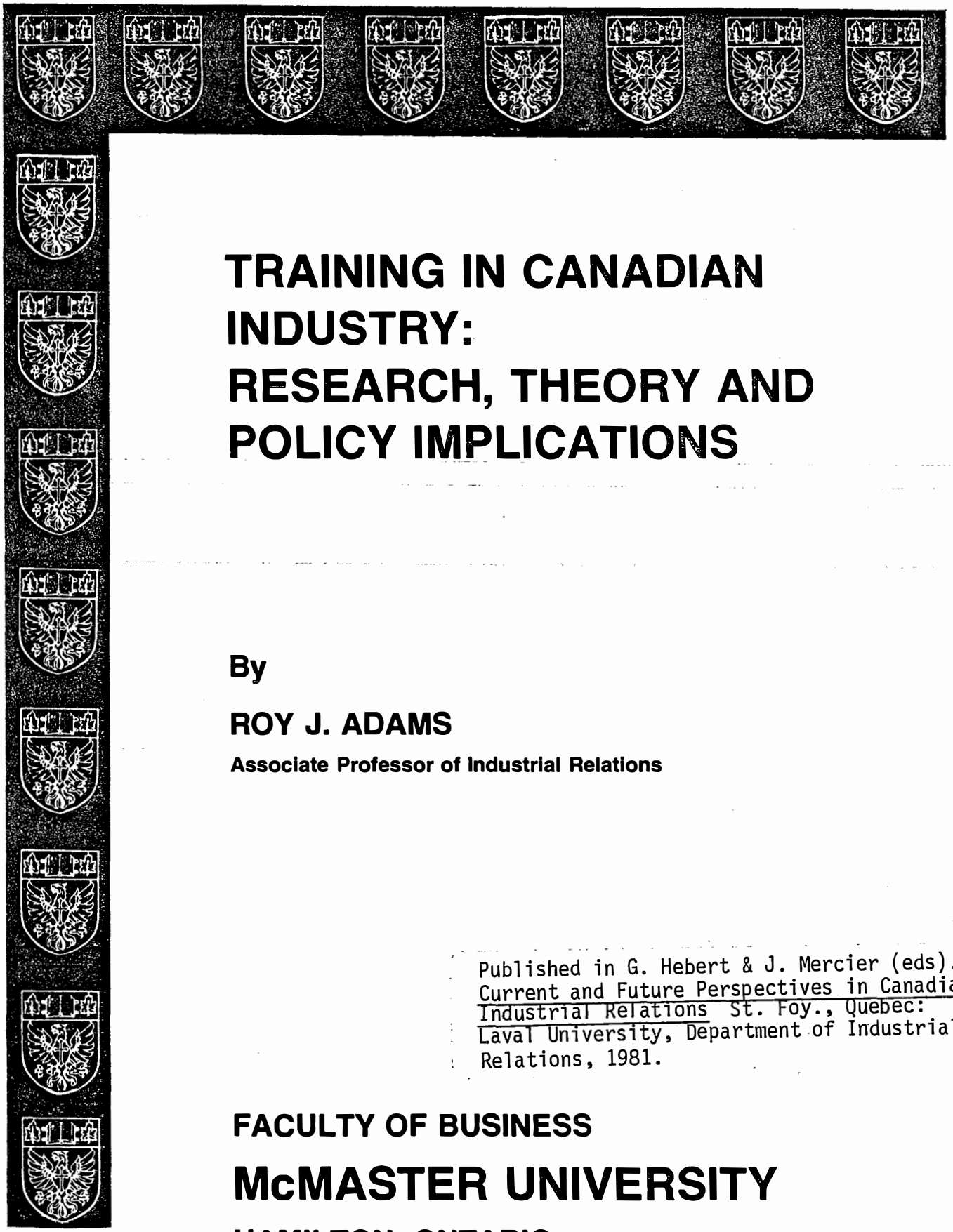

TRAINING IN CANADIAN INDUSTRY: RESEARCH, THEORY AND POLICY IMPLICATIONS

By

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Published in G. Hebert & J. Mercier (eds). Current and Future Perspectives in Canadian Industrial Relations St. Foy., Quebec: Laval University, Department of Industrial Relations, 1981.

FACULTY OF BUSINESS

McMASTER UNIVERSITY

HAMILTON, ONTARIO

Research and Working Paper Series No. 168
April, 1980

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Paper presented at the Annual Meeting of the
Canadian Industrial Relations Association,
Montreal, June 2, 1980.

