

Skills and Shortages

A Summary Guide to the Findings
of the Human Resources Survey

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Economic Council of Canada



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Contents

Introduction	v
The Highlights	vii
Sample Description	ix
Survey Results	
The Dimensions of the Problem	2
Meeting Skill Requirements	9
Vocational Training	12

In recent years, it has become increasingly apparent that there are shortages of certain occupational skills in this country. Despite the attention now being directed toward these imbalances, great gaps have existed in our knowledge of where the most critical shortages are and what we can do about them. In response to this situation, the Economic Council of Canada has recently carried out a nation-wide project focussing on the manpower problems and programs of employers in this country.

This effort — the Human Resources Survey — has gathered data from close to 1,400 establishments in virtually all industries regarding their experiences in meeting their skill requirements. In addition to outlining the dimensions of the shortage problem, our inquiry also addresses the strategies used by the respondents to ensure they have the human resources which they need. Particular emphasis has been placed on identifying their programs for developing vocational skills through training.

In this summary report, the findings of the Human Resources Survey are highlighted. It is our hope that this publication will be both informative and useful for those parties interested in the Canadian labour market.

- Data collected by the Human Resources Survey indicate that personnel shortages constitute a significant problem in Canadian industry. About one-half of the 1,354 establishments surveyed reported some hiring difficulties in the recent past and most anticipate similar shortages in the near future.
- As might be expected, the problem of finding required skills is greatest in the West and, particularly, in the province of Alberta. Establishments engaged in mining and manufacturing are most affected by shortages. There are, however, other serious skill-related problems limited to certain regions and sub-industries.
- There is a strong similarity between the types of shortages experienced from 1977 to 1979 and those anticipated for the 1980-84 years. In both periods, the most critical problems are with specific advanced blue-collar skills associated with product fabricating and repair and machining occupations. Serious shortages also exist for engineers and certain related technologists.
- These hard-to-find skills are generally in demand across the country. As a consequence, interregional mobility — bringing those qualified to the jobs — is not generally an effective solution. The problem has been exacerbated by a decrease in the supply of needed skills from other countries. Accordingly, Canada's occupational requirements must be increasingly met through the domestic development of human resources.
- At the present time, the training effort in industry is not directed toward the acquisition of high-level skills. While the majority of establishments report some vocational training, only a very small part of this activity is aimed at meeting our most critical shortages through comprehensive, long-term skill development programs.

The Distribution of the Sample by Province and Industry

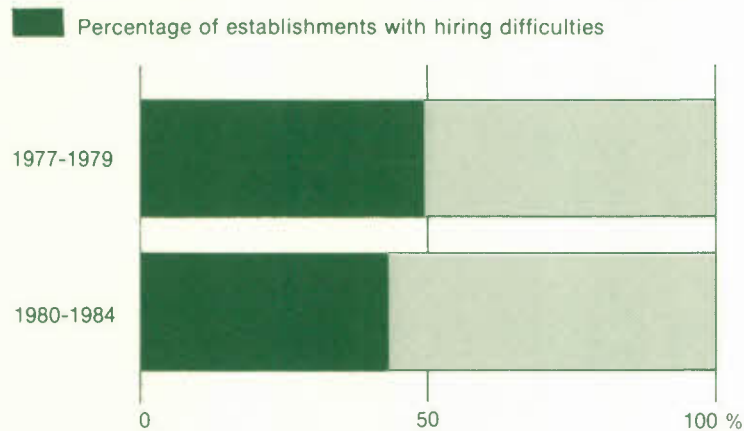
Province	%
Newfoundland	1.8
Prince Edward Island	0.4
Nova Scotia	2.3
New Brunswick	2.1
Quebec	26.8
Ontario	39.7
Manitoba	4.1
Saskatchewan	2.6
Alberta	10.0
British Columbia	9.5
The Territories	0.6

Industry	%
Mining	2.1
Construction	8.1
Manufacturing	32.6
Transportation, Communication	6.4
Trade	26.1
Finance, Insurance, Real Estate	3.8
Services	20.9

The results of the Human Resources Survey are based on information collected from 1,354 industrial organizations across Canada. The unit of analysis is an establishment which essentially represents the operation at a single physical location. All industries, excluding public administration and agriculture, were included in the survey. The distribution of participating establishments by province and industry is shown in the table.

