Occupational Health and Safety: A Blind Spot in Teaching at Canadian Schools of Business

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Abstract

This study surveys Canadian business schools at the undergraduate and MBA levels to see if Occupational Health and Safety is addressed in their curricula. This is important because the annual cost of work related accidents in Canada is estimated at over $4B in direct costs and over $20B in indirect costs. The survey found that occupational health and safety receives between three to fifteen percent of one course in some business schools; most others spend no time at all on the subject. Further, less than two percent of journals used or recommended by faculty instructing Human Resource Management mention occupational health and safety in a substantive manner. Nonetheless, most respondents indicated an interest in redressing this "blind" spot in teaching in business schools. The author makes recommendations regarding remedies to the "blindspot" in teaching at Canadian schools of business.

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Table of Contents

Introduction

Canadian business schools are responsible for educating managers equipped to deal with the realities of today's business world. Students are taught to think strategically, manage costs and maximize profits. They are taught the challenges and issues they will face, and are given tools to equip them in dealing with the reality of managing business to their benefit and the country's economic benefit.

A recent article by Bill Sells entitled "What Asbestos Taught Me About Managing Risk", in the Harvard Business Review, (March-April, 1994) outlines the disastrous consequences to one of Fortune 500's blue-chip industrial giants, namely John-Manville Products Corporation which has had to establish a personal injury settlement trust fund with $150 million in cash, $1.6B in bonds, 80% of the company's common stock and beginning in 1992 and continuing for as long as there are claims, 20% of the company's profits.

Sells' article is important in showing clearly that occupational health and safety is a function of management decisions and actions, and that the consequences of failing to acknowledge this can be disastrous both in terms of the deaths of workers and of the industry itself.

Contrast this with the case of Dupont Canada Inc. which with a product mix of explosives, plastics and paints arguably has an even higher potential for risk than John-Manville. And yet, they consistently outperform other chemical producers and most other manufacturers. Injury frequencies at many of their plants have been zero during an entire

year. Can safety be managed? The answer at Dupont is yes. The Dupont Safety Philosophy signed by its President, Arthur R. Shawchuck is as follows:

> "We are committed to excellence in safety and occupational health for all of our people on and off the job. We are committed to the safe distribution and use of our products by our customers. Safety management is an integral part of our business and is built on the belief that all injuries and occupational illnesses are preventable; that we are all responsible for our own safety and also that of our fellow employees; and that managers are responsible for the safety of those in their organizations".

We will see in this chapter, that the cost of industrial accidents and illnesses in social and economic terms is high and a manager's legal liability is significant. The question is then: Do Canadian business schools provide appropriate education in this area or is Occupational Health and Safety A Blind Spot in Teaching at Canadian Schools of Business?

Human cost

As of March 1994, there were 12,141,000 million people employed in various workplaces in this country (Statistics Canada 1994). It is the reasonable expectation of every one of these people going to work in the morning that he or she should return home to his/her family safe and sound at the end of the day.

The reality in Canada however is that over one million workers are injured on the job every year (Labour Canada 1992). Over half are lost-time injuries and over 1000 workers die of work related causes every year. To be specific, Table 1 summarizes Occupational Injuries in Canada

Table 1 – Occupational Injuries in Canada 1970–90

	Injuries/Accidents								Rates			
	Number of Employees (000s)	No Lost Time**		Lost Time		Fatal (Compensated)		Total Injured	Fatality (000s Workers	Lost Time Injuries Frequency (per million hrs worked	Incidence of Lost Time Injuries (per million hrs worked	Incidence of Injuries (per 100 workers)
Year		Total	%	Total	%	Total	%					
1970	6,692	491,099	61.9	301,653	38.0	918	0.12	793,670	13.7	22.6	4.5	11.9
1971	6,850	480,475	60.5	312,302	39.3	924	0.12	793,701	13.5	22.9	4.6	11.6
1972	7,109	489,831	55.6	390,612	44.3	1,078	0.12	881,521	15.2	27.5	5.5	12.4
1973	7,491	547,256	55.5	438,384	44.4	1,124	0.11	986,764	15.0	29.3	5.9	13.2
1974	7,861	573,281	54.7	473,726	45.2	1,456	0.14	1,048,463	18.5	30.2	6.0	13.3
1975	8,014	547,147	55.3	441,008	44.6	957	0.10	989,112	11.9	27.6	5.5	12.3
1976	8,148	572,062	54.7	472,372	45.2	936	0.09	1,045,370	11.5	29.0	5.8	12.8
1977	8,371	586,267	56.2	455,402	43.7	813	0.08	1,042,482	9.7	27.2	5.4	12.5
1978*	8,525	592,327	55.0	484,386	45.0	811	0.08	1,077,524	9.5	28.5	5.7	12.6
1979	8,843	630,118	54.0	536,387	45.9	944	0.08	1,167,449	10.7	30.4	6.1	13.2
1980	9,034	648,272	53.3	566,949	46.6	967	0.08	1,216,188	10.7	31.4	6.3	13.5
1981	9,340	622,208	51.5	584,443	48.4	967	0.08	1,207,618	10.4	31.3	6.3	12.9
1982	9,039	496,437	48.9	518,751	51.1	861	0.08	1,016,049	9.5	28.7	5.7	11.2
1983	8,767	462,704	48.5	490,463	51.4	718	0.08	953,885	8.2	28.0	5.6	10.9
1984	8,902	510,652	49.3	524,948	50.7	744	0.07	1,036,344	8.4	29.5	5.9	11.6
1985	9,209	504,424	46.9	570,616	53.0	733	0.07	1,075,773	8.0	31.0	6.2	11.7
1986	9,845	474,624	44.2	598,424	55.7	762	0.07	1,073,810	7.7	30.4	6.1	10.9
1987	10,134	421,564	40.8	612,127	59.2	796	0.08	1,034,487	7.9	30.2	6.0	10.2
1988***	10,285	456,265	42.6	614,012	57.3	835	0.08	1,071,112	8.1	29.9	6.0	10.4
1989	10,518	434,330	41.4	615,089	58.6	830	0.08	1,050,249	7.9	29.3	5.9	10.0
1990P	10,326	438,449	42.5	592,824	57.4	809	0.08	1,032,082	7.8	28.7	5.7	10.0
Average	**9,729**	**522,847**	**50.8**	**504,518**	**49.1**	**904**	**0.09**	**1,028,269**	**10.4**	**29.0**	**5.8**	**11.8**

