively related to intensity of training. However, these results differ slightly from those of other studies. The important difference is that the population has been segmented into trainers and non-trainers. Thus, intensity of training is concerned only with establishments that actively engage in training, whereas previous studies, in measuring training intensity, include establishments that have not, in fact, trained their employees.¹¹ As a result, the difference between the intensity of employee training in small establishments and in medium-sized and large establishments is significantly less than in previous studies (and in some cases is reversed). Moreover, the analysis in this report demonstrates clearly that the predominant source of lower training rates in small businesses is the lower incidence, not lower intensity, of training.

Table 3: Intensity of training in establishments supporting structured training (percentage), N = 2995

Size of of establishment	Proportion of employees having taken training	Spending on structured training relative to operating revenue
Small establishments	39.3	0.20
10–19 employees	44.2	0.24
20–49 employees	38.1	0.20
50–99 employees	38.2	0.19
Medium-sized establishments	41.7	0.26
100–299 employees	39.5	0.23
300–499 employees	47.3	0.34
Large establishments		
500 employees or more	41.4	0.22
Total	40.6	0.22

Source: Statistics Canada, *Workplace and Employee Survey*, 2001.

c. Incidence of training by business strategies, human resources practices, technology use and innovation

Given that this study shows that the intensity of training in small establishments that train is consistent, the rest of this paper will analyse the incidence of training by firm size, i.e., the decision by the firm to invest, or not, in training. Because the small business population is much more heterogeneous than that for medium-sized and large companies, it is necessary to distinguish between the different types of small businesses so that one can compare similarly motivated firms. Consequently, in this section, firms are segregated according to their business strategy, also by the types of human resources practices they pursue, and by technology use and innovation. The incidence of training between these different segments

11. See, for example, the study by Leckie *et al.* (2001).

is compared by size of firm to try to understand further the factors underlying variations in the incidence of training.¹²

Business strategies

In all categories of small establishments, one generally finds positive links between incidence of training and the importance attributed to innovation and expansion, quality improvement and human resources-based strategies (Table 4). The more importance small establishments assign to these three strategies, the more likely they are to train their employees. Furthermore, the link between the innovation and market expansion strategy and the incidence of training is much stronger in small establishments with 10 to 19 employees. Those that consider this strategy very important are much more likely to train their employees than those that consider the quality improvement strategy and the human resources-based strategy very important. Pursuing a cost reduction strategy does prevent some small establishments from supporting training activities, most especially those with fewer than 50 employees. Small establishments with 50 to 99 employees that ascribe very great importance to the cost reduction strategy will, however, train their employees.

Table 4: Proportion (percentage) of establishments supporting structured training, by business strategy and size of establishment

	Size of establishment (number of employees)					
	All sizes	10–19	20–49	50–99	100–499	500 +
Overall	51.9	39.0	53.8	79.2	86.3	96.1
Strategy 1: Cost reduction						
Very important	53.2	—	39.3	83.4*	88.1	93.4
Important	52.3	40.2	53.4	77.9	85.1	98.4*
Not important	44.6	34.7*	—	78.2*	90.0	85.1*
Strategy 2: Innovation and expansion						
Very important	71.5	73.9*	58.4*	83.2*	85.1*	—
Important	53.0	40.9	51.3	81.9	85.5	98.4
Not important	43.1	32.1	53.0	69.4	87.3	95.3
Strategy 3: Quality improvement						
Very important	54.3	38.4	57.4	81.4	85.9	95.1
Important	51.4	43.9	50.5*	77.9	85.5	—
Not important	27.7*	21.3*	—	30.6*	—	90.2*
Strategy 4: Human resources-based						
Very important	62.9	50.1	60.9	85.3	92.0	98.0*
Important	50.3	40.5	51.0	76.3	79.3	93.2
Not important	21.9*	16.5*	—	—	87.6*	85.0*

— indicates that the estimate cannot be released because of high sampling variability, the coefficient of variation being higher than 30 percent. The coefficient of variation is a measure of data reliability — the higher the coefficient of variation, the less reliable the data.