Survey Results

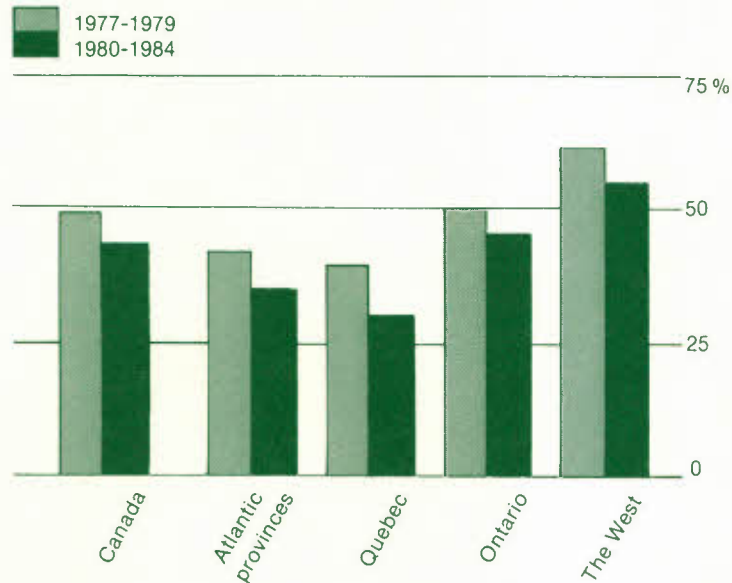
The Incidence of Shortages



Virtually one-half of the establishments participating in the Human Resources Survey experienced personnel shortages of one form or another between 1977 and 1979. A similar incidence of hiring difficulties is anticipated for the upcoming five years. To be specific, 49 per cent of the firms surveyed reported some problems since 1977 in finding required skills while 43 per cent expect to be faced with shortages in the 1980-84 period. To a marked degree, those establishments which have experienced shortages tend to be those anticipating future problems. This theme of "more of the same" will become more evident when we take a closer look at where the problems lie.

The Regional Dimension of Shortages

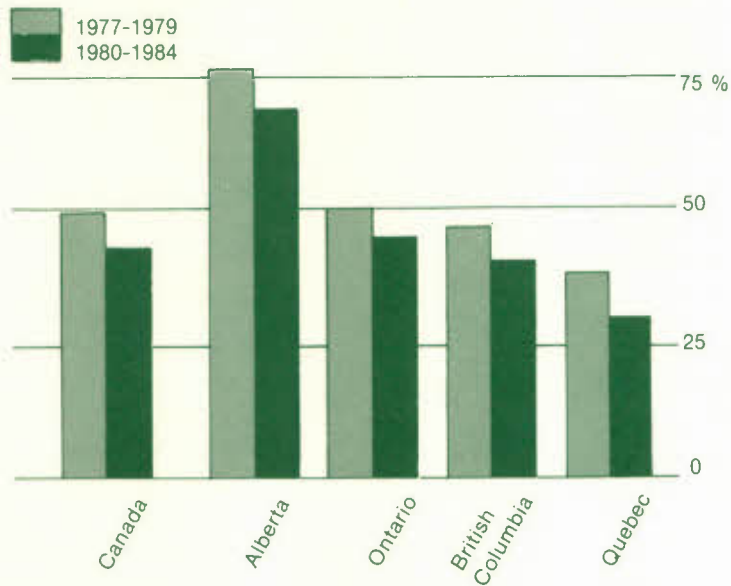
(percentage of establishments with hiring difficulties)



The incidence of shortage-related problems varies in different regions of the country. For both periods, the extent of hiring difficulties is significantly greater in the West than elsewhere in Canada. Of course, this reflects the high rate of economic growth in this region. Sixty-two per cent of the respondents in the West reported shortages in the 1977-79 period while 55 per cent expect problems in the next five years. Establishments in Quebec and the Atlantic provinces are least affected by hiring difficulties while Ontario fits in between, at about the national average.