P: Preliminary
NOTE:

* 1978 figures do not include the Northwest Territories
** For Quebec, claims for which less than $100 in medical assistance was provided are not included
*** Data revised for 1988

Compensated fatalities are included in the calculation of total injuries and all rates

Notes: Employment figures are derived from Statistics Canada's monthly average estimates of "Employment, Earnings and Hours" (Catalogue 72–002) plus agriculture, fishing and trapping employment figures from Statistics Canada's "Labour Force Survey" (Catalogue 71–001)
Injury statistics are taken from provincial/territorial workers' compensation boards reporting forms sent to Labour Canada

Source: Occupational Injuries and Their Costs, Canada, 1988–1990, Labour Canada 1992

1970-1990, and Table 2 summarizes the Occupational Injuries by Province and Territory for 1988-1990. From Table 1, we can see that while fatality rates in Canada have dropped from 13.7 to 7.8 deaths per 100,000 workers between 1970 and 1990, the incidence of lost time injuries has actually gone up from 22.6 to 28.7 injuries per million person hours worked in that same period.

Table 2 shows the injury records for the period 1988-1990 for various jurisdictions in Canada. It can be seen that every Province and Territory has a significant portion of their workforce that is injured on the job from a low of 5.4 workers per hundred employed in Alberta to a high of 17.6 workers per hundred employed in the Yukon. In total, 1,032,082 workers were injured on the job in Canada in 1990; For that same year 1,127 were reported as job-related deaths.

The personal tragedies of individuals and families are poorly documented and cannot be fully described, but it would be improper not to recognize the incalculable social cost of occupational injuries and illnesses.

Economic cost

More quantifiable than the human cost is the economic cost to individual businesses and to Canada's economy.

In 1990, direct payments from Workers' Compensation Boards to injured workers and surviving family members were in excess of $4.3B. These costs have been rising at about seven percent per year (see Table 3 - Occupational Injury Costs for Canada).