During the past few years the existence of skilled worker shortages in Canada has emerged as an important policy issue. The supply of foreign trained skilled craftsmen is drying up and the response of Canadian industry to this development has been sluggish.[1] As a result governments have undertaken new iniatives to encourage the expansion of apprenticeship type training.[2]

In international comparison this development may be seen as a limited response to one aspect of a more wide ranging and fundamental set of needs. It is becoming increasingly recognized by industrial countries that the amount and quality of training in industry is an important determinant of economic efficiency and effectiveness. It is also becoming understood that because of rapid technological change initial education cannot be expected to carry individuals through adulthood. An efficient socio-economic system will provide for and encourage working people to continually upgrade and where necessary to train or re-train for new requirements.[3]

The objectives of this paper are to review the state of training in Canadian industry, to point out some of the weak spots in the industrial training system, to assess the theoretical basis for the state of training, and to suggest some implications for the public policy. The primary source of data for the presentation is the Survey on Educational Leave and Training and Development carried out in 1979 by Labour Canada for the Commission of Inquiry on Educational Leave and Productivity. Although many of the general findings of the survey were included in the report of the Commission, many of the disaggregated data were not reported and will be presented here for the first time. Other relevant surveys will also be reviewed for com-

parability and further insight.[4]

For the purpose of the Commission survey, training and development was defined as "time for which an employee is paid but which is spent away from normal duties during regular working hours for purposes of in-house training, safety training, development and instruction." Respondents were asked to exclude information on any employee whose training amounted to less than one day in the year as well as information on employees taking evening courses, and those enrolled in university-based cooperative education schemes and apprenticeship plans.

The Extent and Distribution of Training Plans and Policies

To assess the extent of training in Canadian industry two types of surveys have been carried out. One type asks for information on the number of establishments which carry on training. The other seeks to determine the number of people actually trained. With these types of data one may calculate the percent of establishments involved in training and the percent of employees actually receiving training. We refer to the former as the establishment training rate and the latter as the employee training rate. In this section the available data regarding the establishment rate are reviewed.

Table 1 indicates the distribution of training plans by industry and occupation. Roughly 28% of the surveyed establishments report having a training plan. This figure is somewhat higher than the one reported by Statistics Canada for 1969-70.[5] In that survey 22.9% of the sampled establishments reported training. Preliminary results from a more recent Economic Council of Canada survey suggest a much higher rate of 61%.[6] That study, however, defined training very broadly to include essentially any

Table 1

The Establishment Training

Rate by Occupation and Industry

	Occupation							
	Exec., Prof. & Managerial		Office		Non-Office		Total (1)	
Industry	Estab.	Employ.	Estab.	Employ.	Estab.	Employ.	Estab.	Employ.
Logging/mining	30	77	22	67	31	69	31	70
Manufacturing	25	65	25	57	31	58	31	59
Transport/Comm.	23	92	22	85	26	76	26	81
Trade	22	53	21	24	26	56	26	48
Finance	56	86	51	79	9	51	56	78
Service	30	78	25	56	23	57	30	62
Pub. Admin.	42	94	37	95	40	92	42	94
All Industries	28	79	26	71	27	64	28	68

Source: Commission on Educational Leave and Productivity, Survey on Educational Leave and Training and Development, unpublished data, 1979.

1. These figures represent the highest percent of the three occupational categories rather than an overall summary statistic which is not available.

employer initiated activity either inside or outside the company which led to the acquisition of vocational skills. The Commission survey (and most others) defined training more narrowly. Thus, comparability with the ECC study is problematic.

Since training plans are more prevalent in large organizations 68% of the labour force in the Commission survey works in a training establishment. In terms of employment coverage by industry the Commission survey indicates that transport and communication, finance and public administration are all well above the norm while trade and manufacturing are below average.

In each industry the occupational coverage is fairly even with a few outstanding exceptions. In trade, office employees appear to be poorly covered by training schemes. The same holds for non-office employees in the finance industry. In general, employment coverage is best for managerial employees and worst for non-office workers.

A comparison of the Commission findings with those of Statistics Canada and the Economic Council is presented in Table 1A. Because of differences in definition and coverage one should not push the comparison too far. Nevertheless, it is interesting to note that in all of the studies the financial sector emerges as the training leader in terms of establishment coverage.

Table 2 illustrates the distribution by establishment size. As one would expect, large firms are much more likely to have training plans than are small ones. Only 16% or so of small firms have a training plan with 21% of employees covered. In large firms the figures rise to approximately 74% of firms and 87% of employees. This finding of linear variation by firm size is consistent with the results of a 1965 Statistics Canada survey and a study by the Research Branch of the Ontario Ministry of Labour.[7]

In terms of regional distribution, variation around the norm is small.

Table 1A

The Establishment Training Rate

in Three Studies

Ed. Leave Commission '78[1]		Stats Canada 69-70[2]		Ec. Council Canada '79[3]	
Industry	Estabs. reporting Training (percent)	Industry	Estabs. reporting Training (percent)	Industry	Estabs. Reporting Training (percent)
Log/Mining	31	Primary	28	Mining	77
Manufacturing	31	Manufacturing	21	Manufacturing	66
Trans/Comm.	26	Comm. & other Utilities	24	Trans./Comm.	49
Trade	26	Trade	19	Trade	59
Finance	56	Finance, Ins. & Real Estate	42	Finance, Ins. & Real Estate	83
Service	30	Community, Bus. & Personal Suc.	14	Services	59
Pub. Admin.	42	Pub. Admin.	NA	Pub. Admin.	NA
Construction	NA	Construction	19	Construction	51
All Industries	NA	All Industries	23	All Industries	61

(1) Source: Commission on Educational Leave and Productivity, Survey on Educational Leave and Training and Development, unpublished data, 1979.