The Provincial Dimension of Shortages

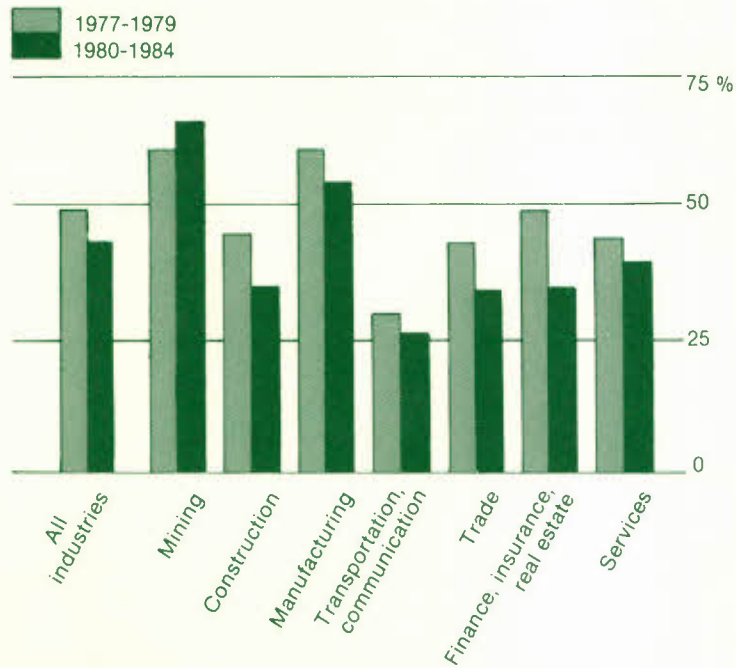
(percentage of establishments with hiring difficulties)



The regional breakdown of shortages conceals the extremely high incidence of hiring difficulties in Alberta. Seventy-seven per cent of the establishments surveyed in that province reported skill-related problems in the past three years and 68 per cent anticipate future difficulties. While very little of the Alberta economy has remained untouched by shortages, the industries most affected are manufacturing and mining.

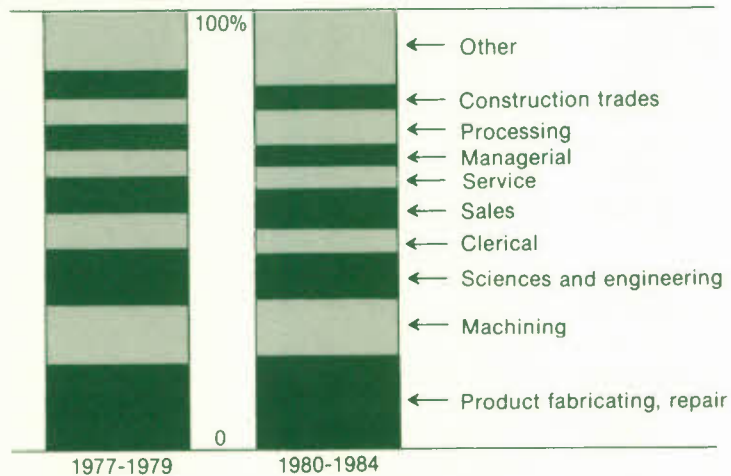
The Industry Dimension of Shortages

(percentage of establishments with hiring difficulties)



Mining and manufacturing establishments have been affected by shortages to a greater degree than firms in the other industry groups. Moreover, our results suggest that these sectors will continue to have the highest incidences of hiring difficulties. In mining, shortages are most critical for operations extracting metals, and particularly, oil and gas. Within manufacturing, the greatest hiring problems are faced by companies making machinery, rubber and plastic goods, and lumber and wood products. While the majority of respondents in each of the other industry groups reported that they are unaffected by personnel shortages, a more detailed breakdown does locate additional problem areas. Some of these, like the construction industry in the West, can be defined regionally. Others are isolated in sub-industries with distinctive skill requirements. Examples of this are air transportation, auto retailing, and business services.

The Occupational Dimension of Shortages (share of shortages cited)



In considering the occupational breakdown of personnel shortages, the following emerge as the major findings:

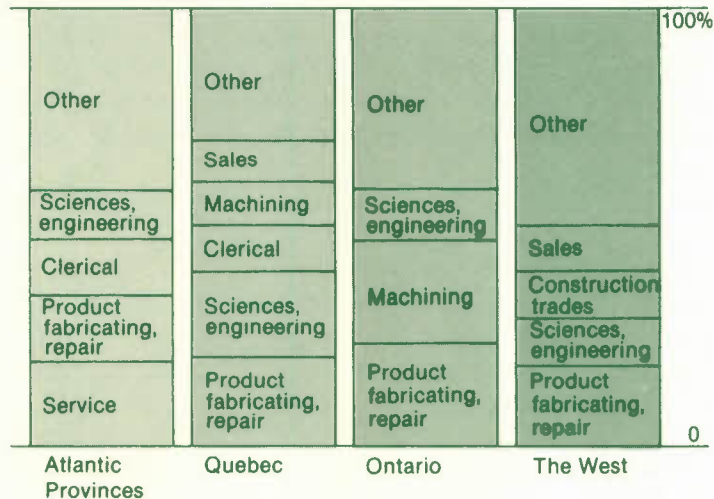
- The skills expected to be in short supply during the 1980-84 period are essentially those which posed the greatest problems in the past three years.