* indicates that the estimate's coefficient of variation is above 15 percent and below 30 percent. The estimate is to be used with caution.

12. Significance levels of the various comparisons between two or more percentages cited in this section have been tested to a confidence level of 95 percent.

The relation between incidence of training and the different business strategies seems to be less pronounced in medium-sized and large establishments. For each strategy, the incidence of training is much less disparate in medium-sized and large establishments, whatever the importance ascribed to the strategy, than in small establishments. In medium-sized establishments, however, those that base their strategy primarily on human resources are more inclined to offer employee training than the others. In large establishments, there is a positive relation for quality improvement strategies and human resources-based strategies. And, for large establishments, cost control is not an obstacle to supporting training.

From the perspective of analysing different training rates by firm size, what is important is that the decision to train employees or not is much more dependent on the different business strategies in small establishments than in medium-sized and large establishments. The majority of medium-sized and large establishments sponsor training activities regardless of the strategies they adopt. However, it is primarily motivation to innovate and extend their market share that leads small establishments, especially those with 10 to 19 employees, to offer employee training. Those seeking to improve the quality of their products and those that base their strategy on human resources are also more likely to train their employees, though to a lesser extent.

When comparing establishments of different sizes and similar strategies, the difference in the incidence of training is much less than that observed overall. One concludes, therefore, that it is the heterogeneity of the small establishment population that is the source of the lower training rates observed in other studies. When one compares similar firms, size seems to be a less important factor in training. A firm committed to innovation and motivated to grow will find a way to undertake training, whatever their size.

Internal human resources practices, technology use and innovation

The decision by small establishments to train their employees or not is also positively linked to whether or not they offer their employees a flexible work arrangement (Table 5). One possible explanation is that employees who are more autonomous, and have flexible tasks and schedules, are better able to organize time off, making it easier for their employers to send them on training. However, the existence of a flexible work arrangement has no undue influence on the decision of medium-sized and large establishments to train their employees or not. Proportionally fewer medium-sized establishments that offer employees a flexible work arrangement will support structured training activities, while the incidence of training in large establishments that have such an arrangement is not statistically different from that found in those that do not to a confidence level of 95 percent.

The incidence of training is also higher in small and medium-sized establishments that offer their employees incentive schemes, whereas in large establishments, this has no significant effect on whether training is offered or not.

For all categories of establishments, employee availability seems to be a training barrier, especially for those with employees working 40 hours of work or more. Such establishments are the least likely to train their employees. On the other hand, the incidence of training in establishments where employees work from 37 to 39 hours is as high as, if not higher than, that of establishments where the number of working hours is less than 37.

In all categories of establishments, the positive relation between technology use and the incidence of training is not surprising. This confirms the notion that the more establishments make use of technology, the more interested they are in providing training for their employees so they are comfortable with

operating technological equipment and can update their skills. However, the impact of technology use on the decision to train employees seems more significant as the size of the establishment decreases.¹³

There is also a positive relation between the incidence of training and the introduction of innovative activities in all categories of establishments. This relation is also more pronounced in small establishments. For small establishments with 50 to 99 employees, medium-sized and large establishments, there is also a ceiling: generally for these establishments, they need to introduce at least one type of innovation before they decide to train their employees.

The types of internal human resources practices that establishments pursue are also associated with the incidence of training. Establishments that have incentive schemes, use technology intensively, or are innovative are more likely to support training activities, whatever their size. As in the case of business strategies, the incidence of training in small establishments that have those human resources practices is closer to the incidence of larger establishments than the incidence of the other small establishments.