(2) Source: "Survey of Training in Industry: Progress Report," unpublished data, 1971. Reported in D. Stager and A. M. Thomas, Continuing Education in Canada, A Report to the Education Support Branch, Ottawa, Department of Secretary of State, April, 1975.

(3) Source: Economic Council of Canada, The Human Resources Survey, preliminary data, February 27, 1980.

Table 2

The Establishment Training

Rate by Establishment Size and Occupation

Occupation	Establishment Size[2] Small	Medium	Large	All Establishments
Exec., Prof. & Managerial				
Establishments	15	35	74	28
Employment	22	64	92	79
Office				
Establishments	15	32	67	26
Employment	28	49	84	71
Non-Office				
Establishments	16	38	68	27
Employment	19	44	88	64
Total				
Establishments[1]	16	38	74	28
Employment	21	48	87	68

Source: Educational Leave Commission Survey, op.cit.

(1) These figures represent the highest percent in the category rather than an overall summary statistic.

(2) Small = 49 employees or less; medium = 50-499 employees; large = 500 employees and over.

(See Table 3). The data indicate that establishments in the Northwest Territories and the Yukon are very training conscious. Because of the small number of reporting units one cannot place much confidence in the figure however.

A region by region comparison with the 1969-70 Statistics Canada survey is presented in Table 3A. There is a consistency of ordering in the two studies with the Prairie provinces at or near the top in both and Quebec at the bottom. The Commission survey also shows consistently higher percentages of establishments with training plans. This might suggest that there has been a moderate increase in commitment to training during the past decade. More likely the difference is due to the inclusion of public administration in the Commission survey and the exclusion of that sector by Statistics Canada. An above average percent of establishments in public administration report having training plans.

The Employee Training Rate

Although it is useful to know the number of establishments involved in training, the establishment training rate is an inadequate indicator of extent of training. For example, the Commission survey found that an above average percentage of firms in manufacturing have training plans but a below average percent of those employed in the industry are covered by the plans. A similar relationship exists in regard to the Prairies.

A more accurate indicator of the amount of training being done in industry is provided by reference to the number of people actually being trained. Employee training rates by occupation and industry are indicated in Table 4.[8] Overall the Commission survey suggests that about one employee in five received training in 1978. In those establishments with a plan the rate increased to one in three. Executive, professional and managerial

Table 3

The Establishment Training Rate

by Occupation and Region

	Occupation							
	Exec., Prof. & Managerial		Office		Non-Office		Total	
Region	Estab.	Employ.	Estab.	Employ.	Estab.	Employ.	Estab.(1)	Employ.
Atlantic	30	78	27	76	30	75	30	75
Quebec	21	79	19	73	21	52	21	62
Ontario	29	72	26	64	28	62	29	64
Praries	33	81	32	71	27	55	33	64
B.C.	28	81	30	83	30	56	30	69
NWT/Yukon	68	98	68	98	68	97	68	98
All Canada	28	79	26	71	27	64	28	68

Source: Educational Leave Commission Survey, op.cit.

(1) Refers to the highest percent in the Occupational categories.

Table 3A

The Establishment Training Rate

by Region in Two Studies

Ed. Leave Commission, '78(1)		Stats Canada '69-70(2)	
Region	Percent	Region	Percent
Atlantic	30	Atlantic	25
Quebec	21	Quebec	17
Ontario	29	Ontario	25
Praries	33	Praries (incl. NWT)	28
B.C.	30	B.C. (incl. Yukon)	29
NWT/Yukon	68	NWT/Yukon	NA
All Canada	28	All Canada	23

(1) Source: Educational Leave Commission Survey, op.cit.

(2) Source: Statistics Canada, Training in Industry, 1969-70, Ottawa, Information Canda, 1973.

Table 4

Employee Training Rates

by Occupation and Industry

Industry	Occupation: Exec., Prof. & Managerial	Office	Non-Office	Total
Logging/Mining				
Training Estabs. (1)	30	22	20	22
All Estabs. (2)	23	12	14	15
Manufacturing				
Training Estabs.	30	26	18	21
All Estabs.	20	14	10	12
Transport/Comm.				
Training Estabs.	64	66	37	50
All Estabs.	58	55	29	41
Trade				
Training Estabs.	41	25	43	41
All Estabs.	26	8	24	22
Finance				
Training Estabs.	31	38	18	35
All Estabs.	27	33	13	29
Service				
Training Estabs.	47	34	35	39
All Estabs.	35	16	19	23
Pub. Admin.				
Training Estabs.	47	15	26	24
All Estabs.	35	12	20	19
All Industries				
Training Estabs.	44	36	29	34
All Estabs.	33	24	17	22

Source: Educational Leave Commission Survey, op.cit.

(1) The percentage of employees receiving training in those establishments providing training.

(2) The percentage of employees receiving training in all establishments reporting training and in establishments reporting no training. Establishments which provided no information on training were excluded from the base.

employees were most likely to receive training. For the overall sample two executives or professionals were trained for every manual employee. In training firms the ratio was lower--about 1.5 to 1.