- The most critical shortages are with certain high-level blue-collar skills. In terms of numbers, over one-third of all hiring difficulties cited involved two such occupational groups: product fabricating and repair and machining. The former includes skills concerned with using manufactured components and assemblies to produce or repair products. Above all, it is the repairing jobs —industrial machinery mechanics, motor vehicle mechanics, and industrial electricians — which pose the foremost difficulty. Within the machining group, the most serious hiring problems involve occupations which prepare and set up machines and machine tools. Particular skills in great demand are tool and die making and machining and machine setting. Shortages of welders are also prominent. Most remaining blue-collar skills in short supply fall into the processing and construction trades categories.

- There are some hiring difficulties associated with high-skill white-collar jobs. Shortages are particularly prevalent within the sciences and engineering category and specifically with systems analysts, engineering technicians, draughters, and virtually all types of engineers. Some problems also exist in finding managerial personnel, most notably for financial functions.

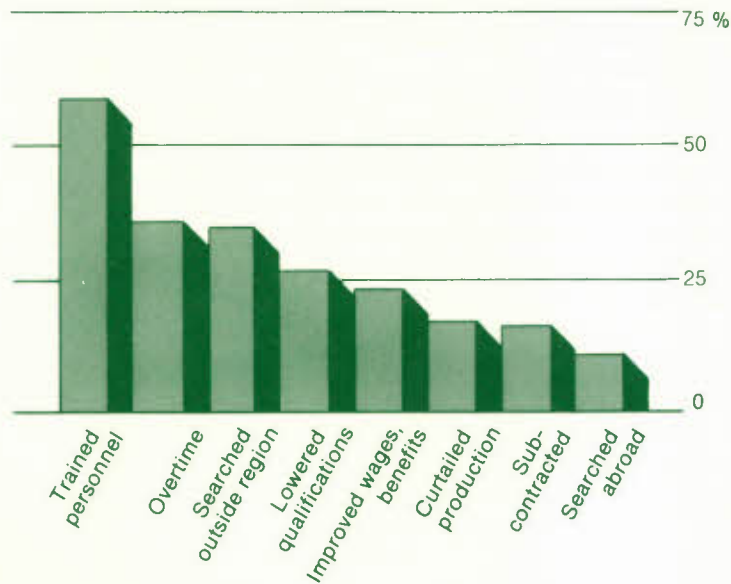
- Not all shortages reported can be accurately labelled as “skill” shortages. In these cases, involving relatively lower-skilled positions, the problem lies in a failure to attract or retain workers. There are examples of this phenomenon in the clerical, sales, and service groups where many of the shortages cited are clearly not the result of inadequate supplies of the required skills.

Occupational Shortages Experienced by Region (share of shortages cited)



Generally, the occupational breakdown of shortages is quite similar in all regions of Canada. For example, the product fabricating and repair and sciences and engineering categories pose major hiring difficulties for employers across the country. These overall similarities notwithstanding, there are some regional distinctions in terms of the types of skill shortages experienced. For the most part, these tend to stem from variations in the kinds of industrial activity. A case in point is the undersupply of construction trades people in the West which emanates from the building expansion in that region. The high incidence of shortages in the machining category in Quebec and, particularly, in Ontario reflects the concentration of manufacturing in Central Canada. Finally, in the Atlantic provinces, the service occupation group accounts for more hiring difficulties than any other.

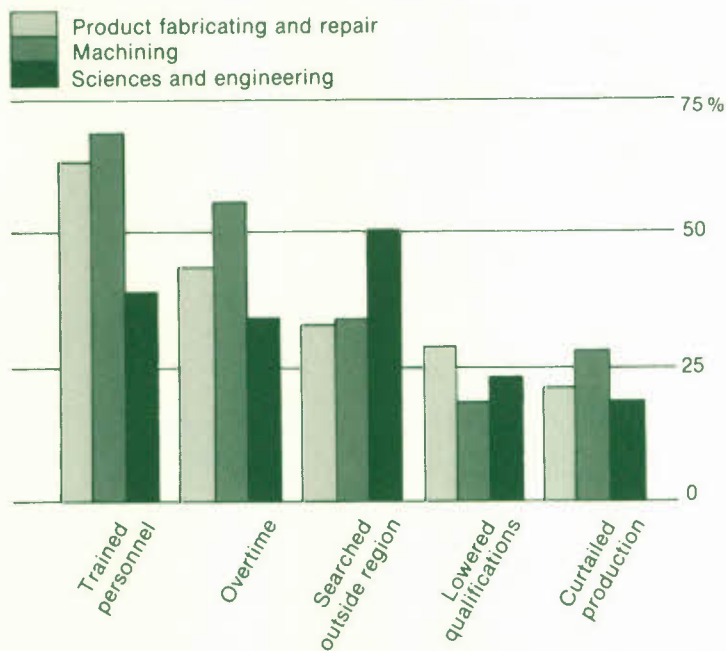
Responses to Hiring Difficulties
(percentage of all shortage situations)