Table 5: Proportion (percentage) of establishments supporting structured training, by human resources management practices, technology use, innovation and size of establishment

	All sizes	Size of establishment (number of employees)				
		10–19	20–49	50–99	100–499	500 +
Overall	51.9	39.0	53.8	79.2	86.3	96.1
Flexible job design						
Yes	53.3	39.3*	57.2*	80.4*	80.4*	96.6
No	50.6	38.9	52.2	78.3	86.9	95.8
Hours of work						
33–36 hours	50.5	37.6*	49.5*	83.0*	92.9*	97.3
37–39 hours	63.2	49.0*	57.7*	84.7*	90.1	97.9*
40 hours or more	46.1	36.3	52.0	72.6	77.4	91.8
Incentive compensation						
Yes	62.1	48.9	64.7	81.0	88.8	95.8*
No	38.5	29.7	40.3	73.6	78.9	96.3
Technology (employees using a computer)						
25 percent or less	40.6	26.3*	44.8	67.2	82.8	91.3
26–50 percent	51.3	42.3*	53.4*	73.1*	75.8	98.3*
51–75 percent	55.8*	38.8*	—	93.2	—	97.9
76–100 percent	63.4	52.5	63.3	90.5*	93.1	97.0*
Degree of innovation (number of type of innovation)						
0	42.2	34.5	41.8	66.4	81.5	94.9
1	47.9*	—	—	88.3*	84.2*	98.4*
2	49.5	33.7*	50.2*	84.7*	91.5*	88.6*
3	71.7	60.5*	73.6	84.2*	90.7*	98.3
4	63.4	54.3*	62.5*	82.3	86.6	98.4*

— indicates that the estimate cannot be released because of high sampling variability, the coefficient of variation being higher than 30 percent. The coefficient of variation is a measure of data reliability — the higher the coefficient of variation, the less reliable the data.

* indicates that the estimate's coefficient of variation is above 15 percent and below 30 percent. The estimate is to be used with caution.

13. In Table 5, it can be seen that the difference between the incidence of training in establishments where 25 percent of employees use a computer and the incidence of training in establishments where 76 percent to 100 percent of employees use a computer decreases as the size of the establishment increases.

Conclusions

The aim of this study was to examine the proposition that small firms train their employees less than medium-sized and large firms. The results concur with previous studies in that proportionally fewer small firms provide structured training activities for their employees, especially those with fewer than 50 employees. Moreover, small businesses are more likely to rely on on-the-job training versus structured training. However, the report qualifies this general statement in a number of aspects. The results show that when they commit to investing in employee training, small firms do so as intensively as medium-sized and large businesses. In fact, in the same way that some firms are not interested in growth, some firms have no interest in training. When the non-trainers are separated out, it is clear that the intensity of training is very similar across the different size groups. This suggests that the source of less training in small business is incidence, not intensity. Therefore, the incidence of training should be looked at more closely if we want to understand differences in overall training rates by firm size.

The small business population is much more heterogeneous than the medium-sized and large firm populations. The small business population includes both growth firms and firms that have no interest in growth. To screen out firms with no interest in growth, this paper examined training rates by firm size and segmented the business populations according to different business strategies and different human resources practices.

The business strategies of a firm clearly influence whether they decide to train or not. In particular, firms that pursue an innovation and growth strategy are more likely to train employees regardless of firm size. One can conclude that when comparing firms with similar business strategies, the difference in the incidence of training by firm size is much less than that observed overall. A similar but less pronounced phenomenon can be seen for those firms that pursue a human resources focused business strategy.

The type of internal human resources practices that firms pursue also influences the incidence of training, though the impact depends on the particular practice. Firms that have incentive schemes, use technology intensively or are innovative exhibit much higher incidences of structured training across all firm sizes. Once again, the gap between small firms and larger firms that have the same human resources practices is reduced.

Consequently, the main reason training rates are lower in smaller firms is because the populations of the smaller size group contain types of firms that are quite different and, indeed, absent from the population of larger firms (foundation firms, growth firms, innovative and technology-intensive firms, lower technology single-owner firms, non-growth-oriented firms). At the same time, there are many small businesses that do train as intensively as large firms. A more realistic comparison is one that analyses similar firms (in terms of motivation and practices) across different size groups. Problems arising from heterogeneity, therefore, should be accounted for when evaluating studies on training by firm size.