The most training active industry was transport and communications; well below average were logging and mining and manufacturing. Both of the latter industries were below average for every type of employee. Executives and professionals were most likely to receive training in transport and communications and least likely in manufacturing. Trade, logging and mining, public administration, and manufacturing are all signficantly below average in the provision of training to office employees and manufacturing, finance and logging and mining are well below the norm in training manual employees.

These results may be compared to the findings of a 1973 survey carried out by Statistics Canada.[9] In that study three questions were appended to the regular Labour Force survey in December, 1973. The comparison is presented in Table 4A. Several observations may be made. First, when employees are asked directly if they have been the beneficiary of training it appears that a much smaller percent answer postively than is the case when employers are asked how many employees have been trained. In light of the other data presented here it is very unlikely that three times as many working people were trained in 1978 as were trained in 1973.[10]

Despite the overall quantity differences in the two studies, there are some interesting consistencies. In both surveys manufacturing is below average in the amount of training actually provided. The financial and utilities sectors are significantly above average in both. A major point of difference stands out in regard to public administration. The Statistics Canada survey indicates that public administration is the most training active industry

Table 4A

Employee Training Rates

by Industry in Two Studies

Educational Leave Commission '78[1]		Stats Canada '73[2]	
Industry	Percent	Industry	Percent
Logging/Mining	15	Primary (other than Agriculture)	10
Manufacturing	12	Manufacturing	6
Transport/Comm.	41	Transport/comm. & other Utilities	12
Trade	22	Trade	6
Finance	29	Finance, Ins. & Real Estate	15
Service	23	Community, Bus. & Personal Service	7
Pub. Admin.	19	Pub. Admin.	17
Construction	NA	Construction	3
All Industries	22	All Industries	8

(1) Source: Educational Leave Commission Survey, op.cit.

(2) Source: "Employer Sponsored Training Programs," The Labour Force, January, 1975.

while the Commission survey suggests that the public sector is below average. The Commission results are especially puzzling when one considers that a larger percent of public sector employees work in establishments with a training plan than is the case in any other industry. There is no obvious explanation for this incongruity.

Table 4B provides a comparison in terms of the occupational distribution of training. Both studies suggest that executive, professional and managerial employees are those most likely to receive training, that office employees are the next most likely to be trained, and that manual workers are those least likely to receive training. That Statistics Canada study suggests that training opportunities for labourers and unskilled workers are all but non-existent.

As with the prevalence of plans the employee training rate also varies with establishment size. (See Table 5). An employee is five times more likely to receive training if he/she works in a large firm as compared to a small firm and two times more likely to receive training in a large firm as compared to a medium sized establishment. However, training rate variation between firms which have training plans is modest. If one takes a job in a firm which does training he/she is about as likely to be trained irregardless of firm size. The exception is office employees who are 70-75% more likely to be trained if they work for a large training firm rather than a small or medium sized one.

The regional distribution around the employee training rate norm is low with a few notable exceptions (See Table 6). The rate of managerial and professional training in the Atlantic provinces appears to be significantly above average and office employee training in British Columbia is well below average. In the Northwest Territories and the Yukon both managerial training and manual

Table 4B

Employee Training Rates

by Occupation in Two Studies

Educational Leave Commission '78[1]		Stats Canada '73[2]	
Occupation	Percent	Occupation	Percent
Exec., Prof. & Managerial	33	Managerial	13
		Professional & Technical	15
		Clerical	7
		Sales	9
Office	24	Service & Recreational	5
		Primary (other than Farmers)	X[3]
		Labourers & unskilled workers (excluding primary)	X[3]
Non-Office	17	Craftsmen, production process and related	6

(1) Source: Educational Leave Commission Survey, op.cit.

(2) Source: The Labour Force, Jan., 1975, op.cit.

(3) Less than 1% .

Table 5

Employee Training Rates

by Occupation and Establishment Size

Establishment Size	Occupation: Exec., Prof. & Managerial	Office	Non-Office	Total
Small				
Training Estabs.	52	24	29	31
All Estabs.	11	6	5	6
Medium				
Training Estabs.	49	23	28	31
All Estabs.	31	10	11	14
Large				
Training Estabs.	41	42	29	35
All Estabs.	38	36	26	31
Total				
Training Estabs.	44	36	29	34
All Estabs.	33	24	17	22

Source: Educational Leave Commission Survey, op.cit.

Table 6

Employee Training Rates

by Occupation and Region

Region	Occupation: Exec., Prof. & Managerial	Office	Non-Office	Total
Atlantic				
Training Estabs.	63	35	22	31
All Estabs.	45	25	16	22
Quebec				
Training Estabs.	44	24	29	31
All Estabs.	32	13	13	16
Ontario				
Training Estabs.	46	27	28	31
All Estabs.	29	13	15	17
Praries				
Training Estabs.	43	31	32	35
All Estabs.	34	19	16	20
B. C.				
Training Estabs.	31	9	36	23
All Estabs.	24	7	19	16
NWT/Yukon				
Training Estabs.	49	11	34	33
All Estabs.	49	11	34	33
All Canada				
Training Estabs.	45	24	29	31
All Estabs.	31	14	15	17

Source: Educational Leave Commission Survey, op.cit. The summary rates differ from table 5 because several establishments could not be classified by region.

employee training appear to be more prevalent than in the rest of Canada. Again, because of the low response rate these figures should not be accepted uncritically.