Table 2 – Occupational Injuries by Province or Territory, 1988–1990P

Province	Year	Injuries						Rate			
		Number of Employees (000s)	Loss Time	No Loss Time	Fatal		All	Fatality per 100,000 workers	Lost Time Injuries Frequency (Per million hrs worked)	Incidence of Loss Time Injuries (per million hrs. worked)	Incidence of Injuries (per 100 workers)
					Compen–sated	Repor–ted					
NFLD	1988	147	9,967	8,796	19	24	18,782	13.0	34.0	6.8	12.8
	1989	151	13,255	8,364	27	27	21,646	17.9	44.1	8.8	14.4
	1990P	149	12,602	8,858	29	29	21,489	19.5	42.4	8.5	14.4
PEI	1988	39	2,438	2,205	0	1	4,643	0.0	31.7	6.3	12.1
	1989	39	2,457	2,147	4	5	4,608	10.3	31.8	6.4	11.9
	1990P	37	2,535	2,305	3	3	4,843	8.1	34.3	6.9	13.1
NS	1988	293	11,469(1)	13,963	28	33	25,460	9.5	19.6	3.9	8.7
	1989	308	10,270(1)	19,144	11	15	29,425	3.6	16.7	3.3	9.6
	1990P	304	11,287(1)	26,545	14	19	37,846	4.6	18.6	3.7	12.4
NB	1988*	220	11,323	27,538	21	26	38,882	9.5	25.8	5.2	17.7
	1989	228	12,402	28,968	8	18	41,378	3.5	27.2	5.4	18.1
	1990P	229	11,855	28,050	16	33	39,921	7.0	25.9	5.2	17.4
QUEBEC	1988*	2,549	215,748	46,038(2)	89	119	261,875	3.5	42.3	8.5	10.3
	1989	2,568	219,063	32,335(2)	127	159	251,525	4.9	42.7	8.5	9.8
	1990P	2,494	209,832	31,439(2)	120	155	241,391	4.8	42.1	8.4	9.7
ONTARIO	1988*	4,221	208,189(1)	226,850	332	536	435,371	7.9	24.7	4.9	10.3
	1989	4,322	200,721(1)	213,852	307	516	414,880	7.1	23.3	4.7	9.6
	1990P	4,188	184,175(1)	205,770	269	488	390,214	6.4	22.0	4.4	9.3
MANITOBA	1988	399	22,136	18,121	25	46	40,282	6.3	27.8	5.6	10.1
	1989	400	21,611	17,573	20	34	39,204	5.0	27.1	5.4	9.8
	1990P	398	22,224	15,883	29	35	38,136	7.3	28.0	5.6	9.6
SASK	1988	317	15,185	20,707	23	23	35,915	7.3	24.0	4.8	11.3
	1989	320	13,797	19,486	36	36	33,319	11.3	21.6	4.3	10.4
	1990P	319	13,375	19,721	30	30	33,126	9.4	21.0	4.2	10.4
ALBERTA	1988*	963	40,401	16,446	124	119	56,971	12.9	21.0	4.2	5.9
	1989	998	38,579	16,553	107	107	55,239	10.7	19.4	3.9	5.5
	1990P	1,007	36,174	17,989	120	120	54,283	11.9	18.0	3.6	5.4
BC	1988	1,102	74,653	72,703	162	212	147,518	14.7	33.9	6.8	13.4
	1989	1,145	80,871	72,499	175	218	153,545	15.3	35.4	7.1	13.4
	1990P	1,166	86,979	78,760	168	204	165,907	14.4	37.4	7.5	14.2
YUKON	1988	10	459	1,537	4	4	2,000	38.8	22.5	4.5	19.4
	1989	11	376	1,445	1	1	1,822	9.1	17.1	3.4	16.6
	1990P	10	182	1,569	5	5	1,756	50.0	9.4	1.9	17.6
NWT	1988	20	2,044	1,361	8	8	3,413	40.2	51.6	10.3	17.2
	1989	20	1,687	1,964	7	7	3,658	34.5	41.7	8.3	18.0
	1990P	20	1,604	1,560	6	6	3,170	30.0	40.3	8.1	15.9
TOTAL	1988*	10,285	614,012	456,265	835	1,151	1,071,112	8.1	29.9	6.0	10.4
	1989	10,518	615,089	434,330	830	1,143	1,050,249	7.9	29.3	5.9	10.0
	1990P	10,326	592,824	438,449	809	1,127	1,032,082	7.8	28.7	5.7	10.0

P: Preliminary
(1): Fiscal year
(2): Claims for which less than $100 in medical assistance was provided are not included.
*: Data revised for 1988.

Source: Occupational Injuries and Their Costs, Canada, 1988–1990, Labour Canada 1992

Table 3 - Occupational Injury Costs in Canada 1970-1990

		In thousand of current dollars	
Year	Total Number of Claims	Total Payments	Payments Per Claim
1970	793,670	307,711	0.39
1971	793,535	318,992	0.40
1972	880,454	367,683	0.42
1973	985,640	426,162	0.43
1974	1,047,007	521,396	0.50
1975	988,155	657,291	0.67
1976	1,044,505	774,518	0.74
1977	1,039,650	857,301	0.82
1978	1,071,484	966,655	0.90
1979	1,167,220	1,115,914	0.96
1980	1,216,188	1,355,410	1.11
1981	1,207,618	1,613,228	1.34
1982	1,015,049	1,969,913	1.94
1983	953,885	2,217,947	2.33
1984	1,036,344	2,488,240	2.40
1985	1,075,773	2,731,405	2.54
1986	1,073,813	3,131,723	2.92
1987	999,444	3,406,681	3.41
1988*	1,071,112	3,647,465	3.41
1989	1,050,249	3,836,435	3.65
1990P	1,032,082	4,315,249	4.18

P: Preliminary
*: Data revised for 1988

Source: Occupational Injuries and Their Costs, Canada, 1988-1990, Labour Canada 1992

Indirect costs are more difficult to estimate. Indirect costs include damage to equipment and property, environmental damage, production losses, productivity losses due to changes in job satisfaction, loyalty and other causes, legal expenses, costs of hiring or training replacements, loss of business and goodwill. Bird and Germain (1966) estimated that for every $1 of direct costs, there was $6 to $53 in indirect costs. Pedley (1993) estimated that the costs to Ontario in 1991 yielded a $4.2B in direct costs and $29B to $226B in indirect costs. Labour Canada (1992) estimated the ratio of direct to indirect costs might be closer to one to one. For the United Kingdom, Andrew Deacon quotes this ratio as one to eleven (Deacon 1994). The variation in the ratio of indirect to direct costs arises in the factors considered and in the industries surveyed. Irrespective of the actual number which will of course vary in each individual accident, there is a need to account for these "hidden" costs.