Outcomes in this study were based on cross-sectional data and on a descriptive analysis. Therefore, although the results of this study clearly showed that business strategies and human resources practices are related to the training decisions of firms, they did not establish the direction of the causality links. Secondly, this study focused principally on structured training. However, the more flexible and less expensive nature of on-the-job training deserves more thorough exploration in future research.

References

- Almeida-Santos, F. and K. Mumford (2004), “Employee Training and Wage Compression in Britain”, Department of Economics and Related Studies, University of York.
- Arthur, J. (1994), “Effects of Human Resource Systems on Manufacturing Performance and Turnover”, *Academy of Management Journal*, Vol. 37, No. 3, pp. 670–687.
- Baldwin, J. and J. Johnson (1995), “Human Capital Development and Innovation: The Case of Training in Small and Medium-Sized Firms”, Statistics Canada, Ottawa, No. 74-11F0019MPF No. 74, 44 p.
- Baldwin, J. and V. Peters (2001), “Training as a Human Resource Strategy: The Response to Staff Shortages and Technological Change”, Statistics Canada, Ottawa, No. 154-11F0019MPE No. 154, 38 p.
- Baldwin, J., W. Chandler and T. Papailiadis (1994), “Strategies for Success: A Profile of Growing and Medium-Sized Enterprises in Canada”, Statistics Canada, Ottawa, No. 61-523-RPE-1994001.
- Bélanger, J. (2000), “The Influence of Employee Involvement on Productivity: A Review of Recent Research”, Human Resources Development Canada, Ottawa, No. R-00-4E.
- Betcherman, G., N. Leckie and K. McMullen (1998), “Barriers to Employer-Sponsored Training in Canada”, Canadian Policy Research Network, Ottawa, 28 p.
- Betcherman, G., K. McMullen and K. Davidman (1998), “Training for the New Economy: A Synthesis Report”, Canadian Policy Research Network, Ottawa, 117 p.
- Black, S. and L. Lynch (1997), “How to Compete: The Impact of Workplace Practices and Information Technology on Productivity”, National Bureau of Economic Research, Cambridge, Working Paper No. 6120, 34 p.
- Chowhan, J. (2005), “Who Trains? High-Tech Industries or High-Tech Workplaces?” Statistics Canada, Ottawa, No. 11-622-MIF No. 006, 69 p.
- Cosh, A., J. Duncan and A. Hughes (1996), “The Impact of Training on Business Performance: An Empirical Analysis of UK SMEs 1987–95”, University of Cambridge, 20 p.
- Kapsalis, C. (1996), “The Role of Employees in Training Decisions in Canada”, *Canadian Business Economics*, Fall 1996, pp. 71–80.
- Lacoursière, R., B. Fabi, J. St-Pierre and M. Arcand (2005), « Effets de certaines pratiques de GRH sur la performance de PME manufacturiers : vérification de l’approche universaliste », *Revue Internationale PME*, Vol. 18, No. 2, pp. 43–73.
- Leckie, N., A. Léonard, J. Turcotte and D. Wallace (2001), “Employer and Employee Perspectives on Human Resource Practices”, Statistics Canada, Ottawa, No. 71-584-MPF No. 1, 89 p.
- Saks, A., S. Taggar and R. Haccoun (2002), “Is Training Related to Firm Performance?” *Human Resources Management Research Quarterly*, International Alliance for Human Resources Research, Vol. 6, No. 3, Fall 2002, 5 p.

Statistics Canada (2003), “Guide to the Analysis of Workplace and Employee Survey, 2001”, Labour Statistics Division, Ottawa.

Taggar, S. and S. Thornhill (2002), “The Impact of Performance-Based Pay, Firm Strategy, and Firm Size on Firm Performance”, *Human Resources Management Research Quarterly*, International Alliance for Human Resources Research, Vol. 6, No. 4, Winter 2002, 5 p.

Turcotte, J., A. Léonard and C. Montmarquette (2003), “New Evidence on the Determinants of Training in Canadian Business Locations”, Statistics Canada, Ottawa, No. 71-584-MPE No. 5, 94 p.