Establishments employ a variety of responses when faced with difficulties finding required skills. In fact, in many situations, a number of strategies are utilized to try to solve the problem. The most often used of these is vocational training. Also, in over one-third of the shortages, overtime was employed as a response. Searching outside the region for required skills was particularly important for employers in Alberta and British Columbia. It is interesting to note that foreign search was used in only about one out of every ten shortage situations.

Responses to Hiring Difficulties for High Shortage Skills

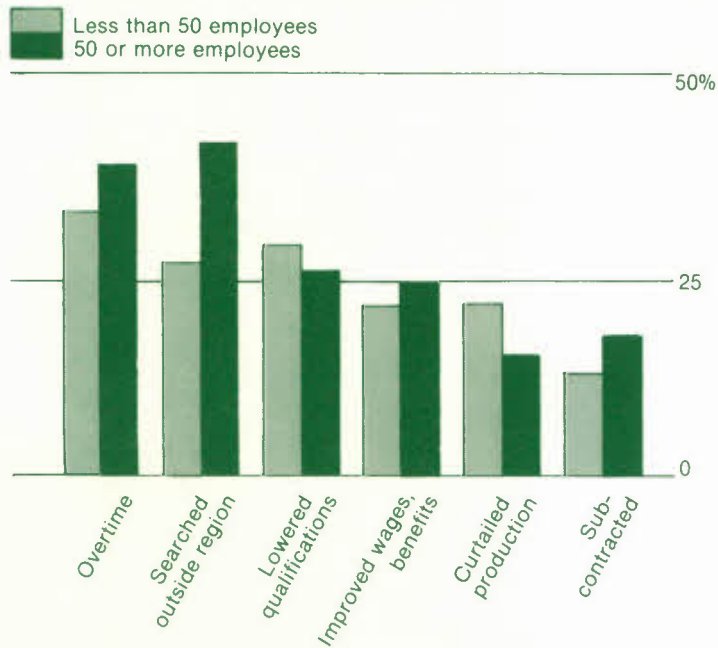
(percentage of all shortage situations)



The company solution to a shortage situation depends, at least in part, upon the type of skill required. This chart shows the strategies employed in response to difficulties hiring personnel in the three high-shortage occupational categories. A difference exists in the primary solution adopted for the blue-collar groups and for the white-collar category. While training is the dominant response to shortages both in product fabricating and repair and machining, search outside the region is the most common method used to overcome difficulties finding sciences and engineering personnel.

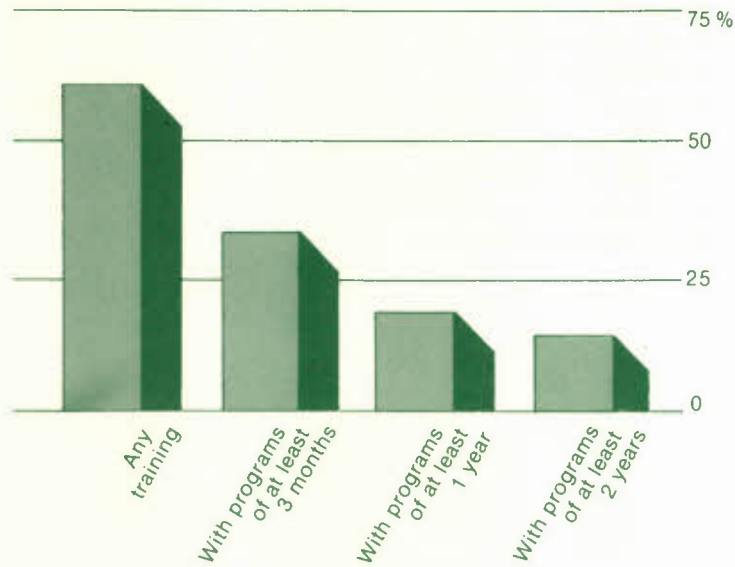
Selected Responses to Hiring Difficulties by Size of Establishment

(percentage of all shortage situations)



Small organizations are less able than large ones to effectively respond to a lack of available skills. Faced with hiring difficulties, establishments with at least fifty employees were able to search farther afield, pay more overtime, sub-contract more frequently, and improve the employment package more often than could their smaller counterparts. Only the least desired responses — curtailing production and lowering the job qualifications — were more commonly employed by small organizations.