Employee Training Rates by Sex and Industry

The Statistics Canada 1973 study suggested that men are proportionately overrepresented among those receiving training. The overall figures for the Commission study do not bear out that observation. Men make up 67% of the employees in the responding establishments and 67% of the trainees. (See Tables 7.) However, the disaggregated figures present a different picture. In six industries out of seven men are in fact overrepresented. The summary balance is achieved only because women appear to be trained to a greater extent than men in the very training active transport and communication industry. An industry by industry comparison with the Statistics Canada survey indicates general agreement between the two studies with two exceptions. First, the Statistics Canada study suggests a stronger discriminatory effect in most industries. Second, contrary to the Commission findings Statistics Canada found an overrepresentation of males even in transport and communication although the discrimination was much less marked than in other industries.[11]

Employee Training Rates by Age Group

De facto discrimination in regard to age is also a notable feature of the industrial training system. Table 8 contains data from the Statistics Canada 1973 and Commission surveys. Both studies indicate that industry does not provide a great deal of training to young people and older workers. The discriminatory effect is most marked, however, in the Commission survey.

Table 7

Employee Training Rates

by Sex and Industry in Two Studies

Educational Leave Commission '78 (1)			Stats Canada '73 (2)		
	Percent Male			Percent Male	
Industry	All employees in reporting establishment	Employees on training & development	Industry	Total paid workers	Paid workers taking training
Logging/Mining	93	98	Primary (other than Agriculture)	100	100
Manufacturing	78	87	Manufacturing	76	89
Transport/Comm.	78	70	Transport/comm. & Other utilities	81	83
Trade	62	66	Trade	61	76
Finance	44	51	Finance, Ins. & Real Estate	45	63
Service	39	40	Community, Bus. & Personal Service	39	44
Pub. Admin.	68	73	Pub. Admin.	72	79
All Industries	67	67	All Industries	64	73

(1) Source: Educational Leave Commission Survey, op.cit.

(2) Source: The Labour Force, Jan., 1975, op.cit.

Table 8

Employee Training Rates

by Age in Two Studies

Educational Leave Commission '78			Stats Canada '73[6]		
	Percent of			Percent of	
Age Group	Employed[1] workers	Employees on[2] Training & Development	Age Group	Paid workers	Paid workers taking training
15-19 yrs.	9	*[3]	14-19 yrs.	11	5
20-34 yrs.	43	59	10-34 yrs.	42	54
35-54 yrs.	36	40[4]	35-54 yrs.	36	35
55 + yrs.	12	1[5]	55 + yrs.	11	5

(1) The Labour Force, Dec., 1978. Labour force destribution by age as of December, 1978.

(2) Educational Leave Commission Survey, op.cit.

(3) Less than 1% of trainees under 20 years of age.

(4) Trainees 35 to 49 years.

(5) Trainees 50 years and over.

(6) The Labour Force, Jan., 1975, op.cit.

Employers report that they trained less than 1% of employees under 20 years of age in 1978 and very few employees over the age of 50. The difference in the teen-age training rate between the Statistics Canada survey and the Commission survey can probably be accounted for by the fact that the Commission study excluded apprentices. In 1973-74 there were approximately 75,000 registered apprentices in Canada and most were presumably between the ages of 15 and 25 years.[12] There is no apparent explanation for the different rates in the other age categories.

Length and Type of Training

Although the Commission did not collect data on the specific type of training done in industry the fact that the overwhelming preponderance of trainees in all industries received 10 days of instruction or less suggests that most training is job and/or firm specific. (See Table 9). This hypothesis is borne out by reference to other available studies. (See Tables 10 and 11). The surveys by Statistics Canada and by Michel Lagace for the Task Force on Industrial Training in Ontario both indicated that safety and orientation are the most prevalent types of training. Safety training consists of instructing employees in safe work techniques, and orientation involves providing new employees with information on the background, rules and procedures of the establishment. These two types of training consume approximately one third of all industrial training time in Canada. In the critical primary and manufacturing industries the figure rises to 50%. While these types of training are certainly of importance they clearly do not impart substantive or theoretical job skills. To acquire a more accurate picture of the amount of occupational training done in industry the rates reported in Tables 4 and 4A should be deflated by the percentages indicated in Table 11.

Table 9

Percentage Distribution of

Trainees by Length of Training

and Industry

Industry	Length of Training				
	1-5 days (%)	6-10 days (%)	11-25 days (%)	26+ days (%)	Total (%)
Logging/Mining	62	24	7	7	100
Manufacturing	61	10	13	16	100
Trans/Comm.	72	27	1	*(1)	100
Trade	81	5	10	4	100
Finance	74	10	4	12	100
Service	86	11	2	1	100
Pub. Admin.	85	7	2	6	100
All Industry	75	13	5	7	100

Source: Educational Leave Commission Survey, op.cit.