Table 4 summarizes the direct costs for occupational injury by province and territory for the period 1988 to 1990. It is interesting to note that with the surprising exception of Saskatchewan, all other jurisdictions have shown increases in total compensation payments. This is in spite of some provinces such as Quebec and Ontario showing reductions in total claims. Much of this difference depends on the severity of injuries and the compensation policies that exist in different jurisdictions.

On a national level, Table 3 shows a trend of about 7% increase per year in direct costs. As more and more chronic work related illnesses such as work stress are recognized as compensable occupation illnesses, occupational injury costs are likely to increase.

Table 4 – Occupational Injury Cost by Province or Territory, 1988–1990P

(in thousand of current dollars)

Province	Year	Total Claims	Medical Aid	Hospitalization Rehabilitation	Funeral	Pensions	Compensation for Lost Earnings	Total Payments	Payment per Claim
	1988*	18,782	14,192	4,371	8	9,310	26,206	54,087	2.88
NFLD	1989	21,646	11,840	6,655	(3)	2,754	28,231	49,480	2.29
	1990P	21,489	14,203	5,733	(3)	6,057	33,984	59,997	2.79
	1988	4,643	1,354	885	4	2,058	3,304	7,605	1.64
PEI	1989	4,608	1,366	1,138	8	2,643	3,368	8,523	1.85
	1990P	4,843	1,647	1,367	5	3,750	3,643	10,412	2.15
	1988	25,460	11,757	5,466	2	18,064	35,497	70,786	2.78
NS	1989	29,425	20,781	8,945	90*	22,022	58,996	110,834	3.77
	1990P	37,846	15,549	8,357	116*	46,732	38,724	109,388	2.89
	1988**	38,882	13,810	(1)	27	9,621	21,870	45,328	1.17
NB	1989	41,378	14,726	(1)	8	8,507	26,392	49,633	1.20
	1990P	39,921	18,505	(1)	43	16,442	31,729	66,719	1.67
	1988	261,875	69,222	86,257	520	331,162	465,571	952,732	3.64
QUEBEC	1989	251,525	74,650	86,081	589	340,924	505,413	1,007,657	4.01
	1990P	241,391	83,188	105,238	738	348,558	649,657	1,187,379	4.92
	1988	435,371	207,000	215,000	(2)	529,000	677,000	1,628,000	3.74
ONTARIO	1989	414,880	218,000	233,000	(2)	544,000	691,000	1,686,000	4.06
	1990P	390,214	234,000	284,000	(2)	560,000	777,000	1,855,000	4.75
	1988	40,282	12,172	11,352	24	25,765	42,516	91,829	2.28
MANITOBA	1989	39,204	15,193	9,398	21	25,639	46,770	97,021	2.47
	1990P	38,136	16,425	12,727	36	27,983	48,947	106,118	2.78
	1988	35,915	14,730	7,588	(1)	23,702	58,346	104,366	2.91
SASK	1989	33,319	15,358	1,808	(1)	25,367	41,015	83,548	2.51
	1990P	33,126	15,927	1,479	(1)	26,528	37,209	81,143	2.45
	1988**	56,971	51,858	15,833	286	117,886	124,120	309,983	5.44
ALBERTA	1989	55,239	53,793	22,000	240	113,313	125,856	315,202	5.71
	1990P	54,283	70,043	29,700	264	115,285	144,958	360,250	6.64
	1988	147,518	54,913	29,098	737	126,127	159,021	369,896	2.51
BC	1989	153,545	58,468	31,741	969	146,591	173,549	411,318	2.68
	1990P	165,907	68,508	35,798	446	164,287	192,224	461,263	2.78
	1988	2,000	756	39	14	1,098	1,384	3,291	1.65
YUKON	1989	1,822	753	31	4	1,164	1,303	3,255	1.79
	1990P	1,756	544	35	12	1,289	1,528	3,408	1.94
	1988	3,413	818	444	9	6,676	1,615	9,562	2.80
NWT	1989	3,658	618	1,539	11	7,135	4,661	13,964	3.82
	1990P	3,170	768	1,873	3	5,897	5,631	14,172	4.47
	1988**	1,071,112	452,582	376,333	1,631	1,200,469	1,616,450	3,647,465	3.41
TOTAL	1989	1,050,249	485,546	402,336	1,940	1,240,059	1,706,554	3,836,435	3.65
	1990P	1,032,082	539,217	486,327	1,663	1,322,808	1,965,234	4,315,249	4.18

P: Preliminary
(1) Included in "Medical Aid"
(2) Included in "Compensation for Lost Earnings"
(3) Included in "Pensions"
* Estimated
** Data revised for 1988

Source: Occupational Injuries and Their Costs, Canada, 1988–1990, Labour Canada, 1992

Remaining at the macro-level, another troublesome issue is the unfunded liability for benefits to be paid in the future. Table 5 illustrates the growth over a 10-year period of this liability in Ontario. The present estimates in 1993 of the unfunded liability are $11.5B for Ontario alone.