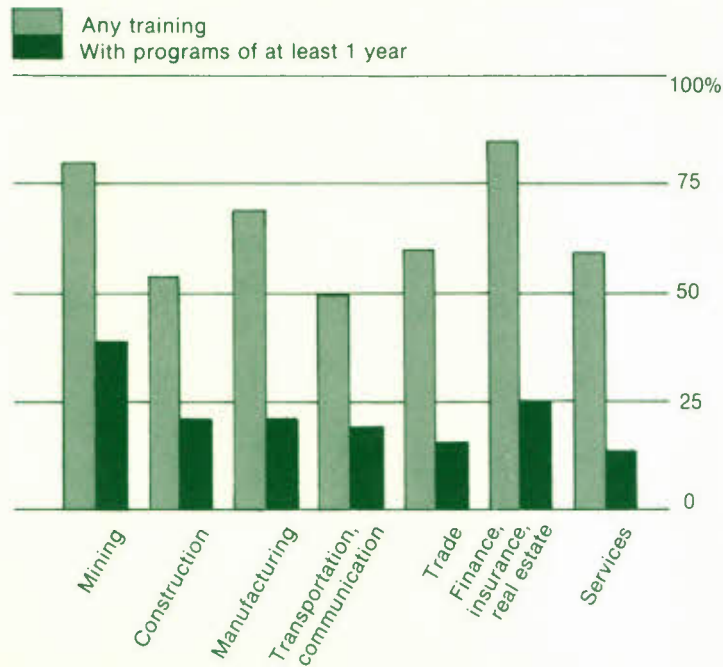
The Commitment to Training in Industry
(percentage of establishments reporting training)



Over 60 per cent of the establishments surveyed reported that they carried out some vocational training in the past year. Much of this effort, however, involved short-term programs which could not reasonably be intended for the transmission of high-level skills. Only about one-third of the respondents instituted training of at least three months duration. The acquisition of many vocational skills requires preparation for at least one year (and often considerably longer). With this in mind, it should be noted that only 19 per cent of the firms surveyed reported training programs lasting a year or more.

The Training Effort by Industry Group

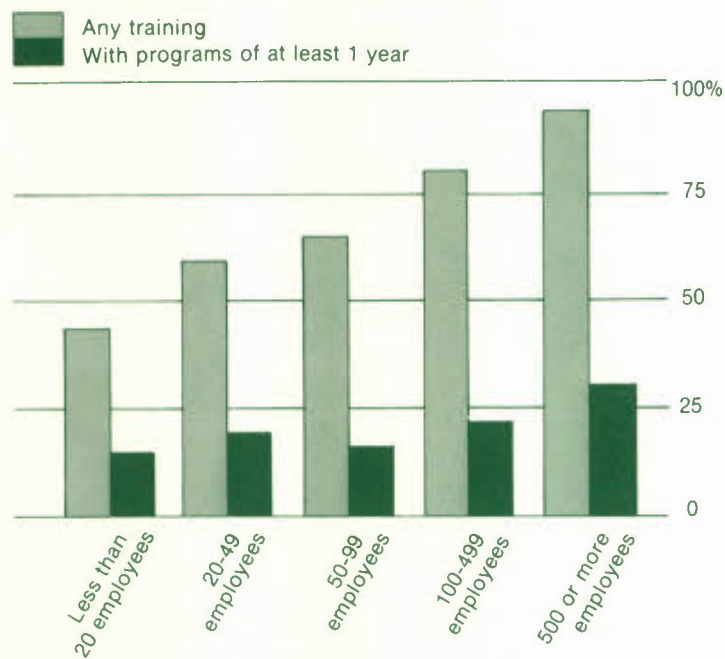
(percentage of establishments reporting training)



The vocational training effort is greatest in mining and in finance, insurance, and real estate. Establishments within the latter industry are more likely to carry out some training than are their counterparts in other industries. Our results suggest, however, that much of the training within finance, insurance, and real estate is of a short-term nature. The incidence of longer-term training is highest in mining where 38 per cent of the establishments reported the existence of programs lasting at least one year.