(1) Less than 1%.

Table 10

Percentage Distribution of

Trainees by Type of Training

in Two Studies

Type of Training	Stats Canada 69/70[1]	Lagace 1973[2]
Skills (other than apprenticeship)	23	24[3]
Clerical and Sales	16	18
Managerial and Supervisory	17	15
Safety and Orientation	34	28
Apprenticeship	3	N/A
Other	8[4]	15[5]

(1) Source: Training in Industry 1969-70, op.cit.

(2) Source: Michel D. Lagace, "Industry-Sponsored Training Programmes in Ontario, August, 1968-July, 1969," Toronto, Ontario Ministry of Labour, 1973.

(3) Includes computer training.

(4) Includes other non-managerial and language.

(5) Includes personal services, academic upgrading, industrial or business processes and other.

Table 11

Percentage Distribution of Trainees by

Type of Training and Industry - Stats Canada 69-70

Industry	Type of Training: Trade & Manual Skill	Clerical & Sales	Other non-Managerial Occupational	Management & Supervisory	Safety, Orientation & Language	Apprenticeship
Primary	23	1	3	20	50	5
Manufacturing	23	7	5	18	45	3
Construction	14	1	1	13	12	59
Trans/Comm.	35	16	4	16	27	3
Trade	17	37	3	12	30	2
Finance, Ins. & Real Estate	3	35	31	18	12	*(1)
Com., Bus. & Personal Svc.	21	10	13	16	39	1
All Industries	23	16	7	17	35	3

Source: "Survey of Training in Industry: Progress Report", op.cit.

(1) Less than 1%.

Findings in regard to length of training in four studies are presented in Table 12. They all indicate that industrial training is predominantly short term.

Discussion

The key findings from this review of survey research on the Canadian industrial training system would appear to be these:

1. Although the majority of Canadian enterprizes may engage in some sort of training activity, most do not have a formal training scheme.

2. Since large organizations engage in formal training to a much greater extent than small and medium sized firms, an estimated 70% of employed Canadians work in an establishment which reportedly has a training scheme for some type of employee.

3. Somewhere between 8% and 22% of working Canadians are recipients of industrial training annually.

4. Most industrial training is short term and job or firm specific. Approximately a third of all training in industry consists of instruction on the use of safe work techniques and/or providing new employees with information on the background, rules and procedures of the establishment.

5. Women, young people and manual workers are underrepresented in the industrial training system. Male managers and professionals between the ages of 25 and 44 are the ones most likely to be recipients of employer-sponsored training.

6. The key mining, manufacturing and logging industries train at a rate well below the Canadian norm. Finance and transport and communications are above average training industries.

7. In terms of regional distribution Quebec is below the norm and

Table 12

Length of Training

Modal Categories in Four Studies

	Category	Percent
Stats Canada 69-70[1]	29 hours & under	53
Lagace[2]	Less than 1 month	68
Educational Leave Commission(3)	1 to 5 days	75
Stats Canada '73[4]	Less than 5 weeks	57

(1) Training in Industry, 1969/70, op.cit.

(2) M. Lagace, "Industry-Sponsored Training Programmes in Ontario," op.cit.

(3) Educational Leave Commission Survey, op.cit.

(4) The Labour Force, Jan., 1975, op.cit.

and the Prairie provinces are above average both in regard to the percentage of establishments providing training and in the percentage of employees trained.

Is there reason to be concerned with this pattern? It seems to me that one should be concerned for several reasons. A recent OECD study of education in Canada concluded that the great majority of students receive little or no occupational training in secondary schools.[13] Most enter the labour market as unskilled workers. The survey results reported here indicate that industry makes few efforts to systematically train these people. The lack of industrial training opportunities for young people is no doubt at least partially responsible for the very high rate of youth unemployment.

About one-third of secondary school graduates go to post-secondary school.[14] Some take career or professional courses thus acquiring skills which are directly applicable to the world of work. Those skills, however, cannot be expected to last a lifetime. Because of rapidly developing technology, skills must be continually upgraded. However, the available research indicates that provisions for professional and technical upgrading are far from adequate. For example, the Ordre des Ingenieurs du Quebec recently surveyed working engineers in that province. It was found that although two out of three engineers feel the need for continuing education only one in three actually gets involved. Sixty two percent said that on the job experience was insufficient to guarantee the development of professional competency.[15]

Those who do not take career or professional courses at the post-secondary level still technically qualify for jobs which require a

university degree or college diploma. Such people may be bright, and they may have considerable potential but they do not bring vocational skills to the job. When employers specify general university degrees as job requirements they do not do so because of the substantive occupational knowledge which the degree holder has absorbed. Instead the general degree is an indicator of a high aptitude to learn. In fact, the general degree holder is as unskilled as the high school graduate when he/she enters the labour market. To be effective such people must learn occupational skills. The research reviewed here indicates that the process for imparting those skills is haphazard and uneven at best.