Turning to the costs of accidents to an individual company's bottom line, Table 6 illustrates the increase in sales required to offset the costs of injuries at different profit margins. The chart is based on one prepared by the Minerva Educational Institute, Xavier University, Cincinnati. For example, at an 8% profit margin, an accident costing $50K will mean an additional $625,000 in sales will be required to maintain the profit margin. Managing health and safety issues on the job might be a more effective way of protecting the company's bottom line and it leads to the central question of this research: Are tomorrow's managers being adequately prepared to deal with this complex and costly problem?

Legal liability

Management of occupational health and safety is clearly required to reduce the risk of death and injury in the workplace, to improve profitability in the longer term, and as Sells illustrated, even to ensure the survivability of an industry (Sells 1994). These management principles and techniques can be taught and practiced; some are even codified in occupational health and safety legislation. These laws provide further incentives to managing occupational health and safety.

Table 5 – Ontario Workers' Compensation Board Financial Statistics (1982–1991)

($ millions)

	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982
Revenues										
Assessment	2,505	2,596	2,678	2,377	2,092	1,737	1,424	1,160	882	781
Investment	450	440	409	316	272	217	186	176	167	170
	2,955	3,036	3,087	2,693	2,364	1,954	1,610	1,336	1,049	951
Expenses										
Benefits paid	2,342	2,059	1,782	1,624	1,463	1,246	1,099	979	860	726
Net increase in benefits liability	1,040	1,220	2,117	1,443	1,096	1,304	2,990	880	640	700
Transfers to Injured Workers' Retirement Fund	2	–	–	–	–	–	–	–	–	–
	3,784	3,279	3,899	3,067	2,559	2,550	4,089	1,859	1,500	1,426
Administrative and other	343	323	281	259	267	214	185	155	140	131
Legislated obligations	87	53	26	26	22	16	7	7	6	6
	4,214	3,655	4,206	3,352	2,848	2,780	4,281	2,021	1,646	1,563
Excess of Expenses over Revenues	(1,259)	(619)	(1,119)	(659)	(484)	(826)	(2,671)	(685)	(597)	(612)
Unfunded Liability, beginning of year	(9,088)	(8,469)	(7,350)	(6,691)	(6,207)	(5,381)	(2,710)	(2,025)	(1,428)	(816)
Unfunded Liability, end of year	(10,347)	(90,888)	(8,469)	(7,350)	(6,691)	(6,207)	(5,381)	(2,710)	(2,025)	(1,428)

Source: Pedley (1993)

Table 6 - Rate of Return Calculation for Safety and Health

Accident Costs (Dollars)	Sales Necessary to Offset the Cost of Injuries at Different Profit Margins				
	Company Profit Margin				
	2%	4%	6%	8%	10%
$ 50,000	2,500,000	1,250,000	833,000	625,000	500,000
100,000	5,000,000	2,500,000	1,667,000	1,250,000	1,000,000
250,000	12,500,000	6,250,000	4,167,000	3,125,000	2,500,000
500,000	25,000,000	12,500,000	8,333,000	6,250,000	5,000,000
1 million	50,000,000	25,000,000	16,667,000	12,500,000	10,000,000
10 million	500,000,000	250,000,000	166,667,000	125,000,000	100,000,000
20 million	1,000,000,000	500,000,000	333,333,000	250,000,000	200,000,000

Source: Minerva Educational Institute, Xavier University, Cincinnati

To provide deterrents and to reflect society's aversion to violations of Occupational Health and Safety laws, various provinces have increased their penalties in recent years. In Ontario, the liabilities to companies were raised to $500,000 in 1990 from $25,000 for each charge. For individuals, the maximum fine is now $25,000 or one year in jail. Also, for the first time, directors of companies can be held personally liable. In 1994, in the first prosecution of a company director, under the new legislation, a director was fined $10,000 along with the company at $50,000 and a supervisor at $10,000. The accident was wholly preventable, involving a worker in a confined space who died of burns to ninety percent of his body.

While more prevalent in the United States, product liability also carries a considerable cost. In the United States, over 500,000 cases are filed annually, with average awards quoted at $116,000. (Professional Safety 1987).

Principles and concepts of managing health and safety

In his book, Managing for Performance Perfection (1990), W.C. Pope makes a distinction between health and safety technology and health and safety management. For too long, occupational health and safety was the domain of destructive myths such as that most accidents are the worker's own fault or a result of a manager's maliciousness, or that accidents are acts of God. For too long, solutions to occupational health and safety were the domain of technocrats: replacing the human factor by a more reliable machine or introducing technology such as ear plugs or personal protective equipment to limit workplace risks.

More recently, authors such as Bill Sells have recognized that what is required is a more disciplined application of safety management in all aspects of the business: design, production, quality assurance, marketing, human resources and sales (Sells 1994).

In the United States, under the sponsorship of the National Institute for Occupational Health and Safety (NIOSH), an organization called Project Minerva (who's name is taken from the Roman Goddess of Wisdom) was set up to encourage schools of business to integrate occupational health and safety materials into existing undergraduate and graduate curricula. This represented a management approach to occupational health and safety (Talty and Walters 1987).