The Training Effort by Size of Establishment

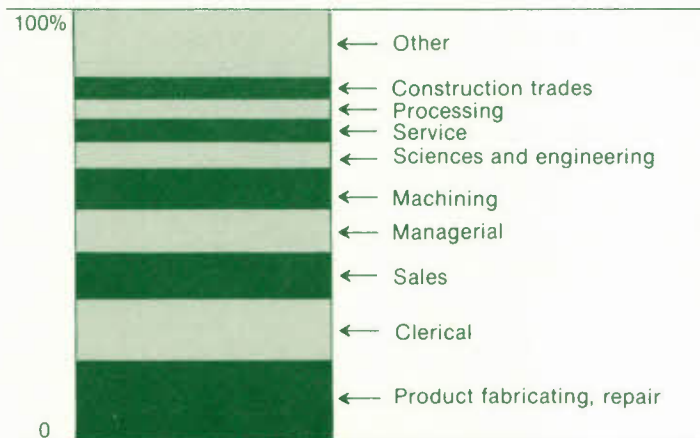
(percentage of establishments reporting training)



The larger the establishment, the more likely it is to institute some vocational training. No doubt, this reflects the greater resources and skill requirements associated with increased organizational size. The positive relationship between size and training activity exists for all types of vocational skill development. This is particularly true for training personnel in managerial, engineering, and high-level blue-collar categories.

Training Programs by Occupational Group

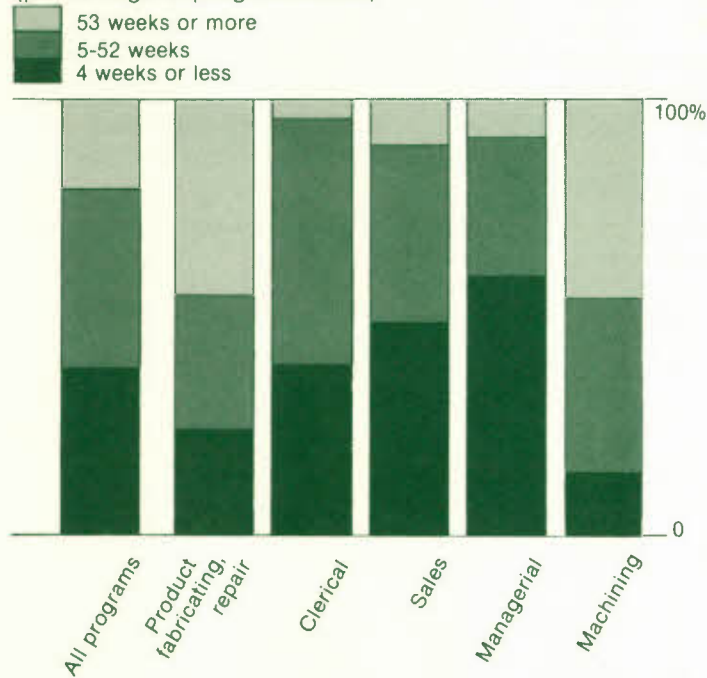
(share of programs cited)



Close to one-fifth of all training programs reported involved employees in the product fabricating and repair group. Clerical skills, too, constitute a major focus of training activity accounting for 16 per cent of all programs cited. Development of sales and managerial personnel also represent significant portions of the total training effort. Although both machining and sciences and engineering have been identified as high-shortage occupation groups, neither package of skills is widely transmitted through training in industry.

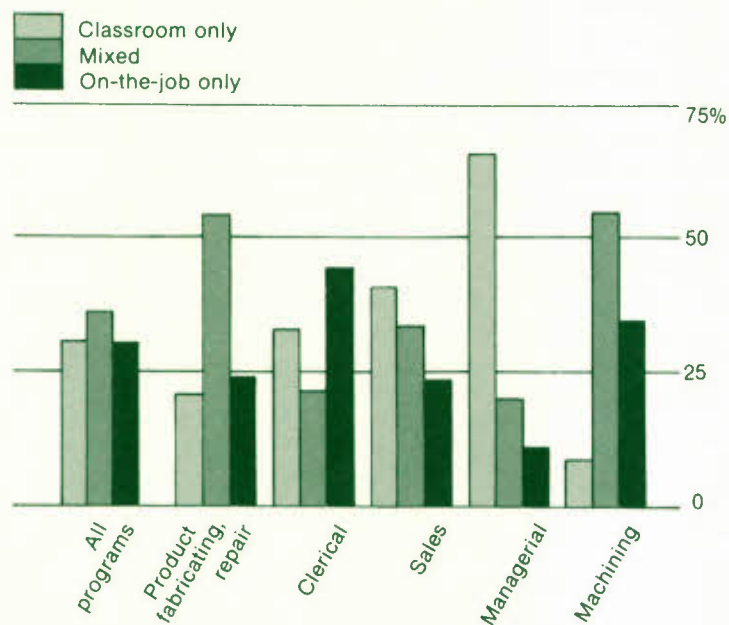
Duration of Training Programs for Selected Occupational Groups

(percentage of programs cited)



As we noted earlier, much of the training in industry is of a short-term nature. In fact, 38 per cent of all programs cited lasted four weeks or less. On the other hand, programs exceeding one year in duration represented only one-fifth of the total training effort. This chart breaks down the duration of programs for the most-often trained occupational groups. As we can see, the two blue-collar categories — product fabricating and repair and machining — are characterized by much longer training periods than the white-collar groups.