Most working people in Canada apparently acquire occupational skills and knowledge by learning informally on the job. Vocational educators are agreed that experience is a valuable element in occupational education but experience alone is inefficient and in many cases ineffective. To produce employees who are capable of a high degree of efficiency, effectiveness and creativity in their careers experience must be combined with substantive and theoretical education. This principle has been recognized in the professions and by several technical occupations but with regard to the preponderance of the labour force it is inoperative. In short, our labour force is largely composed of people who used to be known in the skilled trades as "green hands" — people who have picked up some skills here and there but have not acquired the range and depth of knowledge necessary to be fully competent in their occupational careers.[16]

The scant provision of general training in industry also has resulted in the creation and perpetuation of job ghettos. Many thousands of bright

women, manual and office employees are locked into jobs in which they are underproductive. Because reasonable means do not exist for them to compete for more demanding and responsible positions the Canadian economy is certainly less productive than it could be.

Canada has significant advantages over other countries in terms of natural resources and the general educational level of the population. It also has been very attractive to immigrants because of its relatively high standard of living. Perhaps because of these advantages, a weak industrial training system was tolerable in the past. The future is a different matter. The living standard differential between Canada and other industrialized countries has decreased substantially during the past decade and thus Canada is not as attractive to potential immigrants.[17] Canadian manufacturing industry, where training is notably deficient, has shown a lack of innovative spirit.[18] It is generally recognized that prospertiy in the 1980's and beyond will require the rapid development of high technology industries which will require a high level of occupational skill. Other countries have realized these necessities and have put policies in place to accomplish these ends.[19] If Canada fails to do likewise a continued decline in the relative standard of living of Canadians is the likely outcome.

What to Do

Human Capital theory, which focuses largely on the decisions of individuals, has long held the field as the dominant explanatory framework for the existence or lack of training in industry. In the seminal work on the theory Becker argued that:

> "Perfectly general training would be equally useful in many firms and marginal products would rise by exactly the same extent in all of them. Consequently, wage rates would rise by exactly the same

amount as the marginal product and the firms providing such training could not capture any of the return."[20]

Becker went on to argue that firms would provide specific training they could capture. The would also provide:

"general training only if they did not have to pay the costs. Persons receiving general training would be willing pay these costs since training raises their future wages. Hence it is the trainees, not the firms, who would bear the costs of general training and profit from the return."[21]

The prediction that firms will not engage in general training is largely consistent with empirical observation, but the subsidiary prediction that individuals will accept low pay, high training jobs has proven to be very difficult to verify.[22] Nevertheless this view of the world has continued to dominate discussions of training in industry. It has generally been accepted that employers behave in a perfectly rational manner by not investing in training despite the existence of a considerable body of anecdotal and hard research evidence which indicates that such investment results in significant benefits to employers.[23]

An alternative explanation for the lack of training in industry is to be found in the theory of public goods proposed by Olsen.[24] A public good is one which cannot be excluded from those who desire it. One example is union service. Because unions must, by law, equally represent all employees in a bargaining unit whether they are members or not, individual employees have no economic rationale for becoming union members. Nevertheless, the unit as a collective does have a stake in a strong, well supported union. To overcome this dilemma union security clauses which require all in the unit to support the union were invented.

Because an employee may accept employment in any firm which values his/her general training, such training is closely analogous to union membership. Thus, both human capital and public goods theory predict that employers will not engage in training which they perceive to be of no differential benefit. However, where human capital theory suggests that employees reap all of the benefits of general training, public goods theory indicates that employers collectively benefit from such training. Public goods provides the better representation of observed experience. In an open economy it is clearly in the collective interests of industry to have a well trained labour force. The higher the level of occupational skills possessed by working people the more efficient and effective they will be and the more competitive will be the nation in the world economy. Germany and Japan which invest heavily in occupational education are illustrative of the principle.

The solution to a public good dilemma is the imposition of a common requirement on all. Union security clauses require all who benefit to pay dues to the union. Since the general training of the type advocated by the Commission on Educational Leave would be equally available to all employers, they all should be willing to contribute to its production. Thus, the Commission recommended the establishment of a training levy. Since details of the scheme have been dealt with elsewhere they will not be repeated here.[25]

If the analogy with union security holds, employers should be willing to contribute equally to a scheme which is in their interests and can be expected to provide positive collective returns. To date, however, Canadian employers have had mixed reactions to the possibility of a levy.[26] There are valid reasons for this lukewarm response. First, government policy has distorted

the situation by excessively subsidizing education and training. Employers have been led to expect that they may convince government to provide them with the type and quality of human resources which they require at no additional cost.[27] Second, it is likely that many employers are unfamiliar with the probable net benefits to be derived from increased training and perceive training to be solely a cost factor. Third, it is evident that employers mistrust government. Even though the idea might be considered valid in theory some employers fear that government bungling will result in spin-off costs which negate any possible benefit.