Twenty-five universities agreed to participate in the program which involved development of lecture modules; case studies; readings for managers; videotapes; student research projects. Progress is reported to be slow but steady.

In Canada, a similar organization, "Project Minerva Canada", has been initiated. With financial support from the corporate sector and a vigorous Board of Directors representing industry, government, safety associations and academia, Project Minerva Canada was founded in 1992 with the following objectives:

> "To encourage understanding in academia and industry of occupational health and safety as a management - not technology - issue; to integrate the concepts of occupational health and safety management into the existing curricula of business and engineering schools; to produce graduates and managers who recognize the necessity of managing occupational health and safety as they would any other business function - for the benefit of industry and commerce; to prepare present and future managers for the social and economic demands of operating a successful business environment in the 21st century".

In September 1993, Project Minerva in Ontario in conjunction with Labour Canada, the Ontario Ministry of Labour, Industrial Accident Prevention Association of Ontario, Dupont Canada Inc., Alcan and Dacon Corp. Ltd. held a workshop at Queen's University. Forty-five delegates attended from various colleges and universities, industry and government. The workshop yielded many useful insights. In particular, the assembly addressed various methods of integrating occupational health and safety in curriculum at Universities. Figure 1 outlines some of the suggested methods for integration of occupational health and safety into business schools' curriculum.

As well, workshop participants acknowledged that no baseline data was available in Canada for what if any, occupational health and safety courses or components in other courses were being delivered in Canadian universities.

To establish that baseline, a survey of Canadian schools of business would be needed. The aim of this research is to survey Canadian Schools of Business to determine the extent to which students are receiving any education on the management of occupational health and safety.

Methods of Integration into Curriculum
Universities

* Create a lecture series organized by Project Minerva committees.

* Development of Case Studies.
  Incentive: to award $3,000 to $5,000 per case.

* An integrated approach is suggested versus the establishment of separate Occupational Health and Safety subjects.

* To include a Case Study on managing a fatality investigation. Other topics include cases on operations management, law, cost control, quality.

* Integrate Occupational Health and Safety into associated organizations. For example: Canadian Management Association (to include within their curriculum).

* Use of videos.

* Use of Role Play.

* To offer continuing education opportunities with credits for mature students.

* A plan must be established to enhance the knowledge and expertise of Faculty in Occupational Health and Safety issues.

* To develop multi-issue case studies that demonstrate diversity of management.

* Case studies should represent authentic situations, with practical applications of Occupational Health and Safety principles.

* An opportunity exists in co-operative programs. Student assignments can be used in collaboration with their host organizations.

* To influence authors and publishers of Management Texts to integrate Occupational Health and Safety principles into books. For example: Case Studies.

* To influence "High Profile" Canadian schools to participate in Project Minerva activities. This includes marketing/promoting program to Chairs and Department Deans.

* Utilize visiting lecturers/speakers.

* Use of sabbatical internships with publication privileges.

* Sponsorship of academics internship by companies.

* To promote successful schools by providing Canadian awards for excellence.

* Sponsor a Canadian Case Study competition.

Figure 1 - Project Minerva Workshop, Queen's University 1993

Survey of Canadian Schools of Business

Survey methodology

A survey questionnaire was drawn up (see Figure 2). It was designed to be administered over the telephone in approximately four to five minutes in the hope that this would maximize the response rate.

The 1993-94 Universities Telephone Directory published by the Association of Universities and Colleges of Canada was used to locate the offices of Business Schools, Administration Programs, Management Programs or whatever program came close to the meaning of a "School of Business" at each Canadian University. These schools would be more likely to produce general managers for the private and public sector.

Only full-time faculties were surveyed as it was assumed that they would be likely more knowledgeable of the institution's business program than would part-time lecturers.

The questionnaire was set-up to inquire about undergraduate and MBA programs, but not PhD programs or other graduate programs which would likely not be pursued by students with careers aimed at the private or public sectors as general managers.

IS OCCUPATIONAL HEALTH AND SAFETY
A BLIND SPOT IN TEACHING
AT CANADIAN SCHOOLS OF BUSINESS

Date:_____ Name:_____

SURVEY

Tel. #:_____ Position:_____

Fax #:_____ Full time Faculty: ○ YES ○ NO

University:_____

1 a) Does your institution offer a specific course on Occupational Health and Safety?

Undergraduate Program

○ Yes ○ No

b) If yes, is it compulsory

○ Yes ○ No

c) If yes, please list courses

_____
_____
_____

d) What textbook is used?

_____

MBA Program

○ Yes ○ No

b) If yes, is it compulsory?

○ Yes ○ No

c) If yes, please list courses

_____
_____
_____

d) What textbook is used?

_____

2 a) If there are no specific courses, does Occupational Health and Safety form part of your human resources management course?

○ Yes ○ No

b) If yes, what percentage of the course? _____

c) If yes, what textbooks do you use?

_____
_____

d) What five Journals do you use or recommend to your students?

_____ _____
_____ _____
_____

Figure 2 - Survey Questionnaire

The first set of questions deal with courses exclusively based on occupational health and safety.