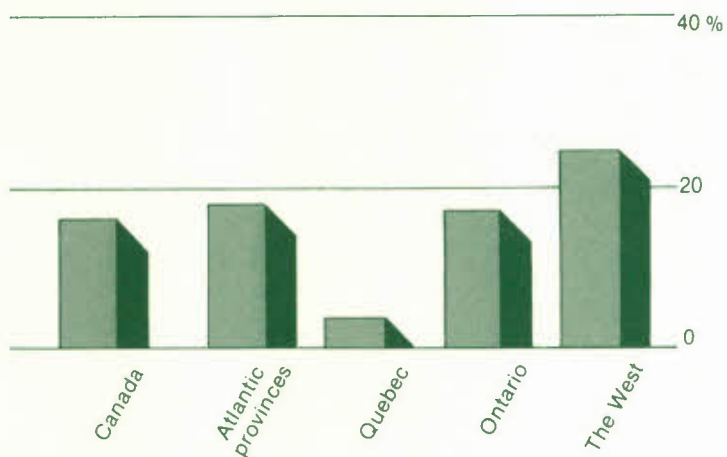
Method of Training for Selected Occupational Groups (percentage of programs cited)



The total training effort is fairly evenly split among programs that provide instruction only in the classroom, those that are solely on-the-job, and those that are a combination of the two. Different vocational skills seem to lend themselves to one or another of these training methods. For example, the majority of programs involving the product fabricating and repair and machining categories utilize both classroom and on-the-job instruction. Management training is heavily concentrated in the classroom while programs for clerical personnel most often take place on-the-job.

Apprenticeship Programs

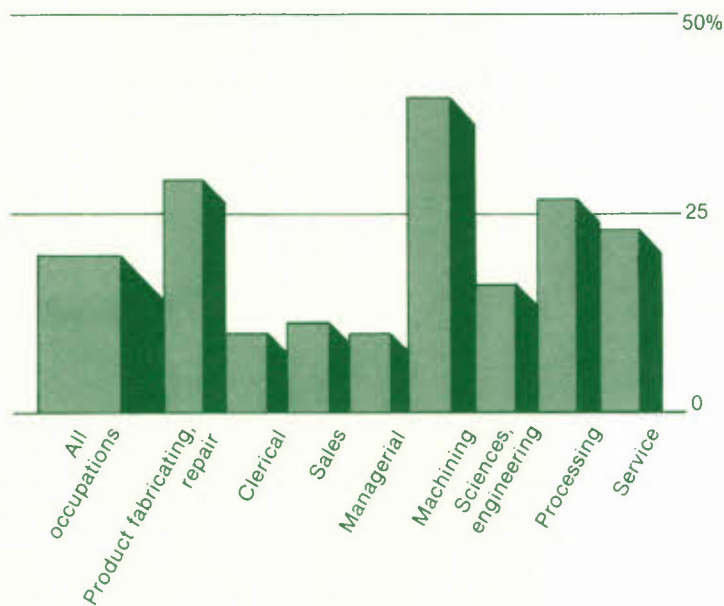
(percentage of establishments with programs)



Apprenticeships are a primary means for acquiring many high-level blue-collar skills yet, as has been often noted, this method is not well developed in Canada particularly in comparison with European countries. Not surprisingly, then, apprenticeship training is a minor component in the skill development programs of our respondents. As the chart indicates, only 16 per cent of the establishments surveyed had any apprentices in the previous 12 months. The highest incidence of courses was in the West while very few were carried out in Quebec. Just over half of the programs cited involved product fabricating and repair occupations while the machining and construction trades categories accounted for most of the remaining apprenticeships.

Government Assistance in Training

(percentage of programs with government assistance)



Most training in industry goes on without any financial help from public sources. Only one out of every five programs cited benefited from government assistance. Slightly over half of this subsidized training was carried out in manufacturing establishments. Generally, assistance was rare for programs involving white-collar skill development while it played a more important role in training personnel in blue-collar categories.

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