Similar fears and beliefs were expressed by employers in other countries when the issue entered public discussion. The solution was the imposition by government of a global responsibility. In Great Britain and France many employers opposed the establishment of a levy by legislation. The schemes, however, did have the effect of expanding the quantity of training and, more importantly, they made industry more training conscious. Industrial organizations devoted more time and energy to the assessment of training needs and to the development of responsive programs. As a result, after several years of experience, there is general agreement in industry in both countries that the schemes have produced net benefits. There is little or no sentiment for their abolition.[28]

The legal establishment of a levy scheme in Canada is fraught with political difficulties. Both federal-provincial jealousies and business opposition must be overcome. Nevertheless, a responsible government would take the bull by the horns and proceed with legislation, ideally with the advice and guidance of the more enlightened and forward looking sector of the

business community. Experience suggests that such a policy initiative would meet with general approval after the initial shock was absorbed.

FOOTNOTES

1. Gordon Becherman, Speech to the Canadian Manufacturers' Association, March 21, 1980.

2. See, for example, Employment and Immigration Canada, Annual Report 1978/79, Ottawa, Supply and Services Canada, 1979.

3. Council of Europe, Permanent Education-Final Report, Strasbourg, 1978; Recurrent Education: A Strategy for Life-long Learning, Paris, OECD, 1973; Education and Working Canadians, Report of the Commission of Inquiry on Educational Leave and Productivity, Ottawa, Labour Canada, 1979.

4. The results of the Commission survey reported here are consistent with those included in the Commission report. However, subsequent to the dealine of the Commission several hundred additional questionnaires were returned. These new data are now being processed and a more complete report is to be issued by Labour Canada in 1981.

5. Statistics Canada, Training in industry 1969-70, Ottawa, Information Canada, 1973.

6. Economic Council of Canada, The Human Resources Survey, Ottawa, February, 27, 1980.

7. Dominion Bureau of Statistics, Organized Training in Four Industry Groups, Ottawa, 1967; M.D. Lagace, "Industry-Sponsored Training Programmes in Ontatrio, August 1968-July, 1969," Toronto, Research Branch, Ontario Ministry of Labour, 1973.

8. In the Commission report a training rate was calculated by taking trainees as a percent of employment in the full sample.

9. "Employer Sponsored Training Programs," The Labour Force, January, 1975.

10. A study confined to Ontario found a training rate of 10.4%. Lagace, "Industry Sponsored Training Programmes in Ontario," op. cit.

11. The 1969-70 Statistics Canada study indicated a discriminatory effect even greater than in the 1973 study. Training in industry, 1969-70, op. cit., p.66.

12. Education and Working Canadians, op. cit., p.90.

13. Review of National Policies for Education, Canada, Paris, OECD, 1976.

14. Z. Zsigmond, G. Picot, W. Clark and M.S. Devereaux, Out of School--Into the Labour Force,Ottawa, Statistics Canada, 1978.

15. Ordre des Ingenieurs du Quebec, Survey of Quebec Engineers Continuing Education, Montreal, November, 1979. See also Education and Working Canadians, op. cit., p. 112-116.

16. Neil W. Chamberlain and Donald E. Cullen, The Labour Sector (2nd ed.), N.Y., McGraw Hill, 1971, p. 274.

17. See, for example, Union Bank of Switzerland, Prices and Earnings Around the Globe, Zurich, several years.

18. James Gilmour, "Industrialization and Technological Backwardness: The Canadian Dilemma," Canadian Public Policy, Winter, 1978 and Richard Starks, Industry in Decline, Toronto, Lorimer, 1978.

19. The training initiatives of several European countries are discussed in Education and Working Canadians, op. cit. On the high technology imperative see Standing Senate Committee on Foreign Affairs, Canada-United States Relations, Volume II, Canada's Trade Relations with the United States, Ottawa, 1978. A recent federal program of government aid to high technology industries made no provisions for training. See Canada Report, April, 21, 1980

20. Gary S. Becker, Human Capital, N.Y. , National Bureau of Economic Research, 1964, p. 12.

21. Ibid.

22. See Mark Blaug, "The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey," Journal of Economic Literature, September, 1976.

23. This research is reviewed in Education and Working Canadians, op. cit., chapter 2.

24. Mancur Olson, The Logic of Collective Action, N.Y., Schocken Books, 1968.

25. Roy J. Adams, "Towards a More Competent Labour Force: A Training Levy Scheme for Canada," Relations Industrielles, forthcoming.

26. At a recent conference on Human Resources in the 1980's held in Toronto on February 7, 1980, spokesmen for the British Columbia Employers' Council and the Canadian Manufacturers' Association rejected the levy proposal of the Commission. However, other employer spokesmen have supported the idea. See. D.E. Hushion and Associates, Review and Assessment of the Legislative Basis for Apprenticeship Training in Ontario, Toronto, ca. 1979 and A Report by the Second Tier Committee on Policies to Improve Canadian Competitiveness, Ottawa, Department of Industry, Trade and Commerce, October, 1978.

27. Approximately 85% of post-secondary education in Canada is paid for by government funds. In addition, government heavily subsidizes industrial training. The investigation of the Task Force on Industrial Training in Ontario was predicated largely on the premise that training was a governmental rather than an employer responsibility. See Training for Ontario's Future, Report of the Task Force on Industrial Training, Toronto, Ministry of Colleges and Universities, 1973.

28. Education and Working Canadians, op. cit., chapter 1.

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