The second set of questions dealt with components within Human Resource Management courses: percentage of the course; textbooks used. A final question relating to the type of journals used by instructors or recommended by them to students. This was deemed important insofar as if the sources the students are reading do not deal with occupational health and safety, their exposure to this subject would remain limited.

Results

All forty-two Canadian universities with schools of business participated in the study. They are listed by province in Table 7.

Most respondents indicated considerable interest in the subject. None refused to participate. Many requested copies of the study, further information on lecture materials related to occupational health and safety.

Specific Courses on Occupational Health and Safety

The first question was "Does your institution offer a specific course on occupational health and safety?" The answer: no undergraduate or MBA programs offer mandatory courses exclusively on the management of occupational health and safety.

Only five schools of business indicated their students may take electives in courses on occupational health and safety offered by Departments of Engineering or Schools of Nursing or Medicine or by the School itself.

Thirty-seven of the forty-two schools of business or 88% of the schools surveyed acknowledged no elective or mandatory courses specifically addressing occupational health and safety.

Table 7 - Canadian Schools of Business Participating in the Survey

University	Faculty or Department Contacted
Newfoundland	
Memorial University	Business Administration
Prince Edward Island	
University of Prince Edward Island	Business Administration
Nova Scotia	
Acadia University	Business Administration
Dalhousie University	Business Administration
Saint Francis Xavier University	Business Administration
Saint Mary's University	Commerce
	Business Administration
New Brunswick	
University of Moncton	Administration
Mount Allison University	Commerce
University of New Brunswick	Administration
Quebec	
Bishop's University	Business Administration
Concordia University	Commercial and Administration
Université Laval	Management
McGill University	Management
Université de Montréal	Ecole des hautes etudes commerciales
Université du Québec	Sciences de la gestion
Université de Sherbrooke	Administration
Ontario	
Brock University	Business
Carleton University	Business
Lakehead University	Business Administration
Laurentian University	Commerce and Administration
McMaster University	Business
University of Ottawa	Administration
Queen's University	Business
Ryerson Polytechnical Institute	Business

Table 7 - Continued

University of Toronto	Management
Trent University	Administrative and Policies Studies
University of Waterloo	Management
University of Western Ontario	Business Administration
Sir Wilfrid Laurier University	Business
University of Windsor	Business Administration
York University	Administrative Studies
Saskatchewan	
University of Regina	Administration
University of Saskatchewan	Commerce
Manitoba	
University of Manitoba	Management
Brandon University	Administration and Education
Alberta	
Athabaska University	Administrative Studies
University of Alberta	Business
University of Calgary	Management
British Columbia	
University of British Columbia	Commerce and Business Administration
Simon Fraser University	Business Administration
University of Victoria	Business

Human Resource Courses with Occupational Health and Safety Content

The responses to Question 2 which was: "If there are no specific courses, does occupational health and safety form part of your human resource management course?" are found in Table 8.

Table 8 - Percentage of Human Resources Course dealing with Occupational Health and Safety

% of Course	Number of Schools
0	10
3 - 5	2
5%	4
8%	4
10%	19
15%	3

It should be noted that ten percent of one course equates to about three hours.

Journals Used or Recommended in Human Resource Management Courses

Journals used or recommended by respondents are listed in Table 9. Many indicated that CD-ROM's were available in libraries available to students through a variety of journals and publications available on CD-ROM.

Table 9 - Journal Used or Recommended by Instructors in Human Resource Management Courses

Personnel Management
Industrial Labour Relations
Industrial Relations
Canadian Personnel
Industrual Relations Labour Laws
Academy of Management Journal
Industrial Relations Review
Personnel Psychology
Revere Relation Industrielles (Université Laval)
CSST Publication: Prévention au travail
Journal of Occupational Psychology
Journal of Occupational Behaviour
Harvard Business Review
Organizational Dynamics
Human Resource Reporter
ASAC Review
Gestion (Université Laval)
Fortune
Business Week

The journals most frequently cited, the total articles published in three journals and the number of articles mentioning occupational health and safety using key words: accidents, compensation, fatalities, health hazards, safety, injuries, working conditions are listed in Table 10. Table 10 shows that the journal Labour Law has the greatest number of occupational health and safety related articles (2%) followed by Personnel Management at 1.2%. Table 11 compares the number of occupational health and safety articles in the period 1987-1989 to the period 1989 to March 1994.

Analysis and Conclusions

Discussion on results

The survey indicated that no school of business at a Canadian university had a mandatory course either at the undergraduate or MBA levels exclusively structured around occupational health and safety. Five universities did offer courses with a substantial component. In the case of three of these, their courses were centered around legislative requirements rather than management principles of occupational health and safety. Two universities did offer electives in courses focusing on occupational health and safety.

We will now turn to what was provided in human resources management courses. If a business program has any management of occupational health and safety content, it is arguably more likely to exist in a human resource management course than in any other. Other courses such as industrial relations or courses on equity could also contain modules

Table 10 - Analysis of Journals Cited in Survey

Journal	Total Articles (1987-1994)	Articles Citing H&S	Art. Citing H&S
Personnel Psychology	219	0	0
Academy of Management Journal	335	2	.6
Industrial Relations	592	3	.5
Personnel Management	1171	14	1.2
Industrial & Labour Relations Review	260	2	.7
Labour Law	609	12	2.0
Canadian Personnel Industrial Relations	unavailable as of 1981		

Table 11 - Analysis of Journals Cited in Study 1987-89 versus 1990-1994

	1987-1989			1990-1994		
	Total Art.	#H&S Art.	Avg. Art./yr	Total Art.	#H&S Art.	Avg. Art./yr
Pers. Psych.	89	0	0	114	0	0
Academy of Mgt. Journal	139	2	1	196	0	0
Industrial Relations	264	1	.5	328	2	6
Personnel Mgt.	377	4	2	794	10	3.3
Industrial & Labour Relations Review	106	2	1	260	2	.7
Labour Law	261	8	4	348	4	1.3

related to occupational health and safety. These however would likely emphasize the legal requirements and not the management requirements for the subject.

Similarly, occupational health and safety courses provided by Schools of Engineering would likely emphasize the technology employed: design of ventilation systems or sampling techniques and again not the management of occupational health and safety. Schools of Nursing or Medicine would likely focus their courses on occupational health and safety, on epidemiology or on the health effects of workplace activities.

Ten universities or twenty-three percent of respondents indicated no occupational health and safety content, the rest indicated three to fifteen percent of one course contained occupational health and safety. This translates from one to four hours of instruction.

And what of the textbooks used on human resource management courses? Four of the ten textbooks commonly cited do contain chapters on the subject. The most popular of textbooks was "Canadian Personnel and Human Resource Management (1990)" which has fifteen pages of a eight-hundred and fifty-four page text or 1.8% dedicated to occupational health and safety. The French language textbook "Gestion stratégique et opérationelle des resource humaines" by Petit et al has thirty pages of seven-hundred and seventy-nine or 3.9%. Again, we can conclude that even under the most optimal conditions, students are not being exposed to appropriate material on the management of occupational health and safety.

Turning to the journals being used, an analysis of these was undertaken using a computer search on CD-ROM at the Douglas and Law Libraries at Queen's University. Publications from January 1987 to 1994 were available. Of the publications cited in Table 10, only one was not on the database: "Canadian Personnel Industrial Relations" (it has apparently ceased publication in 1981).

Table 11 compares two periods 1987-1989 and 1990-1994 to see if there was some trend with time in the number of published articles on occupational health and safety. Could the number of articles be changing? Clearly, there is no increase in numbers of article. In fact, in the journal with the most health and safety articles: Labour Law there are fewer articles per year in the period 1990-1994 than in the period 1987-89. Again, we can see that students in Canadian business schools are not being given appropriate information to prepared them in managing health and safety in Canadian workplaces.

We've seen that, because of serious omissions in course content, in the textbooks used, and in the journals being referred to, the majority of business students in Canada will not be exposed to or become aware of the issue of occupational health and safety or of the fact that occupational health and safety is a management issue.

Limitation of the study

This study is the first of its kind in Canada and hopefully will encourage others to extend its parameters to see why a subject with such managerial and economic significance is given so little attention. One possible explanation is that very little academic resources are available to instructors,

such as case studies or materials that focus not on the specifics of legislation but on the managerial requirements to prevent accidents and injuries in the workplace. Another interesting aspect that should be studied is the attitudes of instructors in schools of business. Do they believe that occupational health and safety can be managed?

It was not so long ago that subjects such as managing diversity were seen as inappropriate for a school of business. And yet, a subject that for so many years was considered too "soft" to be included in a business school curriculum has now gained wide acceptance, even at the MBA level.

So it may be that the proper marketing of the importance of occupational health and safety is what is lacking. It's comparative value to such subjects as managing diversity may also yield useful data.

Each institution provides its own unique mix of courses. It may be that there are elements of occupational health and safety contained in courses such as industrial relations, production management, or in quantitative analysis or micro-economics. A detailed investigation institution by institution, would yield further data to support this report's conclusions or to refute them. It is likely however, that none of these focus on managing occupational health and safety.

Conclusions

While the impact of occupational health and safety is significant in human and economic terms and a significant legal liability exists on a manager, business schools are not yet providing courses to deal with this reality.

While it may not be possible to encourage specific courses in management of occupational health and safety in all universities all Canada's academic institutions should offer modules within human resource management courses and encourage authors with a business management perspective to write textbooks to support courses at least as electives at the undergraduate level.

In MBA and undergraduate programs, while specific courses on occupational health and safety may not be mandatory, a significant portion of the undergraduate and graduate programs should expose students to occupational health and safety and particular instruction on how it might be managed in the workplace. While it is difficult to determine how many hours this would be, the author would suggest a course equivalent would be appropriate, integrated within such courses as human resources management, industrial relations, production management and strategic management.

The survey reveals a significant "Blind Spot" in teaching at Canadian schools of business that must be rectified if Canadian managers are to be equipped to handle the reality of today's workplaces for their benefit and for the country's social and economic well-being.

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